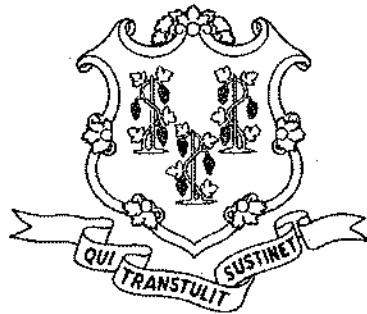


The State of Connecticut

*Basic Building Code/1978*



**EFFECTIVE SEPTEMBER 1, 1981**

①

②

③

④

⑤

⑥

⑦

# ***The BOCA Basic Building Code/1978***

Model building regulations for the protection  
of public health, safety and welfare.

**SEVENTH EDITION**

As recommended and maintained  
by the active membership of



**BUILDING OFFICIALS & CODE ADMINISTRATORS  
INTERNATIONAL, INC.**

17926 South Halsted • Homewood, Illinois 60430  
Founded in 1915 312/799-2300

Copyright, 1978 Building Officials and Code Administrators International, Inc.

*BOCA Basic Building Code/1978, copyright 1978, Building Officials and Code Administrators International, Inc. Published by arrangements with author. All rights reserved. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or by an information storage and retrieval system, without advance permission in writing from Building Officials and Code Administrators International, Inc. For information, address: BOCA International Inc., 17926 South Halsted Street, Homewood, Illinois 60430.*

Printed in the United States of America  
by the Interstate Printers and Publishers, Inc.  
Danville, Illinois  
First printing: May, 1981



## PREFACE

The *Basic Building Code*, now in its 28th year, states regulations in terms of measured performance rather than in rigid specification of materials and, in this way makes possible the acceptance of new materials and methods of construction which can be evaluated by accepted standards, without the necessity of adopting cumbersome amendments for each variable condition.

By presenting the purposes to be accomplished rather than the method to be followed, the *Basic Building Code* allows the designer the widest possible freedom and does not hamper development. It accepts nationally recognized standards as the criteria for evaluation of minimum safe practice, or for determining the performance of materials or systems of construction. The application of these standards is stated in the text of the code requirements, and the standards are listed and identified in the appendices of the code, making it practical and convenient to update any standard as it is revised or reissued by the sponsoring agency.

This seventh edition presents the code as originally issued, with changes approved through 1977, and with certain editorial changes made to maintain the sequence of the code, to standardize the format of all 1978 *Basic Codes*, and to update the reference to standards.

This code, as are the other codes published by Building Officials and Code Administrators International, is kept up to date through the review of changes proposed by code enforcement officials, industry and design professionals, and other interested persons and organizations. Proposed changes are discussed in a public hearing, carefully reviewed by committees, and acted upon by code enforcement officials in an open meeting of the organization. Those changes approved are published annually in supplements to the code, in convenient form for adoption by local governments. A new edition such as this is then prepared every three years, and contains all approved changes since the previous edition.

Changes as described above do not just happen. This *Basic Building Code* is dedicated to the hundreds of code enforcement officials from throughout the United States and Canada; to the engineers, architects, technicians, builders, contractors, material producers, trade associations and others who voluntarily collaborated in its preparation; and to the members of the code changes committees and their subcommittees, who participated in the important work of keeping the code abreast of new developments in construction technology. These men have given unstintingly of their time and their talents to produce and maintain this performance-type code, which, in its relatively short history, has been widely recognized, highly respected, and adopted by countless communities.

This edition of the *Basic Building Code* includes a new article setting forth energy conservation requirements for building construction (see Article 20,

## CONNECTICUT BASIC BUILDING CODE/1978

"Energy Conservation") which deal specifically with exterior building envelope requirements. Energy conservation provisions are also contained in Article 15 for electrical requirements. All energy conservation provisions in the BOCA *Basic Code* series are based upon requirements of the ASHRAE Standard 90-75.

BOCA energy conservation provisions are to be found in the *Basic Plumbing* and *Basic Mechanical Codes* as well as in the *Basic Building Code*. The *Basic Code* provisions for energy conservation are also separately compiled in a single document entitled the BOCA *Basic Energy Conservation Code*.

Use of the *Basic Building Code* or any of the other BOCA *Basic Codes* within a government jurisdiction may be accomplished only through *adoption by reference* in a proceeding of the jurisdiction's board, council, or other authoritative governing body. At the time of adoption, jurisdictions should insert the appropriate information in those passages of a code requiring specific local information, such as the date of adoption, name of adopting jurisdiction, dollar amount of fines and permit costs, etc. These passages are shown in bracketed italics in the codes, and are also listed on the Adoption Information page of each code for which the local adoption information is required. In addition, jurisdictions may amend or modify *Basic Code* provisions to accomplish desired local requirements, although use of the codes in substantially original and standardized form is encouraged by the BOCA organization. Sample drafts of adopting ordinances for each of the BOCA *Basic Codes* are available free of charge upon request to BOCA International.

**STATE OF CONNECTICUT  
CONNECTICUT BASIC BUILDING CODE  
REVISED 1978**

The State Building Inspector and the State Building Code Standards Committee in accordance with the provisions of Section 19-395 et seq., of the General Statutes of Connecticut effective October 1, 1970, (P.A. 443) and with the approval of the Public Works Commissioner adopted the Connecticut Basic Building Code for the State of Connecticut, effective September 1, 1971.

The State Building Inspector and the State Building Code Standards Committee in accordance with the provisions of Section 19-395 et seq., of the General Statutes of Connecticut effective January 1, 1979 (P.A. 77-614 and P.A. 78-303) and with the approval of the Commissioner of Public Safety have adopted this revised Connecticut Basic Building Code for the State of Connecticut effective September 1, 1981.

This revised Connecticut Basic Building Code incorporates portions of the *BOCA Basic Building Code/1978* published by the Building Officials and Code Administrators International, Inc., 17926 South Halsted Street, Homewood, Illinois, 60430. Specifically, the revised Connecticut Basic Building Code incorporates verbatim many of the provisions of the BOCA Code and contains amendments thereto as well as additional provisions; the amendments and additions are identified in the text by a vertical line in the margin.

Under the official codification of Connecticut State Regulations, each section number of the Connecticut Basic Building Code will begin with the designation "19-395-" which will be succeeded by the section numbers referred to herein.

**NOTE TO CBBB USERS**

The vertical lines in the margins denote sections of the code which have been changed by State of Connecticut amendment to the *BOCA Basic Building Code/1978*.

10

11

12

13

14

# TABLE OF CONTENTS

## Article 1 ADMINISTRATION AND ENFORCEMENT 1

### Section

- \*100.0 Scope
- \*101.0 Applicability
- 102.0 Ordinary repairs
- \*103.0 Installation of service equipment
- 104.0 Maintenance
- \*105.0 Change in existing use
- \*106.0 Existing structures
- \*107.0 Department of building inspection
- \*108.0 Duties and powers of building official
- \*109.0 Approval
- \*110.0 Inspection
- \*111.0 Right of entry
- \*112.0 Application for permit
- \*113.0 Permits
- 114.0 Conditions of permit
- 115.0 Demolition of structures
- 116.0 Moved structures
- \*117.0 Fees
- \*118.0 Volume computation
- \*119.0 Certificate of use and occupancy
- 120.0 Posting structures
- \*121.0 Violations
- \*122.0 Stop-work order
- \*123.0 Unsafe structures
- 124.0 Emergency measures
- \*125.0 Board of survey
- \*126.0 Board of appeals
- \*127.0 Construction control
- 128.0 Validity
- \*129.0 Special requirements for buildings funded by the State

## Article 2 DEFINITIONS AND CLASSIFICATIONS 29

- \*200.0 General
- \*201.0 General definitions
- \*202.0 Use group classification
- \*203.0 Use group A, assembly buildings
- \*204.0 Use group B, business buildings
- \*205.0 Use group F, factory and industrial buildings
- \*206.0 Use group H, high hazard buildings
- \*207.0 Use group I, institutional buildings
- \*208.0 Use group M, mercantile buildings
- \*209.0 Use group R, residential buildings
- \*210.0 Use group S, storage buildings
- \*211.0 Use group T, temporary and miscellaneous uses
- 212.0 Doubtful use classification
- 213.0 Mixed use and occupancy
- \*214.0 Construction classification
- 215.0 Type 1, fireproof construction
- 216.0 Type 2, noncombustible construction
- 217.0 Type 3, exterior masonry wall construction
- 218.0 Type 4, frame construction

\* Denotes section with State of Connecticut amendment(s)

**Article 3 GENERAL BUILDING LIMITATIONS**

89

Section

- \*300.0 General
- \*301.0 Fire limits
- \*302.0 Restrictions within the fire limits
- \*303.0 Restrictions outside fire limits
- 304.0 Existing buildings
- 305.0 General area and height limitations
- 306.0 Area exceptions
- 307.0 Unlimited areas
- 308.0 Height exceptions
- \*309.0 Street encroachments
- 310.0 Permissible street projections
- 311.0 Permissible yard and court encroachments
- 312.0 Special and temporary projections
- 313.0 Awnings and canopies
- 314.0 Temporary structures
- \*315.0 Physically handicapped and aged
- \*316.0 Buildings under the urban homesteading law

**Article 4 SPECIAL USE AND  
OCCUPANCY REQUIREMENTS**

115

- \*400.0 General
- 401.0 Explosion hazards
- \*402.0 Volatile flammables
- \*403.0 Inspection of hazardous uses and places of assembly
- \*404.0 Special permits and certificates of fitness
- 405.0 Existing buildings
- \*406.0 Liquefied petroleum gases
- \*407.0 Pyroxylin plastics
- \*408.0 Use and storage of flammable film
- 409.0 Use and storage of combustible fibers
- 410.0 Combustible dusts, grain processing and storage
- 411.0 Paint spraying and spray booths
- \*412.0 Dry cleaning establishments
- 413.0 Private garages
- 414.0 Public garages
- 415.0 Motor fuel service stations
- 416.0 Motor vehicle repair shops
- \*417.0 Places of public assembly
- \*418.0 Reserved
- 419.0 Amusement parks
- 420.0 Stadiums and grandstands
- \*421.0 Drive-in motion picture theatres
- \*422.0 Tents, air-supported structures and other temporary structures
- \*423.0 Parking lots
- \*424.0 Mobile units
- 425.0 Motels
- 426.0 Radio and television towers
- 427.0 Radio and television antennae
- \*428.0 Swimming pools
- 429.0 Open parking structures

\* Denotes section with State of Connecticut amendment(s).

**Article 4—continued**

- Section
- 430.0 Fallout shelters
- \*431.0 High rise buildings
- \*432.0 Covered malls
- \*433.0 Child day care centers
- \*434.0 Group day care homes

**Article 5 LIGHT, VENTILATION AND SOUND TRANSMISSION CONTROL**

159

- 500.0 General
- \*501.0 Plans and specifications
- 502.0 Standards of natural light
- \*503.0 Standards of natural ventilation
- \*504.0 Artificial light and ventilation
- \*505.0 Existing buildings
- \*506.0 Natural lighting and ventilation of rooms
- \*507.0 Lighting and venting of special spaces
- \*508.0 Basements and cellars
- \*509.0 Business and work rooms
- 510.0 Assembly rooms
- 511.0 Rooms of institutional buildings
- \*512.0 Bath and toilet rooms
- \*513.0 Stairways and exitways
- \*514.0 Required fresh air supply
- \*515.0 Reserved
- 516.0 Courts
- \*517.0 Reserved
- \*518.0 Obstruction of courts and yards
- 519.0 Fire emergency ventilating system
- 520.0 Fire ventilation of open wells
- \*521.0 Window cleaning safeguards
- 522.0 Sound transmission control in residential buildings

**Article 6 MEANS OF EGRESS**

171

- \*600.0 General
- 601.0 Plans and specifications
- 602.0 Use and occupancy requirements
- 603.0 Air-conditioned buildings
- 604.0 Existing buildings
- 605.0 Maintenance of exitways
- \*606.0 Occupancy load
- \*607.0 Types and location of exitways
- \*608.0 Capacity of exits
- \*609.0 Number of exitways
- \*610.0 Exitway access passageways and corridors
- 611.0 Grade passageways and lobbies used as an exitway element
- \*612.0 Means of egress doorways
- \*613.0 Revolving doors
- \*614.0 Horizontal exits
- \*615.0 Egress ramps
- \*616.0 Interior exitway stairways
- 617.0 Access to roof

\* Denotes section with State of Connecticut amendment(s).

CONNECTICUT BASIC BUILDING CODE/1978

**Article 6—continued**

- Section
- \*618.0 Smokeproof enclosures
- \*619.0 Exterior exitway stairways
- 620.0 Moving exitway stairways
- \*621.0 Fire escapes
- \*622.0 Staircases
- \*623.0 Exit signs and lights
- \*624.0 Means of egress lighting
- \*625.0 Hazards to means of egress
- \*626.0 Aisles and seats

**Article 7 STRUCTURAL AND FOUNDATION  
LOADS AND STRESSES**

203

- 700.0 General
- 701.0 Design safe load
- 702.0 Test safe load
- 703.0 Design live load
- 704.0 Design dead load
- \*705.0 Existing buildings
- \*706.0 Uniformly distributed live loads
- 707.0 Concentrated loads
- 708.0 Impact loads
- \*709.0 Special loads
- \*710.0 Roof loads
- \*711.0 Snow load
- \*712.0 Wind load
- 713.0 Wind on vertical surfaces
- \*714.0 Wind on inclined surfaces
- 715.0 Wind loads on signs, tank and radio towers and chimneys
- \*716.0 Earthquake load
- 717.0 Combination of loads
- 718.0 Live load reduction
- 719.0 Allowable working stresses
- 720.0 Bearing value of soils
- \*721.0 Foundation investigations
- 722.0 Soil test procedure
- 723.0 Allowable foundation loads
- \*724.0 Depth of footings
- 725.0 Footing design
- 726.0 Timber footings, wood foundations
- 727.0 Steel grillages
- \*728.0 Concrete footings
- 729.0 Masonry unit footings
- 730.0 Mat, raft and float foundations
- 731.0 Pier foundations
- 732.0 Pile foundations
- 733.0 Corrosion protection
- \*734.0 Allowable pile loads
- 735.0 Timber piles
- 736.0 Precast concrete piles
- 737.0 Cast-in-place concrete piles
- 738.0 Steel pipe and tapered tubular piles
- 739.0 Caissons

\* Denotes section with State of Connecticut amendment(s).



**Article 7—continued**

- Section  
 740.0 Structural steel piles  
 741.0 Composite piles  
 742.0 Special piles and caissons  
 \*743.0 Structures in special flood hazard areas

**Article 8 Part A MATERIALS AND TESTS**

237

- 800.0 General  
 801.0 Basic classification of construction materials  
 \*802.0 Tests  
 803.0 Conditions of acceptance  
 \*804.0 Approvals  
 805.0 Masonry construction units  
 806.0 Brick units  
 807.0 Structural clay tile units  
 808.0 Glazed masonry units  
 \*809.0 Concrete units  
 810.0 Gypsum units  
 811.0 Structural glass block units  
 812.0 Architectural terra cotta  
 813.0 Natural stone  
 814.0 Cast stone  
 815.0 Mortar for masonry  
 816.0 Concrete aggregates  
 817.0 Ready-mix concrete  
 818.0 Structural wood glues  
 819.0 Interior lathing and plastering  
 820.0 Exterior lathing and stucco  
 821.0 Plastering materials  
 822.0 Plaster bases  
 823.0 Fiber boards  
 824.0 Plywood  
 825.0 Wallboards and sheathing

**Article 8 Part B STEEL, MASONRY, CONCRETE,  
 GYPSUM AND LUMBER CONSTRUCTION**

257

- \*826.0 Structural steel construction  
 827.0 Formed steel construction  
 828.0 Steel joist construction  
 829.0 Reinforcing steel  
 830.0 Cast steel construction  
 831.0 Cast iron construction  
 832.0 Special steels  
 833.0 Light weight metal alloys  
 \*834.0 Masonry wall construction -  
 835.0 Bonding of walls  
 836.0 Lateral bracing of walls  
 837.0 Chases and recesses in bearing walls  
 838.0 Corbeled and projected masonry  
 839.0 Bearing on hollow unit walls  
 840.0 Plain concrete

\* Denotes section with State of Connecticut amendment(s).

CONNECTICUT BASIC BUILDING CODE/1978

Article 8—continued

- Section
- 841.0 Reinforced concrete
  - \*842.0 Controlled concrete
  - 843.0 Ordinary concrete
  - 844.0 Structural cinder concrete
  - 845.0 Short span floor filling
  - 846.0 Concrete-filled pipe columns
  - 847.0 Pneumatic concrete
  - 848.0 Minimum concrete dimensions
  - 849.0 Reinforced gypsum concrete
  - 850.0 Reinforced brickwork
  - 851.0 Reinforced hollow block construction
  - 852.0 Lumber and timber construction
  - 853.0 Heavy timber type construction
  - \*854.0 Wood frame construction
  - 855.0 Stress skin panels
  - 856.0 Structural glued laminated timber and built-up wood construction

Article 8 Part C BUILDING ENCLOSURES,  
WALLS AND WALL THICKNESS

279

- \*857.0 Enclosure walls
- 858.0 Protection of wall openings
- 859.0 Fire access panels
- 860.0 Structural glass block walls
- 861.0 Wall facings and veneers
- 862.0 Structural glass veneers
- 863.0 Thin stone and tile veneers
- \*864.0 Metal veneers
- 865.0 Plastic veneers
- 866.0 Thickness of solid masonry walls
- 867.0 Thickness of panel walls
- 868.0 Parapet walls
- 869.0 Foundation walls
- 870.0 Retaining walls
- 871.0 Isolated piers
- \*872.0 Waterproofing and floodproofing
- 873.0 Ratproofing
- \*874.0 Protection against decay and termites
- 875.0 Fire protection and firestopping
- 876.0 Thermal insulating materials
- \*877.0 Safety devices

Article 9 FIRERESISTIVE CONSTRUCTION  
REQUIREMENTS

299

- 900.0 General
- 901.0 Plans and specifications
- 902.0 Fire hazard classification
- \*903.0 Fireresistance tests
- 904.0 Flameresistance tests
- \*905.0 Special fireresistive requirements

---

\* Denotes section with State of Connecticut amendment(s).

**Article 9—continued**

- Section
- \*906.0 Exterior walls
- 907.0 Fire walls and party walls
- 908.0 Fire wall openings
- \*909.0 Fire separation walls
- 910.0 Vertical shafts
- 911.0 Fire-resistance of structural members
- \*912.0 Fire-resistance rated floor/roof-ceiling assemblies
- \*913.0 Roof construction
- 914.0 Exterior opening protectives
- \*915.0 Fire doors
- 916.0 Fire windows and shutters
- \*917.0 Wired glass
- 918.0 Fire-resistive requirements for plaster
- 919.0 Firestopping
- \*920.0 Interior finish and trim
- 921.0 Application of interior finish
- 922.0 Combustible materials permitted in floor construction of Type 1 and Type 2 buildings
- 923.0 Decorative material restrictions
- \*924.0 Exterior trim restrictions
- \*925.0 Roof structures
- \*926.0 Roof coverings

**Article 10 CHIMNEYS, FLUES AND VENT PIPES**

**331**

- 1000.0 General
- 1001.0 Plans and specifications
- 1002.0 Performance test and acceptance criteria
- 1003.0 Chimneys
- 1004.0 Appliances requiring chimneys
- 1005.0 Existing buildings
- 1006.0 Vent systems
- \*1007.0 Fireplaces and wood burning stoves
- 1008.0 Incinerators
- 1009.0 Construction of metal ducts and vents
- 1010.0 Spark arrestors

**Article 11 MECHANICAL EQUIPMENT AND SYSTEMS**

**339**

- \*1100.0 General
- 1101.0 Plans and specifications
- 1102.0 Inspection and tests
- \*1103.0 Existing buildings
- \*1104.0 Reserved
- \*1105.0 Boiler rooms
- \*1106.0 Reserved
- 1107.0 Refuse chutes
- 1108.0 Refuse vaults
- 1109.0 Dust, stock and refuse conveyor systems

**Article 12 FIRE PROTECTION SYSTEMS**

**345**

- \*1200.0 General

---

\* Denotes section with State of Connecticut amendment(s).

**Article 12—continued**

Section

- \*1201.0 Plans and specifications
- \*1202.0 Fire suppression systems
- \*1203.0 Suppression system selection
- \*1204.0 Water sprinkler systems
- 1205.0 Limited area sprinkler systems
- \*1206.0 Water spray fixed systems
- \*1207.0 Foam extinguishing systems
- \*1208.0 Carbon dioxide extinguishing systems
- \*1209.0 Halogenated fire extinguishing systems
- \*1210.0 Dry chemical extinguishing systems
- \*1211.0 Standpipe systems
- \*1212.0 Standpipes for buildings under construction
- \*1213.0 Fire department connections
- \*1214.0 Water supply and other extinguishing supply media
- \*1215.0 Yard hydrants
- \*1216.0 Automatic fire alarm systems
- \*1217.0 Manual fire alarm systems (pull stations)
- \*1218.0 Supervision

**Article 13 PRECAUTIONS DURING BUILDING OPERATIONS**

353

- 1300.0 General
- 1301.0 Plans, specifications and special permits
- \*1302.0 Tests
- \*1303.0 Inspection
- 1304.0 Maintenance
- 1305.0 Existing buildings
- 1306.0 Protection of public and workmen
- \*1307.0 Excavations
- 1308.0 Regulation of lots
- 1309.0 Retaining walls and partition fences
- 1310.0 Storage of materials
- 1311.0 Removal of waste material
- 1312.0 Protection of adjoining property
- \*1313.0 Protection of floor and wall openings
- \*1314.0 Scaffolds
- \*1315.0 Hoists
- \*1316.0 Stairways and ladders
- \*1317.0 Lighting
- \*1318.0 Fire hazards
- 1319.0 Health hazards
- 1320.0 Welding safety precautions
- \*1321.0 Sanitation
- 1322.0 Disputes

**Article 14 SIGNS**

363

- 1400.0 General
- 1401.0 Plans, specifications and permits
- 1402.0 Exemptions
- 1403.0 Unsafe and unlawful signs

\* Denotes section with State of Connecticut amendment(s)

**Article 14—continued**

- Section
- 1404.0 Existing signs
- 1405.0 Maintenance and inspection
- \*1408.0 Bonds and liability insurance
- 1407.0 General requirements for all signs
- 1408.0 Ground signs
- 1409.0 Roof signs
- 1410.0 Wall signs
- 1411.0 Projecting signs
- 1412.0 Marquee signs
- 1413.0 Miscellaneous and temporary signs
- 1414.0 Illuminated signs
- 1415.0 Portable signs

**Article 15 ELECTRICAL WIRING AND EQUIPMENT**

371

- 1500.0 General
- 1501.0 Plans and specifications
- 1502.0 Inspection and tests
- 1503.0 Temporary use
- 1504.0 Permit and certificate of inspection
- \*1505.0 Existing installations
- 1506.0 Energy conservation in electrical distribution systems

**Article 16 ELEVATOR, DUMBWAITER AND  
CONVEYOR EQUIPMENT, INSTALLATION  
AND MAINTENANCE**

377

- \*1600.0 General
- \*1601.0 Plans, specifications and permits
- \*1602.0 Tests and inspections
- \*1603.0 Certificate of compliance
- \*1604.0 Maintenance and accidents
- \*1605.0 Existing installations
- \*1606.0 Alterations
- \*1607.0 Power elevator operation
- \*1608.0 Elevator speed limits
- 1609.0 Hoistway enclosures and venting
- 1610.0 Elevator-exitway restrictions
- 1611.0 Elevator and dumbwaiter machinery and equipment
- 1612.0 Hoistways and related construction for passenger and freight elevators and dumbwaiters
- 1613.0 Elevator opening protectives
- 1614.0 Elevator car emergency signals
- \*1615.0 Manlifts
- \*1616.0 Industrial lifts and loading ramps
- 1617.0 Automotive lifts
- \*1618.0 Conveyors
- 1619.0 Moving stairways

**Article 17 PLUMBING SYSTEMS**

397

- \*1700.0 General
- 1701.0 Plans and specifications

\* Denotes section with State of Connecticut amendment(s).

CONNECTICUT BASIC BUILDING CODE/1978

**Article 17—continued**

- Section
- \*1702.0 Sewer and water supply data
  - 1703.0 Permits and certificates of approval
  - \*1704.0 Water supply systems
  - \*1705.0 Existing buildings and installations

**Article 18 PREFABRICATED CONSTRUCTION**

**403**

- \*1800.0 General
- 1801.0 Plans and specifications
- 1802.0 Tests of prefabricated assemblies
- \*1803.0 Approval and inspection services
- 1804.0 Prefabricated units
- 1805.0 Existing systems and approvals
- 1806.0 Approvals based on design
- 1807.0 Approvals based on tests
- 1808.0 Materials, dimensions and methods of fabrication
- 1809.0 Light gage steel frame construction
- 1810.0 Light wood frame construction
- 1811.0 Light reinforced concrete frame construction
- 1812.0 Light reinforced gypsum frame construction
- 1813.0 Fire-resistance rating and firestopping
- 1814.0 Light and ventilation
- 1815.0 Egress facilities
- 1816.0 Plumbing, piping and sanitary equipment
- 1817.0 Heating and air-conditioning

**Article 19 LIGHT-TRANSMITTING PLASTIC CONSTRUCTION**

**413**

- 1900.0 General
- 1901.0 Design and installation
- 1902.0 Glazing of unprotected openings
- 1903.0 Exterior wall panels
- 1904.0 Roof panels
- 1905.0 Skylight assemblies
- 1906.0 Light-diffusing systems
- 1907.0 Partitions
- 1908.0 Bathroom accessories
- 1909.0 Awnings and similar structures
- 1910.0 Greenhouses

**Article 20 ENERGY CONSERVATION**

**421**

- \*2000.0 Purpose
- \*2001.0 General requirements
- \*2002.0 Scope
- \*2003.0 General definitions
- \*2004.0 Energy conservation and systems requirements
- \*2005.0 Building design by component performance approach
- \*2006.0 HVAC equipment performance requirements
- \*2007.0 Service water heating

---

\* Denotes section with State of Connecticut amendment(s).

TABLE OF CONTENTS

**Article 20—continued**

Section

- \*2008.0 Electrical distribution systems
- \*2009.0 Lighting power budget
- \*2010.0 Building design by systems analysis
- \*2011.0 Building design by non-depletable source analysis
  - \*Standards
  - \*Accredited authoritative agencies

**\*Article 21 INDEX TO PROVISIONS FOR MAKING BUILDINGS ACCESSIBLE TO, AND USABLE BY THE PHYSICALLY HANDICAPPED 461**

- \*1. Scope and purpose
- \*2. Definitions
- \*3. General principles and considerations
- \*4. Site development
- \*5. Buildings
- \* Other provisions

**\*Article 22 HISTORIC STRUCTURES 467**

**\*Article 23 SOLAR SPACE HEATING, SPACE COOLING, AND DOMESTIC HOT WATER EQUIPMENT 469**

- \*2300.0 Definitions
- \*2301.0 Requirements applicable to active solar energy systems
- \*2302.0 Requirements applicable only to solar energy gathering devices (solar collectors) assembled on site
- \*2303.0 Requirements applicable to all solar space heating systems
- \*2304.0 Requirements applicable to all solar domestic hot water heating systems

---

\* Denotes section with State of Connecticut amendment(s).

## LIST OF APPENDICES

General notes concerning standards cited  
in the Basic Building Code

<b>Appendix A</b>	REFERENCE STANDARDS AGENCIES	<b>475</b>
<b>Appendix B</b>	ACCEPTED ENGINEERING PRACTICE STANDARDS	<b>481</b>
<b>Appendix C</b>	MATERIAL STANDARDS	<b>487</b>
<b>Appendix D</b>	STRUCTURAL UNIT TEST STANDARDS	<b>495</b>
<b>Appendix E</b>	STRUCTURAL ASSEMBLY TEST STANDARDS	<b>497</b>
<b>Appendix F</b>	DURABILITY TEST STANDARDS	<b>499</b>
<b>Appendix G</b>	FIRE TEST AND FLAME SPREAD TEST STANDARDS	<b>501</b>
<b>Appendix H</b>	STANDARD TIME-TEMPERATURE FIRE TEST CONTROLS	<b>503</b>
<b>Appendix I</b>	FIRE PROTECTION STANDARDS	<b>505</b>
<b>Appendix J</b>	UNIT DEAD LOADS FOR DESIGN PURPOSES	<b>507</b>
<b>Appendix K</b>	UNIT WORKING STRESSES FOR ORDINARY MATERIALS	<b>515</b>
<b>Appendix L</b>	LOAD DESIGN CRITERIA	<b>519</b>
<b>Appendix M</b>	RECOMMENDED NAILING SCHEDULE	<b>531</b>
<b>Appendix N</b>	METRIC EQUIVALENTS	<b>535</b>
<b>Appendix O</b>	LOCATION OF SPECIAL FLOOD HAZARD AREAS	<b>537</b>
<b>Appendix ARRC</b>	APPENDIX OF RELATED REGULATIONS IN CONNECTICUT	<b>539</b>



# ARTICLE 1

## ADMINISTRATION AND ENFORCEMENT

### SECTION 100.0 SCOPE

**100.1 Title:** These regulations shall be known as the Connecticut Basic Building Code, hereinafter referred to as "this code".

**100.2 Scope:** These regulations shall control all matters concerning the construction, alteration, addition, repair, removal, demolition, use, location, occupancy and maintenance of all buildings and structures in the State of Connecticut; except as such matters are required to be otherwise controlled by provision of the General Statutes, or the further rules and regulations authorized for promulgation under the provisions of this code.

**100.3 Application of references:** Unless otherwise specifically provided in this code, all references to article or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such article, section or provision of this code.

**100.4 Code remedial:** This code shall be construed to secure its expressed intent, which is to insure public safety, health and welfare insofar as they are affected by building construction, through structural strength, adequate egress facilities, sanitary equipment, light and ventilation and fire safety; and, in general, to secure safety to life and property from all hazards incident to the design, erection, repair, removal, demolition or use and occupancy of buildings, structures or premises.

### SECTION 101.0 APPLICABILITY

**101.1 General:** The provisions of these regulations shall cover all matters affecting or relating to buildings and structures, as set forth in Section 100.0.

**101.2 Exemptions:** A building or structure shall not be constructed, extended, repaired, removed or altered in violation of these provisions, except for ordinary repairs as defined in Section 102.0, and except further that the raising, lowering or moving of a building or structure as a unit necessitated by a change in legal grade or widening of a street shall be permitted, provided the building or structure is not otherwise altered or its use or occupancy changed.

**101.3 Public utility structures:** In accordance with the General Statutes of Connecticut, Section 19-403, this code shall not apply to structures, other than buildings, of public service companies subject to the regulations of the Public Utilities Control Authority.

**101.4 Continuation of unlawful use:** The continuation of occupancy or use of a building or structure, or of a part thereof, contrary to the provisions of this code, shall be deemed a violation and subject to the penalties prescribed in Section 122.0.

**101.5 Other regulations:** When the provisions herein specified for health, safety and welfare are more restrictive than other regulations, this code shall control; but in any case, the most rigid requirements of either the building code or other regulations shall apply whenever they may be in conflict. This code shall not be construed to infringe the zoning responsibilities of municipalities, nor shall municipalities by provision of zoning or other ordinance, infringe the proper concerns of this code. When the provisions of this code conflict with the regulations of the Department of Environmental Protection in such manner as to preclude conformance to both, then the regulations of the Department of Environmental Protection shall control; but only those requirements of this code which are in direct contradiction to the regulations of the Department of Environmental Protection shall be inapplicable.

#### SECTION 102.0 ORDINARY REPAIRS

**102.1 General:** Ordinary repairs to structures may be made without application or notice to the building official; but such repairs shall not include the cutting away of any wall, partition or portion thereof, the removal or cutting of any structural beam or bearing support, or the removal or change of any required means of egress, or rearrangement of parts of a structure affecting the exitway requirements; nor shall ordinary repairs include addition to, alteration of, replacement or relocation of any standpipe, water supply, sewer, drainage, drain leader, gas, soil, waste, vent or similar piping, electric wiring or mechanical or other work affecting public health or general safety.

#### SECTION 103.0 INSTALLATION OF SERVICE EQUIPMENT

**103.1 General:** When the installation, extension, alteration or repair of an elevator, moving stairway, mechanical equipment, refrigeration, air conditioning or ventilating apparatus, plumbing, gas piping, electric wiring, heating system or any other equipment is specifically controlled by the provisions of this code or the approved rules, it shall be unlawful to use such equipment until approval has been given therefor by the building official or other agency having jurisdiction.

**SECTION 104.0 MAINTENANCE**

**104.1 General:** All buildings and structures and all parts thereof, both existing and new, shall be maintained in a safe and sanitary condition. All service equipment, means of egress, devices and safeguards which are required by this code in a building or structure, or which were required by a previous statute in a building or structure, when erected, altered or repaired, shall be maintained in good working order.

**104.2 Owner responsibility:** The owner or his designated agent shall be responsible for the safe and sanitary maintenance of the building or structure and its exitway facilities at all times.

**SECTION 105.0 CHANGE IN EXISTING USE**

**105.1 Continuation of existing use:** The legal use and occupancy of any structure existing on the effective date of this code or for which it had been theretofore approved, may be continued without change, except as may be specifically covered in this code and as set forth in the General Statutes of Connecticut, Section 19-400.

**105.2 Change in use:** It shall be unlawful to make any change in the use or occupancy of any structure which would subject it to any special provision of this code without approval of the building official, and his certification that such structure meets the intent of the provisions of law governing building construction for the proposed new use and occupancy, and that such change does not result in any greater hazard to public safety or welfare.

**SECTION 106.0 EXISTING STRUCTURES**

**106.1 Application:** Except as provided in this section, existing structures, when altered or repaired as herein specified, shall be made to conform to the full requirements of this code for new structures.

**106.2 Alterations exceeding 50 per cent:** If alterations or repairs are made within any period of twelve (12) months, costing in excess of fifty (50) per cent of the physical value of the structure, this code's requirements for new structures shall apply.

**106.3 Damages exceeding 50 per cent:** If the structure is damaged by fire or any other cause to an extent in excess of fifty (50) per cent of the physical value of the structure before the damage was incurred, this code's requirements for new structures shall apply.

**106.4 Alterations under 50 per cent:** If the cost of alterations or repairs described herein is between twenty-five (25) and fifty (50) per cent of the physical value of the structure, the building official shall determine to

## CONNECTICUT BASIC BUILDING CODE/1978

what degree the portions so altered or repaired shall be made to conform to the requirements for new structures.

**106.5 Alterations under 25 per cent:** If the cost of alterations or repairs described herein is twenty-five (25) per cent or less of the physical value of the structure, the building official shall permit the restoration of the structure to its condition previous to damage or deterioration with the same kind of materials as those of which the structure was constructed; provided that such construction does not endanger the general safety and public welfare and complies with the provisions of Section 926.2 in respect to existing roofs.

**106.6 Increase in size:** If the structure is increased in floor area or number of stories, the entire structure shall be made to conform with the requirements of this code in respect to means of egress, fire safety, light and ventilation. Further, any such addition shall conform to the requirements of this code in providing for handicapped people and to the requirements of this code in respect to energy conservation.

**106.6.1 Exception:** An increase in gross floor area, not to exceed fifteen (15) percent, may be permitted within any twenty-four (24) month period, without requiring that the entire structure conform with the requirements of this code in respect to means of egress, fire safety, light and ventilation, provided that any such addition shall itself conform to these requirements. This section shall not be interpreted to permit an increase in size contrary to the provisions of Section 304.2.

**106.7 Part change in use:** If a portion of the structure is changed in occupancy or to a new use group, and that portion is separated from the remainder of the structure with the required vertical and horizontal fire separation assemblies complying with the fire grading in Table 902, then the construction involved in the change shall be made to conform to the requirements for the new use and occupancy, and the existing portion shall be made to comply with the exitway requirements of this code.

**106.8 Physical value:** In applying the provisions of this section, the physical value of the structure shall be determined by the building official and be based on current replacement costs.

### SECTION 107.0 DEPARTMENT OF BUILDING INSPECTION

**107.1 Department of Building Inspection:** A Department of Building Inspection is hereby created for each municipality within the State and the executive official in charge thereof shall be known as the building official.

**107.2 Appointment of building official:** The chief executive officer of any town, city or borough, unless other means are already provided, shall appoint an officer to administer this code for a term of four years and until his successor qualifies and quadrennially thereafter shall so appoint a successor. Such officer shall be known as the building official. Two or more communi-

ties may combine in the appointment of a building official for the purpose of enforcing the provisions of this code in the same manner. (see General Statutes of Connecticut, Sec. 19-396.)

**107.2.1 Dismissal of building official:** If the building official fails to faithfully perform the duties of his office, the appointing authority of the municipality in which he is serving shall, after proper inquiry, dismiss him and appoint another in his place. The state building inspector shall be promptly notified of the removal from office of any building official and of the appointment of his successor.

**107.2.2 Hearing prior to dismissal, appeal:** No building official shall be dismissed unless he has been given notice in writing of the specific grounds for such dismissal and an opportunity to be heard in his own defense, personally or by counsel, at a public hearing before the authority having the power of dismissal. Such public hearing, unless otherwise specified by charter, shall be held not less than five nor more than ten days after such notice. Any person so dismissed may appeal within thirty days following such dismissal to the superior court for the county in which such town, city or borough is located. Service shall be made as in civil process. Said court shall review the record of such hearing and, if it appears upon the hearing upon the appeal that testimony is necessary for an equitable disposition of the appeal, it may take evidence or appoint a referee or a committee to take such evidence as it may direct and report the same to the court with his or its findings of fact, which report shall constitute a part of the proceedings upon which the determination of the court shall be made. The court, upon such appeal, and after a hearing thereon, may affirm the action of such authority, or may set the same aside if it finds that such authority acted illegally or arbitrarily in the abuse of its discretion or with bad faith or malice.

**107.3 Organization:** The building official shall appoint such number of officers, technical assistants, inspectors and other employees as shall be necessary for the administration of this code and as authorized by the appointing authority.

**107.4 Deputy:** The building official may designate an employee as his deputy who shall exercise all the powers of the building official during the temporary absence or disability of the building official.

**107.5 Qualifications of building official:** The building official, to be eligible for appointment, shall have had at least five years of experience in construction, construction design or construction supervision. He shall be generally informed on the quality and strength of building materials, on the accepted requirements of building construction, on good practice in fire prevention, on the accepted requirements regarding light and ventilation, on the accepted requirements for safe exit facilities and other items of equipment for safety, comfort and convenience of occupants and shall be certified under the provisions of the General Statutes of Connecticut, Section 19-397a except that the

## CONNECTICUT BASIC BUILDING CODE/1978

qualifications outlined in that Section need not be required in the case of a person holding office in any municipality prior to October 1, 1971 provided such person shall be certified in accordance with the General Statutes of Connecticut, Section 19-397a prior to October 1, 1974.

**107.6 Qualification of assistants:** No person shall be appointed as a technical assistant unless he has had at least three years of practical experience in the technical work which he is appointed to supervise, or in responsible charge of building construction, or as a skilled worker. No person shall be appointed as inspector of construction who has had less than three years of experience in general building construction. Each such person shall be certified under the provisions of the General Statutes of Connecticut, Section 19-397a except that the qualifications outlined in this section need not be required in the case of a person holding office in any municipality prior to October 1, 1971 provided such person shall be certified in accordance with the General Statutes of Connecticut, Section 19-397a prior to October 1, 1974.

**107.7 Restriction of employees:** An official or employee connected with the department of building inspection, except one whose only connection is that of a member of the board of survey or of the board of appeals established under the provisions of Sections 125.0 and 126.0, shall not be engaged in or directly or indirectly connected with the furnishing of labor, materials or appliances for the construction, alteration or maintenance of a building, or the preparation of plans or of specifications therefor, unless he is the owner of the building; nor shall such officer or employee engage in any work which conflicts with his official duties or with the interests of the department.

**107.7.1 Cause for dismissal:** Any building official found to be in violation of the provisions of Section 107.7 shall be subject to dismissal under the provisions of Section 107.2.1.

**107.8 Relief from personal responsibility:** The building official, officer or employee charged with the enforcement of this code, while acting for the jurisdiction, shall not thereby render himself liable personally, and he is hereby relieved from all personal liability for any damage that may accrue to persons or property as a result of any act required or permitted in the discharge of his official duties. Any suit instituted against any officer or employee because of an act performed by him in the lawful discharge of his duties and under the provisions of this code shall be defended by the legal representative of the jurisdiction until the final termination of the proceedings. The building official or any of his subordinates shall not be liable for costs in any action, suit or proceeding that may be instituted in pursuance of the provisions of this code; and any officer of the department of building inspection, acting in good faith and without malice, shall be free from liability for acts performed under any

## ADMINISTRATION AND ENFORCEMENT

of its provisions, or by reason of any act or omission in the performance of his official duties in connection therewith.

**107.9 Official records:** An official record shall be kept of all business and activities of the department specified in the provisions of this code, and all such records shall be open to public inspection at all appropriate times. No document shall be removed from the office of the department except for the purpose of another municipal department or pursuant to a court order; this prohibition shall not apply to a duplicate copy.

### SECTION 108.0 DUTIES AND POWERS OF BUILDING OFFICIAL

**108.1 General:** The building official shall enforce all the provisions of this code and all further rules and regulations adopted and promulgated thereunder relative to the mode or manner of construction and the materials to be used in the erection, addition to, alteration, repair, removal, occupancy and maintenance of all buildings and structures, except as may otherwise be specifically provided for by statutory requirements or as herein provided.

**108.2 Applications and permits:** He shall receive applications and issue permits for the erection and alteration of buildings and structures, and inspect the premises for which such permits have been issued and enforce compliance with the provisions of this code.

**108.3 Building notices and orders:** He shall issue all necessary notices or orders to remove illegal or unsafe conditions, to require the necessary safeguards during construction, to require adequate exitway facilities in existing buildings and structures, and to insure compliance with all the code requirements for the safety, health and general welfare of the public.

**108.4 Inspections:** He shall make all the required inspections, or he may accept reports of inspection by authoritative and recognized services or individuals; and all reports of such inspections shall be in writing and certified by a responsible officer of such authoritative service or by the responsible individual; or he may engage such expert opinion as he may deem necessary to report upon unusual technical issues that may arise, subject to the approval of the appointing authority.

**108.5 Credentials:** The building official or his authorized representative shall carry proper credentials of his respective office for the purpose of inspecting any and all buildings and premises in the performance of his duties under this code.

**108.6 Rule making authority:** The adoption and promulgation of further rules and regulations to interpret and implement the provisions of this code and to secure the intent thereof may be made by the State Building Inspector and the State Building Code Standards Committee in accordance with the

## CONNECTICUT BASIC BUILDING CODE/1978

General Statutes of Connecticut, Sections 19-395 et seq. All such rules and regulations promulgated prior to the effective date of this code are superseded as of the effective date. Notwithstanding the provisions contained in other codes and standards incorporated by reference (e.g., the National Electrical Code), the building official may not modify or vary the requirements of such codes and standards nor may he modify or vary the requirements of this code.

**108.6.1 Accepted engineering practice:** In the absence of provisions not specifically contained in this code or approved rules, the regulations, specifications and standards listed in Appendix B, Accepted Engineering Practice, and Appendix C, Accredited Material Standards, shall be deemed to represent accepted engineering practice in respect to the material, equipment, system or method of construction therein specified.

**108.7 Department records:** The building official shall keep official records of applications received, permits and certificates issued, fees collected, reports of inspections, and notices and orders issued. Such records shall be retained in the official records so long as the building or structure to which they relate remains in existence unless otherwise provided by other regulations.

**108.7.1 Department rules:** The building official may promulgate rules for the operation of his department.

**108.8 Annual report:** At least annually, the building official shall submit to the chief executive of the municipality a written statement of operations in the form and content as shall be prescribed by rule or law.

**108.9 Notice by building official:** All notices to be given by the building official to any person under this code shall be given by registered or certified mail directed to the address on the permit application, or, if no such application has been filed, then to any other address at which such notice is reasonably likely to reach said person.

### SECTION 109.0 APPROVAL

**109.1 Approved materials and equipment:** All materials, equipment and devices approved for use by the building official shall be constructed and installed in accordance with such approval.

**109.2 Modifications:** Where there are practical difficulties involved in conforming to the structural or mechanical provisions of this code or of an approved rule, the State Building Inspector and the State Building Code Standards Committee may vary or modify such provisions upon application of any town, city or borough or any interested party, provided that the spirit and intent of the law shall be observed and public welfare and safety assured. Where the practical difficulties promise to arise frequently, the parties involved should follow the amendment procedure provided in the General Statutes of Connecticut, Section 19-395g.



## ADMINISTRATION AND ENFORCEMENT

**109.2.1 Records:** The application for modification and the final decision of the building official shall be in writing and shall be officially recorded with the application for the permit in the permanent records of the department of building inspection.

**109.3 Used materials and equipment:** Used materials, equipment and devices may be used provided they have been reconditioned, tested and placed in good and proper working condition and approved for use by the building official.

**109.4 New materials and methods of construction:** The provisions of this code are not intended to prevent the use of any material or method of construction not specifically prescribed by this code, provided any such new materials or methods have been approved and are, for the purposes intended, at least the equivalent of those prescribed in this code in quality, strength, effectiveness, fireresistance, durability and safety. The building official shall accept the use of new materials, assemblies or methods of construction under the conditions and regulations promulgated by the Board of Materials Review as established by the General Statutes of Connecticut, Section 19-399. The building official shall neither reject nor approve proposals for the use of new materials, assemblies or methods of construction which have not been considered by the Board of Materials Review; he shall advise the applicant to file with the board for consideration. The application shall be rejected if the applicant neglects or refuses to take such action.

**109.4.1 Research reports:** The building official may accept as supporting data to assist him in his determination duly authenticated research reports from approved authoritative sources for all materials or assemblies proposed for use which are not specifically provided for in this code.

## SECTION 110.0 INSPECTION

**110.1 Preliminary inspection:** Before issuing a permit, the building official shall examine or cause to be examined all buildings, structures and sites for which an application has been filed for a permit to construct, enlarge, alter, repair, remove, demolish or change the use thereof, and he shall maintain a record of all such examinations and inspections and of all violations of this code.

**110.1.1 Construction inspection:** The building official shall inspect all work performed under the provisions of this code and make continuous special inspections when so required by this code. The permit holder or his agent shall notify the building official when the work is ready for inspection, giving not less than twenty-four (24) hour notice.

**110.1.2 Soil inspection:** Excavation, trenches and form work shall be inspected before footings, foundations and retaining walls or piers are placed.

**110.1.3 Structural systems inspection:** Rough work of all kinds, including

framing, floors, bearing walls, roofs, blocking and fireproofing shall be inspected before any lath or interior finish is applied.

**110.1.4 Certificate of approval of rough work:** A certificate of approval signed by the building official certifying that all rough work of every kind has been inspected and approved shall be posted in a conspicuous place on the job before lathing or interior finish work is commenced.

**110.1.5 Mechanical and electrical inspections:** Inspections of mechanical and electrical work and equipment shall be made by the building official in accordance with further provisions of this code.

**110.2 Reserved**

**110.2.1 Accredited inspection services:** The building official may accept reports of his own inspectors or of approved inspection services.

**110.2.2 Plant inspection:** When required by the provisions of this code or by the approved rules, materials or assemblies shall be inspected at the point of manufacture or fabrication in accordance with Section 110.2.3 and Article 18.

**110.2.3 Inspection reports:** All inspection reports shall be in writing and shall be certified by the licensed authority, or responsible officer of the service, or the individual when expert inspection services are accepted. An identifying label or stamp permanently fixed to the product indicating that factory inspection has been made shall be accepted in lieu of the aforesaid inspection report in writing if the intent or meaning of such identifying label or stamp is properly substantiated.

**110.3 Final inspection:** Upon completion of the building or structure, and before issuance of the certificate of use and occupancy required in Section 119.0, a final inspection shall be made. All violations of the approved plans and permit shall be noted and the holder of the permit shall be notified of the discrepancies. The certificate of use and occupancy required in Section 119.0 will not be issued until the discrepancies have been corrected.

**SECTION 111.0 RIGHT OF ENTRY**

**111.1 General:** In the discharge of his duties and to enforce the provisions of this code, the building official or his authorized representative shall have the authority to enter any building, structure, or premises (including a single family residence in the process of construction and before a certificate of occupancy has been issued) located in the municipality for which a permit has been issued, between the hours of 9:00 A.M. and 5:00 P.M., or at any other time in the case of an emergency and if such entry is necessary in the interest of public safety.

**111.2 Official badge:** With the approval of the chief administrative officer of the municipality, the building official may adopt a badge of office for himself

and his assistants which shall be displayed for the purpose of identification.

**111.3 Jurisdictional cooperation:** The assistance and cooperation of police, fire, and health departments and all other officials shall be available to him as required in the performance of his duties.

#### SECTION 112.0 APPLICATION FOR PERMIT

**112.1 When permit is required:** It shall be unlawful to construct, enlarge, alter or demolish a structure; or change the occupancy of a building or structure requiring greater strength, exitway or sanitary provisions; or to change to another use; or to install or alter any equipment for which provision is made or the installation of which is regulated by this code, without first filing an application with the building official in writing and obtaining the required permit therefor; except that ordinary repairs, as defined in Section 102.0, which do not involve any violation of this code shall be exempt from this provision.

**112.2 Form of application:** The application for a permit shall be submitted in such form as the building official may prescribe and shall be accompanied by the required fee as prescribed in Section 117.0.

**112.3 By whom application is made:** Application for a permit shall be made by the owner or lessee of the building or structure, or agent of either, or by the licensed engineer or architect employed in connection with the proposed work. If the application is made by a person other than the owner in fee, it shall be accompanied by a duly verified affidavit of the owner or the qualified person making the application that the proposed work is authorized by the owner in fee and that the applicant is authorized to make such application. The full names and addresses of the owner, lessee, applicant, and of the responsible officers, if the owner or lessee is a corporate body, shall be stated in the application.

**112.4 Description of work:** The application shall contain a general description of the proposed work, its location, the use and occupancy of all parts of the building or structure and of all portions of the site or lot not covered by the building or structure, and such additional information as may be required by the building official.

**112.5 Plans and specifications:** The application for the permit shall be accompanied by not less than two (2) copies of specifications and of plans drawn to scale, with sufficient clarity and detail dimensions to show the nature and character of the work to be performed. When quality of materials is essential for conformity to this code, specific information shall be given to establish such quality; and this code shall not be cited, or the term "legal" or its equivalent be used, as a substitute for specific information. The building official may waive the requirement for filing plans when the work involved is of a minor nature.

**112.5.1 Seal required:** Plans and specifications shall bear the seal and signature of a registered architect or engineer in conformity with and when required by the General Statutes of Connecticut.

**112.5.2 Information on plans:** Except for one- and two-family detached dwellings, plans and specifications for all buildings and structures shall show the information and documentation required by the provisions of this code. The following additional information shall also be provided:

- a. The use group of the building or structure.
- b. The occupancy load for each room more than 1,500 (one thousand-five hundred) square feet in area, and for each room or space which will accommodate fifty (50) or more persons in occupancy.
- c. The dimensions of ways of exitway access.
- d. Adequate detail to indicate conformity with all provisions for making buildings and facilities accessible to, and usable by, physically handicapped people.
- e. The location of all fire dampers.
- f. A tabulation of the ventilation air being supplied and being exhausted for each room or space in the building.

**112.6 Site plan:** There shall also be a site plan showing to scale the size and location of all the new construction and all existing structures on the site, distances from lot lines, the established street grades and the proposed finished grades; and it shall be drawn in accordance with an accurate boundary line survey. In the case of demolition, the plot plan shall show all construction to be demolished and the location and size of all existing structures and construction that are to remain on the site or plot.

**112.7 Engineering details:** The building official may require adequate details of structural, mechanical and electrical work including computation, stress diagrams and other essential technical data to be filed. All engineering plans and computations shall bear the seal of the engineer or architect responsible for the design. Plans for buildings more than two (2) stories in height shall indicate how required structural and fire-resistance rating integrity will be maintained, and where a penetration will be made for electrical, mechanical, plumbing and communication conduits, pipes and systems.

**112.8 Amendments to application:** Subject to the limitations of Section 112.9, amendments to a plan, application or other records accompanying the same may be filed at any time before completion of the work for which the permit is sought or issued; and such amendments shall be deemed part of the original application and shall be filed therewith.

**112.9.1 Time limit of application:** An application for a permit for any proposed work shall be deemed to have been abandoned six (6) months after date of filing, unless such application has been diligently prosecuted or a permit for the entire building or structure shall have been issued, except that for reason-

able cause, the building official may grant one or more extensions of time for additional periods not exceeding ninety (90) days each.

### SECTION 113.0 PERMITS

**113.1 Action on application:** The building official shall examine or cause to be examined all applications for permits and amendments thereto within thirty (30) days after filing. If the application or the plans do not conform to the requirements of all pertinent laws, he shall reject such application in writing stating the reasons therefor. If he is satisfied that the proposed work conforms to the requirements of this code and all laws and ordinances applicable thereto, he shall issue a permit, in whole or in part therefor, within thirty (30) days after filing.

**113.1.1 Special consulting services:** When an application for a novel or unusual structure, or for a project of greater than customary magnitude or complexity has been filed, the building official may retain a properly qualified professional architect or engineer as consultant to assist the building official in examining the application for permit and its accompanying plans and specifications for the purpose of determining the conformity of the project to the requirements of this code. The findings of the retained consultant shall be limited to those specifically requested by the building official; findings of non-conformity shall cite the applicable sections of the code and shall explain the specific nature of the non-conformity. The written and signed findings and recommendations of the consultant so retained shall permanently accompany the application for permit. The cost of retaining such consultant shall not be borne by the applicant or owner.

### 113.2 Continuity of work

**113.2.1 Lapse or termination of permit:** Any permit issued shall lapse if the building official finds that the authorized work was not started within a period of six (6) months after the permit was issued or shall be terminated if the building official finds that the authorized work, once started, was suspended for a period of six (6) months, or that the authorized work has been abandoned.

**113.2.2 Suspension of work:** If the owner or his agent intends not to proceed with any work under permit for a period of thirty (30) days or more for any reason whatsoever, he shall report and explain such suspension of work to the building official within twenty-four (24) hours from the time of suspension of such work, and within forty-eight (48) hours after resumption shall report the fact of resumption.

**113.2.3 Abandonment:** When a building official learns that the work under permit has not been actively prosecuted for a period of thirty (30) days, he shall notify the permit holder and request him to explain his intentions as to the continuation of the work. If the building official at any time finds, either after consultation with the permit holder or by reason of the permit holder

## CONNECTICUT BASIC BUILDING CODE/1978

failing to respond, that the work has been abandoned (i.e. discontinued without the intention of the permit holder to continue to completion) then the building official shall terminate the permit.

**113.3 Previous approvals:** Building permits validly issued before October 1, 1970 and pursuant to which work is being performed shall be valid thereafter and such work may be completed pursuant to the building permit, unless the building official determines that life or property is in jeopardy. With respect to a building permit issued after October 1, 1970 and prior to the effective date of this code, nothing in this code shall require changes in the plans, construction, or designated use of a building authorized by said permit provided construction shall be actively prosecuted not later than ninety (90) days after the effective date of this code. If a building permit has been issued after October 1, 1970 and prior to the effective date of this code and construction has not been actively prosecuted within ninety (90) days of said effective date, then the permit holder must comply with the provisions of this code.

**113.4 Signature to permit:** The building official shall attach his signature to every permit; or he may authorize a State Certified Subordinate to affix such signature thereto.

**113.5 Approved plans:** The building official shall stamp or endorse in writing both sets of corrected plans *Approved*, and one set of such approved plans shall be retained by him and the other set shall be kept at the building site, open to inspection of the building official or his authorized representative at all reasonable times.

**113.6 Revocation of permits:** The building official may revoke a permit or approval issued under the provisions of this code in case of any false statement or misrepresentation of fact in the application or on the plans on which the permit or approval was based.

**113.7 Approval of part:** The building official may issue a permit for the construction of foundations or any other part of a building or structure before the entire plans and specifications for the whole building or structure have been submitted, provided adequate information and detailed statements have been filed complying with all the pertinent requirements of this code. The holder of such permit for the foundations or other part of a building or structure shall proceed at his own risk with the building operation and without assurance that a permit for the entire structure will be granted.

**113.8 Posting of permit:** A true copy of the building permit shall be kept on the site of operations open to public inspection during the entire time of prosecution of the work and until the completion of the same.

**113.9 Notice of start:** At least twenty-four (24) hours notice of start of work under a building permit shall be given to the building official.

### SECTION 114.0 CONDITIONS OF PERMIT

**114.1 Payment of fees:** A permit shall not be issued until the fees prescribed in Section 117.0 have been paid.

## ADMINISTRATION AND ENFORCEMENT

**114.2 Compliance with code:** The permit shall be a license to proceed with the work and shall not be construed as authority to violate, cancel or set aside any of the provisions of this code, except as specifically stipulated by modification or legally granted variation as described in the application.

**114.3 Compliance with permit:** All work shall conform to the approved application and plans for which the permit has been issued and any approved amendments thereto.

**114.4 Compliance with plot plan:** All new work shall be located strictly in accordance with the approved plot plan.

**114.5 Change in site plan:** A lot shall not be changed, increased or diminished in area from that shown on the official plot site plan, unless a revised plan showing such changes accompanied by the necessary affidavit of owner or applicant shall have been filed and approved; except that such revised plan will not be required if the change is caused by reason of an official street opening, street widening or other public improvement.

## SECTION 115.0 DEMOLITION OF STRUCTURES

**115.1 Service connections:** Before a structure can be demolished or removed, the owner or agent shall notify all utilities having service connections within the structure such as water, electric, gas, sewer and other connections. A permit to demolish or remove a structure shall not be issued until a release is obtained from the utilities, stating that their respective service connections and appurtenant equipment, such as meters and regulators, have been removed or sealed and plugged in a safe manner.

**115.2 Notice to adjoining owners:** Only when written notice has been given by the applicant to the owners of adjoining lots and to the owners of wired or other facilities, of which the temporary removal may be necessitated by the proposed work, shall a permit be granted for the removal of a building or structure.

**115.3 Lot regulation:** Whenever a structure is demolished or removed, the premises shall be maintained free from all unsafe or hazardous conditions by the proper regulation of the lot, restoration of established grades and the erection of the necessary retaining walls and fences in accordance with the provisions of Article 13.

## SECTION 116.0 MOVED STRUCTURES

**116.1 General:** Buildings and structures moved into or within the jurisdiction shall comply with the provisions of this code for new buildings and structures.

**SECTION 117.0 FEES**

**117.1 General:** A permit to begin work for new construction, alteration, removal, demolition or other building operation shall not be issued until the fees prescribed in this section shall have been paid to the department of building inspection or other authorized agency of the jurisdiction, nor shall an amendment to a permit necessitating an additional fee because of an increase in the estimated cost of the work involved be approved until the additional fee shall have been paid.

**117.2 Special fees:** The payment of the fee for the construction, alteration, removal or demolition and for all work done in connection with or concurrently with the work contemplated by a building permit, shall not relieve the applicant or holder of the permit from the payment of other fees that may be prescribed by law or ordinance for water taps, sewer connections, electrical permits, erection of signs and display structures, marquees or other appurtenant structures, or fees of inspections, certificates of use and occupancy or other privileges or requirements, both within and without the jurisdiction of the department of building inspection.

**117.3 Fee schedule:** Each town, city and borough is requested to prescribe by ordinance a schedule of fees for permits.

**117.3.1 New construction and alterations:** The fee for a building permit shall be based on the volume of the structure, or as otherwise prescribed by local ordinance.

**117.4 Moving of buildings:** The fee for a building permit for the removal of a building or structure from one lot to another or to a new location on the same lot shall be at the rate established by local ordinance.

**117.5 Demolition:** The fee for a permit for the demolition of a building or structure shall be at the rate established by local ordinance.

**117.6 Signs:** The fee for signs, billboards and other display structures for which permits are required under the provisions of this code shall be at the rate established by local ordinance.

**117.7 Accounting:** The building official shall keep an accurate account of all fees collected for building permits; and such collected fees shall be deposited in the jurisdiction treasury, or otherwise disposed of as required by law.

**SECTION 118.0 VOLUME COMPUTATION**

**118.1 General:** If local ordinance provides for permit fee determination on a volume basis, the volume of the structure shall be computed as herein provided.

**118.2 Structures with basements:** The volume of the structure shall include all enclosed dormers, porches, penthouses and other enclosed



## ADMINISTRATION AND ENFORCEMENT

portions of the structure extending from the basement or cellar floor to the mean height of a pitched roof, or the average height to the top of the roof beams of a flat roof.

**118.3 Structures without basements:** For structures without basements or cellars, the volume shall be based on the height measured to a level located one-fifth ( $\frac{1}{5}$ ) the distance from the first floor level to the bottom of the footings, but not to exceed two and one-half ( $2\frac{1}{2}$ ) feet below the first floor level.

**118.4 Open sheds:** For open sheds and structures of a similar character, the volume shall be measured within the perimeter of the roof for a height from the grade line to the mean roof level.

### SECTION 119.0 CERTIFICATE OF USE AND OCCUPANCY

**119.1 New buildings:** No building or structure hereafter erected shall be used or occupied in whole or part until the certificate of use and occupancy shall have been issued by the building official. No certificate of use and occupancy shall be issued by the building official until he certifies that such building or structure substantially conforms to the provisions of this code and further rules adopted thereunder.

**119.2 Buildings hereafter altered:** A building or structure hereafter enlarged, extended or altered to change from one use group to another or to a different use within the same use group, in whole or in part, and a building or structure hereafter altered for which a certificate of use and occupancy has not been heretofore issued, shall not be occupied or used until the certificate shall have been issued by the building official, certifying that the work has been completed in accordance with the provisions of the approved permit; except that any use or occupancy, which was not discontinued during the work of alteration, shall be discontinued within thirty (30) days after the completion of the alteration unless the required certificate is secured from the building official.

**119.3 Existing buildings or structures:** Upon written notice from the owner of an existing building or structure, the building official shall issue a certificate of use and occupancy, provided there are no violations of law or orders of the building official pending, and it is established after inspection and investigation that the alleged use of the building or structure has heretofore existed. Nothing contained herein shall require the removal, alteration or abandonment of, or prevent the continuance of the use and occupancy of, a building lawfully existing on October 1, 1945, except as may be necessary for the safety of life or property.

**119.4 Changes in use and occupancy:** After a change of use has been made in a building or structure, the reestablishment of a prior use that would not have been legal in a new building or structure of the same type of construction is

## CONNECTICUT BASIC BUILDING CODE/1978

prohibited unless the building or structure complies with all applicable provisions of this code. A change from one prohibited use, for which a permit has been granted, to another prohibited use shall be deemed a violation of this code. The use of a building or structure or premises shall not be deemed to have changed because of temporary vacancy or change of ownership or tenant.

**119.5 Temporary occupancy:** Upon the request of the holder of a permit, the building official may issue a temporary certificate of occupancy for a building or structure, or part thereof, before the entire work covered by the permit shall have been completed, provided such portion or portions may be occupied safely prior to full completion of the building or structure without endangering life or public welfare.

**119.6 Contents of certificate:** When a building or structure is entitled thereto, the building official shall issue a certificate of use and occupancy within ten (10) days after written applications. The certificate shall certify compliance with the provisions of this code and the purpose for which the building or structure may be used in its several parts. The certificate of use and occupancy shall specify: the use group, in accordance with the provision of Article 2; the fire grading as defined in Article 2 and Table 902; the maximum live load on all floors as prescribed in Article 7; the occupancy load in the building and all parts thereof as defined in Article 2 and Article 6; and any special stipulations and conditions of the building permit.

**119.7 Implied warranty for single-family dwelling:** The issuance of a certificate of occupancy for a new single-family dwelling shall carry an implied warranty to the purchaser from the vendor who constructed it that the vendor has complied with the building code or its customary application and interpretation within the municipality in accordance with the General Statutes of Connecticut, Section 52-563a.

### SECTION 120.0 POSTING STRUCTURES

**120.1 Posted use and occupancy:** Every building and structure and part thereof designed for business, factory and industrial, high hazard, mercantile, or storage use, (use groups B, F, H, M, and S) as defined in Article 2, shall be posted on all floors by the owner with a suitably designed placard in a form designated by the building official, which shall be securely fastened to the structure in a readily visible place, stating: the use group, the fire grading, the live load and the occupancy load.

**120.2 Posted occupancy load:** Every room constituting a place of assembly shall have the occupancy load of the room posted in a conspicuous place, near the main exit from the room. Approved signs shall be maintained in a legible manner by the owner or his authorized agent. Signs

## ADMINISTRATION AND ENFORCEMENT

shall be durable and shall indicate the number of occupants permitted for each room use.

**120.3 Replacement of posted signs:** All posting signs shall be furnished by the owner and shall be of permanent design; they shall not be removed, or defaced and, if lost, removed or defaced, shall be immediately replaced.

**120.4 Periodic inspection:** The building official may periodically inspect all existing buildings and structures, except one- and two-family dwellings, for compliance with the law in respect to posting; or he may accept the report of such inspection from an authorized licensed professional engineer or architect; and such inspection and report shall specify any violation of the requirements of this code in respect to the posting of floor load, fire grading, occupancy load and use group of the building.

## SECTION 121.0 VIOLATIONS

**121.1 Unlawful acts:** It shall be unlawful for any person, firm or corporation to erect, construct, alter, extend, repair, remove, demolish, use or occupy any building or structure or equipment regulated by this code, or cause same to be done, contrary to or in conflict with or in violation of any of the provisions of this code.

**121.2 Notice of violation:** The building official shall serve a notice of violation or order on the person responsible for the erection, construction, alteration, extension, repair, removal, demolition, use or occupancy of a building or structure in violation of the provisions of this code, or in violation of a detail statement or a plan approved thereunder, or in violation of a permit or certificate issued under the provisions of this code; and such order shall direct the discontinuance of the illegal action or condition and the abatement of the violation.

**121.3 Prosecution of violation:** If the notice of violation is not complied with promptly, the building official shall request the legal counsel of the jurisdiction to institute the appropriate proceeding at law or in equity to restrain, correct or abate such violation or to require the removal or termination of the unlawful use of the building or structure in violation of the provisions of this code or of the order or direction made pursuant thereto.

**121.4 Violation penalties:** Any person who shall violate a provision of this code or shall fail to comply with any of the requirements thereof or shall erect, construct, alter or repair a building or structure in violation of any approved plan or directive of the building official, or of a permit or certificate issued under the provisions of this code shall be punishable by a fine of not more than \$500. Each day that a violation continues shall be deemed a separate offense.

**CONNECTICUT BASIC BUILDING CODE/1978**

**121.5 Abatement of violation:** The imposition of the penalties herein prescribed shall not preclude the legal officer of the jurisdiction from instituting appropriate action to prevent unlawful construction or to restrain, correct or abate a violation, or to prevent illegal occupancy of a building, structure or premises or to stop an illegal act, conduct, business or use of a building or structure in or about any premises.

**SECTION 122.0 STOP-WORK ORDER**

**122.1 Notice to owner:** Upon notice from the building official that work on any building or structure is being prosecuted contrary to the provisions of this code or in an unsafe and dangerous manner, such work shall be immediately stopped. The stop-work order shall be in writing and shall be given to the owner of the property involved, or to the owner's agent, or to the person doing the work; and shall state the conditions under which work may be resumed.

**122.2 Unlawful continuance:** Any person who shall continue any work in or about a building after having been served with a stop order, except such work as he is directed to perform to remove a violation or unsafe conditions, shall be liable to a fine of not less than \$25 or more than \$500. Each day that a violation continues shall be deemed a separate offense.

**SECTION 123.0 UNSAFE STRUCTURES**

**123.1 Right of condemnation:** All buildings or structures that are or hereafter shall become unsafe, unsanitary, or deficient in adequate exit-way facilities, or which constitute a fire hazard, or are otherwise dangerous to human life or the public welfare, or which by reason of illegal or improper use, occupancy or maintenance, shall be deemed unsafe buildings or structures. All unsafe structures shall be taken down and removed or made safe and secure, as the building official may deem necessary and as provided in this section. A vacant building, unguarded or open at door or window, shall be deemed a fire hazard and unsafe within the meaning of this code.

**123.2 Examination and record of damaged structure:** The building official shall examine every building or structure reported as dangerous, unsafe structurally or constituting a fire hazard; and he shall cause the report to be filed in a docket of unsafe structures and premises, stating the use of the structure, the nature and estimated amount of damages, if any, caused by collapse or failure.

**123.3 Notice of unsafe structure:** If an unsafe condition is found in a building or structure, the building official shall serve on the owner, agent or person in control of the building or structure a written notice describ-

ing the building or structure deemed unsafe and specifying the required repairs or improvements to be made to render the building or structure safe and secure, or requiring the unsafe building or structure or portion thereof to be demolished within a stipulated time. Such notice shall require the person thus notified to immediately declare to the building official his acceptance or rejection of the terms of the order.

**123.4 Restoration of unsafe structure:** A building or structure condemned by the building official may be restored to safe condition provided change of use or occupancy is not contemplated or compelled by reason of such reconstruction or restoration; except that if the damage or cost of reconstruction or restoration is in excess of fifty (50) per cent of its replacement value, exclusive of foundations, such structure shall be made to comply in all respects with the requirements for materials and methods of construction of structures hereafter erected.

**123.5 Posting unsafe notice:** If the person addressed with an unsafe notice cannot be found within the city after diligent search, then such notice shall be sent by registered or certified mail to the last known address of such person; and a copy of the unsafe notice shall be posted in a conspicuous place on the premises; and such procedure shall be deemed the equivalent of personal notice.

**123.6 Disregard of unsafe notice:** Upon refusal or neglect of the person served with an unsafe notice personally or pursuant to Section 123.5 to comply with the requirements of the order to abate the unsafe condition, the building official shall have the power to proceed to cause to be done all work required to comply with the order and, if necessary, to demolish any building or structure covered by such order. The unsafe notice shall contain a quotation of this section and shall recite the date, not less than thirty (30) days after service, after which the building official proposes to proceed, in the absence of compliance with the order or legal action under this code or other law to prevent his so proceeding. The municipality shall have a lien on said building and land for the cost of said work or demolition, which lien shall take precedence over any other encumbrance originating after the commencement of such work or demolition, provided a notice thereof is recorded in the land records within sixty (60) days after the completion of said work or demolition. The municipality may recover the cost of said work or demolition from the owner by a civil action on complaint of the building official. The total recovery by the municipality from such lien and civil action shall not exceed the amount of its cost plus court costs.

#### SECTION 124.0 EMERGENCY MEASURES

**124.1 Vacating structures:** When, in the opinion of the building official, there is actual and immediate danger of failure or collapse of a building or structure or any part thereof which would endanger life, or

## CONNECTICUT BASIC BUILDING CODE/1978

when any structure or part of a structure has fallen and life is endangered by the occupation of the building or structure, the building official is hereby authorized and empowered to order and require the inmates and occupants to vacate the same forthwith. He shall cause to be posted at each entrance to such building a notice reading as follows: *This structure is unsafe and its use or occupancy has been prohibited by the building official*, and it shall be unlawful for any person to enter such building or structure except for the purpose of making the required repairs or of demolishing the same.

**124.2 Temporary safeguards:** When, in the opinion of the building official, there is actual and immediate danger of collapse or failure of a building or structure or any part thereof which would endanger life, he shall cause the necessary work to be done to render such building or structure or part thereof temporarily safe, whether or not the legal procedure herein described has been instituted.

**124.3 Closing streets:** When necessary for the public safety, the building official may temporarily close sidewalks, streets, buildings and structures and places adjacent to such unsafe structure, and prohibit the same from being used.

**124.4 Emergency repairs:** For the purposes of this section, the building official shall employ the necessary labor and materials to perform the required work as expeditiously as possible.

**124.5 Costs of emergency repairs:** Costs incurred in the performance of emergency work shall be paid from the treasury of the jurisdiction on certificate of the building official; and the legal authority of the jurisdiction shall institute appropriate action against the owner of the premises where the unsafe building or structure was located for the recovery of such costs.

### SECTION 125.0 BOARD OF SURVEY

**125.1 Application for survey:** The owner of a building or structure or his duly authorized representative who has been served with an unsafe order and notice to make such structure safe, secure or habitable or to take down and remove such structure shall have the right, except in cases of emergency, to demand the appointment of a board of survey if he deems such order to be unnecessary, improper or unreasonable. Such demand shall be in writing with a statement of the reasons therefor.

**125.2 Constitution of board of survey:** The board of survey shall consist of three (3) persons, one (1) of whom shall be the building official or an assistant designated by him; another one (1) shall be the owner or his legal representative, or a licensed professional engineer or architect, or a qualified builder designated by the owner; and the third shall be a li-

## ADMINISTRATION AND ENFORCEMENT

censed professional engineer or architect chosen jointly by the other two (2) members, or designated by a justice of the court of record in case of failure of agreement.

**125.3 Compensation of Board of Survey:** The third member of the board shall receive for his services a fee agreed upon by the other two members to be paid by the appellant.

**125.4 Survey procedure:** The powers and duty of the board of survey shall be as indicated by the following Sections 125.4.1 and 125.4.2.

**125.4.1 Inspection of structure:** To inspect the building or structure and to confirm, modify or revoke the order of the building official as may seem just and proper in the interest of public safety and welfare.

**125.4.2 Determination of repair cost:** To determine the suitable cost of reconstruction, restoration or rehabilitation in the repair of an unsafe building or structure, in case of disagreement or dispute.

### 125.5 Survey findings

**125.5.1 Report:** The board of survey shall determine its findings, and submit a report in writing affirming or modifying the order of the building official in whole or in part and recommending the remedial steps to be taken to render the building or structure safe.

**125.5.2 Method of decision:** The findings and determinations of any two (2) members of the board shall be deemed conclusive, and certified copies of the report shall be filed with the building official and with the owner or his representative and shall be binding upon the building official and all parties in interest.

## SECTION 126.D BOARD OF APPEALS

**126.1 Application for appeal:** When the building official rejects or refuses to approve the mode or manner of construction proposed to be followed or the materials to be used in the erection or alteration of the building or structure, or when it is claimed that the provisions of the code do not apply or that an equally good or more desirable form of construction can be employed in a specific case, or when it is claimed that the true intent and meaning of the code and regulations have been misconstrued or wrongly interpreted, the permit, in whole or in part, having been refused by the building official, the owner of such building or structure, whether already erected or to be erected, or his authorized agent, may appeal in writing the decision of the building official to the board of appeals in accordance with the General Statutes of Connecticut, Section 19-402. 29-266

### 126.2 Constitution of board of appeals

**126.2.1 Membership of board:** A board of appeals shall be appointed by each

municipality. A member of a board of appeals of one municipality may also be a member of a board of appeals of another municipality. Boards of appeals shall consist of five members appointed by the chief appointing authority of the municipality who each shall serve a five year term or until his successor has been appointed, except that respecting the initial appointees, one member shall be appointed for five years, one for four years, one for three years, one for two years, and one for one year.

**126.2.2 Qualification of board members:** Each member shall be qualified by training to pass upon matters pertaining to building construction and shall have at least ten (10) years experience in building construction in responsible charge of work as an architect, construction engineer, general construction contractor or construction supervisor.

**126.2.3 Absence of members:** During absence of a member, the appointing officer shall designate a qualified substitute. The appointing officer shall appoint alternate members who may sit on the board of appeals in the absence of any regular members. Such alternates shall meet the same qualifications as required for regular members of the board and, while sitting on the board, shall have the full power and authority of the regular member.

**126.2.4 Chairman of board:** The board shall select one (1) of its members to serve as chairman, and the building official shall designate a clerk from the department to serve as secretary to the board, who shall keep a detailed record of all proceedings on file in the department of building inspection.

**126.2.5 Exemption of members:** A member of the board shall not pass on any question in which he is engaged as contractor or material dealer, or in the preparation of plans or specifications, or in which he has any personal interest.

**126.3 Compensation of board of appeals:** Compensation of appointed members of the board shall be determined by the proper authority of the jurisdiction.

#### **126.4 Appeals procedure**

**126.4.1 Hearing of appeal:** In accordance with the General Statutes of Connecticut, Section 19-402, upon receipt of an appeal from an owner or his representative, the chairman of the board of appeals shall appoint a panel of not less than three (3) members of such board to hear such appeal. Such appeal shall be heard in the municipality for which the building official serves within five (5) days, exclusive of Saturdays, Sundays and legal holidays, after the date of receipt of such appeal.

**126.4.2 Conduct of hearing:** All hearings shall be public, and the appellant,



his representative, the officials of the municipality, and any other person whose interests may be affected by the matter on appeal, shall be given an opportunity to be heard.

**126.5 Decision of panel**

**126.5.1 Action of panel:** The panel shall affirm, modify or reverse the decision of the building official by a concurring majority vote; the decision of the panel shall be in the form of a written resolution, and shall be filed with the building official from whom such appeal has been taken. The decision shall be filed not later than five days, exclusive of Saturdays, Sundays and holidays, following the day of the hearing thereon. Prior to such filing, a copy of the decision shall be mailed to the party taking the appeal.

**126.5.2 Enforcement of decision:** The building official shall take immediate action in accordance with the decision of the panel unless further appeal is taken.

**126.6 Review of action:** Any person aggrieved by the decision of the panel may appeal to the State Building Code Standards Committee within seven (7) days after the filing of the decision with the building official. Any determination made by the local panel shall be subject to review de novo by said Committee. Upon any such appeal to the Committee pursuant to the General Statutes of Connecticut, Section 19-402, the following rules shall apply:

- a. Commencement of appeal: The appeal shall be commenced upon the postmarking of the envelope containing the appeal and addressed to the Committee, State Office Building, Hartford, Connecticut 06115 or, if the appeal is hand-delivered, upon its receipt by the Committee.
- b. Pleadings: The appeal shall include a copy of the decision of the local board of appeals, a statement that the appellant is aggrieved thereby, and at the option of the appellant, a statement of his factual and legal claims. A copy of the appeal shall be mailed to the building official who may respond to it by admitting or denying in part or in whole, and in the absence of such a response, it shall be considered that the building official denies it in whole.
- c. Hearing by panel: The Committee shall fix a time and place for the hearing to be held within thirty (30) days from the commencement of the appeal. The appeal shall be considered by a panel of not less than three members of the Committee appointed by the chairman.
- d. Procedure at hearing: The hearing shall be presided over by the chairman of the Committee, or a member designated by him. The panel may be assisted by counsel. The appellant shall be entitled to be represented by counsel and a transcript of the hearing shall be made. The local building official shall attend if requested by the panel. The rules of procedure and evidence shall be used as a guide but may be waived by the panel, by consent of the appellant, or by its own decision if the interests of its convenience so require and the interest of justice are not abridged thereby.

CONNECTICUT BASIC BUILDING CODE/1978

- c. Recommendation of panel: The panel, having heard the evidence, may recommend in whole or in part the nature of the decision to be made by the Committee.
- f. Decision of the Committee: The Committee, with the assistance of its panel members and after due deliberation, shall render its decision in writing within thirty (30) days from the date of the hearing, unless it shall for cause extend this limit. The decision shall set forth the findings and conclusions upon which it rests.

**126.6.1 Enforcement of decision:** The building official shall take immediate action in accordance with the decision of the Committee unless an appeal is taken to a court of law.

**126.7 Court review:** Any person aggrieved by any ruling of the State Building Code Standards Committee may appeal to the Superior Court in the county where such building or structure has been or is being erected, by complaint returnable within sixty (60) days of the Committee's decision.

**SECTION 127.0 CONSTRUCTION CONTROL**

**127.1 Professional architectural or engineering services:** All design for new construction work involving the practices of professional architecture or engineering, as defined in the General Statutes of Connecticut, shall be prepared by registered professional architects or engineers as licensed by the State of Connecticut. All plans, computations and specifications required for a building permit application for such work must be prepared by or under the direct supervision of a registered architect or engineer and bear his signature and seal.

**127.1.1 Exceptions:** In accordance with the General Statutes of Connecticut, Section 20-298, the following activities are exempt from the requirements for construction control by professional architecture or engineering services:

- a. Construction or alteration of detached one- or two-family dwelling.
- b. Construction or alteration of private garage or other accessory building intended for use with such one- or two-family dwelling.
- c. Any farm building or structure for agricultural use.
- d. Activities of officers and employees of any public utility corporation under the jurisdiction of the Public Utilities Control Authority (see Note 1).
- e. Activities of officers and employees of the government of the United States while engaged in this state in the practice of architecture for said government.
- f. Making plans and specifications for or supervising the erection of any building containing less than five thousand (5,000) square feet total area.
- g. Making plans and specifications for and supervising the erection of any addition containing less than five thousand (5,000) square feet total area to any building.
- h. Making of alterations to any existing building containing less than five

thousand (5,000) square feet total area; this shall not be construed to exempt alterations in buildings of more than five thousand (5,000) square feet total area involving the safety or stability of such buildings.

Areas shall be calculated from the exterior dimensions of the outside walls of the building and shall include all floors.

**Note 1.** The General Statutes of Connecticut, Section 19-403, provides that the State Building Code shall not apply to structures, other than buildings, of public service companies subject to regulation by the Public Utilities Control Authority.

**127.2 Conformance data:** Applicant shall maintain current copies of all samples, shop drawings and other product data which have been submitted to the architect or engineer for approval or review in accordance with the requirements of the approved plans and specifications. Such copies shall be made available to the building official for inspection at the job site at all reasonable times. The applicant shall furnish the building official with copies of those samples, shop drawings and other product data which:

- a. Are deemed by the building official to be pertinent in substantiating significantly the conformance of the work to this code, and
- b. Have been duly approved or reviewed by the architect or engineer in accordance with the requirements of the approved plans and specifications.

Previous to the issuance of the certificate of occupancy, the building official may require from the applicant a tabulation describing the status of all such pertinent samples, shop drawings and other product data; and he may further require that such tabulation be certified by a professional architect or engineer.

**127.3 Test reports:** Applicant shall maintain copies of all reports on tests of materials and on tests of assemblies performed during the course of construction. Such copies shall be made available to the building official for inspection at the job site at all reasonable times. Previous to the issuance of the certificate of occupancy, the building official may require from the applicant a tabulation of all such tests performed; and he may further require that such tabulation be certified by a professional architect or engineer. The applicant shall furnish the building official with copies of those test reports which the building official may deem significant.

**127.4 Records:** Conformance data and test reports required by the building official under Sections 127.2 and 127.3 need not be kept by him as part of his records subsequent to his issuance of the certificate of occupancy.

#### SECTION 128.0 VALIDITY

**128.1 Partial invalidity:** In the event any part or provision of this code is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions thereof, which may or shall

**CONNECTICUT BASIC BUILDING CODE/1978**

be determined to be legal; and it shall be presumed that this code would have been passed without such illegal or invalid parts or provisions.

**128.2 Segregation of invalid provisions:** Any invalid part of this code shall be segregated from the remainder of the code by the court holding such part invalid, and the remainder shall remain effective.

**128.3 Decisions involving existing structures:** The invalidity of any provision in any section of this code as applied to existing buildings and structures shall not be held to affect the validity of such section in its application to buildings and structures hereafter erected.

**SECTION 129.0 SPECIAL REQUIREMENTS FOR BUILDINGS FUNDED BY THE STATE**

**129.1 Life-cycle cost analysis:** Major capital projects constructed or renovated wholly or partly with state funds shall have prepared for them a life-cycle cost analysis in accordance with Public Act No. 77-597 and in accordance with the requirements of the Bureau of Administrative Services.

**129.2 Art work in construction:** Certain public buildings constructed or renovated wholly or partly with state funds shall be provided with works of art in accordance with Public Act No. 78-215 and in accordance with the requirements of the Bureau of Administrative Services.

## **ARTICLE 2**

### **DEFINITIONS AND CLASSIFICATIONS**

#### **SECTION 200.0 GENERAL**

**200.1 Scope:** The provisions of this article shall control the classification of all buildings as to use group and type of construction; and the definition of all terms relating thereto in the State of Connecticut.

**200.2 Application of terms:** The terms herein defined shall be used to interpret all the applicable provisions of this code.

#### **SECTION 201.0 GENERAL DEFINITIONS**

**201.1 Meaning:** Unless otherwise expressly stated, the following terms shall, for the purpose of this code have the meaning indicated in this section.

**201.2 Tense, gender and number:** Words used in the present tense include the future; words used in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural the singular.

**201.3 Terms not defined:** Where terms are not defined, they shall have their ordinarily accepted meanings or such as the context may imply.

**Accepted engineering practice:** That which conforms to accepted principles, tests or standards of nationally recognized technical or scientific authorities.

**Accessory structure:** A structure, the use of which is incidental to that of the main building or structure and which is located on the same lot.

**Accessory use:** A use incidental to the principal use of a building or structure as defined or limited by the provisions of the local zoning laws.

**Addition:** An extension or increase in floor area or height of a building or structure.

**Agricultural building:** An agricultural production or storage building or structure is a building located on agricultural property and used to shelter farm implements, forage crops, grain, poultry, livestock, or other farm produce, in which there is no human habitation and which is not used by the public.

**Agricultural processing building:** An agricultural processing building or structure is a building located on agricultural property and used to dehydrate, mill, pack, or otherwise process farm products. This type of agricultural building requires human occupancy to fulfill its intended use.

**Air-conditioning:** The treatment of air so as to control simultaneously its temperature, humidity, cleanness and distribution to meet the requirements of a conditioned space.

**Air duct:** A tube or conduit used for conveying air.

**Airplane hangar, private:** A hangar for the storage of four (4) or less single motor planes and in which volatile or flammable oil is not handled, stored or kept other than that contained in the fuel storage tank of the plane.

**Airplane hangar, public:** A building for the storage, care or repair of private or commercial airplanes not included in the term "private airplane hangar."

**Air supported structure:** A structural and mechanical system which is constructed of high strength fabric or film and achieves its shape, stability, and support by pretensioning with internal air pressure; air structures may be used for temporary applications.

**Alley:** A secondary thoroughfare less than thirty (30) feet in width dedicated for the public use of vehicles and pedestrians affording access to abutting property.

**Alteration:** As applied to a building or structure, or its service equipment, means a change or rearrangement in the structural parts or in the exit facilities or a vital change in the service equipment; or an enlargement by an increase in area or volume; or the moving from one location or position to another; or the change in use or occupancy from one use group to another as defined in Article 2.

**Amusement device:** A device or structure open to the public by which persons are conveyed or moved in unusual manner for diversion.

**Anchor store:** An anchor store is an exterior perimeter department store or major merchandising or magnet center having direct access to a mall and having its required exits independent of the mall.

**Apartment:** A "Dwelling unit" as defined in this code.

**Approved:** Approved by the building official or other authority having jurisdiction.

**Approved material, equipment and methods:** Material, equipment and methods evaluated and approved by the building official.

**Approved rules:** The legally adopted rules of the building official (see Section 108.0).

## DEFINITIONS AND CLASSIFICATIONS

**Appurtenant structure:** A device or structure attached to the exterior or erected on the roof of a building designed to support service equipment or used in connection therewith, or for advertising or display purposes, or other similar uses.

**Architect:** An individual or corporation technically and legally qualified to practice the profession of architecture in the State of Connecticut.

**Architectural terra cotta:** Plain or ornamental hard-burned plastic clay units, larger in size than brick, with glazed or unglazed ceramic finish.

**Area (building):** The area included within surrounding exterior walls (or exterior walls and fire walls) exclusive of vent shafts and courts. Areas of the building not provided with surrounding walls shall be included in the building area if included within the horizontal projection of the roof or floor above.

**Areaway (form of construction):** An uncovered subsurface space adjacent to a building.

**Ashlar facing:** Facing of solid rectangular units larger in size than brick of burned clay or shale, natural or cast stone, with sawed, dressed and squared beds and mortar joints.

**Ashlar masonry:** Masonry composed of bonded, rectangular units, larger in size than brick, with sawed, dressed or squared beds and mortar joints.

**Attic:** The space between the ceiling beams of the top habitable story and the roof rafters.

**Attic (habitable):** A habitable attic is an attic which has a stairway as a means of access and egress and in which the ceiling area at a height of seven and one-third ( $7\frac{1}{3}$ ) feet above the attic floor is not less than one-third ( $\frac{1}{3}$ ) the area of the floor next below.

**Automatic:** As applied to fire protection devices, is a device or system providing an emergency function without the necessity of a human intervention and activated as a result of a predetermined temperature rise, rate of rise of temperature, or increase in the level of combustion products; such as incorporated in an automatic sprinkler system, automatic fire door, etc.

**Automatic collapsible revolving door:** A door which is designed, supported and constructed so that the wings will release and fold back in the direction of egress under pressure exerted by persons under panic conditions, providing a means of travel on both sides of the door pivot.

**CONNECTICUT BASIC BUILDING CODE/1978**

**Automatic detecting device:** A device which automatically detects heat, smoke or other products of combustion.

**Automatic fire alarm system:** A manual fire alarm system containing automatic detecting device(s) which actuates a fire alarm signal.

**Automatic fire door:** A fire door or other opening protective constructed and arranged so that, if open, it shall close when subjected to:

1. a predetermined temperature,
2. a predetermined rate of temperature rise, or
3. smoke or other products of combustion.

**Automatic sprinkler:** A device, connected to a water supply system, that opens automatically at a predetermined fixed temperature and discharges a spray of water.

**Automatic sprinkler system:** A sprinkler system for fire protection purposes, is an integrated system of underground and/or overhead piping designed in accordance with fire protection engineering standards. The system includes a suitable water supply. The portion of the system above ground is a network of specially or hydraulically designed piping installed in a building, structure, or area, generally overhead, and to which automatic sprinklers are connected in a systematic pattern. The system is usually activated by heat from a fire and discharges water over the fire area.

**Automatic water supply:** Water supplied through a gravity or pressure tank or automatically operated fire pumps, or from a direct connection to an approved municipal water main.

**Basement:** That portion of a building which is partly below and partly above grade, and having at least one-half ( $\frac{1}{2}$ ) its height above grade (see "Grade," "Story" and "Cellar").

**Basic Code:** This code in the application of these provisions may be referred to as this code, this Code, the Basic Code, or the Basic Building Code.

**Bay (part of a structure):** The space between two (2) adjacent piers or mullions or between two (2) adjacent lines of columns.

**Bay window:** A window projecting beyond the wall line of the building and extending down to the foundations.

**Boiler:** A closed heating appliance intended to supply hot water or steam for space heating, processing or power purposes.

**Low pressure (and temperature)**

1. **Steam:** Any boiler, generator, pressure vessel, system, piping or equipment used for the purpose of heating or distributing steam for heating, power or processing, operating at pressures of fifteen (15) psig or less, shall be classed as low pressure.



2. **Hot water:** Any boiler, generator, pressure vessel, system, piping or equipment used for the purpose of heating or distributing hot water for heating, supply or processing, operating at pressures not exceeding one hundred sixty (160) psig and temperatures not exceeding two hundred fifty (250) degrees F., and shall be classed as low pressure.

**Exception:** Hot water supply boilers equipped with safety devices as required by provisions of this code and direct fired are considered outside the scope of this definition when the heat input is less than two hundred thousand (200,000) BTU per hour and the water temperature is less than two hundred (200) degrees F. and the capacity is less than one hundred twenty (120) gallons.

**High pressure (and temperature)**

1. **Steam:** Any boiler, generator, pressure vessel, system, piping or equipment used for the purpose of heating or distributing steam for heating, power and processing, operating at pressure in excess of fifteen (15) psig, shall be classed as high pressure.
2. **Hot water:** Any boiler, generator, pressure vessel, system, piping or equipment used for the purpose of heating or distributing hot water for heating or processing, operating at pressures in excess of one hundred sixty (160) psig or temperatures in excess of two hundred fifty (250) degrees F., shall be classed as high pressure.

**Brick (clay or shale):** A solid masonry unit of clay or shale, usually formed into a rectangular prism while plastic and burned or fired in a kiln.

**Calcium-silicate brick (sand lime brick):** A building unit made of sand and lime.

**Concrete brick:** A solid masonry unit having a shape approximately a rectangular prism and composed of inert aggregate particles embedded in a hardened cementitious matrix.

**Hollow brick:** A masonry unit of clay or shale whose net cross-sectional area in any plane parallel to the bearing surface is not less than sixty (60) per cent or more than seventy-five (75) per cent of its gross cross-sectional area measured in the same plane.

**Building:** Any structure used or intended for supporting or sheltering any use or occupancy.

**Building (existing):** Any structure erected prior to the adoption of the appropriate code, or one for which a legal building permit has been issued.

**Building complex:** Any group of buildings in the same use group which are located on a single parcel of land or on contiguous parcels of land and share common ownership or management.

**CONNECTICUT BASIC BUILDING CODE/1978**

**Building line:** The line established by law, beyond which a building shall not extend, except as specifically provided by law.

**Building official:** The officer or other designated authority charged with the administration and enforcement of this code, or his duly authorized representative.

**Building service equipment:** The mechanical, electrical and elevator equipment, including piping, wiring, fixtures and other accessories, which provide sanitation, lighting, heating, ventilation, fire-fighting and transportation facilities essential for the habitable occupancy of the building or structure for its designated use and occupancy.

**Building site:** The area occupied by a building or structure, including the yards and courts required for light and ventilation, and such areas that are prescribed for access to the street.

**Buttress:** A projecting part of a masonry wall built integrally therewith to furnish lateral stability which is supported on proper foundations.

**Carbon dioxide extinguishing system (CO<sub>2</sub>):** A system to supply CO<sub>2</sub> from a pressurized vessel through fixed pipes and nozzles. The system includes an automatic detection and actuating mechanism.

**Cellar:** That portion of a building which is partly or completely below grade and having at least one-half (½) its height below grade (see "Grade," "Story" and "Basement").

**Central station system:** A system, or group of systems, the operations of which are signaled to, recorded in, maintained and supervised from an approved central station, in which there are competent and experienced observers and operators in attendance at all times whose duty it shall be, upon receipt of a signal, to take such action as shall be required under the rules established for their guidance. Such systems shall be controlled and operated by a person, firm, or corporation whose principal business is the furnishing and maintaining of supervised protective signaling service and who does not have interest in the protected properties.

**Certificate of use and occupancy:** The certificate issued by the building official which permits the use of a building in accordance with the approved plans and specifications and which certifies compliance with the provisions of law for the use and occupancy of the building in its several parts together with any special stipulations or conditions of the building permit.

**Change of use:** An alteration by change of use in a building heretofore existing to a new use group which imposes other special provisions of law governing building construction, equipment or means of egress.

## DEFINITIONS AND CLASSIFICATIONS

**Chimney:** A primarily vertical enclosure containing one (1) or more passageways.

**Factory-built chimneys:** A chimney that is factory-made, listed by a nationally recognized testing or inspection agency, for venting gas appliances, gas incinerators and solid or liquid fuel burning appliances.

**Masonry chimney:** A field constructed chimney of solid masonry units, bricks, stones, listed hollow masonry units or reinforced concrete built in accordance with nationally recognized standards.

**Metal chimney (smokestack):** A field constructed chimney made of metal and built in accordance with nationally recognized standards.

**Chimney connector:** A pipe which connects a fuel burning appliance to a chimney.

**Clay masonry unit:** A building unit larger in size than a brick, composed of burned clay, shale, fireclay or mixtures thereof.

**Closed sign:** A sign in which more than fifty (50) per cent of the entire area is solid or tightly enclosed or covered.

**Coastal high hazard area:** A special flood hazard area which is also subject to high velocity waters including hurricane wave wash.

**Cold-formed steel construction:** That type of construction made up entirely, or in part, of steel structural members cold-formed to shape from sheet or strip steel such as roof deck, floor and wall panels, studs, floor joists, roof joists and other structural elements.

**Combustible (material):** A combustible (material) is a material which cannot be classified as noncombustible in accordance with that definition.

**Commissioner:** The Commissioner of Public Safety or his duly designated representative, for elevators, dumbwaiters, manlifts, moving stairways, moving walks, special hoisting and conveying equipment, and amusement devices.

**Concrete:** A mixture of cement, aggregates and water, of such proportions and manipulation as to meet specific requirements.

**Concrete masonry unit:** A building unit or block larger in size than twelve (12) by four (4) by four (4) inches made of cement and suitable aggregates.

**Conflagration hazard:** The fire risk involved in the spread of fire by exterior exposure to and from adjoining buildings and structures.

**Construction equipment:** The construction machinery, tools, derricks, hoists, scaffolds, platforms, runways, ladders and all material handling equipment safeguards and protective devices used in construction operations.

**Construction operation:** The erection, alteration, repair, renovation, de-

**CONNECTICUT BASIC BUILDING CODE/1978**

molition or removal of any building or structure; and the excavation, filling, grading and regulation of lots in connection therewith.

**Controlled construction:** The construction of a building or structure or a specific part thereof which has been designated and erected under the supervision of a licensed professional engineer or architect using controlled materials as herein defined in compliance with accepted engineering practice under the procedure of Section 127.0.

**Controlled materials:** Materials which are certified by an accredited authoritative agency as meeting accepted engineering standards for quality and as provided in Sections 719.0 and 800.0.

**Convalescent home (health care facility):** A building or part thereof which is used for the lodging, boarding and nursing care, on a 24-hour basis, of four (4) or more persons who, because of mental or physical incapacity, may be unable to provide for their own needs and safety without the assistance of another person.

**Corridor:** A hallway, passageway or other compartmented space providing the occupants with access to the required exitways of the building or floor area.

**Court:** An open, uncovered, and unoccupied space on the same lot with a building.

**Inner:** Any court other than an outer court.

**Outer:** A court extending to and opening upon a street, public alley, or other approved open space, not less than fifteen (15) feet wide, or upon a required yard.

**Covered mall buildings:** A covered mall building is a single building enclosing a number of tenants and occupancies such as retail stores, restaurants, places of assemblage, recreation facilities, motion picture theaters, offices, banks, speciality shops and anchor stores but excluding high hazard (H) and institutional (I) occupancies and are of two types:

**Type A:** A covered mall building containing such occupancies in airport passenger terminals, hotel lobbies, department stores, discount stores, the lower stories of office buildings, etc. in which the allowable distance of travel from the most remote part of the buildings is measured to an exterior exit door, horizontal exit, exit passageway or an enclosed stairway.

**Type B:** A covered mall building wherein two (2) or more tenants have a main entrance into one (1) or more malls which are roofed interior areas providing common pedestrian facilities for the public wherein the distance of travel of one (1) of the exits from any point within a tenant space is measured to the mall.

## DEFINITIONS AND CLASSIFICATIONS

**Curb level:** The elevation of the street curb as established in accordance with law.

**Building or wall height:** The elevation of the street grade opposite the center of the wall nearest to and facing the street lot line.

**Excavations:** The elevation of the street grade nearest to the point of excavation.

### **Day care center**

**Child day care center:** A day care center in which more than twelve (12) children receive care, maintenance and supervision for less than twenty-four (24) hours per day.

**Group day care home:** A day care facility in which at least five (5) but not more than twelve (12) children receive care, maintenance and supervision by other than parent(s) or legal guardian(s) for less than twenty-four (24) hours per day (generally within a dwelling unit).

**Degree day, heating:** A unit, based upon temperature difference and time, used in estimating fuel consumption and specifying nominal heating load of a building in winter. For any one (1) day, when the mean temperature is less than sixty-five (65) degrees F., there exist as many degree days as there are Fahrenheit degrees difference in temperature between the mean temperature for the day and sixty-five (65) degrees F.

**Deluge system:** An automatic sprinkler system consisting of open sprinklers with water supply valves activated by a separate automatic detection system.

**Draft:** The pressure difference existing between the equipment or any component part and the atmosphere which causes a continuous flow of air and products of combustion through the gas passages of the appliance to the atmosphere.

**Forced draft:** The pressure difference created by the action of a fan, blower or ejector which supplies the primary combustion air above atmospheric pressure.

**Induced draft:** The pressure difference created by the action of a fan, blower or ejector which is located between the appliance and the chimney or vent termination.

**Natural draft:** The pressure difference created by a vent or chimney due to its height and the temperature difference between the flue gases and the atmosphere.

**Draft hood:** A device built into a gas appliance or made a part of a chimney connector or vent connector from a gas appliance which is designed to:

CONNECTICUT BASIC BUILDING CODE/1978

1. permit the ready escape of flue gases in the event of zero draft, a back-draft or stoppage in the vent beyond the draft hood;
2. permit the ready relief of the back pressure from a back-draft so it does not enter the gas appliance; and
3. neutralize the possible effects of excess draft (stack action) upon the operation of the appliance.

**Draft regulator:** A device which functions to maintain a desired draft in the appliance by automatically reducing the draft to the desired value.

**Dry chemical extinguishing system:** A system consisting of dry chemical and expellant gas storage tanks, fixed piping, and nozzles used to assure proper distribution of an approved extinguishing agent on a specific fire hazard or into a potential fire area. The system includes an automatic detection and actuating mechanism.

**Dumbwaiter:** A hoisting and lowering mechanism with a car of limited capacity and size which moves in guides in a substantially vertical direction and is used exclusively for carrying material.

**Duct:** A tube or conduit used for conveying or encasing purposes as specifically defined below.

**Air duct:** A tube or conduit used for conveying air. The air passages of self-contained systems are not to be construed as air ducts.

**Pipe duct:** A tube or conduit used for encasing pipe.

**Wire duct:** A tube or conduit used for encasing either moving or stationary wire, rope, etc.

### Dwellings

**Boarding house, lodging house, tourist house:** A building arranged or used for lodging, with or without meals, for compensation, by more than five (5) and not more than fifteen (15) individuals.

**Dormitory:** A building or space within a building where group sleeping accommodations are provided for persons not members of the same family group, in one (1) room, or a series of closely associated rooms, with or without meals, but without individual cooking facilities.

**Hotel:** A building or group of buildings under the same management in which there are more than fifteen (15) sleeping accommodations for hire, primarily used by transients who are lodged with or without meals, whether designated as a hotel, inn, club, motel, or by any other name. So-called apartment hotels shall be classified as hotels because they are potentially subject to transient occupancy like that of hotels.

**Multi-family apartment house:** A building or portion thereof containing more than two (2) dwelling units and not classified as a one- or two-family dwelling.

## DEFINITIONS AND CLASSIFICATIONS

**One-family dwelling:** A building containing one (1) dwelling unit with not more than five (5) lodgers or boarders.

**Two-family dwelling:** A building containing two (2) dwelling units with not more than five (5) lodgers or boarders per family but not more than fifteen (15) individuals.

**Dwelling unit:** A single unit providing complete, independent living facilities for one (1) or more persons including permanent provisions for living, sleeping, eating, cooking, and sanitation.

**Elevator:** A hoisting and lowering mechanism equipped with a car or platform which moves in guides for the transportation of individuals or freight in a substantially vertical direction through successive floors or levels of a building or structure.

**Freight elevator:** An elevator primarily used for carrying freight and on which only the operator and the persons necessary for loading and unloading and employees having special permission of the Commissioner are permitted to ride.

**Hand elevator:** A freight elevator that is driven by manual power.

**Hydraulic elevator:** A power elevator in which the motion of the car is obtained through the application of force from liquid under pressure.

**Passenger elevator:** An elevator for the transportation of individuals.

**Power elevator:** An elevator in which the motion of the car is obtained through the application of force other than by hand or gravity.

**Sidewalk elevator:** A freight elevator which operates between a sidewalk or other area exterior to the building and floor levels inside the building below such area, which does not have a landing opening into the building at its upper limit of travel and which is not used to carry automobiles.

**Elevator repairs:** All work necessary to maintain present elevator equipment in a safe and serviceable condition and to adjust or replace defective, broken or worn parts, with parts made of equivalent material, strength and design, and only where the replacing part performs the same function as the replaced part.

**Engineer, professional:** An individual or corporation technically and legally qualified to practice the profession of engineering in the State of Connecticut.

**Existing building:** A building erected prior to the adoption of this code, or one for which a legal building permit has been issued.

**Existing equipment:** Any equipment covered by this article which was installed prior to the effective date of this code or for which an application for permit to install was filed with the building official prior thereto.

**CONNECTICUT BASIC BUILDING CODE/1978**

**Exitway:** That portion of a means of egress which is separated from all other spaces of a building or structure by construction or equipment as required in this code to provide a protected way of travel to the exitway discharge.

**Exitway access:** Exitway access is that portion of a means of egress which leads to an entrance to an exitway.

**Exitway discharge:** That portion of a means of egress between the termination of an exitway and a public way.

**Exterior envelope:** The elements of a building which enclose conditioned spaces through which thermal energy may be transferred to or from the exterior.

**Exterior masonry wall construction:** See Section 217.0.

**Fire area:** The floor area enclosed and bounded by fire walls or exterior walls of a building to restrict the spread of fire.

**Fire damper:** A damper arranged to seal off air flow automatically through part of an air duct system, so as to restrict the passage of heat. The fire damper may also be used as a smoke damper if location lends itself to the dual purpose.

**Fire department connection:** A connection for fire department use in supplementing or supplying water for standpipes or sprinkler systems.

**Fire door:** A door and its assembly, so constructed and assembled in place as to give protection against the passage of fire.

**Fire door assembly:** The assembly of a fire door and its accessories, including all hardware and closing devices and their anchors; and the door frame, when required, and its anchors.

**Fire grading:** The fire hazard classification of a building or structure in hours or fractions of an hour established for its use group and occupancy in Table 902.

**Fire hazard:** The potential degree of fire severity existing in the use occupancy of a building and classified as high, moderate or low.

**High:** All uses which involve the storage, sale, manufacture or processing of highly combustible, volatile flammable or explosive products which are likely to burn with extreme rapidity and produce large volumes of smoke, poisonous fumes, gases or explosions in the event of fire.

**Moderate:** All uses which involve the storage, sale, manufacture or processing of materials which are likely to burn with moderate rapidity and a considerable volume of smoke, but which do not produce either poisonous fumes or explosions in the event of fire.

**Low:** All uses which involve the storage, sale or manufacture of materials that do not ordinarily burn rapidly, nor produce excessive smoke, poisonous fumes, or explosions in the event of fire.



## DEFINITIONS AND CLASSIFICATIONS

**Fire limits:** The territories defined and limited by the provisions of this code for the restriction of types of construction.

**Fireproof construction:** See Section 215.0.

**Fire protection:** The provision of safeguards in construction and of exit facilities; and the installation of fire alarm, fire detecting and fire-extinguishing service equipment to reduce the fire risk and the conflagration hazard.

**Fire protection system:** A system including systems, devices, and equipment to detect a fire, actuate an alarm or suppress or control a fire or any combination thereof.

**Fire-resistance:** That property of materials or their assemblies which prevents or retards the passage of excessive heat, hot gases or flames under conditions of use.

**Fire-resistance rating:** The time in hours or fractions thereof that materials or their assemblies will resist fire exposure as determined by fire tests conducted in compliance with recognized standards.

**Fire separation, exterior fire exposure:** The distance in feet measured from the building face to the closest interior lot line or to the center line of a street or public space. Where there are two buildings on the same property, the fire separation for each building is the distance from the building face to an imaginary line between the two buildings; the distance between the buildings is the sum of their fire separation distances.

**Fire separation wall:** A fire-resistance rated assembly of materials not having unprotected openings, designed to restrict the spread of fire.

**Fire suppression system:** A mechanical system designed and equipped to detect a fire, actuate an alarm and suppress or control a fire.

**Fire wall:** A fire-resistance rated wall, having protected openings, which restricts the spread of fire and extends continuously from the foundation to or through the roof.

**Fire window:** A window constructed and glazed to give protection against the passage of fire.

**Flame-resistance:** The property of materials or combinations of component materials which restricts the spread of flame as determined by the flame-resistance tests specified in this code (see Section 904.0).

**Flame spread:** The propagation of flame over a surface.

**Flame spread rating:** The measurement of flame spread on the surface of materials or their assemblies as determined by tests conducted in compliance with recognized standards.

**Flammable:** Subject to easy ignition and rapid flaming combustion.

**Floodproofing:** The making of a structure watertight and able to withstand all hydrostatic loads experienced during a flood. The hydrostatic head of water pressure shall be assumed equal to the height of the critical flood elevation.

**Floor area, gross:** Gross floor area shall be the floor area within the perimeter of the outside walls of the building under consideration, without deduction for hallways, stairs, closets, thickness of walls, columns, or other features.

**Floor area, net:** For the purpose of determining the number of persons for whom exitways are to be provided, net floor area shall be the actual occupied area, not including accessory unoccupied areas or thickness of walls.

**Floor fill:** The fill between the structural floor arch or slab and the finished flooring.

**Floor filling:** The type of short-span floor construction in fireproof and fireresistive buildings installed between structural steel framing to serve as a combination structural floor slab or arch and fireproof protection of the framing.

**Floor finish:** The finish placed on top of the floor arch, slab or other structural floor element.

**Foam extinguishing system:** A special system to discharge a foam made from concentrates, either mechanically or chemically, over the area to be protected.

**Foundation wall:** A wall below the floor nearest grade serving as a support for a wall, pier, column or other structural part of a building.

**Foyer:** The enclosed space surrounding or in the rear of the auditorium of a theatre or other place of assembly which is completely shut off from the auditorium and is used as an assembly or waiting space for the occupants.

**Fuel oil:** A liquid mixture or compound derived from petroleum which does not emit flammable vapor below a temperature of one hundred and twenty-five (125) degrees F. in a Tag closed-cup tester (ASTM D56).

#### **Furnace**

**Floor furnace:** A self-contained, connected or vented furnace designed to be suspended from the floor of the space being heated taking air for combustion outside this heated space and with means for observing the flame and lighting the appliance from the space being heated.

**Forced warm air furnace:** A furnace equipped with a blower to provide the primary means for circulating air.

## DEFINITIONS AND CLASSIFICATIONS

**Warm air furnace:** A solid, liquid or gas-fired appliance for heating air to be distributed with or without duct systems to the space to be heated.

**Garage, private:** A garage for four (4) or less passenger motor vehicles without provision for repairing or servicing such vehicles for profit.

**Garage, public:** A building or structure for the storage or parking of more than four (4) passenger motor vehicles or motor powered boats, or more than one (1) commercial motor vehicle; and in which provision may be made for the dispensing of gasoline, oil or similar products for the servicing of such vehicles. Public garages shall be classified according to their specific use in one (1) of the following groups.

**Group 1:** A public garage in which provision is made for the care, storage, repair or painting of motor vehicles.

**Group 2:** A public garage used exclusively for passenger vehicles that will accommodate not more than nine (9) passengers.

**Grade:** A reference plane representing the average of finished ground level adjoining the building at all exterior walls.

**Grade hallway, grade lobby, grade passageway:** An enclosed hallway or corridor that is an element of an exitway, terminating at a street or an open space or court communicating with a street.

**Grandstand:** Any structure, except movable seating and sectional benches, intended primarily to support individuals for the purposes of assembly, but this definition shall not apply to the permanent seating in theatres, churches, auditoriums and similar buildings.

**Gross leasable area:** The gross leasable area is the total floor area designed for tenant occupancy and exclusive use. The area of tenant occupancy is measured from the center lines of joint partitions to the outside of the tenant walls.

**Ground sign:** A sign supported by uprights or braces in or upon the ground surface.

**Guard:** A vertical protective barrier erected along exposed edges of stairways, balconies, etc.

**Habitable space:** Space in a structure for living, sleeping, eating, or cooking. Bathrooms, toilet compartments, closets, halls, storage or utility space, and similar areas are not considered habitable space.

**Halogenated extinguishing system:** A system of pipes, nozzles and an actuating mechanism and a container or halogenated agent under pressure.

**Handrail:** A bar, pipe, or similar member designed to furnish persons with a handhold. (A handrail, if of suitable design, may also serve a part of a guard.)

**CONNECTICUT BASIC BUILDING CODE/1978**

**Heating appliance:** Any device designed or constructed for the generation of heat from solid, liquid or gaseous fuel or electricity.

**Recessed heater:** A completely self-contained heating unit usually recessed in a wall and located entirely above the floor of the space it is intended to heat.

**Unit heater:** A factory-assembled device designed to heat and circulate air. Essential components are a heat transfer element, housing and fan with driving motor. Normally designed for free delivery of recirculated air.

**Heated space:** A space within a building which is provided with a positive heat supply to maintain air temperature of fifty (50) degrees F. or higher.

**Height, building:** The vertical distance from the grade to the top of the highest roof beams of a flat roof, or to the mean level of the highest gable or slope of a hip roof. When a building faces on more than one (1) street, the height shall be measured from the average of the grades at the center of each street front.

**Court:** The vertical distance from the lowest level of the court to the mean height of the top of the enclosing walls.

**Story:** The vertical distance from top to top of two (2) successive tiers of beams or finished floor surfaces; and, for the topmost story, from the top of the floor finish to the top of the ceiling joists, or, where there is not a ceiling, to the top of the roof rafters.

**Wall:** The vertical distance from the foundation wall or other immediate support of such wall to the top of the wall.

**Hereafter:** After the time that this code becomes effective.

**Heretofore:** Before the time that this code became effective.

**High hazard use:** See Section 206.0.

**Hollow masonry unit:** A masonry unit whose net cross-sectional area in any plane parallel to the bearing surface is less than seventy-five (75) per cent of its gross cross-sectional area measured in the same plane.

**Horizontal exit:** A way of passage from one (1) building to an area of refuge in another building on approximately the same level, or a way of passage through or around a wall or partition to an area of refuge on approximately the same level in the same building which affords safety from fire or smoke from the area of incidence and areas communicating therewith.

**Hospital:** A building or part thereof used for medical, psychiatric, obstetrical or surgical care, on a 24-hour basis of four (4) or more inpatients. Hospitals, wherever used in this code, shall include general hospitals, mental hospitals, tuberculosis hospitals, children's hospitals, and any such facilities providing inpatient care.

## DEFINITIONS AND CLASSIFICATIONS

**Industrial lift (material lift):** A non-portable power operated raising or lowering device for transporting freight vertically.

**Inspection:** A careful observation of the materials and methods of construction for defects, errors and compliance with this code.

**Interior lot line:** Any lot line other than one adjoining a street or public space.

**Jurisdiction:** The government unit which has adopted this code under due legislative authority.

**Kerosene:** An oil or liquid product of petroleum which does not emit a flammable vapor below a temperature of one hundred and fifteen (115) degrees F. when tested in a Tag closed-cup tester (ASTM D56).

**Light-diffusing system:** A suspended construction consisting in whole or in part of lenses, panels, grids or baffles suspended below independently-mounted electrical lighting sources.

**Limited area sprinkler system:** An automatic sprinkler system consisting of not more than twenty (20) sprinklers for use in a room or space enclosed by construction assemblies as required by this code.

**Lintel:** A beam placed over an opening or recess in a wall which supports the wall construction above.

### Load

**Dead load:** The weight of all permanent structural and non-structural components of a building, such as walls, floors, roofs, and fixed service equipment.

**Duration of load:** The period of continuous application of a given load, or the aggregate of periods of intermittent applications of the same load.

**Earthquake load:** The assumed lateral load acting in any horizontal direction on the structural frame due to the kinetic action of earthquakes.

**Impact load:** The load resulting from moving machinery, elevators, cranes, vehicles, and other similar forces and kinetic loads.

**Lateral soil load:** The lateral pressure in pounds per square foot (psf) due to the weight of the adjacent soil, including due allowance for hydrostatic pressure and possible surcharge from fixed or moving loads.

**Live load:** The weight superimposed by the use and occupancy of the building, not including the wind load, earthquake load, or dead load.

**Wind load:** The lateral pressure on the building or structure in pounds per square foot (psf) due to wind blowing in any direction.

**Loading ramp:** A hinged, non-portable device, either mechanical or hydraulic, hand or power operated, used for spanning gaps or adjusting heights between loading surface and carrier or between loading sur-

**CONNECTICUT BASIC BUILDING CODE/1978**

face and loading surface.

**Lobby:** The enclosed vestibule between the principal entrance to the building and the doors to the main floor of the auditorium or assembly room of a theatre or place of assembly, or to the main floor corridor of a business building.

**Lot:** A portion or parcel of land considered as a unit.

**Corner lot:** A lot with two (2) adjacent sides abutting upon streets or other public spaces.

**Interior lot:** A lot which faces on one (1) street or with opposite sides on two (2) streets.

**Lot line:** A line dividing one lot from another, or from a street or any public place.

**Low hazard use:** See Section 210.3.

**Mall:** A mall is a roofed over common pedestrian area serving more than one (1) tenant located within a covered mall building.

**Manual fire alarm system:** An interior alarm system composed of sending stations and signaling devices in a building, operated on an electric circuit, so arranged that the operation of any one (1) station will ring all signals throughout the building and at one (1) or more approved locations.

**Marquee sign:** A sign attached to or hung from a marquee canopy or other covered structure projecting from and supported by the building and extending beyond the building wall, building line or street lot line.

**Masonry:** A built-up construction or combination of building units or materials of clay, shale, concrete, glass, gypsum, stone or other approved units bonded together with mortar or monolithic concrete. Reinforced concrete is not classed as masonry.

**Material platform hoist:** A power or manually operated suspended platform conveyance operating in guide rails for the exclusive raising or lowering of materials, which is operated and controlled from a point outside the conveyance.

**Means of egress:** A continuous and unobstructed path of travel from any point in a building or structure to a public way and consists of three (3) separate and distinct parts: (a) the exitway access, (b) the exitway and (c) the exitway discharge; a means of egress comprises the vertical and horizontal means of travel and shall include intervening room spaces, doors, hallways, corridors, passageways, balconies, ramps, stairs, enclosures, lobbies escalators, horizontal exits, courts, and yards.

**Mechanical ventilation:** The mechanical process of supplying air to, or removing air from, any space.

**Mezzanine:** An intermediate level between the floor and ceiling of any story, and covering not more than thirty-three (33) per cent of the

## DEFINITIONS AND CLASSIFICATIONS

floor area of the room in which it is located.

**Miscellaneous hoisting and elevating equipment:** All power operated hoisting and elevating equipment for raising, lowering and moving persons or material from one level to another, such as, but not limited to, inclined elevators, cranes, slings and hooks, tiering and piling machines not permanently located in a fixed position, mine elevators, skip hoists for blast furnaces, stage and orchestra lifts, lift-bridges and temporary builders' hoists and similar equipment.

**Mobile unit:** A structure of vehicular, portable design built on a chassis and designed to be moved from one site to another and to be used without a permanent foundation.

**Moderate hazard use:** See Section 210.2.

**Mortar:** A plastic mixture of approved cementitious materials, fine aggregates and water used to bond masonry or other structural units.

**Motel:** A hotel as defined in this code.

**Motor fuel service station:** A structure, building or premise or any portion thereof where a flammable fluid is stored, housed or sold for supply to motor vehicles.

**Motor vehicle repair shop:** A building, structure or enclosure in which the general business of repairing motor vehicles is conducted, including a public garage.

**Moving stairway (escalator):** A power driven, inclined, continuous stairway used for raising and lowering passengers.

**Moving walk:** A type of passenger carrying device on which passengers stand or walk, and in which the passenger carrying surface remains parallel to its direction of motion and is uninterrupted.

### Nominal dimension

**Lumber:** A dimension that may vary from actual dimensions as provided in American Lumber Standard listed in Appendix C.

**Masonry:** A dimension that may vary from actual masonry dimensions by the thickness of a mortar joint but not to exceed one-half (1/2) inch.

**Noncombustible:** This is a general, relative term. Its precise meaning is defined in this code for specific applications.

**Noncombustible building material (incombustible):** See Section 903.0.

**Noncombustible construction:** See Section 216.0.

**Occupancy:** The purpose for which a building, or part thereof, is used or intended to be used.

**Occupant load (occupancy load):** The total number of persons that are permitted to occupy a building, or portion thereof, at any one time.

**CONNECTICUT BASIC BUILDING CODE/1978**

**Occupancy sprinkler system:** An automatic sprinkler system servicing a use group in a building enclosed by construction assemblies as required by this code.

**Occupiable room:** A room or enclosed space designed for human occupancy in which individuals congregate for amusement, educational, or similar purposes or in which occupants are engaged at labor; and which is equipped with means of egress, light, and ventilation facilities meeting the requirements of this code.

**Occupiable room, minimum height:** A clear height from finished floor to ceiling or lowest projection of not less than seven and one-half (7½) feet shall be provided in all exitway access and occupiable rooms of structures of assembly, business or mercantile uses.

**Occupied:** As applied to a building, shall be construed as though followed by the words "or intended, arranged or designed to be occupied."

**Open sign:** A sign in which at least fifty (50) per cent of the enclosed area is uncovered, or open to the transmission of wind.

**Ordinary materials:** Materials which do not conform to the requirements of this code for controlled materials.

**Oriel window:** A window projected beyond and suspended from the wall of the building or cantilevered therefrom.

**Owner:** Any person, agent, firm, or corporation having a legal or equitable interest in the property.

**Panel:** (Part of a structure.) The section of a floor or wall comprised between the supporting frame of two (2) adjacent rows of columns and girders or column bands of floor construction.

**Parking structure, open:** A structure for the parking of passenger cars wherein two (2) or more sides of such structure are not less than fifty (50) per cent open on each floor or level for fifty (50) per cent of the distance from the floor to the ceiling and wherein provision for the repairing of such vehicles is not made. Such open parking structures are not classified as public garages, but shall comply with the requirements of Section 429.0.

**Party wall:** A fire wall on an interior lot line used or adapted for joint service between two (2) buildings.

**Penthouse:** An enclosed structure above the roof of a building, other than a roof structure or bulkhead, occupying not more than thirty-three and one third (33⅓) per cent of the roof area.

**Permit:** An official document or certificate issued by the authority having jurisdiction authorizing performance of a specified activity.

**Person:** Includes a corporation or co-partnership as well as an individual.



## DEFINITIONS AND CLASSIFICATIONS

**Physically handicapped:** Afflicted by non-ambulatory disabilities, semi-ambulatory disabilities, sight disabilities, hearing disabilities, disabilities of incoordination, or aging.

**Non-ambulatory disabilities** are impairments that, regardless of cause or manifestation, for all practical purposes, confine people to wheelchairs.

**Semi-ambulatory disabilities** are impairments that cause people to walk with difficulty or insecurity. People using braces or crutches, amputees, arthritics, spastics, and those with pulmonary and cardiac ills may be semi-ambulatory.

**Sight disabilities** are total blindness or impairments affecting sight to the extent that a person functioning in public areas is insecure or exposed to danger.

**Hearing disabilities** are deafness or hearing handicaps that might make a person insecure in public areas because he is unable to communicate or hear warning signals.

**Disabilities of incoordination** are faulty coordination or palsy from brain, spinal or peripheral nerve injury.

**Aging** is growing old with manifestations of reduced mobility, flexibility, coordination, and perceptiveness.

**Place of assembly:** Places of assembly include, but are not limited to, all buildings or portions of buildings used for gathering together fifty (50) or more persons for such purpose as deliberation, worship, entertainment, dining, amusement or awaiting transportation.

**Place of outdoor assembly:** Premises used or intended to be used for public gatherings of two hundred (200) or more individuals in other than buildings.

**Plastic, combustible:** A plastic material more than one twentieth ( $\frac{1}{20}$ ) inches in thickness which burns at a rate of not more than two and one-half ( $2\frac{1}{2}$ ) inches per minute when subjected to ASTM D 635, Standard Method of Test for Flammability of Self-Supporting Plastics, listed in Appendix C.

**Plastic glazing:** Plastic materials which are glazed or set in frame or sash and not held by mechanical fasteners which pass through the glazing material.

**Plastic roof panels:** Plastic materials which are fastened to structural members, or to structural panels or sheathing, and which are used as light-transmitting media in roofs.

**Plastic wall panels:** Plastic materials which are fastened to structural members, or to structural panels or sheathing, and which are used as light-transmitting media in exterior walls.

**Plenum:** An air compartment or chamber to which one (1) or more ducts are connected, and which forms part of an air distribution system.

CONNECTICUT BASIC BUILDING CODE/1978

- Portable sign:** A sign, usually of a temporary nature, not securely anchored to the ground or to a building or structure and which obtains some or all of its structural stability with respect to wind or other normally applied forces by means of its geometry or character.
- Posted use and occupancy:** The posted classification of a building in respect to use, fire grading, floor load and occupancy load.
- Posted sign:** The tablet, card, or plate which defines the use, occupancy, fire grading and floor loads of each story, floor or parts thereof for which the building or part thereof has been approved.
- Prefabricated:** Construction materials or assembled units fabricated prior to erection or installation in a building or structure.
- Prefabricated building:** The completely assembled and erected building or structure, including the service equipment, of which the structural parts consist of prefabricated individual units or subassemblies using ordinary or controlled materials; and in which the service equipment may be either prefabricated or at-site construction.
- Prefabricated subassembly:** A built-up combination of several structural elements designed and fabricated as an assembled section of wall, ceiling, floor or roof to be incorporated into the structure by field erection of two (2) or more such subassemblies.
- Prefabricated unit:** A built-up section forming an individual structural element of the building, such as a beam, girder, plank, strut, column or truss, the integrated parts of which are prefabricated prior to incorporation into the structure, including the necessary means for erection and connection at the site to complete the structural frame.
- Prefabricated unit service equipment:** A prefabricated assembly of mechanical units, fixtures and accessories comprising a complete service unit of mechanical equipment, including bathroom and kitchen plumbing assemblies, unit heating and air-conditioning systems and loop-wiring assemblies of electric circuits.
- Preservative treatment (treated material):** Unless otherwise noted, is impregnation under pressure with a wood preservative. Wood preservative is any suitable substance that is toxic to fungi, insects, borers, and other living wood-destroying organisms.
- Primary member:** Any member of the structural frame of a building or structure used as a column; grillage beam; or to support masonry walls and partitions; including trusses, isolated lintels spanning an opening of eight (8) feet or more; and any other member required to brace a column or a truss.
- Projecting sign:** A display sign which is attached directly to the building wall, and which extends more than fifteen (15) inches from the face of the wall.
- Proprietary (local) system:** An electrical alarm system capable of auto-

## DEFINITIONS AND CLASSIFICATIONS

matically notifying building supervisory personnel of a water flow and/or an impairment of a sprinkler system.

**Protected construction:** That in which all structural members are constructed, chemically treated, covered or protected so that the individual unit or the combined assemblage of all such units has the required fireresistance rating specified for its particular use or application in Table 214, and includes protected-frame, protected-ordinary and protected-noncombustible construction.

**Public way:** Any street, alley or other parcel of land open to the outside air leading to a public street, deeded, dedicated, or otherwise permanently appropriated to the public for public use and having a clear width of not less than ten (10) feet.

**Pyroxylin plastic:** Any nitro-cellulose product or compound soluble in a volatile, flammable liquid, including such substances as celluloid, pyroxylin, fiberloid and other cellulose nitrates (other than nitro-cellulose film) which are susceptible to explosion from rapid ignition of the gases emitted therefrom.

**Ramp:** An inclined floor surface or walkway with a slope greater than one (1) foot in twenty (20) feet.

**Reinforced concrete:** Concrete in which reinforcement, other than that provided for shrinkage or temperature changes, is combined in such manner that the two (2) materials act together in resisting forces.

**Reinforced thermosetting plastic:** A thermosetting plastic reinforced with a glass fiber mat having not less than one and one-half (1½) ounces of glass fiber per square foot.

**Remote station system:** An electrical alarm system capable of automatically notifying the public or private fire departments, or other approved constantly-attended location, when the system is activated.

**Repair:** The reconstruction or renewal of any part of an existing building for the purpose of its maintenance.

**Required:** Shall be construed to be mandatory by provisions of this code.

**Riser:** The vertical supply pipes in a sprinkler system or standpipe system.

**Resistance, thermal (R):** A measure of the ability to retard the flow of heat. The R value is the reciprocal of a heat transfer coefficient as expressed by U.  $R = 1/U$ .

**Roof:** The roof slab or deck with its supporting members, not including vertical supports.

CONNECTICUT BASIC BUILDING CODE/1978

**Roof covering:** The covering applied to the roof for weather resistance, fireresistance or appearance.

**Roof sign:** A sign which is erected, constructed and maintained above the roof of the building.

**Roof structure:** An enclosed structure on or above the roof of any part of a building.

**Rubble**

**Coursed rubble:** Masonry composed of roughly shaped stones fitting approximately on level beds and well bonded.

**Random rubble:** Masonry composed of roughly-shaped stones laid without regularity of coursing but well bonded and fitted together to form well defined joints.

**Rough or ordinary rubble:** Masonry composed of unsquared field stones laid without regularity of coursing but well bonded.

**Rubble masonry:** Masonry composed of roughly shaped stones.

**Runway:** Any aisle or walkway constructed or maintained as a temporary passageway for pedestrians or vehicles.

**Scaffold:** Any elevated platform which is used for supporting workmen, materials or both.

**Secondary member:** Any member of the structural framework other than a primary member, including filling-in beams of floor systems.

**Self-closing:** As applied to a fire door or other opening protective, means normally closed and equipped with an approved device which will insure closing after having been opened for use.

**Shaft, covered:** An interior enclosed space extending through one (1) or more stories of a building, connecting openings in successive floors, or floors and roof, and covered at the top.

**Shaft, open:** An exterior, enclosed space extending through one (1) or more stories of a building, enclosed with walls of the required weather and fireresistance rating for exterior walls, and open to the sky at the top.

**Shall:** The term, when used in this code, shall be construed as mandatory.

**Sidewalk:** A walk within the right-of-way of a public street.

**Signs:** Any fabricated sign or outdoor display structure, including its structure, consisting of any letter, figure, character, mark, point, plane, marquee sign, design, poster, pictorial picture stroke, stripe, line, trade-

## DEFINITIONS AND CLASSIFICATIONS

mark, reading matter, or illuminating device, constructed, attached, erected, fastened, or manufactured in any manner whatsoever so that the same shall be used for the attraction of the public to any place, subject, person, firm, corporation, public performance, article, machine, or merchandise whatsoever, and displayed in any manner out of doors for recognized advertising purposes.

**Slidescape:** A straight or spiral chute erected on the interior or exterior of a building which is designed as a means of human egress direct to the street or other public space.

**Smoke detector:** An approved, listed detector sensing visible or invisible particles of combustion.

**Smokeproof enclosure:** An enclosed stairway, with access from the floor area of the building either through outside balconies or ventilated vestibules, opening on a street or yard or open court, and with a separately enclosed direct exitway to the street at the grade floor.

**Solid masonry:** Masonry consisting of solid masonry units laid contiguously with the joints between the units filled with mortar, or consisting of plain concrete.

**Solid masonry unit:** A masonry unit whose net cross-sectional area in every plane parallel to the bearing surface is seventy-five (75) per cent or more of its gross cross-sectional area measured in the same plane.

**Special flood hazard area:** A coastal or inland land area subject to inundation by the flood having a one hundred (100) year mean recurrence interval as indicated on the applicable maps.

**Special hoisting and conveying equipment:** Manually or power-operated hoisting, lowering or conveying mechanisms, other than elevators, moving stairways or dumbwaiters for the transport of persons or freight in a vertical, inclined or horizontal direction on one (1) floor or in successive floors.

**Automotive lift:** A fixed mechanical device for raising an entire motor vehicle above the floor level, but not through successive floors of the building or structure.

**Conveyors:** A system of machinery and manual or mechanized devices other than elevator and dumbwaiter equipment, consisting of belts, chains, rollers, buckets, aprons, slides and chutes and other miscellaneous equipment for hoisting, lowering and transporting materials and merchandise in packages or in bulk in any direction in a building or structure.

**Manlifts:** A power-operated belt device with steps and handholds for transporting persons in a vertical position through successive floors or levels of the building or structure.

**CONNECTICUT BASIC BUILDING CODE/1978**

**Material lift:** A power-operated rising or lowering device for transporting freight vertically, operating entirely within one (1) story of the building or structure.

**Sprinkler alarm system:** An alarm activated by waterflow from a sprinkler system.

**Stage:** A partially enclosed portion of a building which is designed or used for the presentation of plays, demonstrations, or other entertainment wherein scenery, drops or other effects may be installed or used.

**Stairway:** One (1) or more flights of stairs, and the necessary landings and platforms connecting them, to form a continuous and uninterrupted passage from one floor to another. A flight of stairs, for the purposes of this article, must have at least three (3) risers.

**Standard fire tests:** See Appendix G.

**Standpipe:** A wet or dry fire pipe line, extending from the lowest to the topmost story of a building or structure, equipped with a shut-off valve with hose outlets at every story.

**Steel joist:** Any secondary steel member of a building or structure made of hot or cold-formed solid or open-web sections, or riveted or welded bar, strip or sheet steel members or slotted and expanded or otherwise deformed rolled sections.

**Story:** That portion of a building included between the upper surface of a floor and upper surface of the floor or roof next above (see also "Mezzanine").

**Story (first):** The lowermost story entirely above the grade plane.

**Street:** A public thoroughfare (street, avenue, boulevard) which has been dedicated for public use.

**Street floor:** Any story or floor level accessible from the street or from outside the building at ground level with floor level at main entrance not more than three (3) risers above or below ground level at these points, and so arranged and utilized as to qualify as the main floor.

(For the purposes of this code: Where due to differences in street levels there are two or more stories accessible from the street, each is a street floor. Where there is no floor level within the specified limits for a street floor above or below ground level, the building shall be considered as having no street floor. The street floor is not necessarily the first floor; see definition of first story.)

**Street lot line:** The lot line dividing a lot from a street or other public space.

## DEFINITIONS AND CLASSIFICATIONS

**Structural clay tile:** A hollow masonry unit composed of burned clay, shale, fireclay or mixtures thereof, and having parallel cells.

**Structural steel member:** Any primary or secondary member of a building or structure consisting of a rolled steel structural shape other than cold-formed steel, light gage steel or steel joist members.

**Structure:** That which is built or constructed.

**Supervision (superintendence):** The authority to control and direct construction of a building or structure.

**Temporary signs:** A sign constructed of cloth, fabric or other light temporary material with or without a structural frame intended for a limited period of display; including decoration displays for holidays or public demonstrations.

**Thermal transmittance (U):** Overall coefficient of heat transmission or thermal transmittance (air to air) expressed in units of BTU per hour per square foot per degree F. It is the time rate of heat flow. The U value applies to combinations of different materials used in series along the heat flow path and also to single materials that comprise a building section, and includes cavity air spaces and surface air films on both sides.

**Thermal transmittance (U<sub>o</sub>):** Overall (average) heat transmission or thermal transmittance of a gross area of the exterior building envelope, expressed in units of BTU per hour per square foot per degree F. The U<sub>o</sub> value applies to the combined effect of the time rate of heat flows through the various parallel paths, such as windows, doors and opaque construction areas, comprising the gross area of one or more exterior building components, such as walls, floor, or roof/ceiling.

**Thermosetting material:** A plastic material which is capable of being changed into a substantially non-reformable product when cured.

**Thermoplastic material:** A plastic material which is capable of being repeatedly softened by increase of temperature and hardened by decrease of temperature.

**Tile:** A ceramic surface unit, usually relatively thin in relation to facial area, made from clay or a mixture of clay and other ceramic materials, called the body of the tile, having either "glazed" or "unglazed" face and fired above red heat in the course of manufacture to a temperature sufficiently high to produce specific physical properties and characteristics.

CONNECTICUT BASIC BUILDING CODE/1978

**Use group:** The classification of a building or structure based on the purpose for which it is used.

**Use (used):** The purpose for which the building or structure is designed, used or intended to be used.

**Vent:** A conduit or passageway, vertical or nearly so, for conveying products of combustion to the outside atmosphere.

**Type B and Type B-W:** A gas venting system consisting of vent piping and fittings listed for use with a listed gas appliance.

**Type L:** A low temperature venting system, consisting of listing vent piping and fittings for use with oil-burning appliances listed for use with Type L vents, or with listed gas appliances.

**Vent connector:** The pipe used to connect an approved fuel-fired appliance to a chimney or vent.

**Vent system:** A continuous open passageway from the flue collar or draft hood of a fuel burning appliance to the outside atmosphere for the purpose of removing products of combustion.

**Ventilation:** The process of supplying air to, or removing air from, any space. Such air may or may not have been conditioned.

**Vertical opening:** An opening through a floor or roof.

**Walk:** An exterior pathway with a prepared surface intended for pedestrian use, including general pedestrian areas such as plazas and courts.

## Wall

**Apron wall:** That portion of a skeleton wall below the sill of a window.

**Bearing wall:** A wall supporting any vertical load in addition to its own weight.

**Cavity wall:** A wall built of masonry units or of plain concrete, or a combination of these materials, arranged to provide an air space within the wall, and in which the inner and outer parts of the wall are tied together with metal ties.

**Composite wall:** A wall built of a combination of two (2) or more masonry units of different materials bonded together, one (1) forming the back-up and the other the facing elements.

**Curtain wall:** A non-bearing enclosure wall not supported at each story.

**Division wall:** A wall used to divide the floor area of a building or



## DEFINITIONS AND CLASSIFICATIONS

structure into separate parts for fire protection, for different uses, for restricted occupancy, or other purposes specified in this code.

**Faced wall:** A wall in which the masonry facing and backing are so bonded as to exert common action under load.

**Hollow wall:** A wall built of masonry units so arranged as to provide an air space within the wall, and in which the facing and backing of the wall are bonded together with masonry units.

**Non-bearing wall:** A wall which does not support vertical load other than its own weight.

**Parapet wall:** That part of any wall entirely above the roof line.

**Retaining wall:** A wall designed to resist the lateral displacement of soil or other material.

**Skeleton or panel wall:** A nonbearing wall supported by each story on a skeleton frame.

**Spandrel wall:** That portion of a skeleton wall above the head of a window or door.

**Veneered wall:** A wall having a facing of masonry or other weather-resisting noncombustible materials securely attached to the backing, but not so bonded as to exert common action under load.

**Wall sign:** A sign which is painted on or attached directly to a fence or on the surface of masonry, concrete, frame or other approved building walls, and which extends not more than fifteen (15) inches from the face of the fence or wall.

**Water spray fixed system:** A system using water in a form having a predetermined pattern, particle size, velocity, and density discharged from specially designed nozzles or devices.

### Width

**Inner court:** As applied to an inner court, means its least horizontal dimension.

**Outer court:** As applied to an outer court, means the shortest horizontal dimension measured in a direction substantially parallel with the principal open end of such court.

**Winder:** A step in a winding stairway.

**Writing:** The term shall be construed to include handwriting, type-writing, printing, photo-offset or any other form of reproduction in legible symbols or characters.

**Written notice:** A notification in writing delivered in person to the individual or parties intended, or delivered at, or sent by certified or registered mail to the last residential or business address of legal record.

**Yard:** An unoccupied open space other than a court.

**Zoning:** The reservation of certain specified areas within a community or city for building and structures, or use of land, for certain purposes with other limitations such as height, lot coverage and other stipulated requirements.

**SECTION 202.0 USE GROUP CLASSIFICATION**

**202.1 General:** All buildings and structures shall be classified with respect to use in one (1) of the following use groups listed below.

1. Use group A assembly (see Section 203.0).
2. Use group B business (see Section 204.0).
3. Use group F factory and industrial (see Section 205.0).
4. Use group H high hazard (see Section 206.0).
5. Use group I institutional (see Section 207.0).
6. Use group M mercantile (see Section 208.0).
7. Use group R residential (see Section 209.0).
8. Use group S storage (see Section 210.0).
9. Use group T temporary and miscellaneous (see Section 211.0).

**202.1.1 Comparative terminology:** Table 202 compares the terminology of use groups used in this code with the terminology of use groups used in certain sections of the General Statutes of Connecticut. Where in the General Statutes reference is made to buildings of a specific use group, the use group mentioned in this code shall be considered to be the corresponding use group mentioned in the General Statutes.

**Table 202  
COMPARATIVE USE GROUP DESIGNATIONS**

Use group in this code	Title	Corresponding Use group in General Statutes of Connecticut
A	Assembly	F
B	Business	E
F	Factory and industrial	
	Industrial	D
H	High hazard	A
I	Institutional	H
M	Mercantile	C
R	Residential	L
S	Storage	B
T	Temporary and miscellaneous	
	Miscellaneous	M

**202.2 Fire grading of buildings:** All buildings and structures shall be graded in accordance with the degree of fire hazard of their use in terms of hours and fractions of an hour and as regulated by Section 902.0.

## DEFINITIONS AND CLASSIFICATIONS

**202.3 New uses:** The building official shall establish by approved rules the degree of hazard involved and the fire grading of any use not specifically provided for in this code.

### SECTION 203.0 USE GROUP A, ASSEMBLY BUILDINGS

**203.1 General:** All buildings and structures, or parts thereof, shall be classified in the assembly (A) use group which are used or designed for places of assembly as defined in this code. Assembly type uses with a total occupancy load less than fifty (50) shall be classified as use group B (business).

#### 203.2 Use group A-1, theatres

**203.2.1 Use group A-1-A structures:** This use group shall include all theatres and other buildings used primarily for theatrical or operatic performances and exhibitions, arranged with a raised stage, proscenium curtain, fixed or portable scenery loft, lights, motion picture booth, mechanical appliances or other theatrical accessories and equipment, and provided with fixed seats.

**203.2.2 Use group A-1-B structures:** This use group shall include all theatres without a stage and equipped with fixed seats used for motion picture performances.

**203.3 Use group A-2 structures:** This use group shall include all buildings and places of public assembly, without theatrical stage accessories, designed for use as dance halls, night clubs and for similar purposes including all rooms, lobbies and other spaces connected thereto with a common means of egress and entrance.

**203.4 Use group A-3 structures:** This use group shall include all buildings with or without an auditorium in which persons assemble for amusement, entertainment or recreation, and incidental motion picture, dramatic, theatrical or educational presentations, lectures, or other similar purposes without theatrical seating facilities, including: art galleries, exhibition halls; museums; lecture halls; recreation centers; restaurants other than night clubs; and buildings designed for other similar assembly purposes including passenger terminals.

**203.5 Use group A-4 structures:** This use group shall include all buildings used as churches, child day care centers, libraries, schools, colleges, and for similar educational and religious purposes.

**203.6 Use group A-5 structures:** This use group shall include grandstands, bleachers, coliseums, stadiums, drive-in theatres, tents and similar structures for outdoor assembly use, and shall comply with the provisions of this code for special uses and occupancies (see Article 4).

CONNECTICUT BASIC BUILDING CODE/1978

**203.7 Regulations guide:** The following listing contained in Table 203.7 is a guide to the principal requirements of this code applicable to use group A, assembly buildings. They are not necessarily the only, nor all, of the provisions with which compliance is required. Omission of reference to any provision shall not nullify any requirement of this code, nor exempt any structure from such requirement.

**Table 203.7  
ASSEMBLY BUILDINGS REGULATIONS GUIDE**

Types of construction:	Construction classification, 214.0 Historic buildings, Article 22 Places of public assembly, 417.0 Public assembly other than theatres, 418.0 Stadiums and grandstands, 420.0 Drive-in motion picture theatres, 421.0
Allowable area:	General area limitations, 305.0 Area exceptions, 306.0 Subdivision of attic spaces, 875.9 Unlimited areas, 307.0 Unlimited area, school buildings, 307.1.1 Unlimited area, indoor recreation, 307.1.2
Allowable height:	General height limitations, 305.0 Height exceptions, 308.0
Fire separations:	Fire walls and party walls, 907.0 Fire separation walls, 909.0 Elevator opening protectives, 1613.0 Automatic fire doors and dampers, 903.0 Mixed use and occupancy, 213.0 Vertical shafts, 910.0 Fireresistance rated floor/roof assemblies, 912.0
Exterior wall protection:	Exterior walls, 906.0 Exterior opening protectives, 914.0 Glazing of unprotected openings, 1902.0
Fire limit requirements:	Restrictions within fire limits, 302.0 Restrictions outside fire limits, 303.0 Roof structures, 925.0
Fireresistance:	Fire hazard classification, 902.0 Fireresistance tests, 903.0 Roof coverings, 903.3 Opening protectives, 903.4 Fire-retardant treated wood, 903.6 Fireresistance of structural members, 911.0 Fireresistance rated floor/roof assemblies, 912.0 Roof construction, 913.0 Fire windows and shutters, 916.0 Firestopping, 875.9 and 919.0 Balconies, 924.0 Roof structures, 925.0 Roof coverings, 926.0 Refuse vaults, enclosure requirements, 1108.0 Basement assembly uses, 905.7.3 Grade floor protection, 905.7

DEFINITIONS AND CLASSIFICATIONS

Table 203.7 (cont'd.)  
ASSEMBLY BUILDINGS REGULATIONS GUIDE

Interior finish:	Interior finish and trim, 920.0 Application of interior finish, 921.0 Flameresistance tests, 904.0 Decorative material restrictions, 923.0
Means of egress:	Occupancy load, 606.0 Location, 607.0 Capacity, 608.0 Number of exitways, 609.0 Exit access corridors, 610.0 Grade passageways, 611.0 Means of egress doorways, 612.0 Horizontal exits, 614.0 Interior exitway stairways, 616.0 Access to roof, 617.0 Exit signs, 623.0 Means of egress lighting, 624.0 Elevator, exitway restrictions, 1610.0 Smokeproof enclosures, 618.0 Exterior exitway stairways, 619.0 Panic hardware, 612.5.2 (also see Sections 417.0 and 418.0)
Fire protection systems:	Water sprinkler systems, 1204.0 Fire suppression systems, 1202.0 Standpipe systems, 1211.0
Vertical openings:	Shafts, 515.0 Firestopping, 919.0 Vertical shafts and hoistways, 910.0 Hoistway enclosures and venting, 1609.0 Fire ventilation of open wells, 520.0
Hazardous area:	Boiler and equipment rooms, 400.6 Segregation of storage space, 400.8 Existing buildings, 405.0 Pyroxylin plastics, 407.0
Light and ventilation:	Bath and toilet rooms, 512.0 Ventilation of shafts, 515.0 Artificial light and ventilation, 504.0 Natural light and ventilation, 506.0 Air-conditioning, refrigeration and mechanical ventilation (see mechanical code listed in Appendix B) Skylights, 1905.0
Sanitation:	Plumbing and drainage, Article 17 Termite protection, 874.0 Handicapped, plumbing fixtures, 315.8
Electrical wiring:	Article 15
Motion picture projection rooms:	Use and storage of flammable films, 408.0 Projection rooms, construction, 408.3
Stages and platforms:	Stage construction, 417.7 Dressing rooms, 417.8
Provisions for the handicapped and aged:	Section 315.0 and Article 21

Table 203.7 (cont'd.)  
ASSEMBLY BUILDINGS REGULATIONS GUIDE

Energy conservation:	Article 20
----------------------	------------

**SECTION 204.0 USE GROUP B, BUSINESS BUILDINGS**

**204.1 General:** All buildings and structures or parts thereof shall be classified in the business (B) use group which are used for the transaction of business for the rendering of professional services, or for other services that involve stocks of goods, wares or merchandise in limited quantities for use incidental to office uses or sample purposes including among others offices, banks, civic administration activities, fire houses, out-patient clinics, police stations, professional services, testing and research laboratories, radio stations, telephone exchanges, motor fuel service stations and similar establishments.

**204.2 Regulations guide:** The following listing contained in Table 204.2 is a guide to the principal requirements of this code applicable to use group B, business buildings. They are not necessarily the only, nor all of the provisions with which compliance is required. Omission of reference to any provision shall not nullify any requirement of this code, nor exempt any structure from such requirement.

Table 204.2  
BUSINESS BUILDINGS REGULATIONS GUIDE

Types of construction:	Construction classification, 214.0 Mixed use and occupancy, 213.0 Historic buildings, Article 22 Motor fuel service stations, 415.0 Open parking structures, 429.0 High rise buildings, 431.0
Allowable area:	General area limitations, 305.0 Area exceptions, 306.0 Subdivision of attic spaces, 875.9 Unlimited area buildings, 307.0
Allowable height:	General height limitations, 305.0 Height exceptions, 308.0
Fire separations:	Fire walls and party walls, 907.0 Fire separation walls, 909.0 Elevator opening protectives, 1813.0 Automatic fire doors and dampers, 903.0 Mixed use and occupancy, 213.0 Vertical shafts, 910.0 Fireresistance rated floor/roof assemblies, 912.0
Exterior wall protection:	Exterior walls, 906.0 Exterior opening protectives, 914.0 Glazing of unprotected openings, 1902.0
Fire limit requirements:	Restrictions within fire limits, 302.0 Restrictions outside fire limits, 303.0 Roof structures, 925.0

DEFINITIONS AND CLASSIFICATIONS

Table 204.2 (cont'd.)  
BUSINESS BUILDINGS REGULATIONS GUIDE

Fire resistance:	<p>Fire hazard classification, 902.0                  Fire resistance tests, 903.0                  Roof coverings, 903.3                  Opening protectives, 903.4                  Fire-retardant treated wood, 903.6                  Fire resistance of structural members, 911.0                  Fire resistance rated floor/roof assemblies, 912.0                  Roof construction, 913.0                  Fire windows and shutters, 916.0                  Firestopping, 919.0                  Balconies, 924.0                  Roof structures, 925.0                  Roof coverings, 928.0                  Refuse vaults, enclosure requirements, 1108.0                  Shipping areas, 905.5                  Grade floor protection, 905.7</p>
Interior finish:	<p>Interior finish and trim, 920.0                  Application of interior finish, 921.0                  Flame resistance tests, 904.0</p>
Means of egress:	<p>Occupancy load, 606.0                  Location, 607.0                  Capacity, 608.0                  Number of exitways, 609.0                  Exitway access corridors, 610.0                  Grade passageways, 611.0                  Means of egress doorways, 612.0                  Horizontal exits, 614.0                  Interior exitway stairways, 616.0                  Access to roof, 617.0                  Exit signs, 623.0                  Means of egress lighting, 624.0                  Elevator, exitway restrictions, 1610.0                  Smokeproof enclosures, 618.0                  Exterior exitway stairways, 619.0                  Buildings with one exitway, 609.3</p>
Fire protection systems:	<p>Water sprinkler systems, 1204.0                  Fire suppression systems, 431.0 and Article 12                  Standpipe systems, 1211.0</p>
Vertical openings:	<p>Shafts, 515.0                  Firestopping, 919.0                  Vertical shafts and hoistways, 910.0                  Hoistway enclosures and venting, 1609.0                  Fire ventilation of open wells, 520.0</p>
Hazardous area:	<p>Boiler and equipment rooms, 400.6                  Segregation of storage space, 400.8                  Existing buildings, 405.0                  Pyroxylin plastics, 407.0</p>
Light and ventilation:	<p>Bath and toilet rooms, 512.0                  Ventilation of shafts, 515.0                  Artificial light and ventilation, 504.0                  Natural light and ventilation, 506.0</p>

Table 204.2 (cont'd.)  
BUSINESS BUILDINGS REGULATIONS GUIDE

Light and ventilation: (continued)	Air-conditioning, refrigeration and mechanical ventilation (see mechanical code listed in Appendix B) Skylights, 1905.0
Sanitation:	Plumbing and drainage, Article 17 Termite protection, 874.0 Handicapped, plumbing fixtures, 315.8
Electrical wiring:	Article 15
Provisions for the handicapped and aged:	Section 315.0 and Article 21
Energy conservation:	Article 20

**SECTION 205.0 USE GROUP F, FACTORY AND INDUSTRIAL BUILDINGS**

**205.1 General:** All buildings and structures, or parts thereof, in which occupants are engaged in performing work or labor in fabricating, assembling or processing of products or materials, shall be classified in the factory and industrial (F) use group; including, among others, factories, assembling plants, industrial laboratories and all other industrial and manufacturing uses, except those involving highly combustible, flammable or explosive products and materials of the high hazard use group (use group H).

**205.2 List of factory and industrial uses:** The processes and manufacturers listed in the following Table 205.2 shall be indicative of, and include, the uses permitted in use group F buildings.

Table 205.2  
USE GROUP F, FACTORY AND INDUSTRIAL USES

Agricultural processing buildings	Ice plants
Bakeries	Leather and tanneries, excluding enameling or japanning
Boiler works	Millwork and woodworking
Breweries	Sugar refineries
Canneries, including food products	Tenant factories, excluding ladies' dresses and other high hazard uses
Condensed and powdered milk manufacture	Textile mills, including canvas, cotton cloth, bagging, burlap, carpets and rags
Dry cleaning using other than volatile flammable liquids in cleaning or dyeing operations or other than classified in Table 206.3	Upholstery and manufacturing shops
Electric light plants and power houses	Water-pumping plants
Electrolytic reducing works	
Glass plants	

**205.3 Special industrial uses:** All buildings and structures designed to house low hazard industrial processes, including, among others, the production and distribution of electric, gas or steam power and rolling mills and foundries, requiring large areas and unusual heights to accommodate craneways or special machinery and equipment, shall be exempt from the height and area limitations of Table 305.



DEFINITIONS AND CLASSIFICATIONS

**205.3.1 Construction:** Buildings and structures for such special industrial uses shall comply with the requirements of Section 307.0, except as to height, and when constructed of noncombustible (Type 2C) construction may have balconies and mezzanine floors which do not exceed two-thirds ( $\frac{2}{3}$ ) the area of the main floor in any one (1) tier.

**205.3.2 Exterior walls:** The exterior walls of buildings of such low hazard industrial uses shall be constructed of approved noncombustible and weather resisting materials, and, when located with a fire separation of less than thirty (30) feet from interior lot lines of any other building, shall be protected or constructed to provide a fire resistance rating of not less than two (2) hours.

**205.3.3 Fire protection systems:** Special use industrial buildings as herein defined shall comply with the requirements of Article 12 for fire protection systems; except that the provisions of Section 307.0 for automatic fire suppression systems in unlimited area buildings may be waived by the building official when such installations would be detrimental or dangerous to the specific use and occupancy.

**205.4 Regulations guide:** The following listing contained in Table 205.4 is a guide to the principal requirements of this code applicable to use group F, factory and industrial buildings. They are not necessarily the only, nor all, of the provisions with which compliance is required. Omission of reference to any provision shall not nullify any requirement of this code, nor exempt any structure from such requirement.

Table 205.4  
FACTORY AND INDUSTRIAL BUILDINGS REGULATIONS GUIDE

Types of construction:	Construction classification, 214.0 Mixed use and occupancy, 213.0 Historic buildings, Article 22
Allowable area:	General area limitations, 305.0 Area exceptions, 306.0 Subdivision of attic spaces, 875.9 Unlimited area buildings, 307.0
Allowable height:	General height limitations, 305.0 Height exceptions, 308.0
Fire separations:	Fire walls and party walls, 907.0 Fire separation walls, 909.0 Elevator opening protectives, 1613.0 Automatic fire doors and dampers, 903.0 Mixed use and occupancy, 213.0 Vertical shafts, 910.0 Fire resistance rated floor/roof assemblies, 912.0
Exterior wall protection:	Exterior walls, 906.0 Exterior opening protectives, 914.0 Glazing of unprotected openings, 1902.0

Table 205.4 (cont'd.)  
**FACTORY AND INDUSTRIAL BUILDINGS REGULATIONS GUIDE**

Fire limit requirements:	Restrictions within fire limits, 302.0 Restrictions outside fire limits, 303.0 Roof structures, 925.0
Fire resistance:	Fire hazard classification, 902.0 Fire resistance tests, 903.0 Roof coverings, 903.3 Opening protectives, 903.4 Fire-retardant treated wood, 903.6 Fire resistance of structural members, 911.0 Fire resistance rated floor/roof assemblies, 912.0 Roof construction, 913.0 Fire windows and shutters, 916.0 Fire stopping, 919.0 and 875.9 Balconies, 924.0 Roof structures, 925.0 Roof coverings, 926.0 Refuse vaults, enclosure requirements, 1108.0 Grade floor protection, 905.7
Interior finish:	Interior finish and trim, 920.0 Application of interior finish, 921.0 Flame resistance tests, 904.0
Means of egress:	Occupancy load, 606.0 Location, 607.0 Capacity, 608.0 Number of exitways, 609.0 Exitway access corridors, 610.0 Grade passageways, 611.0 Means of egress doorways, 612.0 Horizontal exits, 614.0 Interior exitway stairways, 616.0 Access to roof, 617.0 Exit signs, 623.0 Means of egress lighting, 624.0 Elevator, exitway restrictions, 1610.0 Smokeproof enclosures, 618.0 Exterior exitway stairways, 619.0
Fire protection systems:	Water sprinkler systems, 1204.0 Fire suppression systems, 1202.0 Standpipe systems, 1211.0
Vertical openings:	Shafts, 515.0 Firestopping, 919.0 Vertical shafts and hoistways, 910.0 Hoistway enclosures and venting, 1609.0
Hazardous area:	Boiler and equipment rooms, 400.6 Segregation of storage space, 400.8 Existing buildings, 405.0 Pyroxylin plastics, 407.0 Paint spraying, 411.0
Light and ventilation:	Bath and toilet rooms, 512.0 Ventilation of shafts, 515.0

Table 205.4 (cont'd.)  
FACTORY AND INDUSTRIAL BUILDINGS REGULATIONS GUIDE

Light and ventilation: (continued)	Artificial light and ventilation, 504.0 Natural light and ventilation, 506.0 Air-conditioning, refrigeration and mechanical ventilation (see mechanical code listed in Appendix B) Skylights, 1905.0 Drying rooms, 1106.0
Sanitation:	Plumbing and drainage, Article 17 Termite protection, 874.0 Handicapped, plumbing fixtures, 315.8
Electrical wiring:	Article 15
Provisions for the handicapped and aged:	Section 315.0 and Article 21
Energy conservation:	Article 20

**SECTION 206.0 USE GROUP H, HIGH HAZARD BUILDINGS**

**206.1 General:** All buildings and structures, or parts thereof, shall be classified in the high hazard (H) use group which are used for the storage, manufacture or processing of highly combustible or explosive products or materials, which are likely to burn with extreme rapidity, or which may produce poisonous fumes or explosions; for storage or manufacturing which involves highly corrosive, toxic or noxious alkalies, acids or other liquids or chemicals producing flame, fume, poisonous, irritant or corrosive gases; and for the storage or processing of any materials producing explosive mixtures of dust, or which result in the division of matter into fine particles subject to spontaneous ignition.

**206.2 List of high hazard uses:** The processes, materials and manufactures listed in the following Table 206.2 are indicative of and shall be included among high hazard uses.

Table 206.2  
USE GROUP H, HIGH HAZARD USES

Acetylene gas and gases under pressure of fifteen (15) pounds or more and in quantities of greater than twenty-five hundred (2500) cubic feet; including hydrogen, illuminating, natural, ammonia, chlorine, phosgene, sulphur dioxide, carbon monoxide, methyl oxide and all gases subject to explosion, fume or toxic hazard	Artificial flowers and synthetic leather manufacture Celluloid and celluloid products Cereal, feed, flour and grist mills Cotton batting and cotton waste processes Cotton dressmaking Dry cleaning establishments using or storing more than three (3) gallons of gasoline or other hazardous liquids with a flash point under one hundred (100) degrees F., or more
Ammunition, explosives and fireworks manufacture	

CONNECTICUT BASIC BUILDING CODE/1978

Table 206.2 (cont'd.)  
USE GROUP H, HIGH HAZARD USES

than sixty (60) gallons of volatile flammable liquids with flash point between one hundred (100) and one hundred and forty (140) degrees F., in a closed-cup tester (ASTM D56).	Paint spraying or dipping
Feather renovating	Petroleum manufacture
Fruit ripening processes	Processing of paper or cardboard in loose form
Grain elevators	Pyroxylin products manufacture and storage
Hydrogenation processes	Refrigerating systems using high hazard refrigerants as defined in the mechanical code
Industries employing solids or substances which ignite or produce flammable gases on contact with water	Shoddy mills
Kerosene, fuel, lubricating, or any oil storage with a flash point under two hundred (200) degrees F.	Shoe polish manufacture
Match manufacture or storage	Smoke house (industrial)
Metal enameling or japanning	Straw goods manufacture or broom corn storage
Nitro-cellulose film exchanges and laboratories	Sugar and starch pulverizing mills
Paint and varnish manufacture	Tar, pitch or resin processing
	Tanneries with enameling or japanning
	Tire storage warehouse
	Waste paper sorting, shredding, storage or baling

**206.3 Regulations guide:** The following listing contained in Table 206.3 is a guide to the principal requirements of this code applicable to use group H, high hazard buildings. They are not necessarily the only, nor all, of the provisions with which compliance is required. Omission of reference to any provision shall not nullify any requirement of this code, nor exempt any structure from such requirement.

Table 206.3  
HIGH HAZARD BUILDINGS REGULATIONS GUIDE

Types of construction:	Construction classification, 214.0 Mixed use and occupancy, 213.0 Historic buildings, Article 22 Special high hazards, 400.3
Allowable area:	General area limitations, 305.0 Area exceptions, 306.0 Subdivision of attic spaces, 875.9
Allowable height:	General height limitations, 305.0 Height exceptions, 308.0
Fire separations:	Fire walls and party walls, 907.0 Fire separation walls, 909.0 Elevator opening protectives, 1613.0 Automatic fire doors and dampers, 903.0 Mixed use and occupancy, 213.0 Vertical shafts, 910.0 Fire-resistance rated floor/roof assemblies, 912.0
Exterior wall protection:	Exterior walls, 906.0 Exterior opening protectives, 914.0 Glazing of unprotected openings, 1902.0
Fire limit requirements:	Restrictions within limits, 302.0 Restrictions outside fire limits, 303.0 Roof structures, 925.0

DEFINITIONS AND CLASSIFICATIONS

Table 206.3 (cont'd.)  
HIGH HAZARD BUILDINGS REGULATIONS GUIDE

Fire-resistance:	<p>Fire hazard classification, 902.0                      Fire-resistance tests, 903.0                      Roof coverings, 903.3                      Opening protectives, 903.4                      Fire-retardant-treated wood, 903.6                      Fire-resistance of structural members, 911.0                      Fire-resistance rated floor/roof assemblies, 912.0                      Roof construction, 913.0                      Fire windows and shutters, 916.0                      Firestopping, 875.0 and 919.0                      Balconies, 924.0                      Roof structures, 925.0                      Roof coverings, 926.0                      Refuse vaults, enclosure requirements, 1108.0                      Grade floor protection, 905.7</p>
Interior finish:	<p>Interior finish and trim                      Application of interior finish, 921.0                      Flame resistance tests, 904.0</p>
Means of egress:	<p>Occupancy load, 606.0                      Location, 607.0                      Capacity, 608.0                      Number of exitways, 609.0                      Exit access corridors, 610.0                      Grade passageways, 611.0                      Means of egress doorways, 612.0                      Horizontal exits, 614.0                      Interior exitway stairways, 616.0                      Access to roof, 617.0                      Exit signs, 623.0                      Means of egress lighting, 624.0                      Elevator, exitway restrictions, 1610.0                      Exterior exitway stairway, 619.0                      Slidescapes, 622.0</p>
Fire protection systems:	<p>Water sprinkler systems, 1204.0                      Fire suppression systems, 1202.0                      Standpipe systems, 1211.0</p>
Vertical openings:	<p>Shafts, 515.0                      Firestopping, 919.0                      Vertical shafts and hoistways, 910.0                      Hoistway enclosures and venting, 1609.0                      Fire ventilation of open wells, 520.0</p>
Hazardous area:	<p>Boiler and equipment rooms, 400.6                      Segregation of storage space, 400.8                      Existing buildings, 405.0                      Pyroxylin plastics, 407.0                      Explosion hazards, 401.0                      Combustible dusts, grain processing and storage, 410.0                      Combustible fibers, construction requirements, 409.2                      Paint spraying, 411.0</p>
Light and ventilation:	<p>Bath and toilet rooms, 512.0                      Ventilation of shafts, 515.0                      Artificial light and ventilation, 504.0</p>

Table 206.3 (cont'd.)  
HIGH HAZARD BUILDINGS REGULATIONS GUIDE

Light and ventilation: (continued)	Natural light and ventilation, 506.0 Air-conditioning, refrigeration and mechanical ventilation (see mechanical code listed in Appendix B) Skylights, 1905.0
Sanitation:	Plumbing and drainage, Article 17 Termite protection, 874.0 Handicapped, plumbing fixtures, 315.8
Electrical wiring:	Article 15
Provisions for the handicapped and aged:	Section 315.0 and Article 21
Energy conservation:	Article 20

**SECTION 207.0 USE GROUP I, INSTITUTIONAL BUILDINGS**

**207.1 General:** All buildings and structures, or parts thereof, shall be classified in the institutional (I) use group in which people suffering from physical limitations because of health or age are harbored for medical or other care or treatment, or in which people are detained for penal or correctional purposes, or in which the liberty of the inmates is restricted.

**207.2 Use group I-1:** This use group shall include all buildings designed for the detention of people under restraint, including, among others, jails, prisons, reformatories, insane asylums and similar uses.

**207.3 Use group I-2:** This use group shall include all buildings used for housing people suffering from physical limitations because of health or age, including, among others, hospitals, sanitariums, infirmaries, orphanages, and homes for aged and infirm.

**207.4 Regulations guide:** The following listing contained in Table 207.4 is a guide to the principal requirements of this code applicable to use group I, institutional buildings. They are not necessarily the only, nor all, of the provisions with which compliance is required. Omission of reference to any provision shall not nullify any requirement of this code, nor exempt any structure from such requirement.

Table 207.4  
INSTITUTIONAL BUILDINGS REGULATIONS GUIDE

Types of construction:	Construction classification, 214.0 Mixed use and occupancy, 213.0 Historic buildings, Article 22
Allowable area:	General area limitations, 305.0 Area exceptions, 306.0 Subdivision of attic spaces, 875.9 Unlimited area buildings, 307.0

DEFINITIONS AND CLASSIFICATIONS

Table 207.4 (cont'd)  
 INSTITUTIONAL BUILDINGS REGULATIONS GUIDE

Allowable height:	General height limitations, 305.0 Height exceptions, 308.0
Fire separations:	Fire walls and party walls, 907.0 Fire separation walls, 909.0 Elevator opening protectives, 1613.0 Automatic fire doors and dampers, 903.0 Mixed use and occupancy, 213.0 Vertical shafts, 910.0 Fireresistance rated floor/roof assemblies, 912.0
Exterior wall protection:	Exterior walls, 906.0 Exterior opening protectives, 914.0 Glazing of unprotected openings, 1902.0
Fire limit requirements:	Restrictions within fire limits, 302.0 Restrictions outside fire limits, 303.0 Roof structures, 925.0
Fireresistance:	Fire hazard classification, 902.0 Fireresistance tests, 903.0 Roof coverings, 903.3 Opening protectives, 903.4 Fire-retardant treated wood, 903.6 Fireresistance of structural members, 911.0 Fireresistance rated floor/roof assemblies, 912.0 Roof construction, 913.0 Fire windows and shutters, 916.0 Firestopping, 919.0 Balconies, 924.0 Roof structures, 925.0 Roof coverings, 926.0 Refuse vaults, enclosure requirements, 1108.0 Grade floor protection, 905.7
Interior finish:	Interior finish and trim, 920.0 Application of interior finish, 921.0 Flame resistance tests, 904.0
Means of egress:	Occupancy load, 606.0 Location, 607.0 Capacity, 608.0 Number of exitways, 609.0 Exitway access corridors, 610.0 Grade passageways, 611.0 Means of egress doorways, 612.0 Horizontal exits, 614.0 Interior exitway stairways, 616.0 Access to roof, 617.0 Exit signs, 623.0 Means of egress lighting, 624.0 Elevator, exitway restrictions, 1610.0 Smokeproof enclosures, 618.0 Slidescapes, 622.0 Revolving doors, 613.0

Table 207.4 (cont'd.)  
**INSTITUTIONAL BUILDINGS REGULATIONS GUIDE**

Fire protection systems:	Water sprinkler systems, 1204.0 Fire suppression systems, 1202.0 Standpipe systems, 1211.0 Fire emergency ventilating system, 519.0
Vertical openings:	Shafts, 515.0 Firestopping, 919.0 Vertical shafts and hoistways, 910.0 Hoistway enclosures and venting, 1609.0
Hazardous area:	Boiler and equipment rooms, 400.6 Segregation of storage space, 400.8 Existing buildings, 405.0 Pyroxylin plastics, 407.0
Light and ventilation:	Bath and toilet rooms, 512.0 Ventilation of shafts, 515.0 Artificial light and ventilation, 504.0 Natural light and ventilation, 506.0 Air-conditioning, refrigeration and mechanical ventilation (see mechanical code listed in Appendix B) Skylights, 1905.0
Sanitation:	Plumbing and drainage, Article 17 Termite protection, 874.0 Handicapped, plumbing fixtures, 315.8
Electrical wiring:	Article 15
Provisions for the handicapped and aged:	Section 315.0 and Article 21
Energy conservation:	Article 20

**SECTION 208.0 USE GROUP M, MERCANTILE BUILDINGS**

**208.1 General:** All buildings and structures or parts thereof shall be classified in the mercantile (M) use group which are used for display and sales purposes involving stocks of goods, wares or merchandise incidental to such purposes and accessible to the public; including, among others, retail stores, shops and salesrooms and markets. Highly combustible goods, such as merchandise made of pyroxylin products, shall be limited to small quantities that do not constitute a high hazard; and if not so limited, the construction shall comply with the requirements of the high hazard use group as required by the provisions of Article 4 and Tables 214 and 305.

**208.2 Regulations guide:** The following listing contained in Table 208.2 is a guide to the principal requirements of this code applicable to use group M, mercantile buildings. They are not necessarily the only, nor all, of the provisions with which compliance is required. Omission of reference to any provision shall not nullify any requirement of this code, nor exempt any structure from such requirement.



DEFINITIONS AND CLASSIFICATIONS

Table 208.2  
MERCANTILE BUILDINGS REGULATIONS GUIDE

Types of construction:	Construction classification, 214.0 Mixed use and occupancy, 213.0 Historic buildings, Article 22 Tents and air supported structures, 422.0 Radio and television towers, 426.0 Radio and television antennae, 427.0 Open parking structures, 429.0 Covered malls, 432.0
Allowable area:	General area limitations, 305.0 Area exceptions, 306.0 Subdivision of attic spaces, 875.9 Unlimited area buildings, 307.0
Allowable height:	General height limitations, 305.0 Height exceptions, 308.0
Fire separations:	Fire walls and party walls, 907.0 Fire separation walls, 909.0 Elevator opening protectives, 1613.0 Automatic fire doors and dampers, 903.0 Retail business use, 905.6.3 Mixed use and occupancy, 213.0 Vertical shafts, 910.0 Fireresistance rated floor/roof assemblies, 912.0
Exterior wall protection:	Exterior walls, 906.0 Exterior opening protectives, 914.0 Glazing of unprotected openings, 1902.0
Fire limit requirements:	Restrictions within fire limits, 302.0 Restrictions outside fire limits, 303.0 Roof structures, 925.0
Fireresistance:	Fire hazard classification, 902.0 Fireresistance tests, 903.0 Roof coverings, 903.3 Opening protectives, 903.4 Fire-retardant treated wood, 903.6 Fireresistance of structural members, 911.0 Fireresistance rated floor/roof assemblies, 912.0 Roof construction, 913.0 Fire windows and shutters, 916.0 Firestopping, 919.0 Balconies, 924.0 Roof structures, 925.0 Roof coverings, 926.0 Refuse vaults, enclosure requirements, 1108.0 Packing and shipping rooms, 905.4 Grade floor protection, 905.7
Interior finish:	Interior finish and trim, 920.0 Application of interior finish, 921.0 Flame resistance tests, 904.0
Means of egress:	(also see section 432.0) Occupancy load, 606.0 Location, 607.0

Table 208.2 (cont'd.)  
**MERCANTILE BUILDINGS REGULATIONS GUIDE**

Means of egress: (continued)	Capacity, 608.0 Number of exitways, 609.0 Exitway access corridors, 610.0 Grade passageways, 611.0 Means of egress doorways, 612.0 Horizontal exits, 614.0 Interior exitway stairways, 616.0 Access to roof, 617.0 Exit signs, 623.0 Means of egress lighting, 624.0 Elevator, exitway restrictions, 1610.0 Smokeproof enclosures, 618.0 Exterior exitway stairways, 619.0
Fire protection systems:	Water sprinkler systems, 1204.0 Fire suppression systems, 1202.0 Standpipe systems, 1211.0
Vertical openings:	Shafts, 515.0 Firestopping, 919.0 Vertical shafts and hoistways, 910.0 Hoistway enclosures and venting, 1609.0 Fire ventilation of open wells, 520.0
Hazardous area:	Boiler and equipment rooms, 400.6 Segregation of storage space, 400.8 Existing buildings, 405.0 Pyroxylin plastics, 407.0
Light and ventilation:	Bath and toilet rooms, 512.0 Ventilation of shafts, 515.0 Artificial light and ventilation, 504.0 Natural light and ventilation, 506.0 Air-conditioning, refrigeration and mechanical ventilation (see mechanical code listed in Appendix B) Skylights, 1905.0 Business and work rooms, 509.0
Sanitation:	Plumbing and drainage, Article 17 Termite protection, 874.0 Handicapped, plumbing fixtures, 315.8
Electrical wiring:	Article 15
Provisions for the handicapped and aged:	Section 315.0 and Article 21
Energy conservation:	Article 20

**SECTION 209.0 USE GROUP R, RESIDENTIAL BUILDINGS**

**209.1 General:** All buildings and structures or parts thereof shall be classified in the residential (R) use group in which families or households live, or in which sleeping accommodations are provided for individuals with or without dining facilities, excluding those that are classified as institutional buildings.

DEFINITIONS AND CLASSIFICATIONS

**209.2 Use group R-1 structures:** This use group shall include all hotel and motel buildings, and dormitory buildings arranged for the shelter and sleeping accommodation of more than fifteen (15) individuals.

**Exception:** Any dormitory divided into suites of rooms, with one (1) or more bedrooms opening into a living room or study which has a door opening into a corridor serving a number of suites, shall be classified in use group R-2.

**209.3 Use group R-2 structures:** This use group shall include all multiple-family dwellings having more than two (2) dwelling units; and shall also include boarding and lodging houses arranged for shelter and sleeping accommodation by more than five (5) and not more than fifteen (15) individuals. This use group shall also include all dormitory buildings not classified in use group R-1.

**209.4 Use group R-3 structures:** This use group shall include all buildings arranged for the use of one- or two-family dwelling units and may include not more than five (5) lodgers or boarders per family, or a group day care home.

**209.5 Use group R-4 structures:** This use group shall include all detached one- or two-family dwellings not more than three (3) stories in height, and their accessory structures as indicated in the Appendix B standard, One- and Two-Family Dwelling Code. All such structures may be designed in accordance with the One- and Two-Family Dwelling Code or in accordance with the requirements of this code for use group R-3 structures provided that where the requirements of the General Statutes of Connecticut or the requirements of any other applicable laws, regulations or standards are more restrictive, such more restrictive requirements shall be met.

**209.6 Regulations guide:** The following listing contained in Table 209.6 is a guide to the principal requirements of this code applicable to use group R, residential buildings. They are not necessarily the only, nor all, of the provisions with which compliance is required. Omission of reference to any provision shall not nullify any requirement of this code, nor exempt any structure from such requirement.

Table 209.6  
RESIDENTIAL BUILDINGS REGULATIONS GUIDE

Types of construction:	Construction classification, 214.0 Mixed use and occupancy, 213.0 Historic buildings, Article 22 Motels, 425.0 High rise buildings, 431.0 Mobile units, 424.0
Allowable area:	General area limitations, 305.0 Area exceptions, 306.0 Subdivision of attic spaces, 875.9

CONNECTICUT BASIC BUILDING CODE/1978

Table 209.6 (cont'd.)  
RESIDENTIAL BUILDINGS REGULATIONS GUIDE

Allowable height:	General height limitations, 305.0 Height exceptions, 308.0
Fire separations:	Fire walls and party walls, 907.0 Fire separation walls, 909.0 Elevator opening protectives, 1613.0 Automatic fire doors and dampers, 903.0 Private garages, 413.0 Lot line separation, 303.2 Mixed use and occupancy, 213.0 Vertical shafts, 910.0 Fireresistance rated floor/roof assemblies, 912.0
Exterior wall protection:	Exterior walls, 906.0 Exterior opening protectives, 914.0 Glazing of unprotected openings, 1902.0
Fire limit requirements:	Restrictions with fire limits, 302.0 Restrictions outside fire limits, 303.0 Roof structures, 925.0
Fireresistance:	Fire hazard classification, 902.0 Fireresistance tests, 903.0 Roof coverings, 903.3 Opening protectives, 903.4 Fire-retardant treated wood, 903.6 Fireresistance of structural members, 911.0 Fireresistance rated floor/roof assemblies, 912.0 Roof construction, 913.0 Fire windows and shutters, 916.0 Firestopping, 919.0 Balconies, 924.0 Roof structures, 925.0 Roof coverings, 926.0 Refuse vaults, enclosure requirements, 1108.0
Interior finish:	Interior finish and trim, 920.0 Application of interior finish, 921.0 Flame resistance tests, 904.0
Means of egress:	Occupancy load, 606.0 Location, 607.0 Capacity, 608.0 Number of exitways, 609.0 Exitway access corridors, 610.0 Grade passageways, 611.0 Means of egress doorways, 612.0 Horizontal exits, 614.0 Interior exitway stairways, 616.0 Access to roof, 617.0 Exit signs, 623.0 Means of egress lighting, 624.0 Elevator, exitway restrictions, 1610.0 Smokeproof enclosures, 618.0 Exterior exitway stairways, 619.0 Buildings with one exitway, 609.3

Table 209.6 (cont'd)  
RESIDENTIAL BUILDINGS REGULATIONS GUIDE

Fire protection systems:	Water sprinkler systems, 1204.0 Fire suppression systems, 431.0 and Article 12 Standpipe systems, 1211.0 Fire emergency ventilating system, 519.0
Vertical openings:	Shafts, 515.0 Firestopping, 919.0 Vertical shafts and hoistways, 910.0 Hoistway enclosures and venting, 1609.0 Fire ventilation of open wells, 520.0
Hazardous area:	Boiler and equipment rooms, 400.6 Segregation of storage space, 400.8 Existing buildings, 405.0 Pyroxylin plastics, 407.0 Incinerator, 1008.0
Light and ventilation:	Bath and toilet rooms, 512.0 Ventilation of shafts, 515.0 Artificial light and ventilation, 504.0 Natural light and ventilation, 506.0 Air-conditioning, refrigeration and mechanical ventilation (see mechanical code listed in Appendix B) Skylights, 1905.0
Sanitation:	Plumbing and drainage, Article 17 Termite protection, 874.0 Handicapped, plumbing fixtures, 315.8
Electrical wiring:	Article 15
Provisions for the handicapped and aged	Section 315.0 and Article 21
Sound transmission control:	Section 522.0
Energy conservation:	Article 20

#### SECTION 210.0 USE GROUP S, STORAGE BUILDINGS

**210.1 General:** All buildings and structures or parts thereof shall be classified in the storage (S) use group which are used primarily for the storage of goods, wares or merchandise, except those that involve highly combustible or explosive products or materials; including, among others, warehouses, storehouses and freight depots.

**210.2 List of moderate hazard uses:** Buildings used for the storage of moderate hazard contents are likely to burn with moderate rapidity, but which do not produce either poisonous gases, fumes or explosives, including, among others, the materials listed in the following Table 210.2, shall be classified in the S-1 storage use group.

CONNECTICUT BASIC BUILDING CODE/1978

**Table 210.2**  
**USE GROUP S-1 STORAGE USES, MODERATE HAZARD**

Bags, cloth, burlap and paper	Linoleum
Bamboo and rattan	Livestock shelters
Baskets	Lumber yards
Belting, canvas and leather	Motor vehicle repair shops
Books and paper in rolls or packs	Petroleum warehouses for storage of lubricating oils with a flash point of three hundred (300) degrees F. or higher (see Section 905.3.)
Boots and shoes	Photo-engraving
Buttons, including cloth-covered, pearl or bone	Public garages (Group 1) and stables
Cardboard and cardboard boxes	Silk
Clothing, woolen wearing apparel	Soap
Cordage	Sugar
Furniture	Tobacco, cigars, cigarettes and snuff
Furs	Upholstering and mattress manufacturing
Glue, mucilage, paste and size	Wax candles
Horn and combs, other than celluloid	
Leather enamelling or japanning	

**210.3 List of low hazard uses:** Buildings used for the storage of non-combustibility materials, and of low hazard wares that do not ordinarily burn rapidly, shall be classified in the S-2 storage use group unless herein otherwise classified, including, among others, the materials listed in the following Table 210.3.

**Table 210.3**  
**USE GROUP S-2 STORAGE USES, LOW HAZARD**

Asbestos	Ivory
Chalk and crayons	Metals
Food products	Porcelain and pottery
Glass	Talc and soapstones

**210.4 Regulations guide:** The following listing contained in Table 210.4 is a guide to the principal requirements of this code applicable to use group S, storage buildings. They are not necessarily the only, nor all, of the provisions with which compliance is required. Omission of reference to any provision shall not nullify any requirement of this code, nor exempt any structure from such requirement.

**Table 210.4**  
**STORAGE BUILDINGS REGULATIONS GUIDE**

Types of construction:	Construction classification, 214.0
	Mixed use and occupancy, 213.0
	Historic buildings, Article 22
	Motor vehicle repair shops, 416.0
	Open parking structures, 429.0

DEFINITIONS AND CLASSIFICATIONS

Table 210.4 (cont'd.)  
STORAGE BUILDINGS REGULATIONS GUIDE

Allowable area:	General area limitations, 305.0 Area exceptions, 306.0 Subdivision of attic spaces, 875.9 Unlimited area buildings, 307.0
Allowable height:	General height limitations, 305.0 Height exceptions, 308.0
Fire separations:	Fire walls and party walls, 907.0 Fire separation walls, 909.0 Elevator opening protectives, 1613.0 Automatic fire doors and dampers, 903.0 Public garages, 414.0 Mixed use and occupancy, 213.0 Vertical shafts, 910.0 Fireristance rated floor/roof assemblies, 912.0
Exterior wall protection:	Exterior walls, 906.0 Exterior opening protectives, 914.0 Glazing of unprotected openings, 1902.0
Fire limit requirements:	Restrictions within fire limits, 302.0 Restrictions outside fire limits, 303.0 Roof structures, 925.0
Fireristance:	Fire hazard classification, 902.0 Fireristance tests, 903.0 Roof coverings, 903.3 Opening protectives, 903.4 Fire-retardant treated wood, 903.6 Fireristance of structural members, 911.0 Fireristance rated floor/roof assemblies, 912.0 Roof construction, 913.0 Fire windows and shutters, 916.0 Firestopping, 919.0 Balconies, 924.0 Roof structures, 925.0 Roof coverings, 926.0 Refuse vaults, enclosure requirements, 1108.0 Grade floor protection, 905.7
Interior finish:	Interior finish and trim, 920.0 Application of interior finish, 921.0 Flame resistance tests, 904.0
Means of egress:	Occupancy load, 606.0 Location, 607.0 Capacity, 608.0 Number of exitways, 609.0 Exitway access corridors, 610.0 Grade passageways, 611.0 Means of egress doorways, 612.0 Horizontal exits, 614.0 Interior exitway stairways, 616.0 Access to roof, 617.0 Exit signs, 623.0 Means of egress lighting, 624.0 Elevator exitway restrictions, 1610.0 Exterior exitway stairways, 619.9

Table 210.4 (cont'd.)  
STORAGE BUILDINGS REGULATIONS GUIDE

Fire protection systems:	Water sprinkler systems, 1204.0 Fire suppression systems, 1202.0 Standpipe systems, 1211.0
Vertical openings:	Shafts, 515.0 Firestopping, 919.0 Vertical shafts and hoistways, 910.0 Hoistway enclosures and venting, 1609.0 Fire ventilation of open wells, 520.0
Hazardous area:	Boiler and equipment rooms, 400.6 Segregation of storage space, 400.8 Existing buildings, 405.0 Pyroxylin plastics, 407.0
Light and ventilation:	Bath and toilet rooms, 512.0 Ventilation of shafts, 515.0 Artificial light and ventilation, 504.0 Natural light and ventilation, 506.0 Air-conditioning, refrigeration and mechanical ventilation (see mechanical code listed in Appendix B) Skylights, 1905.0
Sanitation:	Plumbing and drainage, Article 17 Termite protection, 874.0 Handicapped plumbing fixtures, 315.8
Electrical wiring:	Article 15
Provisions for the physically handicapped and aged:	Section 315.0 and Article 21
Energy conservation:	Article 20

**SECTION 211.0 USE GROUP T, TEMPORARY AND MISCELLANEOUS USES**

**211.1 General:** Structures and buildings of a temporary character and miscellaneous structures not classified in any specific use group shall be constructed, equipped and maintained to meet the requirements of this code commensurate with the fire and life hazard incidental to their use. Miscellaneous uses shall include all accessory buildings and structures used as private garages, sheds, fences and similar purposes, and shall include agricultural buildings.

**211.2 Regulations guide:** The following listing contained in Table 211.2 is a guide to the principal requirements of this code applicable to use group T, temporary and miscellaneous buildings. They are not necessarily the only, nor all of the provisions with which compliance is required. Omission of reference to any provision shall not nullify any requirement of this code, nor exempt any structure from such requirement.



DEFINITIONS AND CLASSIFICATIONS

Table 211.2  
 TEMPORARY AND MISCELLANEOUS BUILDINGS REGULATIONS GUIDE

Types of construction:	Construction classification 214.0 Mixed use and occupancy 213.0 Temporary structures 314.0 Tents and air supported structures 422.0 Builders shanties and reviewing stands 302.4 Signs Article 14
Allowable area:	General area limitations 305.0 Area exceptions 306.0 Subdivision of attic spaces 875.9 Temporary projections 312.0
Allowable height:	General height limitations 305.0 Height exceptions 308.0 Bins, tanks and towers 302.5 Storm enclosures 302.3
Fire separations:	Fire walls and party walls 907.0 Fire separation walls 909.0 Elevator opening protectives 1613.0 Automatic fire doors and dampers 903.0 Mixed use and occupancy 213.0 Vertical shafts 910.0 Fireresistance rated floor/roof assemblies 912.0
Exterior wall protection:	Exterior walls 906.0 Exterior opening protectives 914.0 Glazing of unprotected openings 1902.0
Fire limit requirements:	Restrictions within fire limits 302.0 Restrictions outside fire limits 303.0 Roof structures 925.0
Fireresistance:	Fire hazard classification 902.0 Fireresistance tests 903.0 Roof coverings 903.3 Opening protectives 903.4 Fire-retardant treated wood 903.6 Fireresistance of structural members 911.0 Fireresistance rated floor/roof assemblies 912.0 Roof construction 913.0 Fire windows and shutters 916.0 Firestopping 919.0 Balconies 924.0 Roof structures 925.0 Roof coverings 926.0 Refuse vaults, enclosure requirements 1108.0
Interior finish:	Interior finish and trim 920.0 Application of interior finish 921.0 Flame resistance tests 904.0
Means of egress:	Occupancy load 606.0 Location 607.0 Capacity 608.0 Number of exitways 609.0 Exitway access corridors 610.0 Grade passageways 611.0

Table 211.2 (cont'd.)

TEMPORARY AND MISCELLANEOUS BUILDINGS REGULATIONS GUIDE

Means of egress: (continued)	Means of egress doorways, 612.0 Horizontal exits, 614.0 Interior exitway stairways, 616.0 Access to roof, 617.0 Exit signs, 623.0 Means of egress lighting, 624.0 Elevator, exitway restrictions, 1610.0 Exterior exitway stairways, 619.0
Fire protection systems:	Water sprinkler systems, 1204.0 Fire suppression systems, 1202.0 Standpipe systems, 1211.0
Vertical openings:	Shafts, 515.0 Firestopping, 919.0 Vertical shafts and hoistways, 910.0 Hoistway enclosures and venting, 1609.0 Fire ventilation of open wells, 520.0
Hazardous area:	Boiler and equipment rooms, 400.6 Refrigeration of storage space, 400.8 Existing buildings, 405.0
Light and ventilation:	Bath and toilet rooms, 512.0 Ventilation of shafts, 515.0 Artificial light and ventilation, 504.0 Natural light and ventilation, 506.0 Air-conditioning, refrigeration and mechanical ventilation (see mechanical code listed in Appendix B) Skylights, 1905.0
Sanitation:	Plumbing and drainage, Article 17 Termite protection, 874.0 Plumbing and water connections, 1807.0
Electrical wiring:	Article 15

**SECTION 212.0 DOUBTFUL USE CLASSIFICATION**

**212.1 General:** When a building or structure is proposed for a use not specifically provided for in this code or the classification of which is doubtful, such building or structure shall be included in the use group which it most nearly resembles in respect to the existing or proposed life and fire hazard, and it shall be so classified by the building official.

**SECTION 213.0 MIXED USE AND OCCUPANCY**

**213.1 Two or more uses:** When a building is occupied for two (2) or more uses, not included in the same use group, one (1) of the following shall apply.

1. The provisions of the code applying to each use shall apply to such parts of the building as come within that use group; and if there are conflicting provisions the requirements securing the greater

- public safety shall apply to the entire building; or,
2. the mixed uses shall be completely separated, both horizontally and vertically, by fire separation walls and floor-ceiling assemblies having a fire-resistance rating corresponding to the highest fire grading prescribed in Table 902 for the separate uses. Each part of the building shall be separately classified to use. The most restrictive height and area limitations in this code for the mixed uses shall apply to the entire building, or except as otherwise provided for in this code; or,
  3. the mixed uses shall be completely separated by fire walls having a fire-resistance rating corresponding to the highest fire grading prescribed in Table 902 for the separate uses. Each use group shall then comply with the provisions of this code applicable to that group.

**213.2 Incidental uses:** Where the higher hazard use is supplemental to the main use of the building and the area devoted to such use is constructed and segregated by fire-resistance rated construction as required in Article 4, the building shall be classified according to the main use.

#### SECTION 214.0 CONSTRUCTION CLASSIFICATION

**214.1 General:** All buildings and structures erected or to be erected, altered or extended in height or area shall be classified in any one (1) or in a combination of the four (4) construction types herein defined:

1. Type 1, fireproof construction;
2. Type 2, noncombustible construction;
3. Type 3, exterior masonry wall construction; and
4. Type 4, frame construction.

**214.2 False designation:** A building shall not be designated a given type of construction unless it conforms to the minimum requirements for that type; and it shall be unlawful to post, or use, or designate, or advertise a building as of a given type of construction unless it complies with the minimum code requirements for that type.

**214.3 Minimum requirements:** When a superior type of construction is used than the minimum herein required for any specified use, height and area of the building, nothing in this code shall be construed to require full compliance with the specifications for the higher type; but the designated construction classification of the building shall be that of the lesser requirement, unless all the requirements for the higher type are fulfilled.

**Note:** Table 214 appears at the end of this article.

#### SECTION 215.0 TYPE 1, FIREPROOF CONSTRUCTION

**215.1 General:** Buildings and structures of fireproof construction are those in which the walls, partitions, structural elements, floors, ceilings,

and roofs, and the exitways are constructed and protected with approved noncombustible materials to afford the fireresistance rating specified in Table 214, except as otherwise specifically regulated by the provisions of Article 9. Fireproof buildings shall be further classified as Types 1A and 1B. Fire-retardant treated wood may be used as specified in Table 214 and Section 903.6.

#### **SECTION 216.0 TYPE 2, NONCOMBUSTIBLE CONSTRUCTION**

**216.1 General:** Buildings and structures of noncombustible construction are those in which the walls, partitions, structural elements, floors, ceilings, roofs, and the exitways are constructed of approved noncombustible materials meeting the fireresistance rating requirements specified in Table 214, except as modified by the fire limit restrictions of Article 3, and as further regulated in Article 9. Noncombustible buildings shall be further classified as Types 2A, 2B, and 2C. Fire-retardant treated wood may be used as specified in Table 214 and Section 903.6.

#### **SECTION 217.0 TYPE 3, EXTERIOR MASONRY WALL CONSTRUCTION**

**217.1 General:** Buildings and structures of exterior masonry wall construction are those in which the exterior, fire and party walls are constructed of masonry or other approved noncombustible materials, of the required fireresistance rating and structural properties; and the floors, roofs, and interior framing are wholly or partly of wood or of metal or other approved construction; the fire and party walls are ground supported; except that girders and their supports carrying walls of masonry shall be protected to afford the same degree of fireresistance rating of the walls supported thereon; and all structural elements have the required fireresistance rating specified in Table 214.

**217.2 Type 3A:** Buildings and structures of heavy timber construction are those in which fireresistance rating is attained by placing limitations on the minimum sizes of wood structural members and on minimum thickness and composition of wood floors and roofs; by the avoidance, or by the proper protection by firestopping or other acceptable means, of concealed spaces under floors and roofs; by the use of approved fastenings, construction details, and adhesives for structural members; and by providing the required degree of fireresistance rating in exterior and interior walls (see Section 853.0 for construction details).

**217.2.1 Columns:** Wood columns may be sawn or glued laminated and shall be not less than eight (8) inches, nominal, in any dimension when supporting floor loads and not less than six (6) inches, nominal, in width and not less than eight (8) inches, nominal, in depth when supporting roof and ceiling loads only.

**217.2.2 Floor framing:** Beams and girders of wood may be sawn or

## DEFINITIONS AND CLASSIFICATIONS

glued laminated and shall be not less than six (6) inches, nominal, in width and not less than ten (10) inches, nominal, in depth. Framed or glued laminated arches which spring from the floor line and support floor loads shall be not less than eight (8) inches, nominal, in any dimension. Framed timber trusses supporting floor loads shall have members of not less than eight (8) inches, nominal, in any dimension.

**217.2.3 Roof framing:** Framed or glued laminated arches for roof construction which spring from the floor line or from grade and do not support floor loads shall have members not less than six (6) inches, nominal, in width and not less than eight (8) inches, nominal, in depth for the lower half of the height and not less than six (6) inches, nominal, in depth for the upper half. Framed or glued laminated arches for roof construction which spring from the top of walls or wall abutments, framed timber trusses, and other roof framing which do not support floor loads, shall have members not less than four (4) inches, nominal, in width and not less than six (6) inches, nominal, in depth. Spaced members may be composed of two (2) or more pieces not less than three (3) inches, nominal, in thickness when blocked solidly throughout their intervening spaces or when such spaces are tightly closed by a continuous wood cover plate of not less than two (2) inches, nominal in thickness, secured to the underside of the members. Splice plates shall be not less than three (3) inches, nominal, in thickness. When protected by approved automatic sprinklers under the roof deck, framing members shall be not less than three (3) inches, nominal, in width.

**217.2.4 Flooring:** Floors shall be without concealed spaces and shall be of sawn or glued laminated plank, splined, or tongue-and-groove, of not less than three (3) inches, nominal, in thickness covered with one (1) inch, nominal, dimension tongue-and-groove flooring, laid crosswise or diagonally, or one-half ( $\frac{1}{2}$ ) inch plywood, or one-half ( $\frac{1}{2}$ ) inch particle board, or of planks not less than four (4) inches, nominal, in width, set on edge close together and well spiked, and covered with one (1) inch, nominal, dimension flooring, or one-half ( $\frac{1}{2}$ ) inch plywood, or one-half ( $\frac{1}{2}$ ) inch particle board.

**217.2.5 Roof decking:** Roofs shall be without concealed spaces and roof decks shall be sawn or glued laminated, splined or tongue-and-groove plank, not less than two (2) inches, nominal, in thickness, one and one-eighth ( $1\frac{1}{8}$ ) inches thick interior plywood (exterior glue), or of planks not less than three (3) inches, nominal, in width, set on edge close together and laid as required for floors. Other types of decking may be used if providing equivalent fire-resistance rating and structural properties.

**217.2.6 Bearing walls:** Bearing portions of exterior and interior walls shall be of approved noncombustible material and shall have a fire-

Table 214

FIRERESISTANCE RATINGS OF STRUCTURAL ELEMENTS (IN HOURS)

Structural element Note a	Type of construction									
	Type 1 Section 215.0		Type 2 Section 216.0			Type 3 Section 217.0			Type 4 Section 218.0	
	Fireproof		Noncombustible		Note c		Exterior masonry walls		Frame	
	1A	1B	2A	2B	2C	3A	3B	3C	4A	4B
Exterior walls (Section 906.0 and Note b)										
Bearing	4	3	2	1	0	2	2	2	1	0
Non-bearing	0	0	0	0	0	0	0	0	0	0
Bearing	4	3	2	1 1/2	1	2	2	2	1	Note d
Non-bearing	2	2	1 1/2	1	1	2	2	2	1	Note d
Bearing	4	3	2	1	0	2	2	2	1	0
Non-bearing	2	2	1 1/2	1	0	2	2	2	1	0
Bearing	4	3	2	1	0	2	2	2	1	0
Non-bearing	1 1/2	1 1/2	1	1	0	See Sec. 217.0	1 1/2	1 1/2	1	0
2. Fire walls and party walls (Section 907.0)	4	3	2	2	2	2	2	2	2	2
	Fire resistance rating corresponding to fire grading of use group—(See Table 902.)									
3. Fire separation assemblies (Note e)	Fire resistance rating corresponding to fire grading of use group—(See Table 902.)									
4. Fire enclosure of exitways, exitway hallways and stairways (Section 908.0 and Note f)	2	2	2	2	2	2	2	2	1	1
5. Shafts (other than exitways), elevator hoistways (Section 910.0)	2	2	2	2	2	2	2	2	1	1
6. Exitway access corridors (Note j)	1	1	1	1	1	1	1	1	1	1
Vertical separation of tenant spaces	1	1	1	1	0	1	1	0	1	0

DEFINITIONS AND CLASSIFICATIONS

Table 214 (cont'd.)  
FIRERESISTANCE RATINGS OF STRUCTURAL ELEMENTS (IN HOURS)

	1		1		1		1		1		1		1	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Dwelling unit separations (Note k)														
Other non-bearing partitions	Note h													
8 Interior bearing walls, bearing partitions, columns, girders, trusses (other than roof trusses), and framing (Section 910 and Note l)	4	3	2	1	0	See Sec. 217.0	1	0	0	0	1	0	0	0
Supporting more than one floor	Note h													
Supporting one floor only	3	2	1 1/2	1	0	See Sec. 217.0	1	0	0	0	1	0	0	0
Supporting a roof only	3	2	1 1/2	1	0	See Sec. 217.0	1	0	0	0	1	0	0	0
9 Structural members supporting wall (Section 911.0)	3	2	1 1/2	1	0	See Sec. 217.0	1	0	0	0	1	0	0	0
10 Floor construction including beams (Section 912.0 and Note g)	3	2	1 1/2	1	0	See Sec. 217.0	1	0	0	0	1	0	0	0
15' or less in height to lowest member	Note h													
2	1 1/2	1	0	0	0	See Sec. 217.0	1	0	0	0	1	0	0	0
More than 15' but less than 20' in height to lowest member	Note h													
1	1	1	0	0	0	See Sec. 217.0	0	0	0	0	1	0	0	0
20' or more in height to lowest member	Note h													
0	0	0	0	0	0	See Sec. 217.0	0	0	0	0	0	0	0	0

Notes applicable to Table 214:  
 Note a. For special high hazard uses involving a higher degree of fire severity and higher concentration of combustible contents, the fire-resistance rating requirements for structural elements shall be increased accordingly (see Section 400.3).  
 Note b. The fire separation or fire exposure in feet as herein limited applies to the distance measured from the building face to the closest interior lot line, the center line of a street or public space or an imaginary line between two (2) buildings on the same property.  
 Note c. Protected exterior walls shall be required within the fire limits in Type 2 construction as follows: high hazard uses, two (2) hour fire-resistance with fire separation up to eleven (11) feet.  
 Note d. See Sections 213.0, 909.0 and 912.0.  
 Note e. In all buildings of Types 3 or 4 construction, the stairways and their enclosures may be constructed of wood or other approved materials of similar characteristics and of adequate strength. Exitways may be enclosed in one (1) hour fire-resistance rated construction in buildings three (3) stories or less in height.  
 Note f. In Type 3A construction, members which are or material other than heavy timber shall have a fire-resistance rating of not less than one (1) hour (see Section 653.2).  
 Note g. Non-combustible fire-resistant wood, complying with Section 903.5.1, may be used as provided in Section 903.6.2. (Optional) or sloping roofs in Type 1 and Type 2 buildings, immediately above such members, shall be constructed of non-combustible materials of the required strength without a specified fire-resistance rating, or of mill type construction in buildings not over five (5) stories or sixty-five (65) feet in height (see Section 913.3).  
 Note h. Exitway access corridors serving thirty (30) or less occupants may have a zero (0) fire-resistance rating (see Section 610.4).  
 Note i. Separation of all dwelling units shall have a fire-resistance rating of not less than one (1) hour.  
 Note j. Interior bearing walls shall meet the requirements of Section 908.0 if serving a fire separation function.

resistance rating of not less than two (2) hours.

**217.2.7 Non-bearing walls:** Non-bearing portions of exterior walls shall be of approved noncombustible materials, except as otherwise noted and where a horizontal separation of less than twenty (20) feet is provided, nonbearing exterior walls shall have a fireresistance rating of not less than two (2) hours. Where a horizontal separation of twenty (20) feet to thirty (30) feet is provided, non-bearing exterior walls shall have a fireresistance rating of not less than one (1) hour. Where a horizontal separation of thirty (30) feet or more is provided, fireresistance rating is not required. Where a horizontal separation of twenty (20) feet or more is provided, wood columns and arches conforming to heavy timber sizes may be used externally.

**217.3 Type 3B:** Structures of Type 3B (ordinary protected) shall include all exterior masonry wall buildings in which the interior structural elements are wholly or partly of fire-protected wood of not less than two (2) inch nominal thickness, or of other approved protected combustible materials, or of metal protected and insulated to afford the fireresistance rating specified in Table 214.

**217.4 Type 3C:** Structures of Type 3C (ordinary unprotected) construction shall include all exterior masonry wall buildings in which the interior structural members are of wood of not less than two (2) inch nominal thickness or consist of other combustible or noncombustible materials with protection of less than one (1) hour fireresistance rating.

#### **SECTION 218.0 TYPE 4, FRAME CONSTRUCTION**

**218.1 General:** Buildings and structures of frame construction are those in which the exterior walls, bearing walls, partitions, floor and roof construction are constructed wholly or partly of wood stud and joist assemblies with a minimum nominal dimension of two (2) inches, or of other approved combustible materials; with firestopping at all vertical and horizontal draft openings as regulated in Section 875.0, and in which the structural elements have the required fireresistance ratings specified in Table 214. Frame buildings shall be further classified as Types 4A and 4B.



## **ARTICLE 3**

### **GENERAL BUILDING LIMITATIONS**

#### **SECTION 300.0 GENERAL**

**300.1 Scope:** The provisions of this article shall control the division of each municipality into fire limits and the general limitations of height and area of all buildings hereafter erected, and extensions to existing buildings hereafter altered or enlarged as affected by the fire and life hazard incident to the type of construction, use group, density of development, exterior exposure and accessibility of buildings and structures to fire-fighting equipment.

**300.2 Further:** The provisions of this article shall control the design, construction and arrangement of all buildings and structures to ensure accessibility thereto and usability by physically handicapped persons.

#### **SECTION 301.0 FIRE LIMITS**

**301.1 General:** For the purpose of control of use and construction of buildings to prevent conflagration from fire, the legislative body of each municipality may establish limiting districts designated "fire limits" and "outside fire limits," under the legal procedure of the municipality.

**301.2 Fire limits:** The fire limits shall comprise the areas containing congested business, commercial, manufacturing and industrial uses or in which such uses are developing. The limits of such areas shall be bounded as described by the municipality. If no such fire limits are established, the entire town, city, and borough shall be considered "outside fire limits".

**301.3 Outside fire limits:** All other areas not included in the fire limits shall be designated as outside fire limits.

#### **SECTION 302.0 RESTRICTIONS WITHIN THE FIRE LIMITS**

**302.1 General:** All buildings and structures, and all additions to existing buildings and structures, hereafter erected within the boundaries of the fire limits shall be of fireproof (Type 1), protected noncombustible (Types 2A and 2B), heavy timber (Type 3A), or ordinary protected (Type 3B) construction as defined in Article 2 and regulated in Table 214; and

shall be constructed within the height and area limitations of Table 305 except as herein provided. Open parking structures may be constructed as permitted under Section 429.0.

**302.2 Type 2C, 3C and 4A construction permitted:** Buildings and structures, and additions to existing buildings and structures, hereafter erected within the fire limits may be of unprotected noncombustible (Type 2C), ordinary unprotected (Type 3C) or protected frame (Type 4A) construction as defined in Article 2 and regulated in Tables 214 and 305 when constructed and located in accordance with the requirements of Table 302.

**Table 302  
EXTERIOR WALL FIRERESISTANCE RATING REQUIREMENTS**

Width of fire separation adjacent to exterior wall	Fireresistance rating of exterior wall* or barrier	Fireresistance rating of exterior opening protectives	Classification minimum of roof covering
On lot lines or less than 3 ft. therefrom or from any building	4 hour	Not permitted	B
More than 3 ft. but less than 6 ft.	3 hour	3 hour	B
6 ft. or more but less than 11 ft.	2 hour	1½ hour	B
11 ft. or more but less than 30 ft.	1 hour	¾ hour	B
30 ft. or more	0 hour	0 hour	C

\*Not less than that required by Table 214.

Note 1. The exterior wall or barrier shall extend to the height of the building and be so constructed that it will remain structurally in place for the duration of time indicated by the required fire resistance rating.

Note 2. When the exterior wall or barrier is adjacent to a flat roof, it shall be constructed with a parapet.

**302.3 Storm enclosures:** Storm enclosures may be erected of frame construction not more than ten (10) feet in height and not more than three (3) feet wider than the entrance doors which they serve, provided they do not project more than six (6) feet beyond the building line.

**302.4 Builders' shanties and reviewing stands:** Temporary builders' shanties erected in connection with approved building operations, platforms, reviewing stands, and other similar miscellaneous structures may be erected of frame (Type 4) construction for a limited period of time as approved by the building official.

**302.5 Bins, tanks, towers and roof structures**

**302.5.1 Timber construction:** Coal and material bins, water towers,

## GENERAL BUILDING LIMITATIONS

tank structures and trestles may be erected of mill type heavy timber construction with dimensions not less than required for Type 3A construction, not over thirty-five (35) feet in height, when located thirty (30) feet from the interior lot lines or any building, except when located on lot lines along a railroad right of way or waterfront.

**302.5.2 Erection on buildings:** Aerial supports not more than twelve (12) feet in height, water tanks and flag poles may be erected of wood on buildings not more than three (3) stories nor more than forty (40) feet in height, and drip bars in cooling towers may be constructed of wood.

**302.6 Motor fuel service stations:** Gasoline service stations, and structures of similar business uses, not including high hazard (H) uses, may be erected of unprotected noncombustible (Type 2C) construction within the height and area limits of use group B of Table 305, provided they are located not less than eleven (11) feet from the lot line or any building.

**302.7 Bus and passenger terminals:** Roofs over parking lots, bus and passenger terminals may be erected one (1) story and not over twenty (20) feet in height and not more than eleven thousand (11,000) square feet in area of noncombustible (Type 2C) construction or of heavy timber mill (Type 3A) construction.

**302.8 Store fronts:** Wood veneers of one (1) inch nominal thickness or exterior grade plywood not less than three-eighths ( $\frac{3}{8}$ ) inch thick may be used on store fronts when facing public streets; provided the veneer does not exceed one (1) story in height and is applied to noncombustible backing or is furred not to exceed one and five-eighths ( $1\frac{5}{8}$ ) inch and firestopped in accordance with Sections 875.0 and 912.0.

### SECTION 303.0 RESTRICTIONS OUTSIDE FIRE LIMITS

**303.1 General:** Outside the fire limits, all types of construction except as herein specifically prohibited, or for which special approval is required in connection with high hazard uses and occupancies in Article 4, shall be permitted within the height and area limitations of Table 305.

**303.2 Fire separation:** Exterior walls with a fire separation of less than six (6) feet shall be of at least one (1) hour fire-resistance rated construction, including opening protectives, except store front and window and door openings in one- and two-family dwellings. Exterior walls with a fire separation of three (3) feet or less shall not have openings of any type.

**303.3 Roof coverings:** Roof coverings shall conform to the fire-resistive requirements for Class A, B, C or non-rated roofings complying with the provisions of Sections 903.0 and 926.0.

**SECTION 304.0 EXISTING BUILDINGS**

**304.1 Alterations**

**304.1.1 Limitations:** These provisions shall not be deemed to prohibit alterations within the limitations of Section 106.0, provided an unlawful change of use is not involved.

**304.1.2 Minor changes:** Changes, alterations or repairs to the interior of a building and to the front facing a street or other public space may be permitted, provided such changes, in the opinion of the building official, do not increase the size or the fire hazard of the building, or endanger the public safety, and are not specifically prohibited by this code.

**304.1.3 Existing projections:** A change or enlargement shall not be made to an existing part of a building now projecting beyond the street lot line or building line where such is established by law, except in conformity to the provisions of Section 310.0 governing new construction.

**304.2 Increase in height and area:** It shall be unlawful to increase the height or area of an existing building or structure, unless it is of a type of construction permitted for new buildings of the increased height and area, and of a use group within the fire limit in which it is located and as regulated by Table 305.

**SECTION 305.0 GENERAL AREA AND HEIGHT LIMITATIONS**

**305.1 General:** The areas and heights of all buildings and structures between exterior walls, or between exterior walls and fire walls, shall be governed by the type of construction and the use group classification as defined in Article 2 and shall not exceed the limits fixed in Table 305, except as these may be specifically modified by other provisions of this code.

**305.2 Area limit:** The area limitations specified in Table 305 shall apply to all buildings fronting on a street, or public space not less than thirty (30) feet in width accessible to a public street.

**305.3 Height limit:** The height in feet and number of stories specified in Table 305 shall apply to all buildings and to all separate parts of a building enclosed within lawful fire walls complying with the provisions of Article 9.

**305.4 Multi-story buildings:** Buildings two (2) stories in height may be built to the same area limits provided in Table 305 for one (1) story buildings. In buildings over two (2) stories in height, the area limits of Table 305 for one (1) story buildings shall be reduced as specified in the following Table 305.4.

GENERAL BUILDING LIMITATIONS

Table 305

**HEIGHT AND AREA LIMITATIONS OF BUILDINGS**  
 Height limitations of buildings (shown in upper figure as stories and feet above grade), and area limitations of one- or two-story buildings facing on one street or public space not less than 30 feet wide (shown in lower figure as area in square feet per floor). See Note a.


N.P.—Not permitted.  
 Unlimited

Table notes appear on Page 63 following

Use group		Type of construction										
		Type 1		Type 2		Type 3			Type 4			
		Fireproof Note b		Noncombustible		Exterior masonry walls			Frame			
				Protected	Unprotected	(H.T.) 608	Protected	Unprotected	Protected	Unprotected		
Note a	1A	1B	2A	2B	2C	3A	3B	3C	4A	4B		
A-1-A Assembly, theatres	With stage and scenery		5 St. 75' 14,400	4 St. 50' 11,400	2 St. 30' 7,500	1 St. 20' 4,800	2 St. 30' 7,200	2 St. 30' 6,600	1 St. 20' 4,800	1 St. 20' 5,100	N.P.	
	Without stage (motion picture theatres)			5 St. 65' 13,950	3 St. 40' 11,125	2 St. 30' 8,400	1 St. 40' 12,600	3 St. 40' 11,950	2 St. 30' 8,400	1 St. 20' 8,925	1 St. 20' 4,200	
A-1-B												
A-2	Assembly, night clubs and similar uses		4 St. 50' 7,200	3 St. 40' 5,700	2 St. 30' 3,750	1 St. 20' 2,400	2 St. 30' 3,600	2 St. 30' 3,300	1 St. 20' 2,400	1 St. 20' 2,550	1 St. 20' 1,700	
A-3	Lecture halls, recreation centers, terminals, restaurants other than night clubs				5 St. 65' 15,950	3 St. 40' 11,125	2 St. 30' 8,400	1 St. 40' 12,600	3 St. 40' 11,950	2 St. 30' 8,400	1 St. 20' 8,925	1 St. 20' 4,200
A-4	Assembly, churches, schools	Note c			5 St. 65' 34,700	3 St. 40' 22,500	2 St. 30' 14,400	3 St. 40' 21,600	3 St. 40' 19,800	2 St. 30' 14,400	1 St. 20' 15,300	1 St. 20' 7,200
B	Business				3 St. 85' 34,200	5 St. 65' 22,500	3 St. 40' 14,400	5 St. 65' 21,600	4 St. 50' 19,800	3 St. 40' 14,400	1 St. 20' 15,300	2 St. 30' 7,200
F	Factory and industrial				5 St. 75' 22,800	4 St. 50' 15,000	2 St. 30' 9,600	4 St. 50' 14,400	3 St. 40' 13,200	2 St. 30' 9,600	2 St. 30' 10,200	1 St. 20' 4,800
H	High hazard	Note e	3 St. 65' 16,800	3 St. 40' 14,400	2 St. 40' 11,400	2 St. 30' 7,500	1 St. 20' 4,800	2 St. 30' 9,000	2 St. 30' 8,250	1 St. 20' 6,000	1 St. 20' 5,100	N.P.
I-1	Institutional, restrained		4 St. 75' 18,000	4 St. 50' 14,250	2 St. 30' 9,315	1 St. 20' 6,000	2 St. 30' 9,000	2 St. 30' 8,250	1 St. 20' 6,000	1 St. 20' 6,750	N.P.	
I-2	Institutional, unincapacitated		4 St. 90' 21,600	4 St. 50' 17,100	2 St. 30' 11,250	1 St. 20' 7,500	2 St. 30' 10,800	2 St. 30' 9,900	1 St. 20' 7,200	1 St. 20' 7,650	N.P.	
M	Mercantile				4 St. 75' 22,600	4 St. 50' 15,000	2 St. 30' 9,600	4 St. 50' 14,400	3 St. 40' 13,200	2 St. 30' 9,600	2 St. 30' 10,200	1 St. 20' 4,800
R-1	Residential, hotels				9 St. 100' 22,800	4 St. 50' 15,000	3 St. 40' 9,600	4 St. 50' 14,400	4 St. 50' 13,200	3 St. 40' 9,600	3 St. 40' 10,200	2 St. 30' 4,800
R-2	Residential, multi-family				9 St. 100' 22,800	4 St. 50' 15,000	3 St. 40' 9,600	4 St. 50' 14,400	4 St. 50' 13,200	3 St. 40' 9,600	3 St. 40' 10,200	2 St. 30' 4,800
R-3	Residential, 1 & 2 family				4 St. 50' 22,600	4 St. 50' 15,000	3 St. 40' 9,600	4 St. 50' 14,400	4 St. 50' 13,200	3 St. 40' 9,600	3 St. 40' 10,200	2 St. 30' 4,800
S-1	Storage, moderate	Notes g and h	5 St. 65' 13,950	4 St. 50' 11,125	2 St. 30' 8,400	1 St. 40' 12,600	3 St. 40' 11,950	2 St. 30' 8,400	2 St. 30' 8,400	2 St. 30' 8,925	1 St. 20' 4,200	
S-2	Storage, low				3 St. 85' 34,200	5 St. 65' 22,500	3 St. 40' 14,400	5 St. 65' 21,600	4 St. 50' 19,800	3 St. 40' 14,400	1 St. 20' 15,300	2 St. 30' 7,200
T	Temporary miscellaneous											

**CONNECTICUT BASIC BUILDING CODE/1978**

**Notes applicable to Table 305**

- Note a.** See the following sections for general exceptions to Table 305.  
 Section 305.4 Allowable area reduction for multi-story buildings.  
 Section 306.2 Allowable area increase due to street frontage.  
 Section 306.3 Allowable area increase due to automatic fire suppression system installation.  
 Section 307.0 Unlimited area one-story buildings.  
 Section 308.1 Allowable height increase due to automatic fire suppression system installation.
- Note b.** Type 1 buildings permitted unlimited tabular heights and areas are not subject to special requirements that allow increased heights and areas for other types of construction.
- Note c.** The tabular area of one-story school buildings of use group A-4 may be increased two hundred (200) per cent provided every classroom has at least one (1) door opening directly to the exterior of the building. Not less than one-half (1/2) of the required exitways from any assembly room included in such buildings shall also open directly to the exterior of the building.
- Note d.** Church auditoriums of Type 3A construction may be erected to sixty-five (65) feet in height, and of Type 4 construction to forty-five (45) feet in height.
- Note e.** For exceptions to height and area limitations of high hazard use buildings, see Article 4 governing the specific use. For other special fire-resistive requirements governing specific uses, see Section 905.0.
- Note f.** For exceptions to height of multi-family dwellings of Types 2B and 3B construction, see Section 905.6.
- Note g.** For height and area exceptions covering open parking structures, see Section 429.0.
- Note h.** For height and area exceptions covering petroleum bulk-storage buildings, see Section 905.3.

**Table 305.4  
PER CENT REDUCTION OF AREA LIMITS**

No. of stories	Type of construction		
	1A & 1B	2A	2B, 2C, 3A, 3B, 3C, 4A, 4B
1	None	None	None
2	None	None	None
3	None	5%	20%
4	None	10%	20%
5	None	15%	30%
6	None	20%	40%
7	None	25%	50%
8	None	30%	60%
9	None	35%	70%
10	None	40%	80%

**SECTION 306.0 AREA EXCEPTIONS**

**306.1 General:** The provisions of this section shall modify the area limits of Table 305 as herein specified.

**306.2 Street frontage increase:** When a building or structure has more than twenty-five (25) per cent of the building perimeter fronting on a street or other unoccupied space not less than thirty (30) feet in width accessible from a street by a posted fire lane not less than eighteen (18) feet in width, the tabular areas may be increased two (2) per cent for each one (1) per cent of such excess frontage.

**306.3 Automatic fire suppression system:** When a building of other than high hazard (use group H) use is equipped with an approved automatic fire suppression system, the tabular areas may be increased by two

## GENERAL BUILDING LIMITATIONS

hundred (200) per cent for one (1) story buildings and one hundred (100) per cent for buildings more than one (1) story in height.

**306.4 School buildings:** When every classroom of a one (1) story school building (use group A-4) has at least one (1) door opening directly to the exterior of the building, the tabular area of Table 305 may be increased two hundred (200) per cent. Not less than one half (%) of the required exitways from any assembly room included in such buildings shall also open directly to the exterior of the building.

### SECTION 307.0 UNLIMITED AREAS

**307.1 One-story buildings:** In other than frame construction, the area of all buildings of assembly (use group A-3), business (B), factory and industrial (F), mercantile (M) and storage (S) use groups not including high hazard uses, which do not exceed one (1) story or eighty-five (85) feet in height shall not be limited; provided the exitway facilities comply with the provisions of Article 6, an automatic fire suppression system is provided complying with the provisions of Section 1202.0, and the building is isolated as specified in Section 307.2, except that a fire suppression system shall not be required for buildings of Type 2 or Type 3A construction used exclusively for storage of noncombustible material, not packed or crated in combustible material, or as exempted by Section 205.3 for special industrial uses.

**307.1.1 School buildings:** One (1) story school buildings of Type 2, 3A and 3B construction may be unlimited in area when a direct exitway to the outside of the building is provided from each classroom and the building is equipped with an approved automatic fire suppression system throughout. A fire separation shall be provided on all sides of such buildings as specified in Section 307.2.

**307.1.2 Indoor recreation buildings:** Indoor participant sport areas such as tennis courts, skating rinks, swimming pools and equestrian clubs may be unlimited in area and exempt from the automatic fire suppression system requirements, providing:

1. direct exitways to the outside are provided for all the occupants of the recreation area;
2. the recreation area is conspicuously posted as to use and occupancy load;
3. the building is equipped with a manual fire alarm system; and
4. all other areas are equipped with an automatic fire suppression system.

**307.2 Fire separation:** The minimum fire separation on any side of one (1) story buildings of unlimited area shall be determined by the type of construction and fire-resistance rating of the exterior wall adjacent

thereto as specified in the following Table 307.

**307.3 Roof vents:** The roof system of one (1) story buildings of unlimited area when of Type 2 or Type 3 construction shall be provided with smoke and heat vents in accordance with Sections 230 and 240 of the Guide for Smoke and Heat Venting listed in Appendix B.

**307.4 Fire access panels:** Grade level doors or fire access panels, as specified in Section 859.4, shall be provided and spaced not more than one hundred fifty (150) feet apart in exterior walls adjacent to a required fire separation less than forty (40) feet.

**Table 307**  
**MINIMUM FIRE SEPARATION FOR TYPE OF CONSTRUCTION**

Type of construction	Fire-resistance rating of exterior bearing walls	Minimum fire separation***	Fire-resistance rating of bearing & non-bearing portions of exterior walls	Minimum fire separation
2A	2 hr.	30 ft.	-	-
2B	1 hr.	40 ft.	2 hr.*	30 ft.
2C	0 hr.	50 ft.	3 hr.**	30 ft.
3A	2 hr.	40 ft.	3 hr.**	30 ft.
3B	2 hr.	40 ft.	3 hr.**	30 ft.
3C	2 hr.	50 ft.	4 hr.**	30 ft.

\*All exterior wall openings shall be protected with one and one-half hour fire-resistance rated approved opening protectives.

\*\*All exterior wall openings shall be protected with three hour fire-resistance rated approved opening protectives.

\*\*\*When the fire separation exceeds the herein specified minimum, the requirements of Table 214, Row 1 (Exterior walls with fire separation of 30 ft. or more; bearing) shall apply.

**SECTION 308.0 HEIGHT EXCEPTIONS**

**308.1 Automatic fire suppression systems:** When a building of other than high hazard (use group H) use is equipped with an approved automatic fire suppression system, the building may be erected one (1) story or twenty (20) feet higher than specified in Table 305.

**308.2 Auditoriums:** Auditoriums (use group A-4) of protected or heavy timber (Type 3A) construction may be erected to sixty-five (65) feet in height and of unprotected construction to forty-five (45) feet.

**SECTION 309.0 STREET ENCHROACHMENTS**

**309.1 General:** Except as herein provided, a part of any building hereafter erected and additions to an existing building heretofore erected shall not project beyond the lot lines or beyond the building line when such line is established by the zoning law or any other ordinance controlling street encroachment.



**309.2 Below grade:** A part of a building hereafter erected below grade that is necessary for structural support of the building shall not project beyond the lot lines, except that the footings of street walls or their supports located at least eight (8) feet below grade may project not more than twelve (12) inches beyond the street lot line.

**309.3 Above grade:** All projections hereafter permitted beyond the street lot line or the building line above grade shall be so constructed as to be readily removable without endangering the safety of the building.

**309.4 Projections necessary for safety:** In any specific application, the building official may designate by approved rules such architectural features and accessories which are deemed desirable or necessary for the health and safety of the public and the extent to which they may project beyond the lot line or the building line where such is established by ordinance, subject to all provisions and restrictions that may be otherwise prescribed by law, ordinance or rule of the authorities having jurisdiction over streets or public spaces.

**309.5 Permit revocable:** Any permit granted or permission expressed or implied in the provisions of this code to construct a building so as to project beyond the street lot line or building line shall be revocable by the jurisdiction at will.

**309.6 Existing encroachments:** Parts of existing buildings and structures which already project beyond the street lot line or building line may be maintained as constructed until their removal is directed by the proper authorities of the jurisdiction.

#### SECTION 310.0 PERMISSIBLE STREET PROJECTIONS

**310.1 General:** Subject to such provisions as may be otherwise prescribed by law or ordinance, or by rule of the municipal authorities having jurisdiction over streets, highways, and public spaces, the following projections, as described in Sections 310.2 through 310.11.1, shall be permitted beyond the street lot line or the building line, as the case may be.

**310.2 Cornices and eaves:** Main cornices or roof eaves located at least twelve (12) feet above the curb level shall project not more than three (3) feet.

**310.3 Architectural decorations:** Belt courses, lintels, sills, architraves, pediments and similar architectural decorations shall project not more than four (4) inches when less than ten (10) feet above the curb level, and not more than ten (10) inches when ten (10) feet or more above the curb level.

**310.4 Ornamental columns:** Ornamental columns, or pilasters, including the bases and moldings which emphasize the main entrance of the

building, shall project not more than twelve (12) inches.

**310.5 Entrance steps:** Entrance steps and doors shall project not more than twelve (12) inches and shall be guarded by check pieces not less than three (3) feet high, or shall be located between ornamental columns or pilasters.

**310.6 Oriel windows:** Oriel windows with the lowest portion at least ten (10) feet above the curb level shall project not more than two and one-half (2½) feet.

**310.7 Balconies:** Balconies located at least ten (10) feet above the curb level shall project not more than three (3) feet, except that when the balcony is required in connection with a fire escape or exterior stairway as an element of a means of egress, the projection may be increased, but not to exceed four (4) feet.

**310.8 Awnings:** Retractable or fixed awnings shall have clearances above the grade, and shall be installed in accordance with the requirements of Section 313.0.

**310.9 Awning covers or boxes:** Awning covers or boxes located at least eight (8) feet above the curb level shall project not more than three (3) feet.

**310.10 Marquees:** For the purpose of this section, a marquee shall include any object or decoration attached to or a part of said marquee.

**310.10.1 Projection and clearance:** The horizontal clearance between a marquee and the curb line shall be not less than two (2) feet. A marquee projecting more than two-thirds (⅔) of the distance from the property line to the curb line shall be not less than ten (10) feet above the ground or pavement below.

**310.10.2 Thickness:** The maximum height or thickness of a marquee measured vertically from its lowest to its highest point shall not exceed three (3) feet when the marquee projects more than two-thirds (⅔) of the distance from the property line to the curb line, and shall not exceed nine (9) feet when the marquee is less than two-thirds (⅔) of the distance from the property line to the curb line.

**310.10.3 Roof construction:** The roof or any part thereof may be a skylight of approved plastics, or wired glass not less than one-fourth (¼) inch thick with a single pane not more than eighteen (18) inches wide. Every roof and skylight of a marquee shall be sloped to downspouts which shall conduct any drainage from the marquee in a manner not to spill over the sidewalk.

**310.10.4 Location prohibited:** Every marquee shall be so located as not to interfere with the operation of any exterior standpipe, and not to obstruct the clear passage of stairways or exitway discharge from the

building or the installation or maintenance of street lighting.

**310.10.5 Construction:** A marquee shall be supported entirely from the building and constructed of noncombustible material. Marquees shall be designed and constructed to withstand wind or other lateral loads and live loads as required in Article 7 of this code. Structural members shall be protected to prevent deterioration as required by Article 8.

**310.11 Vaults:** Vaults below the sidewalk level shall extend not closer than three (3) feet to the curb line; and the construction and use of such vaults shall be subject to the terms and conditions of the authority or legislative body having jurisdiction.

**310.11.1 Areaways:** Areaways shall not project beyond the street lot line more than four (4) feet; provided that every such areaway shall be covered over at the street grade by an approved grating of metal or other noncombustible material.

#### SECTION 311.0 PERMISSIBLE YARD AND COURT ENCROACHMENTS

**311.1 General:** A part of any building or structure shall not extend into side courts, inner courts or yards required for light and ventilation of habitable and occupiable rooms by the provisions of Article 5, or of the zoning law or other statutes controlling building construction, except as hereinafter provided; but the encroachment shall not exceed twenty (20) per cent of the legal area of yard or court required for light and ventilation purposes.

**311.2 Roof eaves:** Roof eaves shall project not more than three (3) feet beyond the face of the wall.

**311.3 Steps and architectural features:** Steps, window sills, belt courses and similar architectural features, rain leaders and chimneys shall project not more than two (2) feet beyond the face of the wall.

**311.4 Exterior stairways and fire escapes:** Outside stairways, smoke-proof tower balconies, fire escapes or other required elements of a means of egress shall not project more than four (4) feet beyond the face of the wall.

#### SECTION 312.0 SPECIAL AND TEMPORARY PROJECTIONS

**312.1 Alley projections:** The permissible projection beyond street lot lines shall apply in general to building projections into alleyways, except as may be modified by the local administrative authority having jurisdiction or by special deed restriction.

**312.2 Special permits:** When authorized by special permit, vestibules and storm doors may be erected for periods of time not exceeding seven (7) months in any one (1) year, and shall project not more than three (3)

feet nor more than one-fourth ( $\frac{1}{4}$ ) the width of the sidewalk beyond the street lot line. Temporary entrance awnings may be erected with a minimum clearance of seven (7) feet to the lowest portion of the hood or awning when supported on removable steel or other approved non-combustible supports.

### SECTION 313.0 AWNINGS AND CANOPIES

**313.1 Permit:** A permit shall be obtained from the building official for the erection, repair or replacement of any fixed awning, canopy or hood except as provided in Section 313.1.1, and for any retractable awning located at the first story level and extending over the public street or over any portion of a court or yard beside a building serving as a passage from a required exitway or exitway discharge to a public street.

**313.1.1 Exemption from permit:** A permit shall not be required for the erection, repair or replacement of fixed or retractable awnings installed on one- and two-family dwellings, unless they project over public property, or for retractable awnings installed above the first story or where the awning does not project over the public street or over any court or yard serving as a passage from a required exitway to a public street.

#### 313.2 Installation of awnings

**313.2.1 Retractable awnings:** There shall be a minimum clearance of seven (7) feet from the sidewalk to the lowest part of the framework or any fixed portion of any retractable awning, except that the bottom of the valance of canvas awnings may extend to six (6) feet nine (9) inches above the sidewalk. Retractable awnings shall be securely fastened to the building and shall not extend closer than twelve (12) inches from the curb line. They shall be equipped with a mechanism or device for raising and holding the awning in a retracted or closed position against the face of the building.

**313.2.2 Fixed or permanent awnings:** The clearance from the sidewalk to the lowest part of any fixed or permanent awning shall be the same as required in Section 313.2.1 for retractable awnings. Fixed or permanent awnings installed above the first story shall not project more than four (4) feet.

**313.3 Canopies:** Canopies shall be constructed of a metal framework, with an approved covering, attached to the building at the inner end and supported at the outer end by not more than two (2) stanchions with braces anchored in an approved manner and placed not less than two (2) feet in from the curb line. The horizontal portion of the framework shall be not less than eight (8) feet nor more than twelve (12) feet above the

## GENERAL BUILDING LIMITATIONS

sidewalk and the clearance between the covering or valance and the sidewalk shall be not less than seven (7) feet. The width of canopies shall not exceed eight (8) feet.

**313.4 Special applications of awnings:** Rigid awnings supported in whole or part by members resting on the ground and used for patio covers, car ports, summer houses or other similar uses shall comply with the requirements of Section 313.5 for design and structure. Such structures shall be braced as required to provide rigidity.

**313.5 Design and construction:** Fixed awnings, canopies and similar structures shall be designed and constructed to withstand wind or other lateral loads and live loads as required by Article 7 of this code with due allowance for shape, open construction and similar features that relieve the pressures or loads. Structural members shall be protected to prevent deterioration.

### SECTION 314.0 TEMPORARY STRUCTURES

**314.1 General:** Pursuant to a variance granted by the board of appeals under the provisions of Section 126.0, the building official may issue a permit for temporary construction as approved by the board of appeals. Such permits shall be limited as to time of service, but such temporary construction shall not be permitted for more than one (1) year.

**314.2 Special approval:** All temporary construction shall conform to structural strength, fire safety, means of egress, light, ventilation and sanitary requirements of this code necessary to insure the public health, safety and general welfare.

**314.3 Termination of approval:** The building official is hereby authorized to terminate such special approval and to order the demolition of any such construction at his discretion, or as directed by the decision of the board of appeals.

### SECTION 315.0 PHYSICALLY HANDICAPPED AND AGED

**315.0.1 Standards:** All provisions for access to and use by physically handicapped people of buildings regulated by this section are deemed to conform to or exceed the requirements of ANSI Standard A117.1-1961 (R 1971), "Specifications for Making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped".

**315.1 Applicability:** The provisions of this section shall apply to all levels and areas used by the general public, employees, persons visiting the premises for any reason and shall apply to all use groups except as follows:

**315.1.1 Exception no. 1 - exempt use groups:** Buildings or portions of buildings in the following use groups shall be exempt from the requirements of this

CONNECTICUT BASIC BUILDING CODE/1978

section:

H High hazard

R-1 Residential, hotels, etc.:

- a) Any building complex, or any building which is not part of a complex, containing fewer than twenty-five (25) bedroom units shall be exempt. For any building complex, or any building which is not part of a complex, which contains in the aggregate at least twenty-five (25) bedroom units, at least one (1) bedroom unit shall be accessible for every twenty-five (25) such units or fraction thereof.
- b) The second story of a two (2) story building shall be exempt, provided that the first story is a street floor and contains bedroom units.

R-2 Residential, multiple-family:

- a) Any building complex, or any building which is not part of a complex, containing fewer than twenty-five (25) dwelling units shall be exempt. For any building complex, or any building which is not part of a complex, which contains in the aggregate at least twenty-five (25) dwelling units, at least one (1) dwelling unit shall be accessible for every twenty-five (25) such units or fraction thereof.
- b) The second story of a two (2) story building shall be exempt, provided that the first story is a street floor and contains dwelling units. Such dwelling units shall have complete living facilities on a street floor but may have additional facilities on the second floor.

R-3 and R-4 Residential, one- and two-family

S-1 Storage, moderate hazard

S-2 Storage, low hazard, except that where any other type of use is combined in the same room or space this exemption shall not apply.

T Temporary and Miscellaneous

**315.1.2 Exception no. 2 - exempt buildings or structures:** Buildings and structures or portions thereof of the following types shall be exempt from the requirements of this section.

Bleachers

Grandstands

Mobile units

Special industrial uses, described in Subsection 205.3

Fallout shelters, provided, however, that where any other type of use is combined in the same room or space, this exemption shall

not apply

Historic buildings, so designated by other provisions of this code, provided, however, that exemptions shall be limited to those necessary to preserve the architectural integrity of the building; and further provided, that any exemption shall not apply to any increase in the size of the building

Existing buildings under the Urban Homesteading Law, provided, however, that exemptions shall be limited as described in Section 316.0.

**315.1.3 Exception no. 3 - partially exempt buildings:** Portions of buildings shall be exempt from the requirements of this section as follows:

B Small buildings being converted to business use: Stories above the street floor and having less than five thousand (5,000) square feet of gross floor area of each building being converted to use group B, business, provided that the street floor shall not be exempt and shall be made to conform to the requirements of this section. In the event that there is more than one (1) street floor, only one (1) such street floor need comply.

Small buildings of any use group: Any building of three (3) stories or less and having a street floor, provided that each story above or below the street floor contains less than five thousand (5,000) square feet of total gross area, and provided that the street floor shall not be exempt and shall be made to conform to the requirements of this section. In the event that there is more than one (1) street floor, only one (1) such street floor need comply.

Mezzanines in any use group provided that the goods and services available on any mezzanine are also available in areas accessible to physically handicapped persons, and provided that employment equivalent to that offered on any mezzanine is also offered in areas accessible to physically handicapped persons.

**315.1.4 Exception no. 4 - miscellaneous exemptions:** The following rooms, spaces, or areas in any use group shall be exempt from the requirements of this section; provided, however, that where these exempt rooms, spaces, or areas are combined with other uses to effectively deprive handicapped persons of access to other goods and services the exemptions shall not apply:

Building service equipment rooms

Building maintenance rooms

Communications equipment rooms or spaces

Receiving and shipping rooms or spaces

Surgical suites (operating rooms and adjunctive facilities)

Locker facilities, for use exclusively by athletic teams, provided, however, that where these facilities may be shared by other

than team persons this exemption shall not apply  
Raised or depressed areas in the floor of any use group, created for architectural effect but not to exceed ten (10) percent of the net floor area of any room or space, provided, however, that such raised or depressed areas shall not deprive physically handicapped persons of access to any goods or services offered elsewhere in the room or space, and further provided that such raised or depressed areas shall not impede the egress of physically handicapped persons

Spaces with inherently impeded horizontal access such as:

- Refrigerated or superheated rooms
- Certain special laboratories
- Darkrooms
- Secured rooms and vaults
- Surveillance galleries

Spaces with inherently impeded vertical access such as:

- Loading docks and platforms
- Library stacks, provided, however, that in open stack libraries desk services shall be available as a universal alternate to open access, and further provided, if carrels are provided a suitable number shall be accessible to physically handicapped persons
- Press boxes in places of assembly
- Tiered sleeping rooms in penal institutions
- Projection rooms
- Orchestra pits
- Stepped balconies

Special booths and work stations such as:

- Drive-in windows with vehicular access
- Control or ticket stations
- Prompters booths

Swimming pools, in accordance with their categorization in Section 428.2, provided that:

- a) This exception shall not apply to public or semi-public swimming pools fifty (50) meters or more in length.
- b) Public or semi-public swimming pools twenty-five (25) or more but less than fifty (50) meters in length, where not provided with ramps, shall be provided with approved fixed or portable lifting equipment for the purpose of providing assisted access to the water for physically handicapped people.
- c) The slope of ramps for access, where required, shall not be greater than 1:8 below the water line.



**315.1.5 Exception no. 5 - minor additions:** An addition, not over seven hundred fifty (750) square feet in gross floor area, to a building in any use group, shall be exempt from the requirements of this section.

**315.2 Modifications:** Where it can be demonstrated that one (1) or more of the following provisions is not applicable to the proposed use and occupancy, modifications may be sought under the provisions of Section 109.0.

**315.3 Building entrances and other doors**

**315.3.1 New buildings:** At least one (1) primary entrance at each street floor level of a building or structure shall be accessible from the parking lot or the nearest street by means of a walk uninterrupted by steps or abrupt changes in grade and shall have a width of not less than four (4) feet and a gradient of not more than one (1) foot in twenty (20) feet, or by a ramp meeting the requirements of Section 615.0, except for enclosure.

**315.3.2 Existing buildings:** At least one primary entrance shall be accessible to and usable by physically handicapped persons.

**315.3.3 Doors in new buildings:** The floor adjacent to any door designated for use by the physically handicapped shall be level for a distance of five (5) feet normal to each face of the door, and for a distance of one (1) foot parallel to each face of the door from the edge of the opening on the latch side.

**315.3.4 Doors subject to abuse:** Doors subject to abuse from canes, crutches, and wheelchairs shall be provided with kickplates extending to sixteen (16) inches above the floor; or such doors shall be made of materials and finishes inherently capable of withstanding such abuse.

**315.4 Parking lots and building approaches:** A parking lot servicing each entrance described in Section 315.3 shall have a number of level parking spaces as set forth in the following Table 315.4, identified by above grade signs displaying the international symbol of accessibility for the physically handicapped and containing the words "Handicapped Parking State Permit Required". Each such reserved parking space shall be not less than fifteen (15) feet wide, including three (3) feet of cross hatch, or shall be parallel to a sidewalk.

**315.4.1 Parking spaces:** Parking spaces for the physically handicapped shall be located as close as possible to elevators, ramps, walkways, and entrances. Parking spaces should be located so that the physically handicapped persons are not compelled to wheel or walk behind parked cars to reach entrances, ramps, walkways and elevators.

**315.4.2 Curbs:** When a curb exists between a parking lot surface and sidewalk surface, an inclined curb approach or a curb cut, flush with the parking lot surface, and having a textured or rippled surface, with a gradient of not more than one (1) foot in twelve (12) feet and a width of not less than four (4) feet shall be provided for wheelchair access.

Table 315.4  
ACCESSIBLE PARKING SPACES

Total parking in lot	Required number of accessible spaces
up to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 to 300	7
301 to 400	8
401 to 500	9
501 to 1000	2% of total
over 1000	20 plus 1 for each 100 over 1000

**315.4.3 Walks:** Walks designated for use by the physically handicapped shall have a minimum clear width of thirty-six (36) inches; provided, however, that if the width of a walk with obstructed sides be less than sixty (60) inches, or if the width of a walk with unobstructed sides be less than fifty-four (54) inches, then the ends of a the walk shall be widened to at least sixty (60) inches to permit the passing of wheelchairs. The standard cross slope for walks shall be one-quarter (1/4) of an inch per foot.

**315.5 Interior access:** Interior means of access to all floor levels required to be accessible for the physically handicapped shall be provided by ramps meeting the requirements of Section 615.0 or elevators, and access to all points on each floor level shall be provided by means of passageways, corridors, and doorways meeting the requirements of Sections 610.0, 612.0, and 625.0. In all residential use groups where provision is made for physically handicapped persons and where storage or laundry facilities are provided, similar adequate and proximate facilities shall be provided for physically handicapped persons.

**315.6 Electrical switches, controls, and fire alarms:** In all new construction, light switches, controls, fire alarms, etc. on each floor shall be located not more than four (4) feet above the floor when a frontal approach is required because of location, and not more than four and one-half (4-1/2) feet above the floor when a side approach is possible.

**315.6.1 Telephones:** Where public or pay telephones are provided, at least one such telephone, but not fewer than five (5) percent of the telephones provided, shall be accessible to, and usable by, physically handicapped persons. Such accessible telephones shall be mounted with their coin slots not more than forty-eight (48) inches above the floor and shall be equipped with devices to assist persons with hearing disabilities. Such telephones shall be so identified and shall be provided with mounted instructions for their use.

**315.7 Reserved**

**315.8 Access to plumbing fixtures:** Where plumbing fixtures are required by the plumbing code listed in Appendix B, or by any other code or regulation having jurisdiction, at least five (5) per cent of all such fixtures of each type, but not less than one (1) fixture of each type on each floor shall be accessible to and usable by physically handicapped men and women. This section shall not be construed to require accessible fixtures in areas not required to be accessible to physically handicapped persons, nor to require fixtures where none are required for able-bodied persons.

**315.8.1 Toilet rooms:** In all toilet rooms containing fixtures accessible to and usable by physically handicapped persons there shall be a clear space beyond the room door opening of not less than sixty (60) inches in diameter. Where such toilet rooms are also intended for use by able-bodied persons, the fixtures therein shall be counted to satisfy code requirements as to number of fixtures.

**315.8.1.1 Special toilet rooms:** Special toilet rooms for the exclusive use by physically handicapped persons may be provided. Such rooms may be designated for use by both men and women. There shall be a clear space beyond the room door opening of not less than sixty (60) inches in diameter. Such room shall contain one (1) lavatory, one (1) water closet without a stall, and one (1) each of the required accessories; it may contain one (1) urinal. Such room shall be capable of being locked from the inside by a suitable privacy lock with an approved emergency release device; the lockset shall have lever handles. Such room shall be provided with an emergency call system which will actuate an audio and visual alarm in a normally occupied area. The alarm shall be clearly identified with emergency instructions affixed adjacent to the alarm station. An alarm pull switch cord shall extend to within twelve (12) inches from the floor. The fixtures in such special toilet rooms shall not be counted to satisfy code requirements as to number of fixtures. The requirements of this paragraph shall not be construed to apply to toilet rooms not intended for exclusive use by physically handicapped persons, and not be construed to apply to rooms containing fixtures which are counted to satisfy the requirements of the plumbing code listed in Appendix B as to number of fixtures.

**315.8.2 Water closet stall:** In approaching a water closet stall the clear width between the face of a water closet stall and a wall shall be not less than forty-eight (48) inches. A water closet stall shall be not less than forty-two (42) inches wide, seventy-two (72) inches deep, and have an out-swinging door at least thirty-two (32) inches wide or an opening at least thirty-two (32) inches wide.

**315.8.3 Water closet:** A water closet shall have its seat at least sixteen (16) inches, and not more than seventeen (17) inches, above the floor. The trap shall not extend in front of, or be flush with, the lip of the bowl. The water closet shall be located with its centerline at least eighteen (18) inches and not more than twenty-four (24) inches away from at least one side wall, unless

freestanding handrails are provided satisfying the requirements for handrails specified elsewhere.

**315.8.3.1 Handrails for water closet:** If the water closet is located in a stall, handrails shall be provided on both sides of the water closet that are not less than forty-two (42) inches long, positioned with their front ends twenty-four (24) inches in front of the water closet. If the water closet is not located in a stall, or if the stall is more forty-eight (48) inches wide, a handrail shall be provided on the wall behind the water closet that is not less than thirty-six (36) inches long. Required handrails shall be mounted thirty-three (33) inches above and parallel to the floor. Handrails for children, if provided, shall be twenty-eight (28) inches above the floor.

**315.8.4 Lavatory:** A lavatory shall be located with its rim not more than thirty-two (32) inches above the floor. Centered approach access to the lavatory shall be at least twenty-six (26) inches wide. Unobstructed knee clearance vertically shall be at least twenty-seven (27) inches from below the lavatory to the floor, and horizontally shall be at least eight (8) inches from the face of the lavatory towards its back. Unobstructed toe clearance vertically shall be at least nine (9) inches upwards from the floor, and horizontally shall be at least nine (9) inches from the face plane of the lavatory towards its back. The waste and hot water piping below the lavatory shall be insulated. The faucets shall be combined mixing single lever control type.

**315.8.5 Drinking fountain:** A drinking fountain or other water dispensing means shall be floor type, wall mounted, or semi-recessed; fully recessed types are prohibited. The fountain or cooler shall have a spout and hand control near the front of the unit with the basin located not more than thirty (30) inches above the floor. Free standing floor type drinking fountains or coolers shall also be operated by means of a foot pedal.

**315.8.6 Miscellaneous accessories:** At least one (1) towel rack or towel dispenser, one (1) soap dispenser, one (1) disposal unit, one (1) toilet paper dispenser, one (1) mirror, and one (1) robe hook shall be provided. The operating parts (coin slot, lever, button, dispenser discharge, etc.) of accessories shall be mounted not more than thirty-eight (38) inches above the floor. The lower edge of the mirror shall be not more than thirty-six (36) inches above the floor. Where other accessories are provided in the toilet room, at least one (1) of each type of such accessories shall be accessible to and usable by physically handicapped persons.

**315.8.7 Urinal:** A urinal, if provided, shall be wall mounted with the opening of the basin nineteen (19) inches above the floor, or shall be floor mounted in a level floor. Urinal stalls, if provided, shall conform to the requirements for water closet stalls. When a room contains an accessible urinal, the room shall also contain at least one (1) water closet which is also accessible to and usable by physically handicapped persons.

**315.8.8 Showers:** Shower compartments shall be not less than thirty-six (36)

## DEFINITIONS AND CLASSIFICATIONS

inches wide by thirty-six (36) inches deep in their inside dimensions; the curb shall be not more than two (2) inches high. The water control valve with single mixing lever and a soap dish shall be mounted on a side wall approximately forty-two (42) inches above the floor. A folding seat mounted on the wall approximately twenty (20) inches above the floor shall be provided.

**315.8.8.1 Handrails for showers:** One (1) handrail not less than twenty-eight (28) inches long shall be mounted thirty-six (36) inches above the floor on the side wall below the water control valve, and one (1) similar handrail shall be similarly mounted on the back wall of the compartment.

**315.8.9 Bathtubs:** Bathtubs shall have their rims not more than twenty (20) inches above the floor. The interior of a bathtub shall be not more than sixty-six (66) inches long and shall be provided with a non-slip bottom.

**315.8.9.1 Handrails for bathtubs:** One (1) handrail not less than forty-eight (48) inches long shall be mounted approximately five (5) inches above the rim of the tub, centered on the long wall of the tub enclosure.

**315.8.10 Handrails:** Handrails for use by physically handicapped persons for access to and support at plumbing fixtures shall be one and one-half (1-1/2) inches outside diameter, mounted with one and one-half (1-1/2) inches clearance between the rail and the wall, and shall have a slip-resistant finish; handrails shall conform to Federal Specifications WW-P-541 8A (GSA-FSS) Plumbing Fixtures, Accessories, Land Use, Type IV, Class 2, Corrosion Resistant Grab Bars. Handrails shall be securely mounted to withstand a force of three hundred (300) pounds applied at any point in any direction.

**315.8.11 Reserved.**

**315.8.12 Residential bathrooms:** Bathrooms provided for use by physically handicapped persons in dwelling units of use group R (residential) shall conform to the space, fixture, and handrail requirements of Sections 315.8 through 315.8.11.

**315.8.13 Residential kitchens:** Kitchens provided for use by physically handicapped persons in Residential Use Groups R dwelling units shall meet the following requirements:

1. The clear floor space between opposite cabinets or cabinets and walls shall not be less than five (5) feet, except that clearance may be reduced to four (4) feet where a toe space nine (9) inches high and six (6) inches deep is provided on each side.
2. Counters shall be thirty-six (36) inches above the floor.
3. Kitchen sinks shall be not more than seven and one-half (7-1/2) inches deep and be equipped with lever type controls. A space not less than twenty-eight (28) inches above the floor, twenty-six (26) inches wide, and twelve (12) inches deep shall be provided under each sink.
4. A work space not less than twenty-six (26) inches wide with a clear opening below not less than twenty-eight (28) inches above the floor, twenty-six (26) inches wide, and twenty-four (24) inches deep shall be

provided in each kitchen. Work space may be provided by adjustable counters or pull-out sections.

- 5. Controls for cooking appliances shall be located on the front of appliances, or with surface mounted units, at the top front face, parallel with the front edge of the counter.

**315.9 Assembly seating accommodations:** Places of assembly with fixed seating arrangements shall provide accessible level viewing positions for persons in wheelchairs, and shall provide accessible seating for semi-ambulatory persons, in accordance with the following Table 315.9.

**Table 315.9  
PLACES OF ASSEMBLY, ACCESSIBLE SEATING ACCOMMODATIONS**

76 to 100	Viewing positions for persons in wheel chairs 2
101 to 200	3
201 to 400	4
401 to 1000	5
over 1000	1/2% of total
Any capacity	Accessible seats for semi-ambulatory persons At least 1 but not less than 1% of total

**315.9.1 Location:** Accessible seating accommodations for physically handicapped persons shall be provided in a reasonable and convenient section or sections of the facility and shall be located so as not to interfere with egress from any row of seats; they shall be reached by means of ramps and/or elevators, and shall not infringe upon aisle requirements. Viewing positions for persons in wheelchairs shall be provided in a clear space devoid of any fixed seating arrangements.

**315.9.2 Access:** There shall be no steps in the aisles or in the access route used by the physically handicapped to reach the performance viewing positions, but the aisles may be inclined according to the provisions of Section 615.0.

**315.10 Checkout lanes:** Buildings which include checkout lanes shall provide at least one (1) checkout lane on each floor where such lanes are used which is not less than thirty-six (36) inches wide.

**315.11 Turnstiles:** Buildings which utilize turnstiles to control traffic shall provide a clearly marked alternate route for the physically handicapped which is at least thirty-six (36) inches wide.

**315.11.1 Obstructions:** No fixed mounted poles or other obstructions which prevent the removal of shopping carts shall be used either inside or outside of any building unless there is at least one opening thirty-six (36) inches wide at

the main entrance to such building which permits easy access and egress by handicapped persons in wheelchairs. No such poles or other obstructions shall be used in a manner which prevents the use of curb cuts by such handicapped persons.

**315.12 Identification of accessibility**

**315.12.1 General identification:** All buildings and all facilities within buildings shall be clearly identified with the international symbol of accessibility for the physically handicapped. All floor levels shall be clearly identified as such.

**315.12.2 Special identification for the blind:** Identification of specific facilities within a building shall be provided to the blind.

1. Raised letters or numbers shall be used to identify rooms, spaces, and offices.
2. Such identification shall be placed on the wall, to the right or left of the door, at a height between four and one-half (4½) feet and five and one-half (5½) feet above the floor, but preferably at five (5) feet above the floor.
3. Doors not intended for normal use, and which might prove dangerous if a blind person were to exit or enter by them, shall be made quickly identifiable to the touch by tactile warning surfaces on the door handles, knobs, or plates. Such tactile warning surfaces shall be the same type throughout any building.

**Example:** Such doors may lead to stairs, loading platforms, boiler rooms, stages, fire escapes, or other hazardous areas.

**315.13 Warning signals:** In areas accessible to and usable by physically handicapped persons, where warning signals are required by other provisions of this code or by the provisions of other codes or regulations having jurisdiction:

1. Required audible warning signals shall be accompanied by simultaneous visual signals for the benefit of those with hearing disabilities.
2. Required visual signals shall be accompanied by simultaneous audible signals for the benefit of the blind.

**SECTION 316.0 BUILDINGS UNDER THE URBAN HOMESTEADING LAW**

**316.1 Applicability:** Buildings or structures acquired by an urban homesteading agency in accordance with the General Statutes of Connecticut, Chapter 130, Part VII, "Urban Homesteading", may be granted certain specific limited individual exemptions from the requirements of this code.

**316.2 Intent:** It is the intent of this section to make feasible the repair, alteration and restoration of certain existing buildings or structures which, though basically sound, could not feasibly be made to conform precisely and completely to the otherwise applicable provisions of this code with respect to existing buildings. Wherever possible the regular provisions for existing

buildings contained in this code shall apply. Economic hardship shall not be a reason for invoking the provisions of this section. It is not the intent of this section to create a second set of standards less stringent than those embodied throughout this code with respect to existing buildings. It is not the intent of this section to save from demolition those buildings which are hazardous to public health and safety. It is intended to permit otherwise intractable problems in code conformity to be resolved on a case by case individual basis by using alternate methods of assuring public health, safety and welfare.

**316.3 Eligible use groups:** The provisions of this section may be applied only to buildings or structures in the following use groups, and to no other:

- Use group B, Business
- Use group M, Mercantile
- Use group R, Residential
- Use group T, Temporary and miscellaneous

#### **316.4 Limitations on exemptions**

**316.4.1 Procedural exemptions:** No procedural exemptions shall be granted in matters of permits, approvals, drawings and specifications required, and in all other matters of procedure, the provisions of this code shall apply.

**316.4.2 Technical exemptions:** Limited, precisely defined, and specifically approved exemptions from the technical requirements of certain parts of this code may be granted provided feasibility demands them. These exemptions may be granted with respect to the technical provisions in the following Articles of this code, and with respect to no other:

- Article 1, Administration and enforcement
- Article 2, Definitions and classifications
- Article 3, General building limitations
- Article 5, Light, ventilation and sound control
- Article 6, Means of egress
- Article 7, Structural and foundation loads and stresses
- Article 8, Part A, Materials and tests
- Article 8, Part B, Steel, masonry, concrete, gypsum and lumber construction
- Article 8, Part C, Building enclosures, walls and wall thickness
- Article 9, Fireresistive construction requirements
- Article 21, Index to provisions for the physically handicapped

**316.5 Alternate methods:** The granting of a specific exemption shall be based upon the acceptability and approval of an alternate method of assuring public health and safety to a substantially equivalent degree.

**316.6 Special documentation:** In addition to the plans and specifications required elsewhere in this code, the application for a permit shall be accompanied by documentation describing in detail the nature, degree and extent of the non-compliance with the provisions of this code. The documentation shall then proceed to describe adequately for each item of non-compliance the alternate method proposed to equivalently assure public health and safety in



lieu of conformity with the technical requirements of this code. An undocumented or unapproved item of non-compliance discovered before the issuance of the certificate of occupancy shall be grounds for revocation of the building permit.

**316.7 Guidelines:** The State Building Inspector and the State Fire Marshal may issue guidelines indicating alternate methods which might be considered in making a project feasible. Among the intractable problems might be those of structural adequacy, the fire ratings of structural assemblies and interior finishes, protection of vertical openings, shafts and other areas, natural lighting, stair construction, adequate dimensions and clearances, emergency escape, and providing for the physically handicapped. Among the ameliorating measures which might be proposed are the restriction and posting of live loads and occupancies, the installation of fire suppression systems, greater fire separation between buildings, and the substitution of mechanical for natural light and ventilation. It might be found tolerable to waive on occasion some dimensional clearances for passage and some of the requirements with respect to providing for the physically handicapped.

**316.8 Approval**

**316.8.1 Recommendation by building official:** The building official shall receive the application for permit in the customary manner, together with accompanying special documentation. He shall examine the special documentation and satisfy himself that the documentation is complete and that the alternate methods proposed do satisfy the intent of the code in providing substantially equivalent protection to public health and safety. He shall then forward the documents, together with his recommendation to the State Building Inspector to seek the inspector's concurring recommendation.

**316.8.2 Recommendation by State Building Inspector:** The State Building Inspector shall examine the documents forwarded by the building official and make his own recommendation which may concur with that of the building official, may contain other suggestions, or may suggest a abandonment of the project.

**316.8.3 Approval by building official:** Upon receipt from the State Building Inspector of a written concurring recommendation that the project proceed as submitted, the building official shall approve the application and issue a building permit.

**316.9 Appeal:** This section shall be subject to the appeal procedure specified in Article I of this code.



## **ARTICLE 4**

### **SPECIAL USE AND OCCUPANCY REQUIREMENTS**

#### **SECTION 400.0 GENERAL**

**400.1 Scope:** In addition to the general requirements of this code governing the location, construction and equipment of all buildings and structures and the fire-resistance ratings, height and area limitations of Tables 214 and 305, the provisions of this article shall control all buildings and structures designed for high hazard uses and occupancies which involve extreme fire, smoke, explosion or toxic gas risks, and places of assembly in which people congregate in large numbers and which are susceptible to panic incidental to crowds. Except as herein specifically provided, the applicable standards listed in Appendix B shall be deemed to comply with the requirements of this article.

Chemical plants, packing plants, grain elevators, refineries, flour mills and other special structures may be constructed in accordance with the recognized practices and requirements of the specific industry.

**400.2 Uses involving explosion hazards:** The provisions of this article shall apply to all uses involving the storage, manufacture, handling or filling of flammable and volatile solids, liquids or gases which generate combustible and explosive air-vapor mixtures and toxic gases including nitrocellulose film; pyroxylin plastics; grain and other combustible dusts and pulverized fuels; combustible fibers; pyroxylin lacquer-spraying operations; liquified petroleum gases; alcohol, ether and gasoline; flammable dusts and residues resulting from fabrication, grinding and buffing operations, and all other explosion hazard risks.

**400.3 Special high hazards:** When necessary to resist a higher degree of fire severity than specified herein, for high concentrations of combustible contents and for buildings of high hazard uses which exceed five (5) stories or sixty-five (65) feet in height, the building official may require higher fire resistance ratings than the requirements of Table 214 governing the fire-resistance ratings of types of construction and protection of structural elements.

**400.4 Means of egress:** The means of egress for buildings of hazardous uses and occupancies shall conform to the requirements of Article 6,

## CONNECTICUT BASIC BUILDING CODE/1978

except as may be modified by more restrictive provisions of this article for specific uses.

**400.5 Heating and venting:** The requirements herein prescribed for the installation of heating and venting appliances and equipment for high hazard uses and occupancies shall be construed as supplemental to the provisions of Articles 5 and 10, and the the mechanical code listed in Appendix B.

**400.6 Equipment rooms:** Heating and ventilating equipment in occupancies involving fire hazards from flammable vapors, dust, combustible fibers or other highly combustible substances shall be installed and protected against fire and explosion hazards in accordance with the mechanical code listed in Appendix B. Rooms containing such equipment shall be segregated by construction of not less than two (2) hour fire-resistance rating except as may be required for specific uses, without openings in the enclosure walls and with means of direct ingress and egress from the exterior, or such equipment shall be located in accessory structures segregated from the main building.

**400.7 Fire-fighting and extinguishing equipment:** All buildings designed for specific hazardous uses shall be protected with approved automatic fire suppression systems or such other fire-extinguishing and auxiliary equipment as herein provided and in accordance with the requirements of Article 12.

**400.8 Segregation of storage spaces:** All rooms and spaces used for the storage of volatile and flammable materials shall be separately enclosed and segregated with fire-resistance rated construction as herein the storage of volatile and flammable materials shall be separately enclosed and segregated with fire-resistance rated construction as herein required for specific uses and occupancies.

**400.9 Restricted locations:** Except as otherwise specifically approved, high hazard uses shall not be located in the fire limits nor in a building of unprotected frame (Type 4B) construction, nor in any case within two hundred (200) feet of the nearest wall of a building classified in a public assembly or institutional use group.

### SECTION 401.0 EXPLOSION HAZARDS

**401.1 Explosion relief:** Every structure, room or space occupied for uses involving explosion hazards shall be equipped and vented with explosion relief systems and devices arranged for automatic release under predetermined increase in pressure as herein provided for specific uses or in accordance with accepted engineering standards and practice.

**401.2 Venting devices:** Venting devices to relieve the pressure resulting from explosive air-vapor mixtures shall consist of windows, skylights,

## SPECIAL USE AND OCCUPANCY REQUIREMENTS

vent flues or releasing roof or wall panels which discharge directly to the open air or to a public place or other unoccupied space not less than twenty (20) feet in width on the same lot. Such releasing devices shall be so located that the discharge end shall be not less than ten (10) feet vertically and twenty (20) feet horizontally from window openings or means of egress facilities in the same or adjoining buildings or structures. The exhaust shall always be in the direction of least exposure and never into the interior of the building.

**401.3 Area of vents:** The aggregate clear vent relief area shall be regulated by the type of construction of the building and shall be not less than prescribed below:

1. heavy reinforced concrete frame, one (1) square foot for eighty (80) cubic feet of volume;
2. light structural steel frame and ordinary construction, one (1) square foot for sixty-five (65) cubic feet of volume; and
3. light wood frame construction, one (1) square foot for fifty (50) cubic feet of volume.

The combined area of open windows pivoted sash or wall panels arranged to open under internal pressure shall not be less than ten (10) per cent of the area of the enclosure walls, with not less than fifty (50) per cent of the opening arranged for automatic release.

**401.4 Construction of vents:** All explosion relief devices shall be of an approved type constructed of light weight, noncombustible and corrosion-resistive materials, and the discharge end shall be protected with approved screens of not more than three-quarter ( $\frac{3}{4}$ ) inch mesh, arranged to blow out under relatively low pressures.

### SECTION 402.0 VOLATILE FLAMMABLES

**402.1 Other regulations:** The storage, handling and use of volatile flammables are controlled by regulations of the Department of Public Safety.

### SECTION 403.0 INSPECTION OF HAZARDOUS USES AND PLACES OF ASSEMBLY

**403.1 Other regulations:** The inspection of hazardous uses and places of assembly are conducted by the Department of Public Safety.

### SECTION 404.0 SPECIAL PERMITS AND CERTIFICATES OF FITNESS

**404.1 Special permits:** Special permits are issued by the Department of Public Safety.

**404.2 Certificates of fitness:** Certificates of fitness are issued by the Department of Public Safety.

**SECTION 405.0 EXISTING BUILDINGS**

**405.1 Special permit for existing uses:** Any existing hazardous use which was heretofore authorized by a permit issued under the provisions of law or the regulations of the fire official may be continued by special permit provided the continuance of such use or occupancy does not endanger the public safety.

**405.2 Existing use prohibited:** An existing building of frame (Type 4) construction which is more than two (2) stories in height or more than five thousand (5,000) square feet in area; or of nonfireproof (Type 3) construction which is more than four (4) stories in height shall not be continued in use or hereafter occupied for the manufacture of pyroxylin plastics or similar materials of high fire hazard and explosive characteristics.

**405.3 Places of assembly**

**405.3.1 Change of use:** An existing building or structure or part thereof shall not be altered or converted into a place of assembly unless it complies with all provisions of this code applicable to places of public assembly hereafter erected.

**405.3.2 Existing use altered:** When an existing building or structure heretofore used as a place of public assembly is altered and the cost of such alteration is more than fifty (50) per cent of the physical value of the building as defined in Section 106.8, all provisions of this code relating to new places of public assembly shall be complied with. When the cost of such alteration is less than fifty (50) per cent of the physical value of the building, such alterations shall comply as nearly as is practicable with the provisions of this code which govern the arrangement and construction of seats, aisles, passageways, stage and appurtenant rooms, fire-fighting and extinguishing equipment and the adequacy of means of egress.

**405.3.3 Increase in occupancy load:** Whenever the occupancy load of an existing place of public assembly is increased beyond the approved capacity of its exitways, the building or part thereof shall be made to comply with the requirements for a new building hereafter erected for such public assembly use.

**405.4 Swimming pools**

**405.4.1 Change of use:** An existing pool used for swimming or bathing or accessory equipment or part thereof shall not be altered or converted for any other use unless it complies with all provisions of this code applicable to the use intended.

## SPECIAL USE AND OCCUPANCY REQUIREMENTS

**405.4.2 Continuation of existing use:** Existing swimming pools may be continued without change, provided the safety requirements of Section 428.8 are observed where required by the building official.

### SECTION 406.0 LIQUEFIED PETROLEUM GASES

**406.1 Other regulations:** The storage, handling and use of liquefied petroleum gases are controlled by regulations of the Department of Public Safety.

### SECTION 407.0 PYROXYLIN PLASTICS

**407.1 General:** The provisions of this section shall regulate all buildings, structures and parts thereof used for the storage, handling or fabrication of pyroxylin plastic whether in raw material, process, finished product or scrap.

**407.2 Exceptions:** The provisions of this section shall not apply to the manufacture, use or storage of nitro-cellulose film or the incidental storage of articles manufactured from pyroxylin plastics offered for sale in mercantile buildings (see Section 208.0).

**407.3 Restrictions:** A permit for the storage or manufacture of pyroxylin plastics, except as specified in Section 407.2, shall not be issued for a building or structure hereafter erected, altered or used which is occupied or located as described in the following Sections 407.3.1 through 407.3.5.

**407.3.1 Place of assembly:** Within fifty (50) feet of the nearest wall of a school, theatre or other place of public assembly.

**407.3.2 Residential building:** As a residential building, use group R-1, R-2 or R-3.

**407.3.3 High hazard uses:** In quantities exceeding one thousand (1,000) pounds in buildings where paints, varnishes or lacquers are manufactured, stored or kept for sale; or where matches, resin, oils, hemp, cotton or any explosives are stored or kept for sale.

**407.3.4 Other flammable materials:** Where drygoods, garments or other materials of a highly flammable nature are manufactured in any portion of the building above that used for nitro-cellulose products.

**407.3.5 Tenant factory building:** In quantities exceeding one hundred (100) pounds in any tenant factory building (use group F) in which more than five (5) people are employed or likely to congregate on one (1) floor at any one (1) time.

**407.4 Inside storage:** All pyroxylin raw material and products intended for use in further manufacture shall be stored as herein provided on the following Sections 407.4.1 through 407.4.6.

**407.4.1 Cabinets:** Quantities of more than twenty-five (25) pounds and not more than five hundred (500) pounds shall be stored in approved cabinets constructed of noncombustible materials but the total quantity of storage shall not be more than one thousand (1,000) pounds in any workroom or space enclosed in floor, walls and ceilings of not less than two (2) hours fire-resistance rating.

**407.4.2 Vaults:** Quantities of more than one hundred (100) pounds and not more than ten thousand (10,000) pounds shall be stored in vaults enclosed in floors, walls and ceilings of not less than four (4) hours fire-resistance rating. The interior storage volume of the vault shall be not more than fifteen hundred (1500) cubic feet and the vault shall be constructed vapor and gastight in accordance with the approved rules, with one and one-half (1½) hour vapor-tight fire doors or the approved labeled fire door assembly equivalent on each side of the door opening. The vault shall be drained and provided with scuppers.

**407.4.3 Tote boxes and scrap containers:** During manufacture, pyroxylin materials and products not stored in finished stock rooms, cabinets or vaults shall be kept in approved covered noncombustible tote boxes. Scrap and other refuse material shall be collected in approved noncombustible containers in quantities not greater than three hundred and fifty (350) pounds and removed at frequent intervals as directed by the fire official.

**407.4.4 Ventilation:** Each separate compartment in storage vaults shall be vented directly to the outer air through flues complying with the requirements of the mechanical code listed in Appendix B for low temperature chimneys, or exterior metal smokestacks, or as otherwise provided in the approved rules. The vent shall discharge not less than four (4) feet above the roof of the building or on a street, court or other open space not less than fifty (50) feet distance from any other opening in adjoining walls which are not in the same plane, nor nearer than twenty-five (25) feet vertically or horizontally to an exterior stairway, fire escape or exit-way discharge. The area of the vent shall be not less than one (1) square inch for each seven (7) pounds of pyroxylin stored.

**407.4.5 Structural strength:** The floors, walls, roof and doors of all vaults, structures or buildings used for the storage or manufacture of pyroxylin materials and products shall be designed to resist an inside pressure load of not less than three hundred (300) pounds per square foot (psf).

**407.4.6 Fire protection:** Vaults located within buildings for the storage of raw pyroxylin shall be protected with an approved automatic sprinkler system capable of discharging one and sixty-six one-hundredths (1.66) gallons per minute (gpm) per square foot over the area of the vault.



**SPECIAL USE AND OCCUPANCY REQUIREMENTS**

**407.5 Isolated storage buildings:** Pyroxylin products in quantities greater than permitted for interior storage shall be housed in isolated storage buildings. Such buildings shall not be used for any purpose other than packing, receiving, shipping and storage of pyroxylin plastics unless otherwise approved by the building official.

**407.5.1 Capacity:** The maximum storage in any fire area enclosed in construction of four (4) hours fire-resistance rating shall be not greater than one hundred thousand (100,000) pounds. The storage capacity of the building and its separation from lot lines and other buildings on the same lot shall be limited as provided in Table 407.5. When equipped with an approved automatic sprinkler system complying with the provisions of Article 12 and as herein modified, the exposure distances may be decreased fifty (50) per cent. Such systems shall be designed in accordance with Section 2061 of NFPA 42, Pyroxylin Plastics, as listed in Appendix B.

**Table 407.5  
EXPOSURE DISTANCE FOR PYROXYLIN STORAGE BUILDINGS**

Maximum quantity stored in pounds	Fire separation from lot line or other buildings in feet
1,000	40
2,000	50
3,000	60
4,000	70
5,000	80
10,000	100
20,000	125
30,000	150
40,000	160
50,000	180
75,000	200
100,000	225
150,000	250
300,000	300

**407.6 Fire protection**

**407.6.1 Heating equipment:** All radiators, heating coils, piping and heating apparatus shall be protected with approved noncombustible mesh to maintain a clearance of six (6) inches of all pyroxylin products from such equipment. All piping and risers within six (6) feet of the floor shall be insulated with approved noncombustible covering unless protected with wire guards.

**407.6.2 Electrical wiring and equipment:** All electrical wiring and equipment shall conform to the provisions of Article 15 and NFPA 42, Pyroxylin Plastics, as listed in Appendix B.

**407.6.3 Standpipes:** First-aid standpipes shall be provided for each five thousand (5,000) square feet of floor area equipped with one and one-half (1½) inch hose, complying with Article 12.

**407.6.4 Automatic sprinklers:** All manufacturing and storage spaces and vaults where required shall be protected with an approved automatic sprinkler system as herein specified and with portable fire extinguishers complying with Article 12 and the approved rules.

**407.6.5 Special protection:** Special chemical extinguishers and other first-aid fire appliances shall be provided around motors and other electrical equipment in accordance with the approved rules.

#### SECTION 408.D USE AND STORAGE OF FLAMMABLE FILM

**408.1 Other regulations:** The storage, handling and use of flammable film are controlled by regulations of the Department of Public Safety.

**408.2 Reserved**

**408.3 Reserved**

**408.4 Reserved**

**408.5 Reserved**

**408.6 Motion picture studios**

**408.6.1 Construction:** All buildings designed or used as motion picture studios shall be protected with an approved two (2) source automatic sprinkler system complying with the provisions of Article 12; except that the building official may exempt rooms designed for housing electrical equipment from this requirement when constructed of fireproof (Type 1) construction.

**408.6.2 Special rooms:** Rooms and spaces used as carpenter and repair shops, dressing rooms, costume and property stage rooms shall be enclosed in floors, walls and ceilings of not less than two (2) hour fire-resistance rated construction.

**408.6.3 Trim, finish and decorative hangings:** All permanently attached acoustic, insulating and light reflecting materials and temporary hangings on walls and ceilings shall comply with the requirements of Article 9.

## SPECIAL USE AND OCCUPANCY REQUIREMENTS

**408.6.4 Cellulose nitrate film storage:** All cellulose nitrate film shall be stored as required in Section 408.2 and surplus film shall not be kept on the studio stage except loaded magazines in the cameras and sound recording apparatus. All extra loaded magazines shall be stored in a separate magazine room enclosed in two (2) hour fire-resistance rated construction.

**408.7 Film laboratories:** Film laboratories shall not be conducted in other than fireproof (Type 1A) buildings or structures, equipped throughout with an approved automatic sprinkler system.

**408.8 Film exchanges:** All film exchanges and depots shall be housed in buildings and structures of fireproof (Type 1A) construction equipped throughout with an approved automatic sprinkler system. All flammable film other than that in process of receipt, delivery or distribution shall be stored in vaults complying with the requirements of Section 407.4.2.

### SECTION 409.0 USE AND STORAGE OF COMBUSTIBLE FIBERS

**409.1 General:** The provisions of this section shall apply to all buildings and structures involving the storage or use of finely divided combustible vegetable or animal fibers and thin sheets or flakes of such materials involving flash fire hazard, including among others cotton, excelsior (shredded paper), hemp, sisal, jute, kapok and paper and cloth in the form of scraps and clippings in excess of one thousand (1,000) pounds. The provisions of the applicable standards listed in Appendix B except as herein specifically provided shall be deemed to conform to the provisions of this code.

**409.2 Construction requirements:** All buildings designed for the storage of combustible fibers as herein described shall be constructed within the limits of height and area specified in Table 305 for high hazard use (use group H) except as described in the following Sections 409.2.1 through 409.2.6.

**409.2.1 Special limits:** A single storage room or space shall not be more than five thousand (5,000) square feet in area or more than fifty thousand (50,000) cubic feet in volume unless of protected non-combustible (Type 2B) or better construction.

**409.2.2 Floor loads:** The floors of all buildings designed for the storage of combustible fibers shall not be loaded in excess of one-half ( $\frac{1}{2}$ ) the safe load capacity of the floor, nor shall such materials be piled to more than two thirds ( $\frac{2}{3}$ ) of the clear story height.

**409.2.3 Salvage doors:** Every exterior wall shall be provided with a

## CONNECTICUT BASIC BUILDING CODE/1978

door to each storage compartment arranged for quick removal of the contents.

**409.2.4 Wall openings:** All openings in outside walls shall be equipped with approved fire doors and fire windows complying with Article 9.

**409.2.5 Roof openings:** All skylights, monitors and other roof openings shall be protected with galvanized wire or other approved corrosion-resistant screens with not less than thirty-six (36) meshes to the square inch or with wire glass in stationary frames.

**409.2.6 Boiler rooms:** All power and heating boilers and furnaces shall be located in detached boiler houses or in a segregated boiler room enclosed in three (3) hour fire-resistance rated construction with direct entrance from the outside, except that rooms containing gas-fired heating equipment may have openings into the warehouse protected with one and one-half (1½) hour fire doors or their approved labeled equivalent.

**409.3 Fire protection:** Fire protection equipment shall be provided complying with Article 12 consisting of casks, pails and portable chemical extinguishers and standpipes. Where deemed necessary by the administrative authority, a system of outside hydrants and hose shall be provided.

**409.4 Housekeeping:** Ashes, waste, rubbish or sweepings shall not be kept in wood or other combustible receptacles and shall be removed from the premises daily. Grass or weeds shall not be allowed to accumulate at any point on the premises.

**409.5 Open storage:** Only temporary open storage of combustible fibers shall be permitted on the same premises with a fiber warehouse and shall be kept covered on top and sides with tarpaulins secured in place. Not more than seven thousand two hundred (7,200) cubic feet of fiber shall be stored in the open; and fire-extinguishing equipment shall be provided as directed by the administrative official.

**409.6 Special treatments:** When combustible fibers are packed in special noncombustible containers or when packed in bales covered with wrappings to prevent ready ignition, or when treated by approved chemical dipping or spraying processes to eliminate the flash fire hazard, the restrictions governing combustible fibers shall not apply.

### SECTION 410.0 COMBUSTIBLE DUSTS, GRAIN PROCESSING AND STORAGE

**410.1 General:** The provisions of this section shall apply to all buildings in which materials producing flammable dusts and particles which are readily ignitable and subject to explosion hazards are stored or han-

dled, including, among others, grain bleachers and elevators, malt houses, flour, feed or starch mills, wood flour manufacturing and manufacture and storage of pulverized fuel and similar uses. The applicable standards listed in Appendix B, except as herein specifically required, shall be deemed to conform to the requirements of this code.

#### **410.2 Construction requirements**

**410.2.1 Buildings:** All such buildings and structures, unless herein otherwise specifically provided, shall be of fireproof (Type 1), noncombustible (Type 2), or of laminated planks or lumber sizes qualified for heavy timber mill (Type 3A) construction, within the height and area limits of high hazard uses (use group H) of Table 305; except that when erected of fireproof (Type 1A) construction, the height and area of grain elevators and similar structures shall be unlimited, and when of heavy timber (Type 3A) construction, the structure may be erected to a height of sixty-five (65) feet; and except further that, in isolated areas, the height of Type 3A structures may be increased to eighty-five (85) feet.

**410.2.2 Grinding rooms:** Every room or space for grinding or other operations producing flammable dust shall be enclosed with floors and walls of not less than two (2) hour fire-resistance rating when the area is not more than three thousand (3,000) square feet and of not less than four (4) hour fire-resistance rating when the area is greater than three thousand (3,000) square feet.

**410.2.3 Conveyors:** All conveyors, chutes, piping and similar equipment passing through the enclosures of such rooms or spaces shall be constructed dirt and vapor tight, of approved noncombustible materials complying with Section 1618.0.

**410.3 Explosion relief:** Means for explosion relief shall be provided as specified in Section 401.0, or such spaces shall be equipped with the equivalent mechanical ventilation complying with the mechanical code listed in Appendix B.

**410.4 Grain elevators:** Grain elevators, malt houses and buildings for similar uses shall not be located within thirty (30) feet of interior lot lines or structures on the same lot, except when erected along a railroad right of way.

**410.5 Coal pockets:** Coal pockets located less than thirty (30) feet from interior lot lines or structures on the same lot shall be constructed of not less than protected noncombustible (Type 2A) construction. When more than thirty (30) feet from interior lot lines, or erected along a railroad right of way, such structures may be built of lumber sizes qualifying for heavy timber or laminated construction, provided they are not more than sixty-five (65) feet in height.

### SECTION 411.0 PAINT SPRAYING AND SPRAY BOOTHS

**411.1 General:** The provisions of this section shall apply to the construction, installation and use of buildings and structures or parts thereof for the spraying of flammable paints, varnishes and lacquers or other flammable materials, mixtures or compounds used for painting, varnishing, staining or similar purpose. All such construction and equipment shall comply with the approved rules and the applicable standards listed in Appendix B.

### SECTION 412.0 DRY CLEANING ESTABLISHMENTS

**412.1 Other regulations:** Dry cleaning establishments are controlled by regulations of the Department of Public Safety.

### SECTION 413.0 PRIVATE GARAGES

#### 413.1 Attached garages

**413.1.1 One- and two-family dwellings:** Private garages located beneath a one- and two-family dwelling shall have walls, partitions, floors and ceilings separating the garage space from the dwelling constructed of not less than one (1) hour fire-resistance rating. Private garages attached to a one- and two-family dwelling shall be completely separated from the dwelling and its attic area by means of one-half ( $\frac{1}{2}$ ) inch gypsum board or equivalent applied to the garage side. The sills of all door openings between the garage and dwelling shall be raised not less than four (4) inches above the garage floor. The door opening protectives shall be one and three-quarter ( $1\frac{3}{4}$ ) inch solid core wood doors or approved equivalent.

**413.1.2 Motels and multi-family dwellings:** Private garages located beneath motels and multi-family dwellings and in which gasoline or oil is not stored or handled shall be of protected construction of not less than one and one half ( $1\frac{1}{2}$ ) hour fire-resistance rating.

**413.1.3 Separation by breezeway:** A garage separated from residence outside the fire limits by a breezeway not less than ten (10) feet in length may be of unprotected frame (Type 4B) construction, but the junction of the garage and breezeway shall be firestopped to comply with Section 875.0.

**413.1.4 Other conditions:** All private garages not falling within the

## SPECIAL USE AND OCCUPANCY REQUIREMENTS

purview of Sections 413.1.1, 413.1.2, or 413.1.3, attached to or located beneath a building shall comply with the requirements of Section 414.2.3 for public garages.

**413.1.5 Heating equipment:** Boilers, furnaces, hot water heaters or any other appliances having an open flame or exposed heated surfaces shall not be located in a private garage unless precautions are taken to protect such equipment from impact by automobiles. This equipment shall have the combustion chamber, ash pit etc., raised a minimum of eighteen (18) inches above the floor to eliminate a possible source of ignition.

**413.2 Means of egress:** Where living quarters are located above a private garage, required means of egress facilities shall be protected from the garage area with one (1) hour fire-resistance rated construction.

### SECTION 414.0 PUBLIC GARAGES

**414.1 General:** Public garages shall comply with the applicable requirements of this section. The portions of such buildings and structures in which gasoline, oil and similar products are dispensed shall comply with the requirements of Section 415.0; the portions in which motor vehicles are repaired shall comply with Section 416.0; and the portions in which paint spraying is done shall comply with the requirements of Section 411.0.

**414.2 Construction:** All Group 1 public garages hereafter erected shall be classified as storage buildings, moderate hazard (use group S-1) and all Group 2 public garages shall be classified as storage buildings, low hazard (use group S-2) and shall conform to the height and area limitations of Table 305 except as herein specifically provided. The areas used for dispensing gasoline in such buildings shall be located on the grade floor and shall comply with the requirements of Section 415.0.

**414.2.1 Special height limitations:** Public garage buildings shall comply with the height and area limitations of Table 305 for the classification of the use as specified in Section 414.2. Such heights may be increased one (1) additional story when the building is equipped with an approved automatic fire suppression system.

**414.2.2 Basements:** The first floor construction of public garages of all classifications and public hangars with basements shall be constructed of not less than two (2) hour fire-resistance rating and shall be water and vapor proof. Where openings are provided in the floor they shall be protected by a curb or ramp not less than six (6) inches high above the floor to avoid the accumulation of explosive liquids or vapors and prevent them from spilling to the lower floor. There shall be not less than

two (2) means of egress from such areas, one (1) of which shall be directly to the outside independent of the exitways serving other areas of the building.

**414.2.3 Mixed occupancy:** A public garage shall not be located within or attached to a building occupied for any other use, unless separated from such other use by walls or floors complying with Table 902 for fire-resistance rating. Such fire separation walls shall be continuous and unpierced by openings; except that door openings equipped with self-closing fire doors complying with Article 9 shall be permitted. In buildings of single occupancy not excluding the area limitations of Table 305, doors without a fire-resistance rating shall be permitted between the garage area and salesroom or offices that are operated in connection with the garage.

**414.2.4 Roof storage of motor vehicles and airplanes:** The roof of a public garage shall not be used for the parking or storage of motor vehicles unless the building is of fireproof construction (Type IA or IB). When the roof of a building is used for parking or storage of motor vehicles it shall be provided with a parapet wall or guard rail not less than three (3) feet six (6) inches in height and a wheel guard not less than six (6) inches in height, located so as to prevent any vehicle from striking the parapet wall or guard rail. The use of roofs for airplanes storage and landing shall be subject to the approval of the Federal Aviation Administration, if required.

**414.2.5 Floor construction and drainage:** Floors of public garages and airplane hangars shall be graded to drain through oil separators or traps to avoid accumulation of explosive vapors in building drains or sewers as provided in the plumbing code. The floor finish shall be of concrete or other approved nonabsorbent, noncombustible material.

**414.3 Ventilation:** All public garages and airplane hangars shall be provided with mechanical or natural ventilation adequate to prevent the accumulation of carbon monoxide or exhaust fumes in excess of one (1) part in ten thousand (10,000) or one one-hundredth of one per cent (.01%) or the concentration of gasoline vapors in excess of twenty (20) per cent of the lower explosive limit. The building official may require test by a qualified testing laboratory to determine the adequacy. The cost of test shall be borne by the owner.

**414.3.1 Below grade:** Enclosed and below grade public garages shall be equipped with mechanical ventilation adequate to provide six (6) air changes per hour. The ventilation system shall be operated at all times the garage areas are occupied by human beings.

**414.3.2 Repair shops or rooms:** When motor vehicles are to be oper-



## SPECIAL USE AND OCCUPANCY REQUIREMENTS

ated or engines are run for test purposes or minor adjustments, provisions shall be made to collect the exhaust fumes from each vehicle individually and to discharge such fumes to the outer air by means of a positive induced draft. The discharge from such system shall be located so as not to create a hazard to adjoining properties, but not less than eight (8) feet above the adjacent ground level on the exterior of the building and shall discharge into a yard or court. When necessary to discharge across a walkway or private thoroughfare, the discharge opening shall be carried to a height of not less than twenty-five (25) feet above the ground level or to a distance four (4) inches above the highest point of the wall of the building or structure on which it is located.

**414.3.3 Pits:** Pits shall not be installed in floors below the first; and pits in first and upper stories shall be provided with mechanical ventilation adequate to provide the ventilation required under Section 414.3. The ventilation system shall be operated at all times the pits are occupied by human beings.

**414.4 Special hazards:** Any process conducted in conjunction with public garages involving volatile flammable solvents shall be segregated or located in a detached building or structure, except as provided in Section 402.0 for the storage and handling of gasoline and other volatile flammables. The quantity of flammable liquids stored or handled in public garages other than in underground storage and in the tanks of motor vehicles shall be not more than five (5) gallons in approved safety cans.

**414.5 Heating and protection of equipment:** Radiation and heating coils and pipes located within six (6) inches of the floor shall be protected with wire mesh or other approved noncombustible shields of adequate strength; and with asbestos or other insulation on top of the equipment when located in partitions or near combustible racks or woodwork.

**414.6 Boiler rooms of public garages:** All heat generating plants other than approved direct fired heaters shall be located in separate buildings or shall be separately enclosed within the structure with solid, water and vapor tight masonry. All rooms housing boilers, stoves or other heating apparatus shall be cut off from all other parts of the building with four (4) hour fire-resistance rated construction with entrance from outside only, and these shall not be openings through the fire separation wall other than those necessary for heating pipes or ducts.

### SECTION 415.0 MOTOR FUEL SERVICE STATIONS

**415.1 Construction:** Buildings and structures used for the storage and

## CONNECTICUT BASIC BUILDING CODE/1978

sale of motor fuel oils may be of all types of construction within the height and area limitations of Table 305 for business (use group B) buildings and as modified by Section 302.0. The canopies and supports over pumps and service equipment when located less than twenty (20) feet from interior lot lines shall be constructed of approved noncombustible materials, Type 3A (heavy timber) construction, or one (1) hour fire-resistance rated construction.

**415.1.1 Exceptions:** Approved plastics conforming to the requirements of Article 20 may be used in canopies over pumps when conforming to the following requirements.

1. The canopies are located at least ten (10) feet from any building on the same property and face yards or streets not less than forty (40) feet wide on the other sides;
2. the aggregate area of plastic in each canopy shall not exceed two-hundred (200) square feet in the fire limits or one thousand (1,000) square feet outside the fire limits; and
3. the maximum area of each panel shall not exceed one hundred (100) square feet.

**415.1.2 Opening protectives:** All permissible openings in walls with a fire separation of less than twenty (20) feet shall be protected with approved fire windows or fire doors complying with Article 9, except doors in such walls to rest rooms.

**415.1.3 Basements:** Motor fuel service stations shall not have cellars or basements; and when pits are provided they shall be vented as required in Section 414.3.

**415.2 Gasoline storage:** All volatile flammable liquid storage tanks shall be installed below ground and vented as specified in Section 402.0. Gasoline may be stored or handled above ground in approved safety cans of not more than five (5) gallons each.

**415.3 Location of pumps:** Gasoline pumps or other mechanical equipment shall not be installed so as to permit servicing of motor vehicles standing on a public street or highway; except when necessitated by the widening of streets or highways, the use of the outer driveway of existing service stations may be continued for servicing of vehicles when approved by the authority having jurisdiction.

### SECTION 416.0 MOTOR VEHICLE REPAIR SHOPS

**416.1 General:** All buildings and structures designed and used for repair and servicing motor vehicles, motor boats, airplanes or other motor driven means of transportation shall be subject to the limitations of Tables 214 and 305 for moderate hazard storage (use group S-1). Such

## SPECIAL USE AND OCCUPANCY REQUIREMENTS

buildings shall be used solely for that purpose.

**416.2 Enclosure walls:** Exterior walls, when located within six (6) feet of interior lot lines or other buildings, shall not have openings therein.

**416.3 Handling of volatile flammables:** All volatile flammables shall be stored and handled as provided in Section 415.2.

**416.4 Ventilation:** All rooms and spaces used for motor vehicle repair shop purposes shall be provided with an approved system of mechanical ventilation meeting the requirements of Section 414.3 and the mechanical code listed in Appendix B.

**416.5 Fire prevention:** Open gas flames except heating devices complying with Section 414.6, torches, welding apparatus, or other equipment likely to create an open flame or spark shall not be located in a room or space in which flammable liquids or highly combustible materials are used or stored.

### SECTION 417.0 PLACES OF PUBLIC ASSEMBLY

**417.1 Applicability:** The provisions of this section shall apply to all places of public assembly and all parts of buildings and structures classified in the use group A-1, theatres and in other places of public assembly, use groups A-2, A-3 and A-4.

#### 417.2 Restrictions

**417.2.1 High hazard uses:** A place of public assembly shall not be permitted in a building classified in the high hazard group (use group H).

**417.2.2 Superimposed theatres:** An addition or extension shall not be erected over the stage section of a theatre, nor shall a second theatre be erected above another. The building official may waive the prohibition against superimposed theatres and construction above the stage when adequate access is provided for fire fighting with direct means of ventilation to the outer air from the stage portion.

**417.2.3 Frame construction:** A theatre with stage, fly gallery and rigging loft shall not be permitted in a building of unprotected frame (Type 4B) construction.

**417.2.4 Location:** All buildings used for assembly purposes shall front on at least one (1) street in which the main entrance and exitway discharge shall be located.

**417.2.5 Trim, finish and decorative hangings:** All permanent acoustic insulating and similar materials and temporary hangings shall comply

with the flameresistance requirements of Article 9. Moldings and decorations around the proscenium openings shall be constructed entirely of noncombustible material.

**417.2.6 Existing buildings:** Nothing herein contained shall prohibit the alteration of a building heretofore occupied as a place of public assembly for such continued use provided the occupancy load is not increased and seats, aisles, passageways, balconies, stages, appurtenant rooms and all special permanent equipment comply with the requirements of this article.

**417.2.7 New buildings:** A building not heretofore occupied as a place of public assembly shall not hereafter be altered to be so occupied unless it is made to comply with all the provisions of this article.

**417.2.8 Skating rinks:** Places of assembly used for the purpose of skating rinks shall not be located below the floor nearest grade.

**417.3 Theater means of egress requirements:** The number, type, location and construction of all means of egress facilities shall comply with the requirements of Article 6 except as herein specifically provided.

**417.3.1 Main exitway:** The main exitway shall be located on a street front and shall be of sufficient width to accommodate not less than one-half (1/2) of the total occupant load.

**417.3.2 Other exitways:** Each level of an assembly occupancy shall have access to the main exitway and shall be provided with other exitways of sufficient width to accommodate not less than two-thirds (2/3) of the total occupant load served by that level. Such exitways shall discharge directly to a street or into an enclosed stairway, exterior stairway or exitway passageway leading to a street. Such exitways shall be located as far apart as practicable and as far from the main exitway as practicable. Such exitways shall be accessible from a cross or a side aisle. There shall be not less than two (2) such exitways in addition to the required access to the main exitway, when the occupant load of the level being served exceeds fifty (50).

**417.3.3 Deleted**

**417.3.4 Deleted**

**417.3.5 Deleted**

**417.3.6 Deleted**

**417.3.7 Width of exitway doors:** The maximum width of single exitway doors shall be forty-two (42) inches and the minimum width of double doorways shall be sixty (60) inches.

**417.3.8 "Exit" lights:** All exitway doors shall be marked with illuminated *Exit* signs complying with Section 623.0 which shall be kept lighted at all times during occupancy of the building.

**417.4 Deleted**

**417.5 Railings:** Metal or other approved noncombustible railings shall be provided on balconies and galleries as prescribed below.

1. At the fascia of boxes, balconies and galleries not less than twenty-six (26) inches in height; not less than thirty-six (36) inches in height at the end of aisles extending to the fascia for the full width of the aisle; and not less than forty-two (42) inches in height at the foot of steps for the full width of the steps;
2. along cross aisles not less than twenty-six (26) inches in height except where the backs of seats along the front of the aisle projecting twenty-four (24) inches or more above the floor of the aisle; and
3. where seatings are arranged in successive tiers, and the height of the rise between platforms exceeds eighteen (18) inches, not less than twenty-six (26) inches in height along the entire row of seats at the edge of the platform.

**417.6 Theatre foyers**

**417.6.1 Capacity:** In every theatre or similar place of public assembly, not including churches, for theatrical use with stage and scenery loft, a foyer or lobby shall be provided with a net floor area, exclusive of stairs or landings, of not less than one and one-half (1½) square feet for each occupant having access thereto. The use of foyers and lobbies and other available spaces for harboring occupants until seats become available shall not encroach upon the clear floor area herein prescribed or upon the required clear width of front exitways.

**417.6.2 Egress:** When the foyer is not directly connected to the public street through the main lobby, an unobstructed corridor or passage shall be provided which leads to and equals the required minimum width of main entrances and exitways. A mirror shall not be placed so as to give an appearance as a doorway, exit or passageway.

**417.6.3 Gradient:** The rear foyer shall be at the same level as the back of the auditorium and the means of egress leading therefrom shall not have a steeper gradient than one (1) foot in eight (8) feet.

**417.6.4 Construction:** The partitions separating the foyer from the auditorium and other adjoining rooms and spaces of theatres shall be constructed of not less than two (2) hour fire-resistance rating; except that opening protectives may be constructed of noncombustible materials without fire-resistance rating.

**417.6.5 Waiting spaces:** Waiting spaces for harboring occupants shall be located only on the first or auditorium floor. Separate exitways in addition to the required theatre exitways shall be provided from the waiting space based on an occupancy of one (1) person for each three (3) square feet of waiting space area.

**417.7 Theatre stage construction**

**417.7.1 Stage enclosure walls:** Every stage hereafter erected or altered for theatrical performances which is equipped with portable or fixed scenery, lights and mechanical appliances, shall be enclosed on all sides with solid walls of not less than four (4) hour fireresistance rating, extending continuously from foundation to at least four (4) feet above the roof. There shall not be window openings in such walls within six (6) feet of an interior lot line; and all permissible window openings shall be protected with three-quarter (¾) hour fire windows complying with Article 9.

**417.7.2 Floor construction:** The entire stage, except that portion used for the working of scenery, traps, and other mechanical apparatus for the presentation of a scene, and the roof over the stage shall be not less than three (3) hour fireresistance rated construction. All openings through the stage floor shall be equipped with tight fitting, solid wood trap doors not less than three (3) inches in thickness or other materials of equal physical and fireresistance rated properties.

**417.7.3 Rigging loft:** The rigging loft, fly galleries and pin rails shall be constructed of approved noncombustible materials.

**417.7.4 Footlights and stage electrical equipment:** Footlights and border lights shall be installed in troughs constructed of non-combustible materials. The switchboard shall be so located as to be readily accessible at all times and the storage or placing of stage equipment against it shall be prohibited.

**417.7.5 Exterior doors:** All required exitway discharge door openings to the outer air shall be protected with approved self-closing fire doors, complying with Article 9. All exterior openings which are located on the stage for means of egress or loading and unloading purposes which are likely to be open during occupancy of the theatre, shall be constructed with vestibules to prevent air draughts into the auditorium.

**417.7.6 Proscenium wall:** There shall not be other openings in the wall separating the stage from the auditorium except the main proscenium opening; two (2) doorways at the stage level, one (1) on each side thereof; and, where necessary, not more than two (2) doorways to the musicians' pit from the space below the stage floor. Each such doorway shall not exceed twenty-one (21) square feet in area and shall be protected with approved automatic and self-closing fire door assemblies complying with Article 9 with a combined fireresistance rating of three (3) hours or the approved labeled equivalent. The distance between the top of the proscenium opening and the ceiling of the stage shall be not less than five (5) feet.

**417.7.7 Proscenium curtain:** The proscenium opening shall be protected with an automatic fireresistive and smoke-tight curtain designed

## SPECIAL USE AND OCCUPANCY REQUIREMENTS

to resist an air pressure of not less than ten (10) pounds per square foot (psf) normal to its surface, both inward and outward. The curtain shall withstand a one-half ( $\frac{1}{2}$ ) hour fire test at a temperature of not less than seventeen hundred (1700) degrees F. without the passage of flame. The curtain shall be operated by an automatic heat activated device to descend instantly and safely and to completely close the proscenium opening at a rate of temperature rise of fifteen (15) to twenty (20) degrees F. per minute; and by an auxiliary operating device to permit prompt and immediate manual closing of the proscenium opening.

**417.7.8 Scenery:** All combustible materials used in sets and scenery shall be rendered flameresistant to comply with Article 9.

**417.7.9 Stage ventilation:** Metal or other approved noncombustible ventilators, equipped with movable shutters or sash shall be provided over the stage, constructed to open automatically and instantly by approved heat activated devices, with an aggregate clear area of opening not less than one-eighth ( $\frac{1}{8}$ ) the area of the stage, except as otherwise provided in Section 417.2.2. Supplemental means shall be provided for manual operation of the ventilator.

### **417.8 Dressing and appurtenant rooms**

**417.8.1 Construction:** Dressing rooms, scene docks, property rooms, work shops and store rooms and all compartments appurtenant to the stage shall be of fireproof (Type 1) construction and shall be separated from the stage and all other parts of the building by walls of not less than three (3) hour fireresistance rating. Such rooms shall not be placed immediately over or under the operating stage area.

**417.8.2 Opening protectives:** Openings other than to trunk rooms and the necessary doorways at stage level shall not connect such rooms with the stage, and such openings shall be protected with one and one-half ( $1\frac{1}{2}$ ) hour self-closing fire doors or the approved labeled equivalent complying with Article 9.

**417.8.3 Dressing room and stage exitways:** Each tier of dressing rooms shall be provided with at least two (2) means of egress, one (1) of which shall lead directly to an exitway corridor, exitway discharge court or street. Exitway stairways from dressing and storage rooms may be unenclosed in the stage area behind the proscenium wall. At least one (1) approved exitway shall be provided from each side of the stage and from each side of the space under the stage, and from each fly gallery and from the gridiron to a street, exitway discharge court or passageway to a street. An iron ladder shall be provided from the gridiron to a scuttle in the stage roof.

### **417.9 Lighting**

**417.9.1 Exitways:** During occupancy all exitways in places of assembly shall be lighted to comply with the requirements of Section 624.0.

**417.9.2 Auditoriums:** Aisles in auditoriums shall be provided with general illumination of not less than one-tenth ( $\frac{1}{10}$ ) foot candles at the front row of seats and not less than two-tenths ( $\frac{2}{10}$ ) foot candles at the last row of seats and the illumination shall be maintained throughout the showing of motion pictures or other projections.

**417.9.3 Other places of public assembly:** All areas and portions of buildings used as places of public assembly other than theatres shall be lighted by electric light to provide a general illumination of not less than one (1) foot candle.

**417.9.4 Control:** The lighting of exitways, aisles and auditoriums shall be controlled from a location inaccessible to unauthorized persons. Supplementary control shall be provided as specified in Section 408.3.4 in the motion picture projection room.

**417.10 Fire protection and fire fighting equipment:** Every theatre classified in the use group A-1 shall be equipped with a fire protection system complying with the requirements of Article 12 and as herein specified.

**417.10.1 Fire suppression system:** Approved automatic fire suppression systems complying with the provisions of Section 1202.0 shall be provided to protect all parts of the building except the auditorium.

**417.10.2 Standpipes:** Standpipe fire lines complying with the provisions of Section 1211.0 shall be provided with outlets and hose attachments; one (1) on each side of the auditorium in each tier; one (1) in each mezzanine; one (1) in each tier of dressing rooms; and protecting each property, store and work room.

**417.10.3 First-aid standpipes:** First-aid standpipes complying with the provisions of Section 1211.0 shall be provided on each side of the stage. Such standpipes shall be not less than two and one-half ( $2\frac{1}{2}$ ) inches in diameter, equipped with one and one-half ( $1\frac{1}{2}$ ) inch hose and three-eighth ( $\frac{3}{8}$ ) inch nozzles.

**417.10.4 Hose outlets:** A sufficient quantity of hose shall be provided, equipped with regulation fire department couplings, nozzle and hose spanner, to reach all areas as specified in Article 12.

**417.10.5 First-aid hand equipment:** Approved portable two and one-half ( $2\frac{1}{2}$ ) gallon fire extinguishers shall be provided and located as follows: two (2) on each tier or floor of the stage; one (1) immediately outside of the motion picture projection room; one (1) in each dressing room; and one (1) in each work, utility and storage room. Fire axes and fire hooks shall also be provided as directed by the fire official; and all fire extinguishers and fire tools shall be securely mounted on walls in plain view and readily accessible.



SECTION 418.0 RESERVED

SECTION 419.0 AMUSEMENT PARKS

**419.1 Construction:** All accessory buildings and enclosed structures shall be constructed to conform to the requirements of this code governing use and occupancy as regulated by Tables 214 and 305 and in compliance with the fire limit restrictions of Article 3, except as may be specifically required in the following Sections 419.1.1 through 419.1.3.

**419.1.1 Amusement devices:** The maximum height of any amusement device in which passengers are transported shall not exceed forty (40) feet in frame (Type 4) construction; one hundred (100) feet in unprotected noncombustible (Type 2C) and heavy timber mill (Type 3A) construction; and shall not be limited in fireproof (Type 1) construction.

**419.1.2 Amusement park buildings:** All enclosed amusement park buildings over one (1) story in height shall be constructed or protected to furnish not less than one (1) hour fire-resistance rating; except where roof framing and decking are specifically permitted to be of non-combustible or mill type construction under the provisions of this code.

**419.1.3 Proximity to lot lines:** All structures located within twenty (20) feet of lot lines or within twenty (20) feet of other structures on the same lot shall be of protected noncombustible (Type 2B) or protected masonry enclosed (Type 3A or 3B) construction or better.

**419.2 Walkways and ramps:** Walkways and ramps shall be erected with a slope not greater than one (1) in ten (10), except that when approved nonslip surfaces are provided, the grade may be increased to a maximum of one (1) in eight (8).

**419.3 Elevating and conveying equipment:** The equipment and operation of all devices and mechanisms for transporting persons shall comply with the requirements of Article 16.

**419.4 Tests:** All amusement devices used by the public which involve hazardous features shall be installed and operated as directed by the building official and shall not be placed in service until acceptance tests have been made and the installation has been approved by him.

**419.5 Fire protection:** In addition to the fire extinguisher and fire fighting equipment required by the use and occupancy of each building and structure under the provisions of this code, every amusement and exhibition park, when required by the building official, shall be provided with a system of fire hydrants and fire lines with the required water supply, complying with Article 12 and the standards listed in Appendix B for yard systems.

**SECTION 420.0 STADIUMS AND GRANDSTANDS**

**420.1 General:** Stadiums and grandstands shall be constructed as required by this code and in accordance with the approved rules and the Standard for Tents, Grandstands and Air-Supported Structures Used for Places of Assembly (NFPA 102) listed in Appendix B.

**420.2 Handrails:** Means of egress stairways shall be provided with a handrail on at least one (1) side. The handrail may be broken as necessary to provide for entrance to the seating platforms.

**420.3 Spaces underneath seats:** Spaces underneath grandstand seats shall be kept free of all combustible and flammable materials and shall not be occupied or used for other than exitways; except that when enclosed in not less than one (1) hour fire-resistance rated construction, the building official may approve the use of such spaces for other purposes that do not endanger the safety to public.

**SECTION 421.0 DRIVE-IN MOTION PICTURE THEATRES**

**421.1 Location:** The location of drive-in motion picture theatres shall be approved by the local or state authority having jurisdiction over highways and streets.

**421.2 Arrangement of lanes:** Separate entrance and exit lanes shall be provided not less than twelve (12) feet in width, with not less than forty (40) foot intervals between access lanes. The parking space for each car shall not be less than nine (9) feet by twenty (20) feet in area, and so arranged to provide continuous lanes of travel.

**421.3 Projection booth:** The projection booth shall comply with Section 408.3 and shall be supported on a structure of Type 2C or other approved noncombustible construction. A motor vehicle shall not be permitted to park within twenty (20) feet of the projection booth or room.

**421.4 Toilet facilities:** Separate toilet facilities shall be provided for each sex as required in the plumbing code for places of public assembly.

**421.5 Reserved**

**SECTION 422.0 TENTS, AIR-SUPPORTED STRUCTURES AND OTHER TEMPORARY STRUCTURES**

**422.1 Construction:** Tents and air-supported structures shall be constructed as required by this code and the regulations of the State Fire Marshal.

**422.2 Permits:** A special temporary permit shall be secured from the building official for all such installations. Tents, air-supported structures and other temporary structures may be erected for a period not exceeding thirty (30) days for religious, educational or recreational purposes.

## SPECIAL USE AND OCCUPANCY REQUIREMENTS

**422.3 Location:** Tents and air-supported structures shall be located outside the fire limits unless an accessible unoccupied open space is provided around the perimeter with a minimum width of fifty (50) feet.

### SECTION 423.0 PARKING LOTS

**423.0.1 Local ordinances:** In the absence of local ordinances controlling parking lots, the provisions of this section shall constitute minimum permissible standards.

**423.1 Curb cuts:** Parking lots shall be arranged to afford ready means of entrance and exit at sidewalk level; and special permits shall be secured for curb cuts from the administrative authorities.

**423.2 Lanes and parking spaces:** Access lanes not less than twelve (12) feet in width shall be provided for each row of cars; and the parking space shall be not less than eight (8) feet by eighteen (18) feet in area for each motor vehicle.

**423.3 Parking lot offices:** The construction of parking lot offices shall comply with the fire limit restrictions of Section 302.0.

**423.4 Protection of adjoining property:** A substantial bumper of masonry, steel or heavy timber shall be placed near all interior lot lines to protect structures and property abutting the parking lot.

**423.5 Surface and drainage:** Parking lots shall be graded with rolled or compacted cinders, gravel or other approved nonabsorbent materials to prevent raising of dust and shall be maintained to prevent drainage onto adjoining property or the sidewalk.

**423.6 Electric illumination:** Electric light wiring shall be provided on approved standards to furnish adequate illumination of driveways and lanes as required by the jurisdiction authorities for street lighting, but such illumination shall not be less than one-quarter ( $\frac{1}{4}$ ) of one (1) lumen per square foot of parking area.

### SECTION 424.0 MOBILE UNITS

**424.1 General:** Mobile units, as defined in Section 201.0, shall be designed, constructed and maintained to be transported from one location to another and not mounted on a permanent foundation. A mobile unit placed on a permanent foundation or on foundation piers shall not be defined as a mobile unit and shall comply with all of the requirements of this code for at-site and prefabricated construction.

**424.2 Construction:** Residential mobile units shall be of an approved design and construction. All other mobile units shall be designed and constructed in accordance with the requirements of this code. All mobile units shall be evaluated, inspected and labeled in-plant in accordance with the provisions of

Article 18.

**424.3 Location:** Mobile units shall be located in spaces approved for such use. The provisions of this code shall not be construed to repeal, modify or constitute an alternative to any lawful zoning regulations.

**424.3.1 Anchorage and tie-down:** Every parking space for mobile units shall be provided with devices for anchoring the unit to prevent overturning or uplift. The owner of the parking space shall anchor or cause to be anchored all mobile units located on the parking space. Where concrete platforms are provided for the parking of the units, anchorage may be by eyelets imbedded in the concrete with adequate anchor plates or hooks; or other suitable means. The anchorage shall be adequate to withstand wind forces and uplift as required in Article 7 for buildings and structures, based upon the size and weight of the units.

**SECTION 425.0 MOTELS**

**425.1 General:** All buildings and accessory structures used as motels shall comply with the requirements and limitations of this code for the occupancy and use for which they are designed and as herein specifically required.

**425.2 Garages:** Garages when attached to motel residential buildings shall have the interior faces of all walls, when not of approved masonry construction, and the ceilings protected to afford one (1) hour fire-resistance rating and all connecting openings shall be protected with approved three-quarter (¾) hour fire doors or their equivalent complying with Article 9, or with one and three-quarter (1¾) inch solid core wood doors. Roofed-over passageways may be used to connect garages to dwellings if protected with one (1) hour fire-resistance rated construction.

**425.3 Required exitways:** All exitways in buildings more than one (1) story in height shall be constructed of one (1) hour fire-resistance rating and all stories above the first shall have at least two (2) means of egress complying with Article 6. All exitways from residential quarters shall lead to open spaces not less than twenty (20) feet in width which provide direct access to public streets or highways.

**425.4 Driveways and parking spaces:** The arrangement and capacity of driveways, lanes and parking spaces shall comply with the requirements specified for parking lots in Section 423.0.

**425.5 Water supply and sanitary facilities:** Fresh water supply for drinking and domestic purposes and all sanitary facilities shall comply with the provisions of the plumbing code.

**SECTION 426.0 RADIO AND TELEVISION TOWERS**

**426.1 General:** Subject to the structural provisions of Section 715.0 for

## SPECIAL USE AND OCCUPANCY REQUIREMENTS

wind loads and the requirements of Section 925.0 governing the fire-resistance ratings of buildings for the support of roof structures, all radio and television towers shall be designed and constructed as herein provided.

**426.2 Location and access:** The towers shall be so located and equipped with step bolts and ladders to be readily accessible for inspection purposes. Guy wires or other accessories shall not cross or encroach upon any street or other public space, or over any electric power lines, or encroach upon any other privately owned property without written consent of the owner.

**426.3 Construction:** All towers shall be constructed of approved corrosion-resistive noncombustible materials. Within the limitations of Section 302.0 for fire limits, isolated radio towers may be constructed of lumber sizes qualifying for mill type construction when not more than one hundred (100) feet in height.

**426.4 Loads:** The structure shall be securely braced and anchored to resist a wind of not less than thirty (30) pounds per square foot (psf) on the net area of both sides of latticed construction and on the projected area of the antennae plus the wind on ice-covered sections in localities where subject to freezing temperatures. Where subject to winds of unusual velocity, the loads shall be increased accordingly. Due allowance shall be made for effect of shape of individual elements and contour of the tower as provided in Section 715.4 in computing wind loads.

**426.4.1 Dead load:** Antennae and towers shall be designed for the dead load plus ice load in regions where ice formation is likely to occur.

**426.4.2 Uplift:** Adequate foundations and anchorage shall be provided to resist two (2) times the calculated wind uplift.

**426.5 Grounding:** All towers shall be permanently and effectively grounded.

### SECTION 427.0 RADIO AND TELEVISION ANTENNAE

**427.1 Permits not required:** Antennae structures for private radio or television reception not more than twelve (12) feet in height may be erected and maintained on the roof of any building without a building permit. Such a structure, however, shall not be erected so as to injure the roof covering and when removed from the roof, the roof covering shall be repaired to maintain weather and water tightness. The installation shall not be erected nearer to the lot line than the total height of the antennae structure, nor shall such structure be installed near electric power lines or encroach upon any street or other public space.

**427.2 Permits required:** The approval of the building official shall be secured for all antennae structures more than twelve (12) feet in height.

The application shall be accompanied by detailed drawings of the structure and methods of anchorage. All connections to the roof structure must be properly flashed to maintain water tightness. The design and materials of construction shall comply with the requirements of Section 426.3 for character, quality, and minimum dimensions.

### SECTION 428.0 SWIMMING POOLS

**428.1 General:** Pools hereafter constructed or altered and used for swimming or bathing shall be in conformity with the requirements of this section, provided, however, these regulations shall not be applicable to any such pool less than twenty-four (24) inches deep or having a surface area less than two-hundred and fifty (250) square feet, except when such pools are permanently equipped with a water recirculating system or involve structural materials. For purposes of this code, pools are classified as private swimming pools or public and semi-public swimming pools as defined in Section 428.2.

Materials and construction used in swimming pools shall comply with the applicable requirements of this code. Pools used for swimming or bathing and their equipment or accessories which are constructed, installed and maintained in accordance with the applicable standards listed in Appendix B, shall be deemed to conform to the requirements of this code, provided the requirements of Section 428.8 are included in the installation. Note that the regulations of the Connecticut State Department of Health Services regarding other than private pools may be more stringent and must be met.

**428.2 Classification of pools:** Any constructed pool, including any portable pool or any demountable above ground pool, which is used, or intended to be used, as a swimming pool in connection with a single family residence and available only to the family of the householder and his private guests shall be classified as a private swimming pool. Any swimming pool other than a private swimming pool shall be classified as a public or semi-public swimming pool.

#### 428.3 Plans and permits

**428.3.1 Permits:** A swimming pool or appurtenances thereto shall not be constructed, installed, enlarged or altered until a permit has been obtained from the building official. The approval of all municipal and state authorities having jurisdiction over swimming pools shall be obtained before applying to the building official for a permit. Certified copies of these approvals shall be filed as part of the supporting data for the application for a permit.

**428.3.2 Plans:** Plans shall accurately show dimensions and construction of pool and appurtenances and properly established distances to lot lines, buildings, walks and fences; details of water supply system, drainage and water disposal systems, and all appurtenances pertaining to the swimming pool. Detail plans of structures, vertical elevations, and sections through the pool showing depth shall be included.

**428.4 Locations:** Private swimming pools shall not encroach on any front or side yard required by this code, or the governing zoning law, except by specific rules of the jurisdiction in which it may be located. A wall of a swimming pool shall not be located less than six (6) feet from any rear or side property line or ten (10) feet from any street property line, except by specific rules of the jurisdiction in which it may be located.

**428.5 Design and construction**

**428.5.1 Structural design:** The pool structure shall be engineered and designed to withstand the expected forces to which it will be subjected.

**428.5.2 Wall slopes:** To a depth up to five (5) feet from the top, the wall slope shall not be more than two (2) feet horizontal in five (5) feet vertical.

**428.5.3 Floor slopes:** The slope of the floor on the shallow side of transition point shall not exceed one (1) foot vertical to seven (7) feet horizontal. The transition point between shallow and deep water shall not be more than five (5) feet deep.

**428.5.4 Surface cleaning:** All swimming pools shall be provided with a recirculating skimming device or overflow gutters to remove scum and foreign matter from the surface of the water. Where skimmers are used there shall be at least one (1) skimming device for each one thousand (1,000) square feet of surface area or fraction thereof. Where overflow gutters are used they shall be not less than three (3) inches deep, pitched one-quarter ( $\frac{1}{4}$ ) inch per foot to drains, and constructed so they are safe, cleanable and that matter entering the gutters will not be washed out by a sudden surge of entering water.

**428.5.5 Walkways:** All public or semi-public swimming pools shall have walkways not less than four (4) feet in width extending entirely around the pool. Where curbs or sidewalks are used around any swimming pool they shall have a non-slip surface for a width of not less than one (1) foot at the edge of the pool and shall be so arranged to prevent return of surface water to the pool.

**428.5.6 Steps and ladders:** One (1) or more means of egress shall be provided from the pool. Treads of steps or ladders shall have non-slip surfaces and handrails on both sides, except that handrails may be omitted when there are not more than four (4) steps or when they extend the full width of the side or end of the pool.

**428.6 Water supply, treatment and drainage systems**

**428.6.1 Water supply:** All swimming pools shall be provided with a potable water supply, free of cross-connections with the pool or its equipment.

**428.6.2 Water treatment:** Public and semi-public swimming pools shall

be designed and installed so that there is a pool water turnover at least once every eight (8) hours. Filters shall not filter water at a rate in excess of three (3) gallons per minute per square foot of surface area. The treatment system shall be so designed and installed to provide in the water, at all times when the pool is in use, excess chlorine of not less than four-tenths (0.4) parts per million (ppm) or more than six-tenths (0.6) ppm, or excess chloramine between seven-tenths (0.7) and one (1.0) ppm, or disinfection may be provided by other approved means. Acidity-alkalinity of the pool water shall not be below seven (7.0) or more than seven and one-half (7.5). All recirculation systems shall be provided with an approved hair and lint strainer installed in the system ahead of the pump.

Private swimming pools shall be designed and installed so that there is a pool water turnover at least once every eighteen (18) hours. Filters shall not filter water at a rate in excess of five (5) gallons per minute per square foot of surface area. The pool owner shall be instructed in proper care and maintenance of the pool, by the supplier or builder, including the use of high test calcium hypochlorite (dry chlorine) or sodium hypochlorite (liquid chlorine) or equally effective germicide and algaecide and the importance of proper pH (alkalinity and acidity) control.

**428.6.3 Drainage systems:** The swimming pool and equipment shall be equipped to be completely emptied of water and the discharged water shall be disposed of in an approved manner that will not create a nuisance to adjoining property.

#### **428.7 Appurtenant structures and accessories**

**428.7.1 Appurtenant structures:** All appurtenant structures, installations, and equipment, such as showers, dressing rooms, equipment houses or other buildings and structures, including plumbing, heating, and air conditioning, amongst others appurtenant to a swimming pool, shall comply with all applicable requirements of this code and the zoning law.

**428.7.2 Accessories:** All swimming pool accessories shall be designed, constructed, and installed so as not to be a safety hazard. Installations or structures for diving purposes shall be properly anchored to insure stability, and properly designed and located for maximum safety.

#### **428.8 Safety precautions**

**428.8.1 Equipment installations:** Pumps, filters, and other mechanical and electrical equipment for public and semi-public swimming pools shall be enclosed in such a manner as to be accessible only to authorized persons and not to bathers. Construction and drainage shall be such as to avoid the entrance and accumulation of water in the vicinity of electrical equipment.

**428.8.2 Swimming pool safety devices:** Every person owning land on which



there is situated a swimming pool, which contains twenty-four (24) inches or more of water in depth at any point, shall erect and maintain thereon an adequate enclosure either surrounding the property or pool area, sufficient to make such body of water inaccessible to small children. Such enclosure, including gates therein, must be not less than four (4) feet above the underlying ground; all gates must be self-closing and self-latching with latches placed four (4) feet above the underlying ground or otherwise made inaccessible from the outside to small children.

A natural barrier, hedge, pool cover or other protective device approved by the building official may be used so long as the degree of protection afforded by the substituted devices or structures is not less than the protection afforded by the enclosure, gate and latch described herein.

#### SECTION 429.0 OPEN PARKING STRUCTURES

**429.1 General:** Open passenger vehicle parking structures are those structures used for the parking or storage of passenger motor vehicles designed to carry not more than nine (9) persons, and include the following two (2) general types.

1. Ramp type parking structures are those employing a series of continuously rising floors or a series of interconnecting ramps between floors permitting the movement of passenger automobiles under their own power to and from the street level.
2. Mechanical type parking structures are those employing specially designed parking machines, elevators, lifts, conveyors, moving cranes, dollies or other devices for moving passenger automobiles to and from the street level.

For exitway requirements see Section 609.5.

**429.2 General construction requirements:** Passenger vehicle structures shall be constructed of noncombustible materials throughout, including structural framing, floors, roofs and walls. Any enclosed rooms or spaces on the premises shall comply with the applicable requirements of this code.

**429.3 Separations:** Parking structures may be erected without exterior walls except that an enclosure wall with not less than two (2) hours fire-resistance rating, without openings therein, shall be provided when located within six (6) feet of interior lot lines.

**429.4 Basements:** Basements, if used for parking of vehicles, shall be sprinklered in accordance with the provision of Section 1202.0 and shall be ventilated in accordance with the provisions of Section 414.3.1.

**429.5 Gasoline dispensing:** Areas used for dispensing of gasoline in parking structures shall be located on the grade floor and shall comply with the requirements of Section 415.0.

**429.6 Heights and areas:** Heights and areas of open parking structures shall not exceed the limits specified in the following Table 429.

**Table 429**  
**HEIGHT AND AREA LIMITATION FOR OPEN PARKING STRUCTURES**

Type of construction	Height	Area in square feet
1A & 1B	Unlimited	Unlimited
2A	12 Stories—120 feet	Unlimited
2B	10 Stories—100 feet	50,000
2C	8 Stories— 85 feet	30,000
2B & 2C	2 Stories— 25 feet <sup>1</sup>	Unlimited

**Note 1.** Type 2B and 2C construction may be six (6) stories in height and unlimited in area when at least fifty (50) per cent open on all sides and when the horizontal distance from any point on any level to an exterior wall opening on a street, alley, courtyard or any other permanent open space does not exceed two hundred (200) feet.

The areas of structures wherein more than twenty-five (25) per cent of the perimeter has frontage on street or other open space leading to a street each of which is not less than thirty (30) feet wide may be increased as provided in Section 306.2. When an automatic sprinkler system is installed in accordance with Section 1204.0 in Types 2B and 2C construction, the area may be unlimited. The above limits of height permit parking on the roof.

**429.7 Protective guard rails:** All wells, shafts and other open, exposed spaces throughout, except first floor, shall be enclosed and protected with continuous walls or protective guard rails at least three (3) feet six (6) inches in height, except that in those structures wherein vehicles are hoisted to the desired level and placed in the parking space entirely by approved mechanical means, the three (3) foot six (6) inch high continuous wall or protective guard rail may be omitted on the side of the parking levels adjacent to the space occupied by the hoisting and placing equipment.

**429.8 Wheel guards:** Wheel guards made of noncombustible material shall be placed wherever required.

**SECTION 430.0 FALLOUT SHELTERS**

**430.1 General:** This article shall establish the minimum criteria which must be met before a building or building space can be constructed, occupied, used, or designated as a fallout shelter, and such shelters must be constructed in accordance with the applicable standards as listed in Appendix B.

**SECTION 431.0 HIGH-RISE BUILDINGS**

**431.1 Applicability:** The provisions of this section shall apply to all buildings

**SPECIAL USE AND OCCUPANCY REQUIREMENTS**

of all use groups when such buildings have floors used for human occupancy located more than four (4) stories or fifty (50) feet above the lowest level of fire department vehicle access.

**431.2 Reserved**

**431.3 Reserved**

**431.3.1 Automatic fire suppression system:** An approved automatic fire suppression system shall be installed throughout every building. The system shall be designed using the parameters set forth in the applicable standards listed in Appendix I and the following:

1. shutoff valves and a water flow device shall be provided for each floor.

**431.3.1.1 Automatic fire suppression system modifications:** When a fire suppression system is installed in any building in use group B (business), R-1 (residential, hotel), or R-2 (residential, multi-family), modifications to this code are permitted as described below:

1. The type of construction required by this code may be modified as follows:

Type of construction set forth in Table 214	Modified type of construction permitted hereunder
1A	1B
1B	2A
2A	2B

2. The fire-resistance rating of exitway access corridors and vertical separation of tenant spaces shall:
  - a. not be required in use group B (business) buildings;
  - b. be a minimum of one-half (1/2) hour in use group R-1 (residential, hotel) and R-2 (residential, multi-family) buildings, and the wall or partitions may be terminated at the lowest portion of the fire-resistance rated assembly above.
3. Vertical shafts other than stairway enclosures and elevator hoistway enclosures may be reduced to one (1) hour when sprinklers are installed within the shafts at alternate floors.
4. The exitway access and common corridor doors need not meet the requirements of Section 610.4 except they shall be self-closing and tight fitting.
5. (Reserved)
6. (Reserved)

7. (Reserved)
8. Spandrel walls are not required; however, the fireresistance rating of the floors and junctures of exterior walls with each floor must be maintained.
9. Where fire dampers will interfere with the operation of the smoke control system approved alternate protective devices shall be utilized as permitted by the State Fire Safety Code.
10. (Reserved)

**431.4 Smoke detection systems:** An approved smoke detector suitable for the intended use shall be installed in:

1. every mechanical equipment, electrical, transformer, telephone equipment, elevator machine or similar room unless such rooms are protected with an automatic fire suppression system, and
2. each connection to a vertical duct or riser serving two (2) or more stories from return air ducts or plenums of heating, ventilating and air conditioning systems, except that in use group R (residential) occupancies, an approved smoke detector may be used in each return air riser carrying not more than five thousand (5,000) cfm and serving not more than ten (10) air inlet openings.

The actuation of any detector required by this section shall operate the voice alarm system and shall place into operation all equipment necessary to prevent the recirculation of smoke.

**431.5 Alarm and communication systems:** Alarm and communication systems shall be provided. The alarm and communication systems shall be so designed and installed that damage to any terminal unit or speaker will not render more than one (1) zone of the system inoperative.

A single communication system may be designed to serve the voice alarm, public address and fire department communication system as follows:

1. **Voice alarm system:** The operation of any smoke detection, sprinkler, waterflow device or manual fire alarm station shall automatically activate a voice alarm system. Activation of the system shall automatically sound an alert signal to the desired areas. The voice alarm system shall provide a predetermined message on a selective basis to the area where the alarm originated and shall provide information and give direction to the occupants. The alarm shall be designed to be heard clearly by all occupants within the building or designated portions thereof as is required for the public address system.

The central control station shall contain controls for the voice

## SPECIAL USE AND OCCUPANCY REQUIREMENTS

alarm system so that a selective or general voice alarm may be manually initiated.

The system shall be continuously electrically supervised against component failure of the audiopath including amplifiers; speaker wiring, switches and electrical contacts and shall detect opens, shorts and grounds which might impair the function of the system.

2. **Public address system:** A public address communication system designed to be clearly heard by all occupants of the building shall operate from the central control station. It shall be established on a selective or general basis to the following terminal areas:
  - a. elevators,
  - b. elevator lobbies,
  - c. corridors,
  - d. exitway stairways,
  - e. rooms and tenant spaces exceeding one thousand (1,000) square feet in area,
  - f. dwelling units in apartment houses, and
  - g. hotel guest rooms or suites.
3. **Fire department communication system:** A two (2) way fire department communication system shall be provided for fire department use. It shall operate between the central control station and every elevator, elevator lobby and entry to every enclosed exitway stairway.

**431.6 Central control station:** A central control station for fire department operations shall be provided in a location approved by the fire department. It shall contain:

1. the voice alarm and public address system panels;
2. the fire department communications panel;
3. fire detection and alarm system annunciator panels;
4. status indicator for elevators;
5. status indicators and controls for air handling systems;
6. controls for unlocking all stairway doors simultaneously;
7. sprinkler valve and waterflow detector display panels;
8. emergency power, light and emergency system controls and status indicators; and
9. a telephone for fire department use with controlled access to the public telephone system.

**431.7 Smoke control:** Natural or mechanical ventilation for the removal of products of combustion shall be provided in every story and shall consist of one (1) of the following:

1. Panels or windows in the exterior walls which can be opened remotely from an approved location other than the fire floor. Such

venting facilities shall be provided at the rate of twenty (20) square feet per fifty (50) lineal feet of exterior wall in each story and shall be distributed around the perimeter at not more than fifty (50) foot intervals. Such windows or panels and their controls shall be clearly identified.

**Exception:** When a complete automatic fire suppression system is installed, windows or panels manually openable from within the fire floor or approved fixed tempered glass may be used in lieu of the remotely operated openable panels and windows. Such windows shall be clearly identified and shall be of the size and spacing called for above.

2. When a complete and approved automatic fire suppression system is installed, the mechanical air handling equipment may be designed to accomplish smoke removal. Under fire conditions, the return and exhaust air shall be moved directly to the outside without recirculation to other sections of the building. The air handling system shall provide a minimum of one (1) exhaust air change each ten (10) minutes for the area involved.
3. Any other approved design which will adequately remove smoke from each compartment served in an unsprinklered building provided the system is tested and approved by the building official before the building is certified for occupancy.

**431.8 Elevators:** Elevator operation and installation shall be in accordance with Article 16, the standards listed in Appendix B and the following:

1. At least one (1) elevator shall be provided for fire department emergency access to all floors. The elevator shall open into a lobby (which may serve additional elevators) separated from the remainder of the building by one (1) hour fire-resistance rated construction. Elevator operation shall be in accordance with the Safety Code for Elevators listed in Appendix B; said elevator car shall be of such size as to accommodate a standard ambulance stretcher in its horizontal open position.
2. Each elevator call station shall have an illuminated sign which flashes on and off to show the words EMERGENCY - USE THE EXIT STAIRS when an elevator lobby smoke detector is activated. The words shall be not less than one-half (½) inch block letters.

**431.9 Emergency power, light and emergency systems:** Emergency power, light and emergency systems shall comply with the following:

1. **Emergency power:** A permanently installed on-site power generation system shall be provided. All power, lighting, signal and communication facilities provided under the requirements of this section, including an independent ventilation system for the emergency power generator room, shall be transferable to the emergency

## SPECIAL USE AND OCCUPANCY REQUIREMENTS

power source.

The electrical power requirements for sizing the emergency power generation systems shall include but not be limited to the following:

- a. fire protection equipment, including fire pumps;
- b. mechanical ventilation equipment required by this section including power operated windows;
- c. elevator cars required by Section 1607.2;
- d. emergency lighting; and
- e. the normal loads of all facilities classed as emergency. The regular light and power circuits supplying such facilities are classified as emergency systems and shall be automatically transferable to the emergency power generation system.

2. **Emergency lighting:** Emergency lighting shall include but not be limited to the following:

- a. separate lighting circuits and facilities sufficient to provide light with an intensity not less than one (1) foot candle measured at floor level in all exitway access corridors, stairways, smokeproof enclosures, elevators, elevator lobbies, and other areas which are clearly part of the means of egress; and
- b. all circuits supplying lighting for the central control station, the emergency power generator rooms, and other rooms housing control equipment for mechanical systems required by this section shall be transferable to the emergency power system.

3. **Emergency systems:** All electrical systems and facilities required by this section and classified as emergency shall be installed in an approved manner. The following systems and lighting loads are classified as emergency facilities and shall operate within ten (10) seconds of primary power failure:

- a. required lighted exit signs and exit pathway illumination,
- b. fire alarm and sprinkler alarm systems,
- c. fire detection systems,
- d. elevator car lighting,
- e. stairway door control systems, and
- f. voice communication systems.

**431.10 Exits:** Exits shall comply with other requirements of this code and the following:

1. All stairway doors which are to be locked from the stairway side shall have the capability of being unlocked simultaneously without unlatching upon a signal from the central control station.
2. A telephone or other two-way communications system connected to an approved emergency service which operates continuously shall be provided at not less than every fifth (5) floor in each required

stairway where other provisions of this code permit the doors to be locked.

3. Smokeproof enclosures may be eliminated if all enclosed stairways are pressurized, as provided for mechanically operated smokeproof enclosures, to a minimum of fifteen-hundredths (0.15) and a maximum of thirty-five hundredths (0.35) inch of water column in fully sprinklered buildings.

#### SECTION 432.0 COVERED MALLS

**432.1 Scope:** Covered mall buildings are subject to the special requirements of this section and are of two (2) types:

1. Type A covered mall buildings are subject to the general provisions of this code.
2. Type B covered mall buildings may be designed and constructed in accordance with the special provisions as noted herein. All other applicable provisions not specified herein shall be complied with.

#### 432.2 Requirements for Type B covered mall buildings

**432.2.1 Lease plan:** The permit holder shall provide both the building and fire departments with a lease plan showing the locations of each occupancy and its means of egress after the certificate of occupancy has been issued. Such plans shall be kept current. No modifications or changes in occupancy or use shall be made from that shown on the lease plan without prior approval of the building official.

**432.2.2 Tenant separations:** Each tenant shall be separated from adjoining tenants by a wall having a minimum one (1) hour fire-resistance rating which shall extend from the floor to the underside of the ceiling. No separation is required between a tenant space and a mall.

**432.2.3 Exitways:** Exitways shall be provided in accordance with the following:

1. The maximum length of exitway access travel from any point within the mall to an approved exitway along the natural and unobstructed path of travel shall not exceed two hundred (200) feet.
2. Each individual occupancy within the covered mall building shall be provided with a means of egress in accordance with other provisions of this code. Measurements may be made to the entrance to the mall.
3. When the length of travel from the most remote point within a tenant space exceeds one hundred (100) feet to the mall, a second means of egress shall be provided. When two (2) or more means of egress are required, the secondary exits may open into the mall,



## SPECIAL USE AND OCCUPANCY REQUIREMENTS

an exit corridor, an exit enclosure, or to the exterior. When a corridor provides the second means of egress, it shall be of one (1) hour fire-resistance rated construction and doors to the corridors shall be one (1) hour opening protectives. Such doors shall be self-closing, and be so maintained, or shall be automatic closing when actuated by smoke detectors.

4. Anchor stores shall provide the required number of exitways and units of exit width directly to the exterior. The occupant load of anchor stores opening into the mall shall not be included in determining exitway requirements for the mall.
5. The dead end of a mall shall not exceed twice its width.
6. In determining required exitway facilities of the mall, the number of occupants for whom exitway facilities are to be provided, shall be based on gross leasable area of the covered mall building (including anchor stores) and shall be based on the following table.

Square feet per person	Gross leasable area (sq. ft.)
30	under 300,000
40	300,000-700,000
50	over 700,000

7. The minimum width of exitway access passageways and corridors from a mall shall be fifty-six (56) inches.
8. The required units of exit width and exitways shall be distributed equally throughout the mall.
9. Storage is prohibited in exitway corridors which are also used for service to the tenants. Such corridors shall be posted with conspicuous signs so stating.

**432.2.4 Mall width:** The minimum width of the mall shall be twenty (20) feet.

There shall be a minimum of ten (10) feet clear exitway width to a height of eight (8) feet between any projection of a tenant space bordering the mall and the nearest kiosk, vending machine, bench, display opening, or other obstruction to egress travel.

The mall width shall be sufficient to accommodate the occupancy load emptying into the immediately adjacent mall as determined by Section 432.2.3 for all occupancies except assembly which shall be determined by Section 606.0.

### **432.2.5 Type of construction**

1. The structural elements of the covered mall building shall be of noncombustible (Types 1 and 2) or heavy timber (Type 3A)

construction.

2. Floor/ceiling assemblies and their supporting columns and beams within multi-level covered malls shall be of one (1) hour fire-resistance rated noncombustible construction.
3. Separation between tenant spaces and the mall is not required. When walls are provided, they shall comply with the provisions of Table 214 for other non-bearing partitions.

**432.2.6 Roof coverings:** Roof coverings for covered mall buildings shall be Class A, B, or C as required by Section 926.0.

**432.2.7 Mixed occupancy:** Use groups assembly (A), business (B), mercantile (M), and residential (R) may be accessory to the covered mall building. Accessory occupancies may be three (3) times the area permitted by Table 305 for the type of construction and the occupancy involved. Use groups assembly (A), business (B), mercantile (M) and residential (R) shall be separated from adjacent tenants by a minimum of one (1) hour fire-resistance rated separation wall.

**Exception:** Assembly (A) occupancies shall be located in the covered mall building so that their main entrance is immediately adjacent to a principle entrance to the mall.

The sprinkler system required in covered mall buildings shall not be substituted for required one (1) hour fire-resistance rated construction. Assembly (A) occupancies other than restaurants shall have not less than one-half ( $\frac{1}{2}$ ) of their required exitways opening directly to the exterior of the covered mall building.

**432.2.8 Fire protection:** Every covered mall building shall be provided with fire protection equipment as follows:

1. The covered mall and all buildings connected thereto shall be provided throughout with an approved fire suppression system. The suppression system in the covered mall shall be independent of the suppression systems in the buildings connected to the covered mall.
2. All sprinkler control valves shall be electrically supervised and connected to either the fire department or to an approved supervisory service.
3. Fire department standpipe outlets shall be provided within the mall at each entrance to an exit passageway, corridor or enclosed stairway and at exterior exits.
4. First aid fire extinguishers shall be provided as required by the fire prevention code listed in Appendix B.

**432.2.9 Fire emergency ventilating system:** The covered mall and exit-way corridors serving the mall shall be equipped with an approved automatic exhaust system capable of producing six (6) air changes per hour computed on volume measured to a height of twelve (12) feet above

each pedestrian area. Necessary outside air to accomplish the six (6) air changes per hour shall be provided.

The exhaust system shall be activated by smoke detectors complying with the applicable standards listed in Appendix B, by operation of the sprinkler system, and manually. The activation system shall be installed in an approved manner. Exhaust shall be taken uniformly from the entire mall area and exitways serving the mall through an approved duct system with vents spaced not more than fifty (50) feet or through a ceiling plenum with uniformly distributed openings. Where tenant spaces are open to the mall area exhaust may be taken through the tenant spaces.

The approved automatic exhaust system may be a separate system or may be intergrated with an approved air-conditioning system. Where a separate system is provided, operation of the fire emergency ventilating system shall automatically shut down the air-conditioning system or any other devices which interfere with the effective operation of the fire emergency ventilating system.

**432.2.10 Fire department access to equipment:** Controls for air-conditioning systems, sprinkler risers and valves, or other fire detection, suppression or control elements shall be accessible to and properly identified for use by the fire department.

**432.2.11 Plastic panels and plastic signs:** Within every story or level and from side wall to side wall of each tenant, approved plastic panels and signs shall be limited as follows:

1. They shall not exceed twenty (20) per cent of the wall area facing the mall.
2. They shall not exceed a height of thirty-six (36) inches, except if the sign is vertical, the height shall not exceed ninety-six (96) inches and the width shall not exceed thirty-six (36) inches.
3. They shall be located a minimum distance of eighteen (18) inches from adjacent tenants.
4. All edges and the backs shall be fully encased in metal.

**432.2.12 Kiosks:** Kiosks and similar structures (temporary or permanent) shall meet the following requirements:

1. Combustible kiosks and other structures shall not be located within the covered mall unless constructed of fire-retardant treated wood throughout, conforming to the standards listed in Appendices C and G.
2. Kiosks or similar structures located within the covered mall shall be provided with approved fire suppression and detection devices.
3. The minimum horizontal separation between kiosks and other structures within the covered mall shall be twenty (20) feet.
4. Kiosks or similar structures shall have a maximum area of three hundred (300) square feet.

### SECTION 433.0 CHILD DAY CARE CENTERS

**433.1 Application:** All new and existing buildings or portions thereof to be utilized for child day care centers as defined and classified in Article 2, shall comply with the provisions of this code as required for use group A-4, except as otherwise provided in this section. Nothing in this section shall be construed to constitute an exemption from the requirements for making the facility accessible to and usable by physically handicapped persons.

**433.1.1 General:** Child day care centers shall conform to the general requirements for such contained in the State Fire Safety Code, including the provisions for centers in apartment buildings, for their location, for the classification of occupancy, and for occupant load.

**433.2 Means of egress:** Means of egress shall conform to the provisions for such contained in the State Fire Safety Code, including the provisions for types of exits, stairs, areas of refuge, capacity, number of exits, arrangement, travel distance, discharge from exits, doors and locks, illumination, emergency lighting and marking.

**433.3 Protection:** The protection of child day care centers shall conform to the provisions for such contained in the State Fire Safety Code, including the provisions for the protection of vertical openings, interior finishes, detection and alarm systems, fire extinguishment, protection from hazards, minimum construction standards, and subdivision into compartments.

**433.4 Building services:** Building services shall conform to the provisions for such contained in the State Fire Safety Code, including the provisions for electrical services, and for air conditioning, ventilating, heating, cooking and other service equipment.

### SECTION 434.0 GROUP DAY CARE HOMES

**434.1 Application:** All new and existing buildings or portions thereof to be utilized for group day care homes as defined and classified in Article 2, shall comply with the provisions of this code as required for use group R-3, except as otherwise provided in this section.

**434.1.1 General:** Group day care homes shall conform to the general requirements for such contained in the State Fire Safety Code, including the provisions for homes in apartment buildings and for the classification of occupancy.

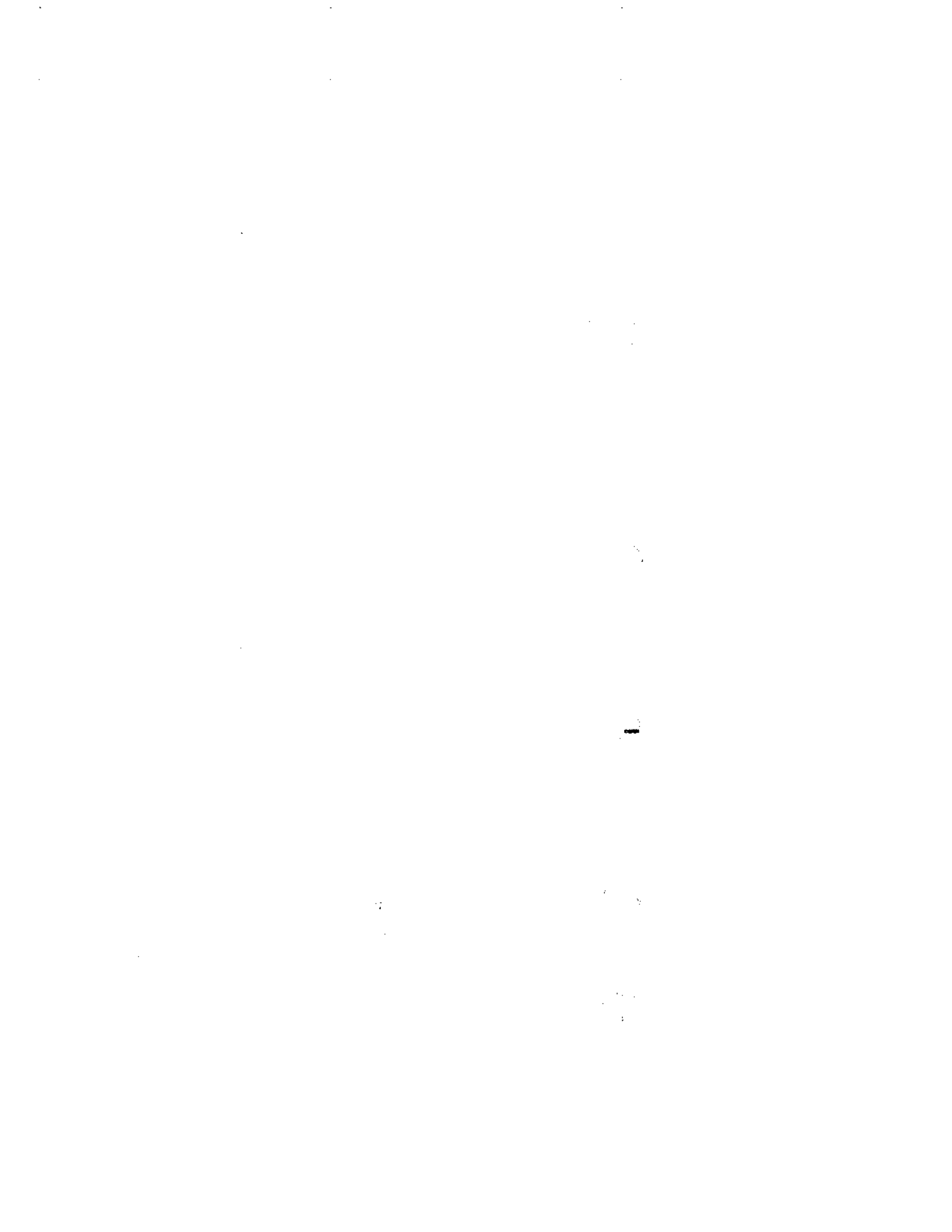
**434.2 Means of egress:** Means of egress shall conform to the provisions for such contained in the State Fire Safety Code, including the provisions for types of exits, capacity, numbers of exits, arrangement, travel distance, discharge from exits, doors and locks, and illumination.

**434.3 Protection:** The protection of group day care homes shall conform to the provisions for such contained in the State Fire Safety Code, including the

**SPECIAL USE AND OCCUPANCY REQUIREMENTS**

provisions for the protection of vertical openings, interior finishes, detection systems, fire extinguishers, and minimum construction standards.

**434.4 Building services:** Building services shall conform to the provisions for such contained in the State Fire Safety Code, including the provisions for electrical services, and for heating equipment.



## **ARTICLE 5**

### **LIGHT, VENTILATION AND SOUND TRANSMISSION CONTROL**

#### **SECTION 500.0 GENERAL**

**500.1 Scope:** The provisions of this article shall govern the means of light and ventilation required in all habitable and occupiable spaces and rooms. Every building and structure hereafter erected and every building room or space which is changed in use shall be constructed, arranged and equipped to conform to the requirements of this article and the applicable standards listed in Appendix B.

**500.2 Conflicting laws:** The provisions in this article shall not be construed to nullify the provisions of any other law or ordinance regulating yards, courts, or other spaces required for light or ventilation; but the provisions specifying the greater requirements shall control the construction.

**500.3 Buildings on same lot:** If more than one (1) building is hereafter placed on a lot, or if a building is placed on the same lot with existing buildings, the several buildings may be treated as a single structure for the purpose of this article, provided equivalent uncovered lot area or other adequate sources of light and ventilation are furnished for all habitable and occupiable spaces and rooms.

**500.4 Other standards:** Compliance with the applicable provisions of the standards listed in Appendix B shall be deemed to meet the requirements of this article, unless otherwise specifically provided herein.

#### **SECTION 501.0 PLANS AND SPECIFICATIONS**

**501.1 General:** Plans for all buildings and structures other than one- and two-family and multi-family dwellings, which are designed for human occupancy, shall designate the number of occupants to be accommodated in the various rooms and spaces, and when means of artificial lighting and ventilation are required, the application shall include sufficient details and description of the mechanical system to be installed as herein required or as specified in Article 20 and in the mechanical code listed in Appendix B.

**SECTION 502.0 STANDARDS OF NATURAL LIGHT**

**502.1 General:** In the application of the provisions of this article, the standard of natural light for all habitable and occupiable rooms, unless otherwise specifically required by the provisions of Article 4 for special uses and occupancies, shall be based on two hundred and fifty (250) foot candles of illumination on the vertical plane adjacent to the exterior of the light transmitting device in the enclosure wall and shall be adequate to provide an average illumination of six (6) foot candles over the area of the room at a height of thirty (30) inches above the floor level.

**SECTION 503.0 STANDARDS OF NATURAL VENTILATION**

**503.1 General:** All habitable and occupiable rooms and spaces, and uses, shall be provided with natural or mechanical ventilation, or a combination of both, in accordance with the provisions of this article, Article 4, Article 20, and the mechanical code listed in Appendix B.

**SECTION 504.0 ARTIFICIAL LIGHT AND VENTILATION**

**504.1 When required:** When natural light and ventilation do not meet the minimum requirements of this code, or when rooms, which by use or occupancy, involve the presence of dust, fumes, gases, vapors or other noxious or deleterious impurities that create a fire or health hazard or when required by the provisions of Article 4 for special uses, the building or room shall be equipped with artificial light and mechanical means of ventilation under the conditions and of the minimum capacity prescribed herein, in Article 20, and in the mechanical code listed in Appendix B.

**504.2 Operation of ventilating systems:** Where mechanical ventilation is accepted as an alternate for natural means of ventilation, or is required under the conditions herein prescribed, the system, equipment and distributing ducts shall be installed in accordance with the provisions of Article 10, Article 20, and the mechanical code listed in Appendix B. Ventilating systems shall be kept in operation at all times during normal occupancy of the building or space so used.

**504.3 Habitable rooms:** The glazed area of windows and exterior doors in habitable rooms and spaces need not be openable for ventilation purposes where an approved mechanical ventilation system is provided conforming to the provisions of this article, Article 20, and the mechanical code listed in Appendix B. Recirculated air shall not come from a plenum or system fed with air returned from habitable rooms occupied by other families, or from the stairways or common corridors; except that recirculation of one hundred (100) per cent of the air supplied may be permitted if the system supplies only a single dwelling unit.

**SECTION 505.0 EXISTING BUILDINGS**

**505.1 Reserved**



**505.2 Alterations:** A building shall not hereafter be altered or rearranged so as to reduce either the size of the room, or the fresh air supply, or the amount of available natural light to less than that required for buildings hereafter erected; or to create an additional room unless made to conform to the requirements of Section 506.0.

**505.3 Uncovered ward and court area:** A building shall not be hereafter enlarged, nor shall the lot on which it is located be diminished so as to decrease the required courts or yards to less than that prescribed in this article for the lighting and ventilation of new buildings.

#### SECTION 506.0 NATURAL LIGHTING AND VENTILATION OF ROOMS

**506.1 Windows and skylights:** Unless artificial light and mechanical ventilation are provided in accordance with Section 504.0, all habitable and occupiable rooms or spaces shall contain windows, skylights, monitors, glazed doors, transoms, glass block panels or other light transmitting media opening to the sky or on a public street, yard or court complying with the provisions of this Article. The light transmitting properties and the areas of the devices used shall be adequate to meet the minimum daylighting and ventilating requirements specified herein and in the approved rules.

**506.2 Window size:** Windows and exterior doors may be used as a natural means of light and ventilation, and when so used their aggregate glass area shall amount to not less than eight (8) per cent of the floor area served, and with not less than one-half ( $\frac{1}{2}$ ) of this required area available for unobstructed ventilation.

**506.3 Openings on yards and courts:** In order to be credited as a source of natural light or ventilation under the provisions of this article, a window or any other approved device shall open directly on a public street, alley or other open public space, or on a yard or court located on the same lot or plot complying with the requirements of Sections 516.0, 517.0 and 518.0.

**506.4 Alternate devices:** In place of the means for natural light and ventilation herein prescribed, alternate arrangement of windows, louvres, or other methods and devices that will provide the equivalent minimum performance requirements shall be permitted when complying with the approved rules.

#### 506.5 Room dimensions

**506.5.1 Ceiling heights:** Habitable (space) rooms, other than kitchens, storage rooms and laundry rooms shall have a ceiling height of not less than seven (7) feet six (6) inches. Hallways, corridors, bathrooms, water closet rooms, and kitchens shall have a ceiling height of not less than seven (7) feet measured to the lowest projection from the ceiling.

If any room in a building has a sloping ceiling, the prescribed ceiling height for the room is required in only one-half ( $\frac{1}{2}$ ) the area thereof. No

**CONNECTICUT BASIC BUILDING CODE/1978**

portion of the room measuring less than five (5) feet from the finished floor to the finished ceiling shall be included in any computation of the minimum area thereof.

If any room has a furred ceiling, the prescribed ceiling height is required in two-thirds ( $\frac{2}{3}$ ) of the area thereof, but in no case shall the height of the furred ceiling be less than seven (7) feet.

**506.5.2 Floor area:** Every dwelling unit shall have at least one room which shall have not less than one hundred fifty (150) square feet of floor area. Other habitable rooms except kitchens shall have an area of not less than seventy (70) square feet.

**506.5.3 Width:** No habitable room other than a kitchen shall be less than seven (7) feet in any dimension.

**SECTION 507.0 LIGHTING AND VENTING OF SPECIAL SPACES**

**507.1 Alcove rooms:** When alcove rooms open without obstruction into adjoining rooms, the required window openings to the outer air shall be based on the combined floor area of room and alcove. An alcove space shall not be more than sixty (60) square feet in area and the opening to the adjoining room shall be not less than eighty (80) per cent of the superficial area of the dividing wall, unless provided with separate means of light and ventilation.

**507.2 Attic spaces:** All attic spaces and spaces between roofs and top floor ceilings shall be ventilated by not less than two (2) opposite windows, louvres, or vents with a total clear area of opening not less than one-third ( $\frac{1}{3}$ ) of one (1) per cent of the horizontally projected roof area.

**507.3 Crawl spaces:** In buildings and structures constructed without basements, in which the first floor construction does not bear directly on the ground, a space shall be provided under the first floor not less than eight (8) inches in depth; and such space shall be vented with screened openings having a clear area of not less than one-third ( $\frac{1}{3}$ ) of one (1) per cent of the enclosed building area, or shall be provided with other means of ventilation approved by the building official. If the ground within the crawl space is covered with a vapor barrier equivalent in durability to 55 pound roofing felt with unsealed laps and, with a transmission rate of one (1) perm or less, the total net free area may be reduced to one eight-hundredth ( $\frac{1}{800}$ ) of the area of the crawl space. When floating mat foundations are provided in accordance with Section 724.3 the requirements for ventilation shall not apply.

**SECTION 508.0 BASEMENTS AND CELLARS**

**508.1 General:** Except as may be otherwise specified for habitable or occupiable rooms or specifically provided in Article 4 for special uses, the glass window area in basements and cellars, except crawl spaces as provided in

## LIGHT, VENTILATION AND SOUND TRANSMISSION CONTROL

Section 507.3, shall be not less than one one-hundredth (1/100) of the floor area served, and provisions shall be made for fresh air supply prescribed for specific uses in Section 514.0, Article 20, and the mechanical code listed in Appendix B.

### SECTION 509.0 BUSINESS AND WORK ROOMS

**509.1 General:** Offices, stores, mercantile and salesrooms, restaurants, markets, bakeries, hotel and restaurant kitchens, factories, workshops, machinery and boiler rooms shall be provided with the required windows specified in Section 506.0 for habitable and occupiable rooms, opening directly on a street or required yard or court; or such rooms shall be equipped with an approved system of mechanical ventilation complying with Section 504.0, Article 20, and the mechanical code listed in Appendix B.

### SECTION 510.0 ASSEMBLY ROOMS

**510.1 General:** In addition to the requirements of Article 4 for special uses, the required windows or other approved devices for natural ventilation shall be distributed as equally as practicable on at least two (2) sides of the room; and artificial lighting shall comply with the requirements of this article and Article 15.

### SECTION 511.0 ROOMS OF INSTITUTIONAL BUILDINGS

**511.1 General:** In buildings of the institutional use group, every habitable and occupiable room shall be provided with light and ventilation as herein provided, except that in buildings used for enforced detention of people (use group I-1) indirect openings to the street or court may be permitted through intermediate corridors or by other approved means of light and ventilation.

### SECTION 512.0 BATH AND TOILET ROOMS

**512.1 General:** Every bath and toilet room shall be lighted and ventilated by one (1) of the methods prescribed in Sections 512.2 through 512.7.

**512.2 Exterior windows:** Windows opening to the outer air as provided in Section 506.0 but not less than three (3) square feet in area.

**512.3 Reserved**

**512.4 Vents and ducts:** Individual vents or ducts shall be constructed of approved noncombustible materials complying with Section 1009.0 with a minimum cross-sectional area of one-half (1/2) square foot and one-third (1/3) additional square foot for each additional water closet or urinal above two (2) in number. Such ducts shall be of adequate height and so located as to insure a minimum supply of fresh air in accordance with the requirements of Article 20 of this code.

**CONNECTICUT BASIC BUILDING CODE/1978**

**512.5 Skylights:** A skylight of approved noncombustible construction complying with Section 925.3, and not less than three (3) square feet in area with ventilating opening.

**512.6 Mechanical ventilating systems:** Any system of mechanical or gravity ventilation for bathrooms or toilet rooms, either private or public, shall comply with the requirements of Article 20, and the mechanical code listed in Appendix B.

**512.7 Artificial lighting:** Illumination shall be provided in all toilet rooms to afford an average intensity of three (3) foot candles measured at a level thirty (30) inches above the floor.

**SECTION 513.0 STAIRWAYS AND EXITWAYS**

**513.1 Residential and institutional buildings**

**513.1.1 Windows:** In all multi-family dwellings (use group R-2) and in institutional buildings for the care or treatment of people (use group I-2) required interior stairways shall be provided with windows to the outer air having a glass area of not less than ten (10) square feet which opens on a required street, alley, yard or court, or with the equivalent source of light for each story through which the stairway passes; and such additional artificial lighting to provide the equivalent illumination at all times that the building is occupied as specified in Section 624.0 and Article 15.

**513.1.2 Skylights:** When the building is not more than three (3) stories in height, a ventilating skylight of the required area may be used in lieu of windows.

**513.1.3 Hallways:** Hallways shall have at least one (1) window opening directly on a street or on a required yard or court in each story, located so that light penetrates the full length of the hallway, with additional windows for each change of direction of the hallway; or the equivalent artificial lighting shall be provided. Every recess or return with a depth or length which exceeds twice the width of the hall, and every corridor separately shut off by a door, shall be treated as a separate hall in applying the provisions of this section.

**513.1.4 Mechanical ventilating systems:** All exitways and common corridors in multi-family dwellings and in institutional buildings shall be ventilated in accordance with the requirements of Article 20 of this code.

**513.2 Business and assembly buildings:** All stairway enclosures shall conform to the requirements of Articles 6 and 9 for construction and shall have the means of artificial illumination to meet the requirements of this article and Article 15.

**513.3 Intensity of illumination:** In all required exitways, except in one-

## LIGHT, VENTILATION AND SOUND TRANSMISSION CONTROL

and two-family dwellings, and wherever natural lighting is not available, artificial lighting shall be provided to furnish not less than three (3) foot candles at the floor level of all required exitways.

### SECTION 514.0 REQUIRED FRESH AIR SUPPLY

**514.1 General:** Mechanical or gravity systems of ventilation shall provide the ventilation specified in this code, in Article 4, Article 5, and Article 20, as well as in other Articles of this code.

### SECTION 515.0 VENTILATION OF SHAFTS OTHER THAN ELEVATOR AND DUMBWAITER HOISTWAYS

**515.1 General:** All enclosed shafts for vertical circulation extending through more than two (2) stories of every building or structure, including enclosures for stairways, ramps and moving stairways, except elevator and dumbwaiter hoistways, shall be automatically vented to the outer air as herein required or as specified in Section 910.0.

**515.2 Extending to roof:** Shaft enclosures extending to the roof shall be provided with a metal skylight constructed to comply with Section 925.3 or with windows of equivalent area or with other approved automatic means of removing hot air and gases.

**515.3 Thermostatic control:** The automatic operation of fire shutters, skylights and other vent relief devices may be controlled by fusible links designed to operate at a fixed temperature of not more than one hundred and sixty (160) degrees F., or by electric or pneumatic operation under a rapid rise in temperature at a rate of fifteen (15) to twenty (20) degrees F. per minute or by other approved methods.

**515.4 Not extending to roof:** Shaft enclosures not extending to the roof shall be provided with gas and smoke relief vents or adequate mechanical means of ventilation in conformity to the provisions of Section 910.6 and the mechanical code listed in Appendix B.

### SECTION 516.0 COURTS

**516.1 General:** All courts required to serve rooms for light and ventilation purposes shall comply with the requirements of this section.

#### 516.2 Width of court

**516.2.1 Minimum width:** Every such court shall have a minimum width of three (3) inches for each foot of height or fraction thereof but not less than five (5) feet for outer courts and twice these values for inner courts.

**516.2.2 Irregular court width:** In the case of irregular or gore-shaped courts, the required minimum width of a court may be deemed to be the average width, provided that such a court shall not be less than five (5) feet at any point.

**CONNECTICUT BASIC BUILDING CODE/1978**

**516.3 Area of court:** The cross-sectional area of a required court shall be not less than one and one-half (1½) times the square of its width; nor shall the length of any court be more than twice its width.

**516.4 Access to court:** A door or other means of access shall be provided at the bottom of every court that is not otherwise conveniently accessible for purposes of cleaning.

**516.5 Air intakes to court**

**516.5.1 Inner court:** Every court serving one (1) or more habitable rooms that does not open for its full height on one (1) or more sides to a street or legal yard shall be connected at or near the bottom with a street or yard by a horizontal intake or passage of fireresistive construction. Such intake or passage shall have a cross-sectional area of not less than twenty-one (21) square feet, and shall remain fully open at both ends and unobstructed for its full size and length, except that grilles of noncombustible construction complying with the approved rules may be permitted at the ends of the intake.

**516.5.2 Fireresistance:** The walls, floors and ceilings of such intakes or passages shall have a fireresistance rating of not less than two (2) hours in buildings of Types 1, 2 or 3 construction and not less than one (1) hour in Type 4 construction.

**516.6 Court walls:** When, in the opinion of the building official, windows facing on courts do not receive adequate direct light by reason of peculiar arrangement or orientation, he may require the walls to be constructed of light colored masonry, or to be painted and maintained a light color to furnish additional reflected light.

**516.7 Court drainage:** The bottom of every court shall be properly graded and drained to a public sewer or other approved disposal system complying with the plumbing code listed in Appendix B; and shall be paved with concrete or other non-absorbent material when required by the building official.

**SECTION 517.0 RESERVED**

**SECTION 518.0 OBSTRUCTION OF COURTS AND YARDS**

**518.1 Permissible projections:** Every required court shall remain unobstructed for its required area and full height, except for the projections permitted in Section 311.0. In residential and institutional buildings, clothes poles, arbors, garden trellises and other such accessories shall not be prohibited in the open spaces at ground level.

**518.2 Motor vehicle parking:** When approved by the building official, required court areas may be used for automobile parking spaces or private garages not exceeding one (1) story in height when accessory to and only for

the use of the occupants of a residential building provided required windows for light and ventilation are not obstructed thereby.

**SECTION 519.0 FIRE EMERGENCY VENTILATING SYSTEM**

**519.1 Common corridors:** In all buildings and structures herein required to have fire emergency ventilating systems, the common corridors shall be constructed with:

1. vertical fire vent stacks and lateral fire vent ducts as herein provided, or
2. windows to the outer air, or
3. mechanical ventilating or exhaust systems, or
4. other equivalent approved means for dissipating smoke, heated air and toxic gases directly to the outer air in the event of fire.

**519.2 Where required:** Fire emergency ventilating systems shall be provided as described below.

1. In buildings used for I-1 and I-2 (institutional) use groups which:
  - a) exceed three (3) stories or forty (40) feet in height, and
  - b) exceed ten thousand (10,000) square feet in floor area, and
  - c) are occupied by more than fifty (50) persons above the first floor, or have more than twenty-five (25) sleeping rooms above the first floor.
2. In buildings used for R-1 and R-2 (hotel and apartment house) use groups which:
  - a) same as I.a) above,
  - b) same as I.b) above,
  - c) same as I.c) above.
3. In all fully enclosed industrial buildings without provision of exterior openings for ventilation purposes.

**519.3 Fire vent ducts:** When the common corridors and exitways are not ventilated by windows opening directly to the outer air as required in Section 513.0, a system of collecting fire ducts shall be provided in each story of aggregate size to remove the smoke, hot air and noxious fumes or gases in event of fire. Each duct shall be not less than one (1) square foot in area located in the common hallways, with screened openings complying with the approved rules, constructed as provided for hot air ducts in Section 1009.0.

**519.4 Thermostatic operation:** When not connected to a vent stack, the inlet openings on each story shall be controlled by automatic heat-operated devices as required in Section 515.3 and in accordance with the approved rules.

**519.5 Fire vent stacks:** When the fire ducts do not discharge directly to the outer air in each story, one (1) or more fire vent stacks of adequate capacity shall be installed to accommodate the discharge from the fire duct system in any one (1) floor or enclosed fire area, but an individual stack

**CONNECTICUT BASIC BUILDING CODE/1978**

shall not be less than four (4) square feet in area, and all stacks shall terminate in an approved automatic cowl or ventilator outlet above the roof.

**519.6 Location of stacks:** The vent stack shall be located in as central a position as practicable with respect to the floor area vented thereby, preferably in the vicinity of vertical shafts, and shall extend continuously to the roof.

**519.7 Vent control of stacks:** The vent control of the vertical stacks shall consist of approved noncombustible dampers, shutters, or glazed metal sash designed to open outwardly, located not less than twenty (20) feet distant from window openings or exitway doors in adjoining walls, and shall be equipped with a thermostatic unit arranged to open at a predetermined rate of temperature rise in accordance with the approved rules. Auxiliary mechanical means for manual operation of all vent controls shall be provided in an accessible location designated by the building official.

**519.8 Stack construction:** The stack enclosure shall be constructed to be vapor and smoke tight with walls of not less than two (2) hour fire resistance rating, and without openings others than the fire duct inlets and the top automatic ventilator outlet.

**519.9 Mechanical exhaust systems:** When mechanical exhaust is required to operate the emergency ventilating system either in horizontal ducts or vertical vent stacks, the installation shall be thermostatically controlled and installed in accordance with the provisions of the mechanical code listed in Appendix B and the approved rules.

**SECTION 520.0 FIRE VENTILATION OF OPEN WELLS**

**520.1 General:** Open wells including unenclosed supplemental stairways and well openings for moving stairways constructed in accordance with the provisions of Section 1619.0 and not accepted as a required element of an exitway shall be permitted in buildings of other than use groups A-4, and I (assembly, schools; and institutional) when equipped with an approved automatic fire suppression system and protected on every floor pierced by the opening with an approved automatic exhaust system or by other approved method as herein required to prevent the passage of fire, smoke and gases to the story above.

**520.2 Exhaust system:** The approved automatic exhaust system may be a separate unit or integrated with an approved air conditioning system and shall be thermostatically controlled to operate simultaneously with the detection of fire.

**520.2.1 Capacity of exhaust system:** The exhaust system shall be of adequate capacity to create a down draft in the open well with sufficient velocity of flow over the entire area of the well opening under normal



## LIGHT, VENTILATION AND SOUND TRANSMISSION CONTROL

conditions of window and door openings in the building. In air conditioned buildings, the system shall operate in a manner satisfactory to the building official with the normal air conditioning fans shut off.

**520.3 Draft stop:** An approved draft stop shall be installed at each story of the open well. The draft stop shall enclose the perimeter of the unenclosed opening and shall extend from the ceiling downward at least eighteen (18) inches on all sides. Automatic sprinklers shall be provided around the perimeter of the opening and within two (2) feet of the draft stop. The distance between the sprinklers shall not exceed six (6) feet center to center.

**520.4 Electrical power:** The electrical power for all parts of the exhaust system and fresh air intake shall be supplied from an emergency electrical system.

**520.5 Alternate protection:** Unenclosed stairwells, when not protected as herein specified, shall be equipped with an approved automatic power-controlled fire shutter conforming to the provision of Section 1620.3.

**520.6 Air-conditioned buildings:** The exhaust system herein required, when installed in an air-conditioned building, shall be so arranged as to automatically stop the operation of the mechanical air-conditioning and ventilating systems and close the dampers of the return air duct connection in the event of fire.

### SECTION 521.0 WINDOW CLEANING SAFEGUARDS

**521.1 General:** All buildings and structures over fifty (50) feet or four (4) stories in height, in which the windows are cleaned from the outside, shall be provided with anchors or other approved safety devices for all window openings. Such anchors, belt terminals or other devices, shall be of approved design, constructed of corrosion-resistive materials securely attached to the window frames or anchored in the enclosure walls of the building. Cast iron or cast bronze anchors shall be prohibited. Exterior roof mounted automatic window washing equipment of approved type and construction may be considered in lieu of such anchors or other approved safety devices.

### SECTION 522.0 SOUND TRANSMISSION CONTROL IN RESIDENTIAL BUILDINGS

**522.1 Scope:** This section shall apply to all common interior walls, partitions and floor-ceiling constructions between adjacent tenant units or between a tenant unit and adjacent public areas such as halls, corridors, stairs or service areas in all residential occupancies.

**522.2 Airborne noise:** Walls, partitions and floor-ceiling constructions separating tenant units from each other or from public or service areas

**CONNECTICUT BASIC BUILDING CODE/1978**

shall have a sound transmission class (STC) of not less than forty-five (45) for airborne noise. This requirement shall not apply to dwelling unit entrance doors. However, such doors shall be tight fitting to the frame and sill.

**522.2.1 Tested assemblies:** All walls, partitions and floor-ceiling constructions tested in accordance with the applicable standard ASTM E90 listed in Appendix C and which meet the requirements for a forty-five (45) STC rating shall be considered as meeting the requirements of this section.

**522.3 Structure-borne sound:** Floor-ceiling constructions between tenant units and between a tenant unit and public or service areas within the structure shall have an impact insulation class (IIC) rating of not less than forty-five (45).

**522.3.1 Tested assemblies:** All floor-ceiling constructions tested in accordance with the applicable standard ASTM E492 listed in Appendix C and which meet the requirements for a forty-five (45) IIC rating shall be considered as meeting the requirements of this section.

## **ARTICLE 6**

### **MEANS OF EGRESS**

#### **SECTION 600.0 GENERAL**

**600.1 Scope:** The provisions of this article shall control the design, construction and arrangement of building elements required to provide a reasonably safe means of egress from all buildings hereafter erected, and from all buildings hereafter altered to a new occupancy load, or manner of use, or inherent fire hazard. Existing buildings and uses shall be controlled by the provisions of Section 604.0.

#### **600.2 Reserved**

**600.3 Minimum requirements:** It shall be unlawful to alter any building or structure in any manner that will reduce the number of exitways or the capacity of exitways below the requirements of this code for new buildings of the proposed use and occupancy.

**600.4 Other standards:** Compliance with the applicable provisions of the standards listed in Appendix B shall be deemed to meet the requirements of this article, unless otherwise specifically provided herein.

#### **SECTION 601.0 PLANS AND SPECIFICATIONS**

**601.1 Arrangement of exitways:** The plans shall show in sufficient detail the location, construction, size and character of all exitways together with the arrangement of aisles, corridors, passageways and hallways leading thereto in compliance with the provisions of this code.

**601.2 Number of occupants:** In other than one- and two-family and multi-family dwellings, the plans and the application for permit shall designate the number of occupants to be accommodated on every floor, and in all rooms and spaces when required by the building official. When not otherwise specified, the minimum number of occupants to be accommodated by the exitways shall be determined by the occupancy load prescribed in Section 606.0. The posted occupancy load of the building shall

be limited to that number.

#### **SECTION 602.0 USE AND OCCUPANCY REQUIREMENTS**

**602.1 New buildings:** Every building and structure and part thereof hereafter erected shall have the prescribed number of exitways of one (1) or more of the approved types defined in this article. Exitways, in combination with the exitway access and exitway discharge, shall provide safe and continuous means of egress to a street or to an open space with direct access to a street.

**602.2 Mixed use groups:** In buildings classified in more than one (1) use group, each fire area shall be considered separately in determining the required number, capacity, size and construction of all exitways.

**602.3 Multiple tenants:** When more than one (1) tenant occupies any one (1) floor of a building or structure, each tenant shall be provided with direct access to approved exitways.

#### **SECTION 603.0 AIR-CONDITIONED BUILDINGS**

**603.1 Location of stairways:** In all buildings, without exterior window openings in all stories, that are artificially ventilated and air-conditioned as provided in Section 504.0, the stairway element of required exitways shall be located as to be accessible to the fire department either through the access openings specified in Section 859.0 or as otherwise approved in at least alternate stories of the building.

**603.2 Exhaust ducts:** Exhaust ducts or vents of air-conditioning systems shall not discharge into stairway or elevator enclosures, nor shall corridors serving as exitway access be used as the return exhaust from air-conditioned spaces through louvres or other devices in the doors or partitions enclosing such air-conditioned spaces; unless such passageways are equipped with approved smoke detectors to automatically stop the supply and exhaust fans and close the louvres, and unless such use is approved by the building official.

#### **SECTION 604.0 EXISTING BUILDINGS**

**604.1 Owner responsibility:** The owner or lessee of every existing building and structure shall be responsible for the safety of all persons in, or occupying, such premises with respect to the adequacy of means of egress therefrom.

**604.2 Unsafe means of egress**

**604.2.1 Inadequate exitways:** In any existing building or structure, not provided with exitway facilities as herein prescribed for new buildings and

in which the exitways are deemed inadequate for safety by the building official, such additional provision shall be made for safe means of egress as he shall order.

**604.2.2 Appeal from exitway order:** Within seven (7) days after the service of the exitway order of the building official, the owner may file a written appeal therefrom, and the building official shall appoint a board of survey as required in Section 125.0 to make a final determination.

#### SECTION 605.0 MAINTENANCE OF EXITWAYS

**605.1 Obstructions:** It shall be unlawful to obstruct, or reduce in any manner, the clear widths of any doorway, hallway, passageway or any other exitway required by the provisions of this code.

**605.2 Maintenance:** All exterior stairways and fire escapes shall be kept free of snow and ice. They shall be properly painted before and after erection; and shall be scraped and painted as often as necessary to maintain them in safe condition.

#### SECTION 606.0 OCCUPANCY LOAD

**606.1 Design occupancy load:** In determining required exitway facilities, the number of occupants for whom exitway facilities shall be provided shall be established by the largest number computed as follows:

1. the actual number of occupants for whom each occupied space, floor, or building, as the case may be, is designed for; or
2. the number of occupants computed at the rate of one (1) occupant per unit of area as prescribed in Table 606; or
3. the number of occupants of any space as computed in 1 or 2 above, plus the number of occupants similarly computed for all spaces that discharge through the space in order to gain access to an exitway.

**606.1.1 Increased occupant load:** The occupant load permitted in any building or portion thereof may be increased from that number established for the given use by Table 606 when all other requirements of the code are also met based on such modified number. The building official may require an approved aisle, seating, or fixed equipment diagram to substantiate any increase in occupant load and may require that such diagram be posted.

**606.2 Mezzanine levels:** The occupancy load of a mezzanine level discharging through a floor below shall be added to that floor occupancy and the capacity of the exitways shall be designed for the total occupancy load thus established.

**606.3 Roofs:** Roof areas occupied as roof gardens or for assembly, storage or other purposes shall be provided with exitway facilities to

**CONNECTICUT BASIC BUILDING CODE/1978**

accommodate the required occupancy load, but there shall not be less than two (2) approved means of egress for assembly uses from such roof areas.

**606.4 Special or unlisted occupancies:** Where data regarding the square feet per person for an occupancy is not listed in Table 606, the occupant load shall be established by the architect or engineer, subject to the approval of the building official.

**Table 606  
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT**

Use	Floor area in square feet per occupant
Assembly without fixed seats	
Concentrated (chairs only—not fixed)	7 net
Unconcentrated (tables and chairs)	15 net
Standing space	3 net
Areas with fixed seats	Note 1
Business areas	100 gross
Court rooms - other than fixed seating areas	40 net
Educational	
Classroom area	20 net
Shops and other vocational room areas	50 net
Industrial areas	100 gross
Institutional areas	
Sleeping areas	80 gross
Inpatient treatment areas	240 gross
Outpatient areas	100 gross
Library	
Reading rooms	50 net
Stack area	100 gross
Mercantile, basement and grade floor areas	30 gross
Areas on other floors	60 gross
Storage, shipping areas	100 gross
Parking garage	200 gross
Residential	200 gross
Storage areas, mechanical equipment room	300 gross
Bowling alleys, allow 5 persons for each alley including 15 feet of runway, and for additional areas	7 net

**Note 1.** The occupant load for an assembly area having fixed seats shall be determined by the number of fixed seats installed.

**606.5 Conflicts:** When there are special requirements for specific occupancies and uses which differ from general requirements herein prescribed, such special provisions shall take precedence.

**606.6 Non-simultaneous occupancy:** The occupant load of toilets, locker rooms, meeting rooms, storage rooms, employee cafeterias, and similar rooms or spaces that are not occupied at the same time as other rooms or spaces on the same floor of a building, may be omitted from the occupant load calculation of the floor on which they are located, to the extent that such spaces only serve occupied rooms on the same floor.

**606.7 Modifications:** The following modifications may be used in determining the occupant load.

1. When the actual occupant load of any space will be significantly different than that determined by Table 606, the building official may establish an alternate basis for the determination of the occupant load. The space occupied by permanent fixtures or displays may serve to reduce the occupant load.
2. When a building is altered or changed in occupancy or use so as to require enlarged exitway facilities, the building official may authorize the alteration or change in occupancy or use without an enlargement of exitway facilities, provided the occupant load is limited to that accommodated by the existing exitway facilities as determined by the provisions of this code, and the building or space is posted as required by Section 120.0.

#### SECTION 607.0 TYPES AND LOCATION OF EXITWAYS

**607.1 General:** All approved exitways, including doorways, passageways, corridors, interior stairways, exterior stairways, moving stairways, smokeproof enclosures, ramps, horizontal exits, bridges, balconies, fire escapes and combinations thereof shall be arranged and constructed as provided in this code.

**607.2 Arrangement:** All required exitways shall be so located as to be discernable and accessible with unobstructed access thereto and so arranged as to lead directly to the street or to an area of refuge with supplemental means of egress that will not be obstructed or impaired by fire, smoke or other cause.

**607.2.1 Exitway discharge:** All exitways shall discharge directly at a public way or at a yard, court or open space of the required width and size to provide all occupants with a safe access to a public way.

**607.3 Remote location:** Whenever more than one (1) exitway is required from any room, space or floor of a building, they shall be placed as remote from each other as practicable and shall be arranged and constructed to provide direct access in separate directions from any point in the area served so as to minimize the possibility that both may be blocked by any one fire or other emergency condition.

**607.4 Length of travel:** Except as modified by provisions of Section 609.3 for buildings with one (1) exitway, all exitways shall be so located that the maximum length of exitway access travel, measured from the most remote point to an approved exitway along the natural and unobstructed line of travel shall not exceed the distances given in Table 607; except where the area is subdivided into rooms or compartments, and the egress travel in the room or compartment is not greater than fifty (50) feet [one

hundred (100) ft. in use groups equipped with an automatic fire suppression system], the distance shall be measured from the exitway access entrance to the nearest exitway.

Table 607  
LENGTH OF EXITWAY ACCESS TRAVEL (FT.)

Use group	Without fire suppression system	With fire suppression system
Assembly	150	200
Business	200	300
Factory and industrial	100	150
High hazard	—	75
Institutional	100	150
Mercantile	100	150
Residential	100	150
Storage, low hazard	300	400
Storage, moderate hazard	200	300

Note: The maximum length of exitway access travel in unlimited area buildings shall be 400 feet.

**SECTION 608.0 CAPACITY OF EXITS**

**608.1 General:** The capacity of means of egress for a floor, balcony, tier or other occupied space shall be sufficient for the occupant load thereof.

**608.2 Unit of egress width:** The unit of egress width for all approved types of means of egress parts and facilities shall be twenty-two (22) inches with a credit of one-half (1/2) unit for each twelve (12) inches width in addition to one (1) or more twenty-two (22) inch units. Fractions of a unit of width less than twelve (12) inches shall not be credited.

**608.3 Design allowance for use groups:** Except as may be specifically modified in Article 4, the design capacity per unit of egress width shall be computed in accordance with Table 608 for the specified use groups.

**608.4 Exit design per floor:** Where exitways serve more than one (1) floor, only the occupant load of each floor considered individually need be used in computing the capacity of the exitways at that floor, provided that exit capacity shall not decrease in the direction of egress travel.

**608.5 Egress convergence:** When means of egress from floors above and below converge at an intermediate floor, the capacity of the means of egress from the point of convergence shall not be less than the sum of the two.

**SECTION 609.0 NUMBER OF EXITWAYS**

**609.1 General:** The following general requirements apply to buildings of all use groups. More restrictive requirements that may be provided in Article 4 for special uses and occupancies shall take precedence over the general provisions of this section.



**Table 608  
CAPACITY PER UNIT EGRESS WIDTH**

Use group	Without fire suppression system Number of occupants		With fire suppression system Number of occupants	
	Stairways	Doors, ramps and corridors	Stairways	Doors, ramps and corridors
Assembly <sup>2</sup>	75	100	75	100
Business	60	100		
Factory and industrial	60	100		
High hazard	—	—	60	100
Institutional	22	30	35	45
Mercantile	60	100		
Residential	75	100		
Storage	60	100		

**Note 1.** The main exitway of a bowling alley shall be of sufficient capacity to accommodate 50 per cent of the total occupant load, without regard to the number of aisles which it serves.

**Note 2.** The capacity per unit egress width for stairways in educational buildings in use group A-4 shall be 60 persons.

**609.2 Minimum number:** Every floor area shall be provided with the minimum number of approved independent exitways as required by Table 609.2 based on the occupant load, except as modified in Section 609.3 through 609.3.3.

**Table 609.2  
MINIMUM NUMBER OF EXITWAYS FOR OCCUPANT LOAD**

Occupant load	Minimum number of exitways
500 or less	2
501 - 1000	3
over 1000	4

**609.3 Buildings with one exitway**

**609.3.1** One- and two-family dwellings shall require only one (1) exitway.

**609.3.2** For the first story of buildings in use groups B (business), M (mercantile), and S (storage) only one (1) exitway shall be required when the occupant load of the first story does not exceed fifty (50) and the exitway travel distance in the first story does not exceed fifty (50) feet.

**609.3.3** In use group T, temporary and miscellaneous uses; towers shall require only one (1) exitway, provided: the occupancy load does not exceed twenty-five (25) persons on any one floor level; the tower is not used for living or sleeping purposes and is subject to occupancy by only able bodied persons; the tower is of fireproof, noncombustible or heavy timber construction; the tower interior finish is Class I or Class II, the tower has no combustible

materials in, under, or in the immediate vicinity, except necessary furniture; and there are no high hazard occupancies in the tower or immediate vicinity.

**609.4 Emergency escape:** Emergency escape shall be provided by either an operable outside window or exterior door approved for emergency egress or rescue. The units shall be operable from the inside opening without the use of separate tools. Where windows are provided as a means of egress or rescue, they shall have a clear opening of not less than twenty-two (22) inches in width, twenty-four (24) inches in height, and five and seven tenths (5.7) square feet in area; they shall have a sill height not more than forty-four (44) inches above the floor. Bars, grilles, or screens placed over emergency escape windows shall be releasable or removable from the inside without the use of a key, tool or excessive force.

**609.4.1 Location:** Emergency escape windows or doors shall be provided for the following rooms or spaces:

- a. Every room or space used for classroom or other educational purposes or normally subject to student occupancy, in schools and colleges classified in use group A-4.

**Exception:** Rooms or spaces in buildings equipped with an automatic fire suppression system

- b. Every sleeping room or space, and every private living room area associated therewith, in a building four stories in height or less in use group R-1, R-2, or R-3.

**609.5 Open parking structures:** Parking structures shall have not less than two (2) exitways from each parking tier, except that where vehicles are mechanically parked, only one (1) exitway need be provided. The maximum distance from any point on a parking tier to an exitway at that tier shall not exceed two hundred (200) feet. Unenclosed vehicle ramps may be considered as required exitways if pedestrian facilities are provided. Interior exitway stairways need not be enclosed.

**Exception:** In a structure with a complete fire suppression system, the maximum distance from any point on a parking tier to an exitway at that tier shall not exceed three hundred (300) feet.

## SECTION 610.0 EXITWAY ACCESS PASSAGEWAYS AND CORRIDORS

**610.1 Access passageways:** Direct exitway access shall be provided to required exitways through continuous passageways, aisles or corridors, conveniently accessible to all occupants and maintained free of obstruction.

**610.1.1 Turnstiles and gates:** Access through turnstiles, gates, rails or similar devices shall not be permitted unless such a device is equipped to readily swing in the exiting direction of travel under a total pressure of not more than fifteen (15) pounds.

**610.1.2 Restrictions:** The required width of passageways, aisles or cor-

ridors shall be maintained free of projections and restrictions except doors opening into such spaces may reduce the clear width to not less than one-half ( $\frac{1}{2}$ ) the required width. When fully open the door may project not more than seven (7) inches into the required width.

**610.2 Dead ends:** Exitway access passageways and corridors in all stories which serve more than one (1) exitway shall provide direct connection to such exitways in opposite directions from any point in the passageway or corridor, insofar as practicable. The length of a dead end corridor shall not be more than twenty (20) feet.

**Exceptions**

- a. In use group I (Institutional) the length of a dead end corridor shall not be more than thirty (30) feet, and
- b. In high hazard uses, in outdoor mercantile uses, and in dormitories, dead end corridors shall be prohibited.

**610.3 Minimum width:** The minimum width of passageways, aisles and corridors shall be that width required for the capacity as determined by Section 608.0, but not less than forty-four (44) inches. Where two or more of the following exceptions are applicable, the most stringent requirements of each shall govern.

**Exceptions**

1. In institutional buildings of use group I, the minimum width shall be seventy-two (72) inches; except that the minimum width shall be ninety-six (96) inches where used for the movement of beds. This requirement shall not apply to aisles within habitable or occupiable rooms or spaces.
2. In school buildings of use group A-4, the minimum width of corridors shall be seventy-two (72) inches.
3. Within any single tenancy of any use group, the minimum width of passageways, aisles and corridors shall be thirty-six (36) inches when serving an occupancy load of fifty (50) or less.
4. Aisles conforming to Section 626.0.
5. In any use group where provision is to be made for physically handicapped persons and where the clear width is less than sixty (60) inches, there shall be a space allowing wheelchairs to pass or turn. This space shall be at least sixty (60) inches wide and sixty (60) inches long, and may be located anywhere along the length of the passageway, aisle, or corridor; except that in an aisle within a habitable or occupiable room or space, this space shall be at least sixty (60) inches in diameter.

**610.3.1 Headroom:** Means of egress shall have adequate headroom as provided in other sections of this code, but in no case shall the ceiling height be less than ninety (90) inches, nor any projection from the ceiling be less than eighty (80) inches from the floor. In all uses and occupancies where provision is to be made for handicapped persons, no projection from the ceiling shall be less than eighty-four (84) inches from the floor.

**610.4 Enclosures:** All corridors serving as exitway access shall be enclosed in fire separation walls having a fire-resistance rating of at least one (1) hour when serving an occupancy load greater than thirty (30).

**610.4.1 Opening protectives:** All door assemblies from rooms opening onto a corridor required to be of one (1) hour fire-resistance rated construction shall be self-closing or automatic closing by smoke detection, with a twenty (20) minute fire protection rating when tested in accordance with ASTM E152 listed in Appendix G without the hose stream and labeled and listed by an independent, approved agency.

All door assemblies from rooms opening onto a corridor, required by Table 214 to be of two (2) hour fire-resistance rated construction, shall be one and one-half (1½) hour fire doors.

**SECTION 611.0 GRADE PASSAGEWAYS  
USED AS AN EXITWAY ELEMENT**

**611.1 Passageways:** Every required interior and exterior exitway element which does not adjoin a public way shall be directly connected to the public way or to an open court leading to the public way by an enclosed grade passageway or other unobstructed exitway element constructed as provided in this section.

**611.2 Vestibule:** An exitway may discharge into an interior vestibule used for ingress and egress only and which complies with the following:

1. the vestibule depth from the exterior of the building is not greater than ten (10) feet and the width is not greater than twenty (20) feet; and
2. the vestibule is separated from the remainder of the level of discharge by self-closing doors and the equivalent of one-quarter (¼) inch thick wired glass in steel frames.

**611.3 Lobby:** An exitway may discharge into an interior lobby which shall be provided with an automatic fire suppression system and any other portion of the floor with access to the lobby shall be provided with an automatic fire suppression system or shall be separated therefrom in accordance with the requirements for the enclosure of exitways.

**611.4 Width and height:** The effective width of the passageway shall be not less than three-quarters (¾) of the aggregate width of all required exitway stairways leading thereto and all required exitway doorways opening into the passageway. Such passageway shall have a minimum width of forty-four (44) inches and a minimum clear ceiling height of eight (8) feet.

**611.5 Maximum stairway limitations:** Not more than fifty (50) percent of the required stairways shall discharge through the same passageway.

## SECTION 612.0 MEANS OF EGRESS DOORWAYS

**612.1 General:** The requirements of this section shall apply to all doorways serving as a component or element of a means of egress; except as provided in Sections 616.6, 618.4, and 619.3.

**612.2 Number of doorways:** Every room or tenant space with an occupant load of more than fifty (50) or requiring a travel distance in the space which exceeds fifty (50) feet shall have at least two (2) egress doorways leading from the room or tenant space to an exitway or corridor. All doors shall swing in the direction of egress travel when serving an occupant load of fifty (50) or more or a high hazard occupancy.

**Exceptions**

1. One- and two-family dwellings.
2. Boiler, incinerator and furnace rooms shall be provided with two (2) doorways when the area exceeds five hundred (500) square feet and fuel-fired equipment exceeds four hundred thousand (400,000) Btuh input capacity. Doorways must be separated by horizontal distance equal to one-half ( $\frac{1}{2}$ ) of the maximum horizontal dimension of the room. When two (2) doorways are required by this exception, a fixed ladder may be provided for one doorway.

**612.2.1 Entrance and egress doorways:** Where separate doors are provided for entrance and egress use, the entrance door shall be clearly marked *Entrance only* in letters not less than six (6) inches in height and legible from both inside and outside.

**612.3 Size of doors:** The minimum width of single door openings shall provide a clear width of not less than thirty-two (32) inches. The maximum width shall be forty-eight (48) inches nominal. Means of egress doors in institutional buildings (use group I) used for the movement of beds shall be at least forty-four (44) inches wide. When the doorway is subdivided into two (2) or more separate openings, the minimum clear width of one (1) opening shall be not less than thirty-two (32) inches and each opening shall be computed separately in determining the number of required units of egress width. A door forty (40) inches in width shall be deemed the equivalent of two (2) full units of egress width. The height of doors shall be not less than six and two-thirds ( $6\frac{2}{3}$ ) feet.

**Exceptions:** In one- and two-family dwellings (use group R-3) where provision is not being made for handicapped people, bathroom doors shall be at least twenty-four (24) inches wide nominal, and all other doors shall be at least twenty-eight (28) inches wide nominal.

**612.4 Location of doors:** The required doorways opening from a room or space within a building and leading to an exitway access shall be located as remote as practicable from each other. The distance of exitway access travel from any point in a room or space to a required exitway door

shall not exceed the limitations of Section 607.4.

### **612.5 Door hardware**

**612.5.1 Operation:** All egress doors shall be readily opened from the side from which egress is to be made without the use of a key or special knowledge or effort except for special institutional uses as indicated in Section 612.5.3. Except for dwelling units, draw bolts, hooks and other similar devices shall be prohibited on all egress doors, unless there is a readily visible, durable sign on the door stating "This door to remain unlocked during occupancy." The sign shall be in letters not less than one (1) inch high on a contrasting background. The locking device must be of a type that will be readily distinguishable as locked. The use of manually operated flush bolts or surface bolts is prohibited.

Double cylinder dead bolts requiring a key operation on both sides are prohibited on required means of egress in use group R (residential) occupancies.

Hardware affixed to the heads of door openings, such as closers, shall not diminish required opening heights; nor shall such hardware have parts which project into the room on either side of the door below the minimum headroom required for the room.

**612.5.2 Panic hardware:** All doors equipped with latching devices, in buildings of use group A (assembly), with an occupant load greater than one hundred (100) shall be equipped with approved panic hardware. Acceptable panic hardware will be a door latching assembly incorporating a device which causes the door latch to release and the leaf to open when a force of fifteen (15) pounds is applied in the direction of egress to a bar or panel extending not less than one-half (1/2) of the width of the door leaf and at a height greater than thirty (30) inches but less than forty-four (44) inches above the floor.

**612.5.3 Remote control:** In rooms of use group I-1 (institutional, restrained) occupied as places of detention, approved releasing devices with remote control shall be provided for emergency use unless otherwise specifically approved.

**612.5.4 Mechanical operations:** All doors which open into enclosed exitway stairs, exitway passageways or those which are installed to provide fire or smoke barriers across corridors shall be self-closing and be so maintained, or shall be automatic doors which will close upon activation of an approved smoke detector. Where egress doors are arranged to be opened by non-power operated mechanical devices of any kind, they shall be so constructed that the door may be opened manually and will release under a total pressure of not more than fifteen (15) pounds applied in the direction of egress travel. Power operated exitway doors shall be capable

of being opened with not more than fifty (50) pounds pressure applied at the normal door knob location when power is lost.

**612.6 Door construction:** All required egress doors that serve as an element of an exitway shall be self-closing or automatic except for grade floor exitway discharge doors and revolving exitway doors.

**612.6.1 Grade exitway discharge doors:** Doors at grade may be glazed with approved safety glazing. Approved doors having one (1) or more unframed edges may be used, provided they are constructed of safety glazing not less than one-half ( $\frac{1}{2}$ ) inch thick.

**612.7 Doorway grading:** From each grade floor exitway required by Section 315.0 for the physically handicapped and aged, there shall be provided, after exiting the structure, a hard surfaced area extending to a property line adjoining a public street or alley or a point which is a minimum of ten (10) feet clear from any part of the structure. At the exit door, the level of the exterior surface shall not be elevated from the floor inside the door, nor shall it be more than one-half ( $\frac{1}{2}$ ) inch below the floor inside the door; the difference in elevation shall be bevelled. A grade floor exitway shall have a threshold not greater than one-half ( $\frac{1}{2}$ ) inch high, with bevelled edges. All bevels shall be at least a slope not greater than 1:2. The floor and exterior surface shall not have a grade of more than two (2) percent for a distance of five (5) feet either side of the door. The remainder of the required exterior hard surfaced area shall have, in the direction of exiting, a gradient not greater than five (5) per cent. Such required hard surfaced areas or walks shall have a continuing common surface not interrupted by steps or abrupt changes in grade.

**Exception:** This subsection shall not apply to buildings exempt from the requirements of Section 315.0.

**612.8 Door arrangements:** Doors in series shall have a space between them of not less than seven (7) feet when measured in their closed positions. Minimum maneuvering clearance at all doorways shall be as indicated on the diagrams, Figures I, II, III, and IV. The floor within the required maneuvering space shall be level, except where drainage is required it may be pitched at a grade not greater than two (2) per cent. Within the required headroom, the maneuvering space shall not be encroached upon from the side except by the door during its swing and except for required handrails. If a door can be approached from more than one direction within a corridor, the most stringent requirements shall govern.

**Exception:** This subsection shall not apply to power operated doors nor to doors exempt from the requirements of Section 315.0.

### SECTION 613.0 REVOLVING DOORS

**613.1 Limitations of use:** Revolving doors shall not be used as exitway doors.

CONNECTICUT BASIC BUILDING CODE/1978

DIAGRAMS OF MANEUVERING CLEARANCES FOR SWINGING DOORS

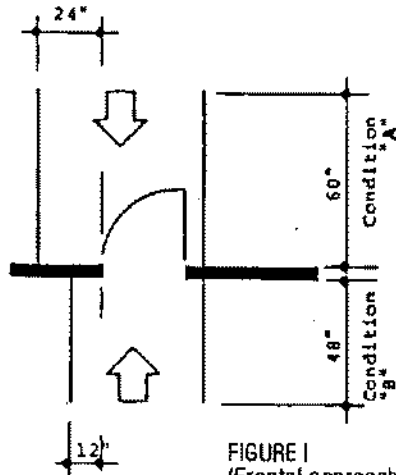


FIGURE I  
(Frontal approach)

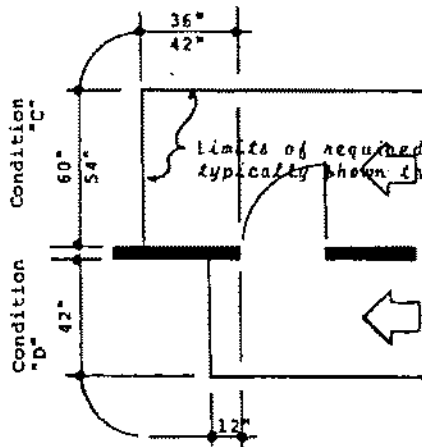


FIGURE II  
(Side approach)

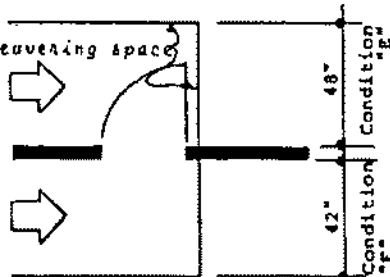
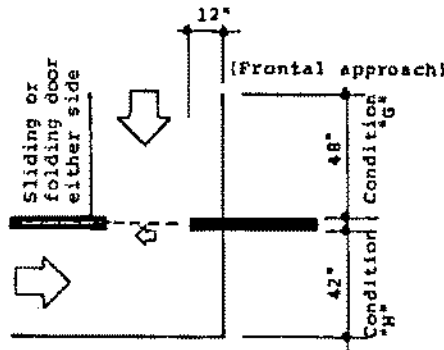


FIGURE III  
(Side approach)

DIAGRAM OF MANEUVERING CLEARANCES FOR SLIDING DOORS OR FOLDING DOORS



(Side approach) FIGURE IV



**613.2 Speed control:** All approved automatic collapsible revolving doors shall be equipped with an approved speed control governor adjustable to safe traffic speed as required by the approved rules, but not more than fifteen (15) nor less than ten (10) revolutions per minute.

**613.3 Construction:** All approved automatic collapsible revolving doors shall be constructed as indicated in the following Sections 613.3.1 through 613.3.4.

**613.3.1 Operating mechanism:** The collapsing mechanism shall be constructed of stainless steel or other approved corrosion-resistive materials.

**613.3.2 Use of wood:** The doors may be constructed of wood or other approved materials of similar combustible characteristics with a minimum thickness of one and one-quarter ( $1\frac{1}{4}$ ) inches.

**613.3.3 Floor covering:** Approved mats or other floor coverings, not more than one-half ( $\frac{1}{2}$ ) inch thick, may be installed within the enclosure when permanently secured to the structural flooring and finishing flush with the adjacent floor area.

**613.3.4 Glazing:** The doors shall be glazed with approved safety glazing.

#### SECTION 614.0 HORIZONTAL EXITS

**614.1 General:** Horizontal exits as herein defined shall be accepted as an approved element of a required means of egress when complying with the requirements of this article. The connection between the areas of refuge as herein specified may be accomplished by protected openings in a fire-resistance rated wall, by a vestibule, or by an open-air balcony or bridge.

**614.1.1 Limitations of use:** Horizontal exits may be used only to an extent that the total exit capacity of the other exitways (stairs, ramps, doors leading outside the building) will not be reduced below one-half ( $\frac{1}{2}$ ) that required for the entire area of the building or connected buildings if there were no horizontal exitways.

**Exception:** In buildings of use group I (institutional), horizontal exits may be used to an extent that the total exit capacity of the other exitways will not be reduced below one-third ( $\frac{1}{3}$ ) of that required for the entire area of the building or connected buildings.

**614.2 Separation:** The separation between fire areas shall be provided by at least a two (2) hour fire-resistance rated fire wall or fire separation wall complying with Article 9 and Table 214.

**614.2.1 Opening protectives:** All fire doors in horizontal exits are to be

## CONNECTICUT BASIC BUILDING CODE/1978

self-closing or automatically closing when activated by an approved smoke detector. All doors shall swing in the direction of egress travel. When serving as a dual element of a means of egress, there shall be adjacent openings with swinging fire doors opening in opposite directions.

**614.3 Size of doors:** Size of openings in fire walls shall comply with the provisions of Section 908.0, but the width of one (1) opening used as a required exit shall not be greater than eighty-eight (88) inches nor shall the area exceed eighty (80) square feet.

**614.4 Area of refuge:** The discharge area of a horizontal exit shall be either public areas or spaces occupied by the same tenant and each such area of refuge shall be adequate to house the total occupancy load of both connected areas. The capacity of areas of refuge shall be computed on a net floor area allowance of three (3) square feet for each occupant to be accommodated therein except for non-ambulatory institutional areas which shall be thirty (30) square feet per occupant, not including areas of stairs, elevators and other shafts or courts.

**614.5 Unlocked doors:** Horizontal exit doors shall be kept unlocked and unobstructed whenever the area on either side of the horizontal exit is occupied.

### **614.6 Egress from area of refuge**

**614.6.1 Stairway exitway:** In multi-story buildings, there shall be at least one (1) interior enclosed stairway or smokeproof enclosure on each side of the horizontal exit, and any fire area not having a stairway accessible thereto shall be considered as part of an adjoining section with such stairway; but the length of exitway access travel distance to the horizontal exit or the required exitway shall not exceed the requirements of Section 607.4.

**614.6.2 Auxiliary elevator:** When horizontal exits are provided in floors located twelve (12) or more stories above grade, the required stairway shall be supplemented by at least one (1) passenger elevator maintained ready for use during normal occupancy of the building.

## **SECTION 615.0 EGRESS RAMPS**

**615.1 Capacity:** The capacity of ramps used as an egress component shall be computed in accordance with Section 608.0.

### **615.2 Minimum dimensions**

**615.2.2 Headroom:** The minimum headroom in all parts of the egress ramp shall be not less than six and two-thirds ( $6\frac{2}{3}$ ) feet, except that in ramps

designated for use by physically handicapped persons the minimum headroom shall be seven (7) feet.

**615.2.3 Restrictions:** Egress ramps shall not reduce in width in the direction of egress travel. Projections into the required ramp and landing width are prohibited except for handrails and stringers. Doors opening onto a landing shall not reduce the clear width to less than forty-two (42) inches.

**615.3 Maximum slope:** The slope of ramps shall be as indicated in the following Table 615.

**Table 615  
MAXIMUM LENGTHS AND SLOPES ALLOWED FOR RAMPS**

Maximum horizontal projection for rampways <sup>1</sup>	Maximum horizontal projection of each run	Allowable slopes as percent of slope and ratio (in parenthesis) <sup>2</sup>
60 ft.	30 ft.	If slope = 8.3% (1:12) or less steep
160 ft.	40 ft.	If slope = 6.25% (1:16) or less steep

**Note 1.** A rampway may have more than one ramp run; landings are not counted as part of total maximum horizontal projection.

**Note 2.** All slopes taken from a horizontal (level) plane.

**615.4 Landings:** Level landings shall be provided at all points of turning, entrance, exiting and doors. Level landings shall also be provided between each maximum vertical rise or ramp length of sixty (60) inches except the bottom landing shall have a minimum length of seventy-two (72) inches.

**615.4.1 Surface:** All ramps shall have an approved slip resistant surface.

**615.5 Handrails:** Handrails shall be provided on at least one (1) side of every ramp having a slope greater than one (1) in fifteen (15), and they shall be not less than thirty (30) inches nor more than thirty-four (34) inches in height, measured from the surface of the ramp. Handrails shall be smooth and shall extend one (1) foot beyond the top and bottom of the ramp and return to walls or posts at the ends.

**615.6 Ramp construction:** Ramps used as an exitway shall conform to the applicable requirements of Section 616.9 as to materials of construction and enclosure.

**SECTION 616.0 INTERIOR EXITWAY STAIRWAYS**

**616.1 Capacity:** The capacity of stairways and doors per unit of exit

**CONNECTICUT BASIC BUILDING CODE/1978**

width shall be computed in accordance with Section 608.0.

**616.2 Minimum dimensions**

**616.2.1 Width:** All interior exitway stairways shall be not less than forty-four (44) inches in width, except that such width may be reduced to thirty-six (36) inches when serving an occupancy load of fifty (50) or less.

**616.2.2 Headroom:** The minimum headroom in all parts of the stair enclosure shall be not less than six and two-thirds ( $6\frac{2}{3}$ ) feet measured vertically from the tread nosing or from the floor surface of the landing or platform, except that in stairs designed for use by physically handicapped persons the minimum headroom shall be seven (7) feet.

**616.2.3 Restrictions:** Stairways shall not reduce in width in the direction of exit travel. Projections into a stairway are prohibited except for handrails as indicated in Section 616.5.1 and for stairway stringers which may project not more than one and one-half ( $1\frac{1}{2}$ ) inches.

**616.3 Landings and platforms**

**616.3.1 Width:** The least dimension of landings and platforms shall be not less than the required width of stairway, provided that in all use groups except one-and two-family dwellings the dimension in the direction of travel shall be not less than forty-four (44) inches.

**616.3.2 Vertical rise:** In all buildings a stairway shall not have a height of vertical rise of more than twelve (12) feet between landings and intermediate platforms.

**616.4 Treads and risers**

**616.4.1 Minimum dimensions:** The height of risers and width of treads in inches shall be as indicated in the following Table 616.

**Table 616  
TREAD AND RISER SIZE<sup>1</sup>**

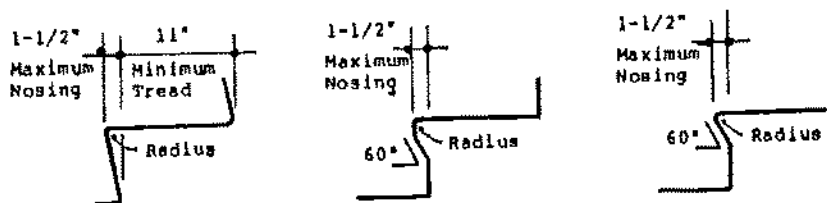
Use group	Maximum riser	Minimum tread
Assembly and institutional <sup>2</sup>	7½"	10"
Stairs for physically handicapped <sup>3</sup>	7"	11"
One and two family dwellings	8¼"	9"
All others <sup>2</sup>	8"	9"

**Note 1.** Within any flight, a three-sixteenths ( $3/16$ ) inch maximum variation in riser height or tread width is permitted.

**Note 2.** Except in one and two family dwellings, tread and riser shall be so proportioned that the sum of two (2) risers plus one (1) tread, exclusive of nosing, is not less than twenty-four (24) nor more than twenty-five (25) inches.

**Note 3.** Nosings of stairs for physically handicapped people shall not have abrupt configurations and shall have a radius of curvature at the edge of the tread of not greater than one-half ( $1/2$ ) inch; such nosings shall project not more than one and one-half ( $1\frac{1}{2}$ ) inches.

**DIAGRAMS OF ACCEPTABLE NOSING TYPES  
FOR PHYSICALLY HANDICAPPED PEOPLE**



**616.4.1.1 Nosings:** Every tread less than ten (10) inches deep shall have a nosing or an effective projection of approximately one (1) inch over the level immediately below.

**616.4.2 Winders:** Winders shall not be permitted in required exitway stairways except in one- and two-family dwellings and in ornamental stairways not required as an element of an exitway. Such winders shall have a tread width of not less than nine (9) inches at a point not more than twelve (12) inches from the side where the tread is narrower and the minimum tread width is not less than six (6) inches.

**616.5 Stairway guards and handrails:** Stairways shall have continuous guards and handrails on both sides, and in addition thereto, stairways more than eighty-eight (88) inches in required width shall have intermediate handrails dividing the stairway into portions not more than eighty-eight (88) inches wide. Stairways in one- and two-family dwellings may have one (1) handrail.

**616.5.1 Handrail details:** Handrails shall be provided according to the following requirements:

1. Handrails may project not more than three and one-half (3½) inches into the required stair width.
2. Handrails shall be not less than thirty (30) inches, nor more than thirty-four (34) inches, measured vertically, above the nosing of the treads.
3. Handrails shall extend eighteen (18) inches beyond the top and bottom step if a guard or wall exists and shall be returned to walls or posts at the ends of the stairways.

**Exception:** In R-3 occupancies, handrails need not extend beyond the top and bottom steps.

4. Handrails shall be designed to withstand an applied load of two hundred (200) pounds in any direction at any point.

**616.5.2 Guard details:** Guards shall be provided according to the following requirements:

1. Guards shall be not less than forty-two (42) inches in height measured vertically above the nosing of the tread.

**Exception:** In R-3 occupancies, guards shall be not less than thirty (30) inches in height.

2. Guards shall be constructed so that the area in the plane of the guard, from the top of the tread to the top of the guard, is sub-divided or filled in one (1) of the following methods:

- a. a sufficient number of intermediate longitudinal rails constructed so that the clear distance between rails (measured at right angles to the rail) does not exceed six (6) inches. The bottom rail shall not be more than six (6) inches measured vertically from the tread nosing; or

- b. balusters spaced not more than six (6) inches apart; or

- c. panels of wire mesh, or expanded metal, or ornamental grilles which provide protection equivalent to that provided by the intermediate rails or balusters specified in the two (2) preceding paragraphs; or

- d. walls; or

- e. any combination of the foregoing.

3. Guards at least forty-two (42) inches in height shall be located along open-sided floor areas, mezzanines and landings.

**Exception:** In R-3 occupancies, guards shall be not less than thirty-six (36) inches in height.

#### **616.6 Stair exitway doors**

**616.6.1 Width:** The width of every exitway door to or from a stairway shall be not less than the number of units of exit width required for the capacity of the stairway which services the floor or area from which the exitway door leads; but such a door shall not be less than twenty-eight (28) inches in clear width in use group R-3 buildings (one- and two-family dwellings), nor less than thirty-two (32) inches in clear width in all other use groups.

**616.6.2 Direction of swing:** All doors shall swing on a landing in the direction of egress travel. When opening, stair exitway doors shall not reduce the width of landings to less than one-half ( $\frac{1}{2}$ ) the required width. When full open, the exitway doors may project seven (7) inches onto the landing.

**616.6.3 Door construction:** All doorway opening protectives, including the frames and hardware, shall be approved self-closing, swinging fire doors, except in one- and two-family dwellings where one and three-quarters ( $1\frac{3}{4}$ ) inch solid core wood doors are permitted. Labeled fire doors shall have a maximum transmitted temperature end point of not more than four hundred fifty (450) degrees F. above ambient at the end of thirty (30) minutes of standard fire test exposure.

**616.7 Curved stairways:** Curved stairways may be used as an element of egress when a minimum tread width of ten (10) inches is provided and when the radius at the inner edges is twenty-five (25) feet or more.

**616.8 Supplemental stairways:** Stairways which are not a required means of egress element, serving one (1) adjacent floor and not connected with a corridor or stairway serving other floors, may be used in all use groups except institutional (use group I).

**616.9 Stairway construction:** Unless herein otherwise provided, all required interior stairways shall be built entirely of noncombustible materials with solid risers, treads and landing platforms and all finish floor surfaces of non-slip noncombustible materials; except that wood handrails shall be permitted, complying with the requirements of Section 616.5.

**616.9.1 Strength:** All stairways, platforms, landings and exitways in other than one- and two-family dwellings, shall be adequate to support a live load of one hundred (100) pounds per square foot (psf) and a concentrated load of three hundred (300) pounds.

**616.9.2 Enclosures:** Required interior exitway stairways shall be enclosed in fire separation assemblies of the fire-resistance rating specified in Table 214. An exitway enclosure shall not be used for any purpose other than means of egress. A space below a stairway shall be enclosed as required or kept open. Doors shall not open into the stairway enclosure except exitway doors.

**Exceptions**

1. Exitways in buildings of use group R-3 (residential, one- and two-family).
2. Exitways serving and contained within a single residential dwelling unit.
3. Exitways in communicating floor levels as provided in Section 616.10.
4. Supplemental stairways as provided in Section 616.8.

**616.9.3 Combustible construction:** In all buildings of Types 3 or 4 construction, stairways and their enclosures serving not more than three (3) stories may be constructed of wood or other approved materials of similar characteristics and of adequate strength.

**616.10 Communicating floors:** In any building, other than use groups A-4 (assembly; schools) or I (institutional), with low hazard occupancy (use group S-2), or with ordinary hazard occupancy (use groups B, M, R-1 and R-2) with automatic sprinkler protection where necessary to the effective utilization of a building site with sloping grade or otherwise essential to the functional design of the building, not more than three (3) communicating floor levels may be permitted without enclosure or protection between such areas, only provided all the conditions described below are met.

1. the lowest, or next to the lowest, level is a street floor;

2. the entire area, including all communicating floor levels, is sufficiently open and unobstructed to be assumed that a fire or other dangerous condition in any part will be immediately obvious to the occupants of all communicating levels and areas;
3. egress capacity is simultaneously sufficient for all the occupants of all communicating levels and areas, all communicating levels in the same fire area being considered as a single floor area for purposes of determination of required egress capacity; and
4. each floor level, considered separately, has at least one-half ( $\frac{1}{2}$ ) of its individual required egress capacity provided by an exitway or exitways leading directly out of that area without traversing another communicating floor level or being exposed to the spread of fire or smoke therefrom.

**616.11 Discharge identification:** Stairways which continue beyond the floor of discharge shall be interrupted at the floor of discharge by partitions, doors or other effective means of preventing persons from continuing past the floor of discharge while egressing. A sign shall be provided at each landing in all interior stairways more than three (3) stories in height designating the floor level above the floor of discharge.

#### SECTION 617.0 ACCESS TO ROOF

**617.1 By stairway or ladder:** In buildings more than three (3) stories in height except those with a roof slope greater than four (4) in twelve (12), access to the roof shall be provided by means of a stairway or a ladder and trap door; the ladder shall not be on the exterior of the building. Where the roof is used as a roof garden or for other habitable purposes, sufficient stairways shall extend to it to provide the necessary exitway facilities from the roof as required for such occupancy. Roof trap doors shall be constructed to comply with Section 925.2.

**617.1.1 Optional stairway or ladder:** Buildings not required to have a stairway or ladder to the roof as described above, may include such a stairway or ladder at the discretion of the designer of the building. The stairway or ladder shall conform to the provisions of this section, except that ladders may be placed on the exterior of the building. The siderails of exterior ladders shall be carried over the coping or parapet to afford hand hold; the ladder shall be metal, and if it exceeds twenty (20) feet in height, shall have a protective cage or other safety device; other design details of such exterior ladders are subject to the approval of the building official.

**617.2 Roof enclosures:** Stairways extending through roofs shall be enclosed in roof structures of fire-resistance rated construction meeting the requirements of Section 925.0.



**SECTION 618.0 SMOKEPROOF ENCLOSURES**

**618.1 General:** A smokeproof enclosure shall consist of an interior exitway stairway conforming to Section 616.0, enclosed from the highest point to the lowest point, and meeting the requirements of this section. When a smokeproof enclosure is provided for the building and when access is required to the roof by Section 617.0, such access shall be from the smokeproof enclosure where such is required.

**618.2 Where required:** At least one (1) of the required exitways shall be a smokeproof enclosure in buildings having floors used for human occupancy located more than fifty (50) feet above the lowest level of fire department vehicle access.

**618.2.1 Alternative for pressurized stairways:** The smokeproof enclosure may be eliminated provided all interior exitway stairways are pressurized to fifteen-hundredths (0.15) inches of water column as described in Section 618.9.3.

**618.3 Access:** Exitway access to the stairway at each story shall be through a vestibule or balcony with an unobstructed width not less than the required stairway width and a minimum dimension of seventy-two (72) inches in the direction of exit travel.

**618.4 Doors:** Door openings from interior spaces to the vestibule or balcony and from the vestibule or balcony to the stairway, shall be as required in Section 612.3. The doors from interior spaces to the vestibule shall have a fire-resistance rating not less than one and one-half (1½) hours and shall comply with the requirements of Section 616.6 for stair exitway doors. The door from the vestibule to the stairway shall be a tight-fitting door, equal to not less than an exterior type solid wood door without voids, assembled with exterior type glue, one and three-quarter (1¾) inch minimum thickness set in a steel frame. Wired glass, if provided, shall not exceed one hundred (100) square inches in area and shall be set in a steel frame. The door shall be provided with a drop sill and be weather stripped or otherwise provided to minimize air leakage.

**618.5 Terminal passageway:** The smokeproof enclosure shall terminate at grade level and shall provide egress to the street independently of all other exitways. When grade passageways are used, they shall comply with the requirements of Section 611.0, except that there shall not be openings therein other than the smokeproof enclosure and street exit doorways. The passageway walls shall be of four (4) hour fire-resistance rated construction, and the floor and roof of three (3) hour fire-resistance rated construction.

**618.6 Construction:** The construction of smokeproof enclosures shall be of walls with a four (4) hour fire-resistance rating without openings other

than the required doorways. The vestibule shall be considered to be an element of the exitway and shall be constructed in accordance with the fire-resistance rating requirements of Table 214. The balcony shall be constructed in accordance with the fire-resistance rating requirements in Table 214 for floor construction. The stairshaft vestibule or balcony shall be provided with emergency lighting from an approved independent power source to assure continued illumination in case of emergency.

**618.7 Ventilation of smokeproof enclosures:** Smokeproof enclosures shall be ventilated with natural ventilation or mechanical ventilation meeting the requirements of Section 618.8 or 618.9.

**618.8 Smokeproof enclosure by natural ventilation:** The balcony separating the smokeproof enclosure from the interior building spaces shall have at least one (1) open side adjacent to a street, alley, or yard with guard railings across the open side(s). One (1) open side of the balcony shall have a minimum open area of sixteen (16) square feet with any dimension at least thirty (30) inches. The balcony floor shall be level with or installed below the building floor where climatic conditions involve the possibility of door obstruction by snow or ice. A step shall not be permitted between the balcony and the smokeproof enclosure. The street, alley, or yard adjacent to one (1) open side of the balcony shall have a minimum area of two hundred (200) square feet and a minimum dimension of ten (10) feet.

**618.9 Smokeproof enclosure by mechanical ventilation:** The stairshaft and vestibule shall be provided with a mechanical ventilation system as specified herein that will be automatically activated on three (3) or more floors in case of emergency.

**618.9.1 Operation of ventilating equipment:** Vestibule and stairshaft mechanical ventilation may be inactive or may operate at reduced levels for normal operations, but when the detectors referred to herein either fail or are activated, the vestibule and stairshaft mechanical ventilation systems shall operate at the levels specified in Section 618.9.2 and 618.9.3. The vestibule ventilation system shall be designed and activated in accordance with one (1) of the following methods.

1. Total system: simultaneous operation of all vestibules. If the vestibule mechanical ventilation system is designed to provide the ventilation in the vestibules on all floors simultaneously, a products-of-combustion detector shall be located outside each vestibule so designed that activation or failure of any one (1) of the detectors will simultaneously activate the vestibule ventilation system on all floors.
2. Zoned system: simultaneous operation of three (3) or more vestibules. If the vestibule ventilation system is designed as one (1) or more zones to provide the simultaneous ventilation in the vestibules

for at least a three (3) floor zone, automatic supply and exhaust dampers shall be provided in all vestibles in order to obtain the zoned control of the ventilation as follows: a smoke detector shall be located outside each vestibule so designed to open the supply and exhaust duct dampers in the vestibules within the affected zone [three (3) or more floors] and to actuate the stairshaft ventilation system in case any detector in the affected zone either fails or is activated.

**618.9.2 Vestibule ventilation:** The vestibule shall have an emergency ventilating system providing a supply of not less than one (1) air change per minute. The exhaust shall be one hundred fifty (150) per cent of the supply. Supply air and exhaust air shall serve the vestibule through separate tightly constructed ducts used only for that purpose. Supply air shall enter the vestibule within six (6) inches of the floor level. The top of the exhaust register shall be located within six (6) inches of the vestibule ceiling and shall be entirely within the smoke trap area. Doors, when in the open position, shall not obstruct the duct openings. Duct openings may be provided with controlling dampers if required by Section 618.9.1 (method 2) but these are not otherwise required. The vestibule ceiling shall be at least twenty (20) inches higher than the door opening into the vestibule, to serve as a smoke trap and to provide an upward moving air column. Special provision shall be made in the design to avoid creation of negative pressures which would retard the opening of the door to the stairshaft from the vestibule.

**618.9.3 Stairshaft ventilation:** The stairshaft shall be provided with emergency mechanical supply and exhaust air. There shall be a minimum of twenty-five hundred (2500) cubic feet per minute (cfm) discharge at the top of the shaft. The supply shall be sufficient to provide a minimum of five-hundredths (.05) inches of water column pressure above atmospheric pressure with all doors closed and a minimum of ten-hundredths (.10) inch water column difference between the stairshaft and the vestibule. Supply air shall be introduced at the level of the grade exitway discharge.

**618.9.4 Standby power:** Mechanical vestibule stairshaft ventilation systems and detector systems shall be powered by an approved self-contained generator designed to operate whenever there is a loss of power in the normal house current. The generator shall be located in a separate room of two (2) hour fire-resistance rated construction and shall have a minimum fuel supply to operate the equipment for two (2) hours.

**618.9.5 Emergency lighting:** The vestibules and stairshaft shall be provided with emergency lighting. The standby generator which is installed for the vestibule and stairshaft mechanical ventilation equipment may be used for the standby emergency lighting power supply.

**618.9.6 Fire protection indicator panel:** A fire protection indicator panel may be required by the building official or the responsible fire official and, if so, shall be located as near as practical inside the entrance to the smokeproof tower stair shaft at grade. Said panel shall have an overriding manual switch capable of de-activating the ventilation equipment.

**618.9.7 Fire department communications connection:** The fire protection indicator panel shall have a direct connection to the fire department facilities if required by the building official or the responsible fire official.

**618.9.8 Acceptance and testing:** Before the foregoing equipment is accepted by the building official and the responsible fire official, it shall be tested in their presence to confirm that equipment is operating in compliance with these requirements.

**618.9.9 Building owners' responsibility:** The building engineer shall test all the equipment referred to in these requirements at least once every thirty (30) days and maintain a log attesting to the results. The log shall be available for inspection by the building official and the fire official.

#### SECTION 619.0 EXTERIOR EXITWAY STAIRWAYS

**619.1 As required exitway:** Where there is a remote second exitway, exterior stairways conforming to the requirements for interior stairways in all respects, except as to enclosures and except as herein specifically modified, may be accepted as an element of a required means of egress in buildings not exceeding three (3) stories or forty (40) feet in height, except as provided in Section 619.1.1 for residential buildings. Exterior stairways which are accepted as exitway elements shall be relieved from requirements for fire doors, but shall be provided with handrails and guards as required for interior exitway stairs. Exterior stairways shall be protected to prevent accumulation of snow and ice.

**619.1.1 Location and arrangement:** Exterior stairways may be utilized where at least one (1) door from each tenant opens onto a roofed-over open porch or balcony served by at least two (2) stairways, except that one (1) stairway may be provided as permitted in Table 609, so located as to provide a choice of independent, unobstructed means of egress directly to the grade. Such porches and stairways shall comply with the requirements for interior exitway stairways as specified in Section 616.0. Porches and balconies shall be not less than four and one-half (4½) feet in width. The stairways shall be located remotely from each other. The maximum travel distance from any tenant space to the nearest stairway shall be as specified in Table 607. Porches and stairways shall be located at least ten (10) feet from adjacent property lot lines and from other buildings on the same lot, unless openings in such buildings are protected by three-quarter (¾) hour fire-resistance rated doors or windows.

**619.2 Guards and handrails:** Guards and handrails shall be as specified in Section 616.0.

**619.3 Opening protectives:** Openings below and within ten (10) feet horizontally of the stairway shall be protected with approved three-quarter (¾) hour fire-resistance rated automatic opening protectives.

**619.4 Location**

**619.4.1 Access to street:** All required exterior stairways shall be located so as to lead directly to a street or open space with direct access to a street; or when located on the rear of the building may lead through a passageway at grade complying with Section 611.0.

**619.4.2 Projection:** Exterior stairways shall not project beyond the street lot line.

**619.5 Construction:** Exterior stairs, porches and balconies shall be constructed of materials consistent with the types of materials permitted in Table 214 for the type of construction of the building to which the stairway is attached.

**SECTION 620.0 MOVING EXITWAY STAIRWAYS**

**620.1 When acceptable:** Moving stairways of the horizontal non-slip tread type moving in the direction of egress may be accepted as an approved exitway element in buildings of all use groups except assembly (A) and institutional (I) uses, when constructed and approved in accordance with the requirements of this article and the provisions of Section 1619.0. When accepted as an element of a required means of egress, they shall be enclosed with fire-resistance rated partitions as specified in Section 616.0.

**620.2 Width:** The width shall be not less than forty (40) inches between guards and the moving tread shall be not less than thirty-six (36) inches in width, and fifteen and three-quarter (15¾) inches in depth.

**620.3 Capacity:** The occupancy capacity shall be computed as provided in Section 608.0 for exitway stairways.

**620.4 Landings and platforms:** Landings and platforms shall be provided at the top and bottom of each unit as required for interior exitway stairways.

**620.5 Railings:** Guards shall be surmounted with moving handrails traveling at the same speed as the stairway.

**620.6 Egress:** Means of egress to the street shall be provided as specified herein for interior stairways.

### 620.7 Construction

**620.7.1 Noncombustible materials:** Only noncombustible materials shall be used in the construction of moving stairways accepted as a required means of egress except for step wheels, handrails, electrical equipment, and wood veneers not more than one twenty-eighth ( $\frac{1}{28}$ ) inch thick directly attached to metal or other noncombustible backing with a nonvolatile and nonflammable cement.

**620.7.2 Fireresistance:** The enclosure shall afford the fireresistance rating required for approved interior exitway stairways as specified in Section 616.9.

**620.7.3 Height of travel per unit:** A single moving stairway unit shall not have a vertical travel of more than two (2) stories nor more than thirty-five (35) feet.

## SECTION 621.0 FIRE ESCAPES

**621.1 Where permitted:** Fire escapes shall not be permitted as an element of a required means of egress except on existing buildings or structures when constructed in accordance with the approved rules and when more adequate exitway facilities cannot be provided. Fire escapes shall not provide more than fifty (50) per cent of the required exit capacity.

**621.2 Location:** When located on the front of the building and projecting beyond the building line, the lowest landing shall be not less than seven (7) or more than twelve (12) feet above grade, equipped with a counter-balanced stairway to the street. In alleyways and thoroughfares less than thirty (30) feet wide, the clearance under the lowest landing shall be not less than twelve (12) feet.

**621.3 Construction:** The fire escape shall be designed to support a live load of one hundred (100) pounds per square foot (psf), and shall be constructed of steel or other approved noncombustible materials. Fire escapes may be constructed of wood not less than two (2) inches thick on buildings of Type 4 construction.

**621.3.1 Dimensions:** Stairs shall be at least twenty-two (22) inches wide with risers not more than eight (8) inches high and treads not less than nine (9) inches wide. Landings at the foot of stairs shall be not less than forty (40) inches wide by thirty-six (36) inches long, located not more than eight (8) inches below the access window or door.

**621.3.2 Opening protectives:** Doors and windows along the fire escape shall be protected with three-quarter ( $\frac{3}{4}$ ) hour fireresistance rated opening protectives.

**SECTION 622.0 SLIDESCAPES**

**622.1 Where permitted:** Slidescapes and safety chutes shall be permitted in buildings of the high hazard use group when approved by the building official and constructed in accordance with the approved rules.

**622.2 Location:** The arrangement and location of slidescapes shall conform to this article for means of egress and shall be designated by exit signs and lights as provided in Section 623.0.

**622.3 Construction:** All chutes shall be constructed of approved non-combustible materials with a pitch in the line of travel of not less than twenty-four (24) nor more than forty-two (42) degrees measured on the developed circumference of spiral chutes. Straight chutes shall be not less than twenty-four (24) inches and spiral chutes not less than twenty-eight (28) inches wide in the clear; nor more than forty-four (44) inches wide in any case. When erected on the interior of a building, they shall be enclosed as required in Section 616.9 for interior stairways with direct means of egress to the street or other public space.

**622.4 Capacity:** Slidescapes, where permitted as an element of a required exitway, shall be rated at one (1) unit of egress width per slide, with rated capacity of sixty (60). Slidescapes, except as permitted for high hazard manufacturing buildings or structures, shall not constitute more than twenty-five (25) per cent of the required number of units of egress width from any building or structure or any individual story.

**SECTION 623.0 EXIT SIGNS AND LIGHTS**

**623.1 Other regulations:** Exit signs and lights shall be provided in accordance with the requirements of the State Fire Safety Code.

**SECTION 624.0 MEANS OF EGRESS LIGHTING**

**624.1 Other regulations:** Means of egress lighting, including emergency lighting, shall be provided in accordance with the requirements of the State Fire Safety Code.

**SECTION 625.0 HAZARDS TO MEANS OF EGRESS**

**625.1 Floor openings:** Manholes or floor access panels shall not be located in the line of egress which reduce the clearance to less than thirty-two (32) inches.

**625.2 Protrusions:** There shall not be low-hanging door closers that remain within the opening of a doorway when the door is open or that protrude hazardously into corridors or line of egress when the door is closed. There shall not be low-hanging signs, ceiling lights or similar fixtures

which protrude into corridors or lines of egress.

**625.3 Identification of hazardous exits:** Doors leading to dangerous areas such as fire escapes, loading platforms, switch rooms and mechanical rooms shall be equipped with knobs, handles or push bars that have been knurled.

**625.4 Floor surfaces:** All floors or corridors and lines of egress shall have a slip-resistant surface.

**625.5 Elevation change:** Where changes in elevation exist in exitway access corridors, exitways or exitway discharges, ramps shall be used when required for use by the physically handicapped, and where the difference in elevation is less than twelve (12) inches.

**Exception:** At exterior doors not required for the physically handicapped by Section 315.0, a maximum height eight (8) inch step down shall be permitted.

**625.6** When manholes or access panels are open, or when an open excavation exists on the premises near to normal pedestrian traffic, barricades shall be placed to surround the opening at a distance of at least eight (8) feet from the opening, and visual and audible warning signals shall be provided.

#### SECTION 626.0 AISLES AND SEATS

**626.1 General:** Places of public assembly which contain seats, tables, displays, equipment, or other material shall be provided with aisles leading to the required exitways.

**626.2 Aisle width:** In theatre style seating, aisle width shall be sufficient to accommodate the capacity as indicated in Section 608.0 for corridors and shall be not less than thirty-six (36) inches in width if serving only one side and not less than forty-two (42) inches in width if serving both sides. Such minimum width shall be measured at the point farthest from an exitway and shall be increased at the rate of one and one-half (1½) inches for each five (5) feet in length towards an exitway.

With continental seating, as specified in Section 626.6, side aisles shall be not less than forty-four (44) inches.

**626.3 Aisle spacing:** There shall be a maximum of six (6) intervening seats between any seat and the nearest aisle.

With continental seating, as specified in Section 626.6, the number of intervening seats may be increased to twenty-nine (29) where egress doors are provided along each side aisle of the row of seats at the rate of one pair of egress doors for each five (5) rows of seats. Such egress doors shall provide a minimum clear width of sixty-six (66) inches.

**626.4 Cross aisles:** Aisles shall terminate at a cross aisle, foyer or exitway with no dead end over twenty (20) feet in length.

**626.5 Aisle gradient:** The aisle slope shall not exceed one (1) in eight (8). Steps



shall not be used in aisles where the difference in elevation can be accommodated by a slope of less than one (1) in eight (8). Where steps are used in aisles, such steps shall extend across the full aisle width with treads and risers complying with Article 6 and shall be illuminated. Isolated steps shall not be permitted.

**626.6 Seat spacing:** Seating other than continental spacing shall be spaced not less than twelve (12) inches from the back of the row and the nearest projection of the row behind.

With continental seating, the spacing of rows of unoccupied seats shall provide clear width between rows measured horizontally as follows (automatic or self-rising seats shall be measured in the seat-up position, other seats shall be measured in the seat-down position):

- 18 inches clear width between rows of 18 seats or less;
- 20 inches clear width between rows of 35 seats or less;
- 21 inches clear width between rows of 45 seats or less;
- 22 inches clear width between rows of 46 seats or more.

**626.7 Seats:** The capacity of seats without dividing arms shall be equal to one (1) person per eighteen (18) inches. For eating booths, the capacity shall be equal to one (1) person per twenty-four (24) inches.



## **ARTICLE 7**

### **STRUCTURAL AND FOUNDATION LOADS AND STRESSES**

#### **SECTION 700.0 GENERAL**

**700.1 Scope:** The provisions of this article shall control the structural design of all buildings and structures, and their foundations, hereafter erected to insure adequate strength of all parts thereof for the safe support of all superimposed live and special loads in addition to their own dead load, without exceeding the allowable stresses or design capabilities. The loads specified herein are the minimum suitable for use with stresses and load factors prescribed in this code or in accepted engineering practice.

#### **SECTION 701.0 DESIGN SAFE LOAD**

**701.1 Safe support required:** Buildings or other structures, and all parts thereof, shall be designed and constructed to support safely all loads, including dead loads, without exceeding the allowable stresses (or ultimate strengths when appropriate load factors are applied) for the materials of construction in the structural members and connections, except as provided in Sections 702.0 and 802.0 for test assemblies not capable of analysis. When both wind and earthquake loads are present, only that one which produces the greater stress need be considered, and both need not be assumed to act simultaneously.

**701.2 Progressive collapse:** Buildings and structural systems shall provide such structural integrity that the hazards associated with progressive collapse, such as that due to local failure caused by severe overloads or abnormal loads not specifically covered herein, are reduced to a level consistent with good engineering practice.

**701.3 Load tests:** The building official may require a load test or he shall accept certified reports of such tests from accredited testing authorities conducted in accordance with the approved rules, of any construction, whenever there is reason to question its safety for the intended occupancy or use.

**SECTION 702.0 TEST SAFE LOAD**

**702.1 When required:** When not capable of design by accepted engineering analysis, any system of construction or structural unit and its connections shall be subjected to the tests prescribed in Article 8 or in the test standards listed in Appendices D and E, or to such other tests acceptable to the building official that simulate the actual loads and conditions of application that occur in normal use; or he shall accept certified reports of such tests conducted by an accredited testing laboratory, providing such tests meet the requirements of this code and the approved rules.

**702.2 Test load:** When approved by test, every structural assembly shall sustain without failure minimum superimposed loads equal to two and one-half ( $2\frac{1}{2}$ ) times the required live load; and under the approved working load, the deflection shall not exceed the limits prescribed in Section 803.0.

**SECTION 703.0 DESIGN LIVE LOAD**

**703.1 Required live load:** The live loads to be assumed in the design of buildings and structures shall be the greatest load produced by the intended use and occupancy, but not less than the minimum uniformly distributed unit loads required in Section 706.0 for specific uses.

**703.2 Loads not specified:** The building official shall approve the required live load for any use not specifically provided for in Table 706.

**SECTION 704.0 DESIGN DEAD LOAD**

**704.1 Weights of materials and constructions:** In estimating dead load for the purposes of structural design, the actual weights of materials and constructions shall be used, but not less than the unit dead loads prescribed in Appendix J and the standard for Minimum Design Loads in Buildings and Other Structures listed in Appendix B. In the absence of definite information, any values assumed by the designers shall be subject to the approval of the building official.

**704.2 Weight of fixed service equipment:** In estimating dead loads for purposes of design, the weight of fixed service equipment; such as plumbing stacks and risers, electrical feeders, heating, ventilating, air conditioning and sprinkler systems shall be included.

**704.3 Partition load:** In office and other buildings, in which subdividing partitions may be subsequently erected, rearranged or relocated, provision shall be made to support the actual weight of such partitions where they occur, or for an equivalent uniform load, which shall be assumed not less than twenty (20) pounds per square foot (psf) of floor area, in addition to the specified uniformly distributed live load. Provision for partitions weight

## STRUCTURAL AND FOUNDATION LOADS AND STRESSES

shall be made whether or not partitions are shown on the plans, unless the specified live load exceeds eighty (80) psf.

### SECTION 705.0 EXISTING BUILDINGS

**705.1 General:** In the reconstruction, repair, extension or alteration of existing buildings, the allowable working stresses used in design shall be as indicated in the following Sections 705.2 through 705.5.

**705.2 Building extended:** When an existing building is altered by an extension in height or area, all existing structural parts affected by the addition shall be strengthened where necessary, and all new structural parts shall be designed to meet the requirements for buildings hereafter erected.

**705.3 Building repaired:** When repairs are made to the structural portion of an existing building, and the uncovered structural portions are found unsound, such parts shall be made to conform to the requirements for buildings hereafter erected. When insulation is added to a roof, the structural design of the roof shall be reanalyzed, and shall be made to conform to the structural requirements for buildings hereafter erected.

**705.4 Existing live load:** When an existing building heretofore approved is altered or repaired within the limitations prescribed in Sections 106.4 or 106.5, the structure may be designed for the loads and stresses applicable at the time of erection, provided the public safety is not endangered thereby.

**705.5 Posted live load:** Any existing building heretofore approved, in which there is not a change in use to a new use group requiring greater floor loads, may be posted for the originally approved live loads, provided the building is structurally safe in all its parts and adequate for its existing use, and the public safety is not endangered thereby.

### SECTION 706.0 UNIFORMLY DISTRIBUTED LIVE LOADS

**706.1 Uniform live load:** The minimum uniformly distributed live load in pounds per square foot (psf) shall be as provided in Table 706, and for all concentrated loads wherever they occur as provided in Section 707.0.

**706.2 Posting of live loads:** In every building or other structure or part thereof, used for mercantile, business, industrial or storage purposes, the design loads shall be marked on plates of approved design which shall be supplied and securely affixed by the owner of the building, or his duly authorized agent, in a conspicuous place in each space to which they relate. Any plates lost, removed, or defaced, shall be replaced by the owner or his agent.

CONNECTICUT BASIC BUILDING CODE/1978

Table 708  
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS

Occupancy or use	Live load (psf)
Apartments (see Residential)	
Armories and drill rooms	150
Assembly halls and other places of assembly:	
Fixed seats	60
Movable seats	100
Platforms (assembly)	100
Balcony or porch (exterior)	100
One- and two-family dwellings only	60
Bowling alleys, poolrooms, and similar recreational areas	75
Cornices	75
Court rooms	100
Corridors:	
First floor	100
Other floors, same as occupancy served except as indicated	
Dance halls and ballrooms	100
Dining rooms and restaurants	100
Fire escapes	100
On multi- or single-family residential buildings only	40
Garages (passenger cars only) <sup>5</sup>	50
For trucks and buses use AASHO <sup>1</sup> lane loads (see Table 707 for concentrated load requirements)	
Grandstands (see Reviewing stands)	
Gymnasiums, main floor and balconies	100
Hospitals	
Operating rooms, laboratories	60
Private rooms	40
Wards	40
Corridors, above first floor	80
Hotels (see Residential)	
Libraries:	
Reading rooms	60
Stack rooms (books and shelving at 65 pcf) but not less than	150
Corridors, above first floor	80
Manufacturing:	
Light	125
Heavy	250
Marquees	75
Office buildings:	
Offices	50
Lobbies	100
Corridors, above first floor	80
File and computer rooms require heavier loads based upon anticipated occupancy	
Open parking structures (passenger cars only) <sup>5</sup>	
Not subject to snow load	50
Subject to snow load <sup>6</sup>	70
Penal institutions:	
Cell blocks	40
Corridors	100

STRUCTURAL AND FOUNDATION LOADS AND STRESSES

Table 706 (cont'd.)  
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS

Occupancy or use	Live load (psf)
<b>Residential:</b>	
Multifamily houses	
Private apartments	40
Public rooms	100
Corridors	80
<b>Dwellings:</b>	
First floor	40
Second floor and habitable attics	30
Uninhabitable attics <sup>2</sup>	20
<b>Hotels:</b>	
Guest rooms	40
Public rooms	100
Corridors serving public rooms	100
Corridors	80
Reviewing stands and bleachers <sup>3</sup>	100
<b>Schools:</b>	
Classrooms <sup>4</sup>	40
Corridors	80
Sidewalks, vehicular driveways, and yards, subject to trucking	250
Skating rinks	100
Stairs and exitways	100
<b>Storage warehouse:</b>	
Light	125
Heavy	250
<b>Stores:</b>	
<b>Retail:</b>	
First floor, rooms	100
Upper floors	75
Wholesale	125
<b>Theatres:</b>	
Aisles, corridors, and lobbies	100
Orchestra floors	80
Balconies	60
Stage floors	150
Yards and terraces, pedestrians	100

Note 1. American Association of State Highway Officials.

Note 2. Live load need be applied to joists or to bottom chords of trusses or trussed rafters only in those portions of attic space having a clear height of forty-two (42) inches or more between joist and rafter in conventional rafter construction; and between bottom chord and any other member in trusses or trussed rafter construction. However, joists or the bottom chords of trusses or trussed rafters shall be designed to sustain the imposed dead load or ten pounds per square foot (10 psf) whichever be greater, uniformly distributed over the entire span.

A further ceiling dead load reduction to a minimum of five pounds per square foot (5 psf) or the actual dead load, whichever is greater, may be applied to joists in conventional rafter construction or to the bottom chords of trusses or trussed rafters under either or both of the following conditions:

- a. If the clear height is not over thirty (30) inches between joist and rafter in conventional construction and between the bottom chord and any other member for trusses or trussed rafter construction.
- b. If a clear height of greater than thirty (30) inches, as defined in "a" directly above, does not exist for a horizontal distance of more than twelve (12) inches along the member.

Note 3. For detailed recommendations, see The Standard for Tents, Grandstands, and Air-Supported Structures used for Places of Assembly listed in Appendix B.

**CONNECTICUT BASIC BUILDING CODE/1978**

**Table 706 Notes (cont'd)**

- Note 4. Provision shall be made in the structural design for special uses and loads.
- Note 5. The building official shall be satisfied that adequate provision has been incorporated in the design of the building to inhibit the entry of trucks and buses to garages and open parking structures designed for passenger cars only.
- Note 6. Where the top deck of an open parking structure is subject to snow load and is used for the parking of passenger cars, a combined load of 70 psf may be used as a minimum for snow load plus vehicle load.

**SECTION 707.0 CONCENTRATED LOADS**

**707.1 General:** Floors of buildings in the locations specified in Table 707 shall be designed to support the uniformly distributed live loads prescribed in Section 706.0 or the following concentrated loads in pounds, whichever produces the greater stresses. Unless otherwise specified, the indicated concentration shall be assumed to occupy an area of two and one-half (2½) feet square, and shall be so located as to produce the maximum stress conditions in the structural members.

**Table 707  
CONCENTRATED LOADS**

Location	Pounds
Elevator machine room grating (on area of 4 sq. in.)	300
Finish light floor plate construction (on area of 1 sq. in.)	200
Garages	See Note 1
Greenhouse roof bars, purlins and rafters	100
Manufacturing and storage buildings	See Note 2
Office floors	2000
Scuttles, skylight ribs and accessible ceilings	200
Sidewalks	8000
Stair treads (on area of 4 sq. in. at center of tread)	300

- Note 1. Floors in garages or portions of buildings used for storage of motor vehicles shall be designed for the uniformly distributed live loads of Table 706 or the following concentrated loads:
  - a. for passenger cars accommodating not more than nine passengers, 2000 pounds acting on an area of 20 sq. inches;
  - b. mechanical parking structures without slab or deck, passenger cars only, 1500 pounds per wheel; and
  - c. for trucks or buses, maximum axle load on an area of 20 sq. inches.
- Note 2. For buildings in which mechanical material handling equipment will be utilized, the structural floor slab shall be designed for the actual concentrated loads.

**SECTION 708.0 IMPACT LOADS**

**708.1 General:** The live loads specified in Section 706.0 shall be assumed to include adequate allowance for ordinary impact conditions. Provision shall be made in the structural design for special uses and loads which involve vibration and impact forces.

**708.2 Elevators:** All moving elevator loads shall be increased one hundred (100) per cent for impact, and the structural supports shall be designed within the limits of deflection prescribed by the standard safety code for elevators listed in Appendix B.

**708.3 Machinery:** For the purpose of design, the weight of machinery and moving loads shall be increased as follows, to allow for impact:

- 1. elevator machinery .....100%
- 2. light machinery, shaft or motor driven ..... 20%



## STRUCTURAL AND FOUNDATION LOADS AND STRESSES

3. reciprocating machinery or power driven units ..... 50%
  4. hangers for floors or balconies ..... 33%
- These percentages shall be increased when so recommended by the manufacturer.

**708.4 Craneways:** All craneways shall have their design loads increased for impact as follows:

1. a vertical force equal to twenty-five (25) per cent of the maximum wheel load;
2. a lateral force equal to twenty (20) per cent of the weight of the trolley and lifted load only, applied one-half ( $\frac{1}{2}$ ) at the top of each rail; and
3. a longitudinal force of ten (10) per cent of the maximum wheel loads of the crane applied at top of rail.

**708.5 Assembly structures:** Grandstands, stadiums and similar assembly structures shall be designed to resist a horizontal swaying load applied parallel to the rows of seats, in addition to any wind loads, of not less than twenty-four (24) pounds per lineal foot of seats; and of not less than ten (10) pounds per lineal foot of seats applied transversely.

### SECTION 709.0 SPECIAL LOADS

**709.1 General:** Provisions shall be made for all special loads herein prescribed and all other special loads to which the building or structure may be subjected.

**709.2 Below grade:** All retaining walls and other walls below grade shall be designed to resist lateral soil pressures with due allowance for hydrostatic pressure and for all superimposed vertical loads.

**709.3 Hydrostatic uplift:** All foundation slabs and other footings subjected to water pressure shall be designed to resist a uniformly distributed uplift equal to the full hydrostatic pressure.

**709.4 Railings:** Railings around stairwells, balconies and other floor openings, both exterior and interior, shall be designed to resist a load of at least two hundred (200) pounds applied in any direction at any point of the top rail and also a vertical and a horizontal thrust of fifty (50) pounds per lineal foot applied at the top railing. The concentrated load and distributed loads need not be assumed to act concurrently. Railings and guards of grandstands and similar assembly structures shall be capable of resisting a lateral force of fifty (50) pounds per lineal foot and sustaining a vertical load of one hundred (100) pounds per lineal foot.

**709.5 Construction loads and erection stresses:** The applicant for a building permit shall be responsible for temporary construction loads and wind loads which may occur during the erection of the building. No structural elements shall be stressed beyond their design capacity during construction.

**709.6 Partial loading:** The full intensity of the appropriately reduced live load applied only to a portion of the length of a structure or member shall be considered if it produces a more unfavorable effect than the same intensity applied over the full length of the structure or member.

### SECTION 710.0 ROOF LOADS

**710.1 General:** The structural supports of roofs and marquees shall be designed to resist wind, snow and earthquake loads in addition to the dead load of construction and the appropriate live loads as prescribed in Table 706; snow load as provided in Section 711.0; wind load as provided in Section 712.0; and earthquake load as provided in Section 716.0.

**710.2 Minimum roof loads:** Ordinary roofs, either flat, pitched, or curved, shall be designed for the snow load as provided in Section 711.0.

**710.3 Overhanging eaves:** In other than one- and two-family dwellings, and except where framing of overhang is a continuation of the roof framing, overhanging eaves, cornices and other roof projections shall be designed for a minimum uniformly distributed live load of sixty (60) pounds per square foot (psf).

**710.4 Ponding:** Roofs shall be designed for the maximum possible depth of water that may be ponded thereon as determined by the relative levels of roof deck and overflow weirs, scuppers, edges or serviceable drains in combination with the deflected structural elements.

**710.5 Special purpose roofs:** When used for incidental promenade purposes, roofs shall be designed for a minimum live load of sixty (60) psf; and one hundred (100) psf when designed for roof gardens or assembly uses.

**710.5.1 Landscaped roofs:** Where roofs are to be landscaped but are not subject to human occupancy, the uniform design live load in the landscaped area shall be twenty (20) psf, in addition to the snow load. Moreover, the weight of the landscaping materials shall be considered as dead load and shall be computed on the basis of saturation of the soil.

**710.5.2 Special purpose roofs:** Roofs to be used for other special purposes shall be designed for appropriate loads, or as approved by the building official.

### SECTION 711.0 SNOW LOAD

**711.1 General:** The basic snow load to be assumed in the design of buildings or other structures shall be forty (40) pounds per square foot of horizontal projection.

**711.2 Design snow load:** The basic snow load shall be used for all buildings in all use groups.

**Exception:** The snow load design used for temporary buildings shall be approved by the building official.

## STRUCTURAL AND FOUNDATION LOADS AND STRESSES

**711.2.1 Special snow regions:** In municipalities where records of snow fall or experience indicates that the basic snow load is inadequate, a higher basic snow load shall be used as established by amendment to this code in accordance with the General Statutes of Connecticut, Section 19-135g; such amendment shall apply to the municipality.

**711.3 Roof snow load:** The minimum snow loads for the design of both ordinary and multiple series roofs, either flat, pitched or curved, shall be determined by multiplying the basic snow load by the appropriate coefficients,  $C_s$ , given in Section 711.3.1. The effect of roof snow load shall be designed in accordance with Appendix L-102.1 and the more unfavorable effect shall be used for the building design.

**711.3.1 Snow load coefficients:** The basic snow load coefficient,  $C_s$ , shall be taken as eight-tenths, (0.8), and shall be increased or decreased in accordance with Figures L-102.2a, L-102.2b and L-102.2c in Appendix L-102.1.2 where snow load distributions and coefficients for typical roof configurations are given. Where more than one (1) case is specified, each case shall be considered separately in designing structural elements. Special roof configurations may warrant the use of higher snow loads than presented herein. The  $C_s$  coefficient for unheated buildings or very well insulated roofs shall be increased by thirty-three (33) per cent.

**Exception:** The basic snow load coefficient,  $C_s$ , shall be taken as seventy-five hundredths (0.75) for detached one- and two-family dwellings.

### SECTION 712.0 WIND LOAD

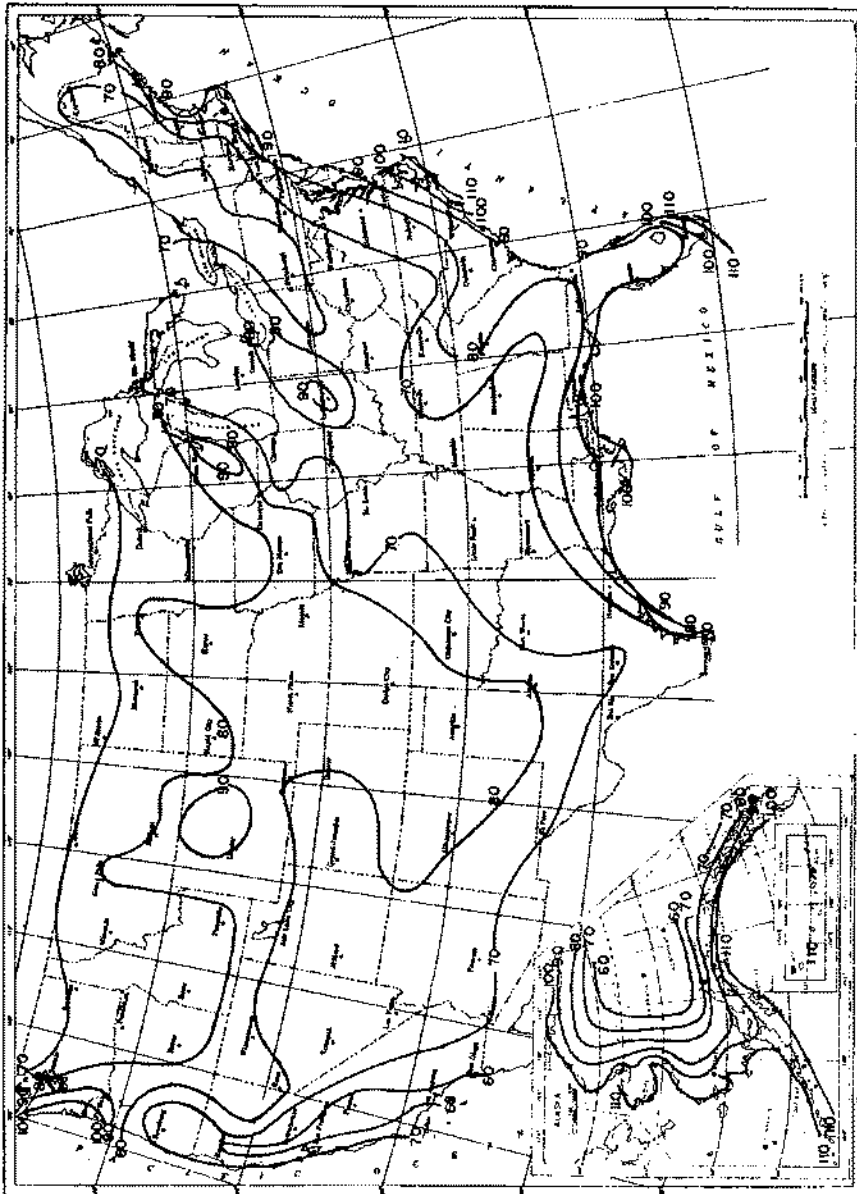
**712.1 Design:** All exposed structures or parts of structures shall be designed to resist the pressures due to wind in any direction, as provided in Sections 712.0 to 715.0 inclusive. The basic minimum wind speeds are shown in Figure 712.1 for the geographic location of the structure. The minimum wind pressures corresponding to specific wind speeds and heights are shown in Table 712.1. In all cases, the wind loads shall be considered as acting normal to the surfaces to which they apply. These provisions do not apply to structures of unusual shape, exposure, or structural characteristics which would make them susceptible to unusual stresses. In such cases, special engineering investigations are required.

#### 712.2 Special wind conditions

**712.2.1 Increased loads:** For structures located in flat, open country, open flat coastal belts, grassland, unusually exposed positions or in geographical regions where local records indicate higher wind loads than established in Section 712.1 the higher wind load shall be used.

**712.2.2 Decreased loads:** For structures located in centers of large cities, very rough, hilly terrain and in geographical regions where substantiating data indicates lower wind loads than established in Section

**Figure 712.1**  
Basic Wind Speed in Miles per Hour  
Annual Extreme Fastest-Mile Speed 30 Feet Above Ground, 50-Year Mean Recurrence Interval\*  
\*This figure applies to all types of storms except tornadoes



STRUCTURAL AND FOUNDATION LOADS AND STRESSES

Table 712.1  
EFFECTIVE VELOCITY PRESSURES\*  
FOR ORDINARY BUILDINGS AND STRUCTURES

Height (ft)	Basic wind speed (mph)						
	50	60	70	80	90	100	110
Less than 30	10	10	13	16	20	23	27
30-40	11	14	17	21	27	31	36
40-75	12	15	19	24	29	34	40
75-125	15	19	24	30	36	43	51
125-175	17	22	28	34	41	49	58
175-225	18	24	31	38	46	54	64
225-275	20	26	33	41	49	59	69
275-325	21	28	35	43	52	62	73
325-375	22	29	37	45	55	65	77
375-425	23	31	39	48	58	69	81
425-475	24	32	40	50	60	72	84
475-525	25	33	42	51	62	74	87
525-575	26	34	43	53	64	76	90
575-625	27	35	44	55	66	79	92
625-675	28	36	46	57	69	82	96
675-725	28	37	47	58	70	83	98
725-775	29	38	48	59	72	86	100
775-825	30	39	49	61	73	87	102

\*Pressures are based on geographic locations such as suburban areas, towns, city outskirts, wooded areas and rolling terrain.

712.1, designs based on lower wind loads may be approved.

**Exception:** Reductions in wind loads due to direct shielding afforded by adjacent structures shall not be permitted.

**712.3 Torsional resistance:** The structural frame of all structures subjected to wind or other lateral loads shall be designed to resist the torsional moment due to eccentricity of the resultant load with respect to the center of rigidity of the structure.

**712.4 Anchorage:** Anchorage of the roof to walls and columns and of walls and columns to the foundation system to resist overturning, uplift, and sliding forces shall be provided.

**712.5 Overturning:** The overturning moment due to the wind load on all structures shall not exceed two-thirds (2/3) of the stabilizing moment resulting from the dead load of the structure, unless the structure is anchored to resist the excess overturning moment and the excess horizontal shear over sliding friction.

**SECTION 713.0 WIND ON VERTICAL SURFACES**

**713.1 General:** The wind pressures on vertical surfaces to be considered in the design of the elements of the structure shall be those prescribed in Section 712.1 distributed and modified in accordance with this section. The wind pressure shall be applied to the gross area of the vertical surface of that portion of the structure above grade.

**713.2 Bracing system:** Forces due to wind loads shall be transferred to the ground by a properly designed structural system.

**713.3 Primary framing members:** Structural members and systems providing stability for the structure shall be designed and constructed for the basic wind pressures indicated in Table 712.1 and modified in Sections 713.3.1 and 713.3.2. Pressures shall be multiplied by the coefficients indicated in Table 713.3.1 and in Section 713.3.2.

**713.3.1 External distribution:** The wind pressure shall be distributed between exterior walls as a normal inward pressure on the windward wall and as a normal outward pressure on the leeward and sidewalls in accordance with Table 713.3.1.

**Table 713.3.1  
EXTERNAL DISTRIBUTION COEFFICIENTS FOR VERTICAL SURFACES  
PRIMARY FRAMES AND SYSTEMS**

Windward wall	0.8
Leeward wall	0.5
If height width and height length ratios are greater than 2.5	0.6
Side walls	0.7

**713.3.2 Internal pressures:** An internal pressure equal to 1.0 times the basic wind pressure shall be applied to all primary members acting outward. This pressure is not to be combined with the pressures determined in Section 713.3.1.

**713.4 Secondary components:** Girts, windows and glazing, doors and door frames, spandrels and similar secondary components and their connections shall be designed and constructed to transfer the wind pressures to the primary framing members.

**713.4.1 Distribution:** Secondary components shall be designed to resist internal and external wind pressures equal to one and fifty-hundredths (1.50) of those determined by Section 712.1 but in no case less than fifteen (15) psf.

#### SECTION 714.0 WIND ON INCLINED SURFACES

**714.1 General:** The wind pressures on inclined surfaces including roofs to be considered in the design of the elements of the structure shall be those prescribed in Section 712.1 distributed and modified in accordance with this section.

**714.2 Primary framing members:** Structural members and systems providing stability for the structure shall be designed and constructed for the basic wind pressures indicated in Table 712.1 as modified and distributed in accordance with Section 714.2.1.

**714.2.1 External distribution:** The external wind pressures on inclined surfaces shall be distributed as indicated in Table 714.2.1 and shall be

STRUCTURAL AND FOUNDATION LOADS AND STRESSES

based on the average height of the lower edge or roof eave above grade, the slope of the surface at the location under consideration and the ratio of sidewall height to building width.

Table 714.2.1  
EXTERNAL DISTRIBUTION FACTORS\* FOR INCLINED SURFACES  
PRIMARY FRAMES AND SYSTEMS

Ratio of sidewall height to building width	Windward slope angle with horizontal						All leeward slopes
	Flat to 15°	15° to 25°	25° to 35°	35° to 45°	45° to 60°	More than 60°	
0.3 or less	-1.0	0.2	0.3	0.4	0.5	0.8	-0.7
0.5	-1.0	-0.8	-0.2	0.3	0.5	0.8	-0.7
1.0	-1.0	-1.0	-0.6	-0.1	0.5	0.8	-0.7
1.5	-1.0	-1.0	-0.9	-0.4	0.2	0.8	-0.7
2.5 or more	-1.0	-1.0	-1.0	-0.2	0.1	0.8	-0.8

Note a: - indicates forces outward; all others indicate forces inward.

714.2.2 Arched surfaces: The external wind pressures assumed to be acting on the primary framing members of external arched surfaces shall not be less than those indicated in Table 712.1 as distributed in accordance with Table 714.2.2.

Table 714.2.2  
EXTERNAL DISTRIBUTION FACTOR\* FOR ARCHED SURFACES ON ELEVATED SUPPORTS  
PRIMARY FRAMES AND SYSTEMS

Rise to span ratio	Windward quarter	Center half	Leeward quarter
less than 0.2	-0.9	-0.8	-0.5
0.2 to 0.25	-0.6	-0.9	-0.5
0.25 to 0.3	-0.5	-1.0	-0.5
0.3 to 0.35	0.2	-1.0	-0.5
0.35 to 0.4	0.4	-1.1	-0.5
0.4 to 0.5	0.6	-1.2	-0.5
more than 0.5	0.9	-1.3	-0.5

Note a: - indicates forces outward; all others indicate forces inward.

714.3 Secondary members: Secondary roof framing, purlins, roof panels, glazing and sheathing and their connections shall be designed to resist wind pressures as specified in Section 713.4.1.

714.4 Overhang uplift: Open-sided structures, overhanging eaves, cornices and other roof projections shall be designed and constructed to withstand an upward pressure of two (2) times the wind pressures given in Table 712.1.

**SECTION 715.0 WIND LOADS ON SIGNS, TANK AND RADIO TOWERS AND CHIMNEYS**

**715.1 Ground signs and towers:** The wind pressure on ground signs and towers other than radio and television towers, shall be those prescribed in Section 713.4 for secondary components.

**715.2 Roof structures:** The wind pressure on roof signs, tank towers, stacks, chimneys and other exposed roof structures with plane surfaces shall be those prescribed in Section 713.4 for secondary components except as provided in Sections 715.3 and 715.4.

**715.3 Shielding effect:** The shielding effect of one element by another shall not be considered when the distance between them exceeds four (4) times the projected smallest dimension of the windward element.

**715.4 Effect of shape:** Net pressure coefficients for chimneys, tanks and similar structures are prescribed in Table 715.4. These coefficients apply to the projected area of the structure on a vertical plane normal to the wind direction. For slender structures such as flagpoles, a minimum net pressure coefficient of 1.2 shall be used if  $d\sqrt{q} < 2.5$ .

**Table 715.4  
NET PRESSURE COEFFICIENTS FOR CHIMNEYS AND TANKS**

Shape	Type of surface	h/d		
		1	7	25
Square (wind normal to a face)	Smooth or rough	1.3	1.4	2.0
Square (wind along diagonal)	Smooth or rough	1.0	1.1	1.5
Hexagonal or octagonal ( $d/\sqrt{q} > 2.5$ )	Smooth or rough	1.0	1.2	1.4
Round ( $d/\sqrt{q} > 2.5$ )	Moderately smooth*	0.5	0.6	0.7
	Rough ( $d'/d \leq 0.02$ )	0.7	0.8	0.9
	Very rough ( $d'/d \leq 0.08$ )	0.8	1.0	1.2

\*Metal, timber, concrete.

Note: h = height of structure in feet; d = diameter or least horizontal dimension in feet; d' = depth in feet of protruding elements such as ribs and spollers; q = the effective velocity pressure in psf from Table 712.1.

**SECTION 716.0 EARTHQUAKE LOAD**

**716.1 General:** In regions where local experience or the records of the National Ocean Survey show loss of life or damage of buildings resulting from earthquakes, buildings and structures hereafter erected shall be designed to withstand lateral forces as provided in Appendix L-101.0 of this code, except as exempted in Section 716.2.

**716.2 Exemptions:** Earthquake loading shall not be required in calculating the structural frame of a building or structure when the building complies



with one (1) or more of the following conditions:

1. is located where local experience or the records of the National Ocean Survey do not show loss of life or damage to property, regardless of zone;
2. is a one- or two-family dwelling; or
3. is a minor accessory building.

#### SECTION 717.0 COMBINATION OF LOADS

**717.1 General:** Loads listed herein shall be considered to act in the following combinations, whichever produce the most unfavorable effects in the building, foundation, or structural member concerned, reduced when appropriate, according to Section 718.0. The most unfavorable effect may occur when one (1) or more of the contributing loads are not acting:

1. dead load,
  2. dead load plus live load,
  3. dead load plus (wind load or earthquake load),
  4. dead load plus thermal load,
  5. dead load plus live load plus (wind load or earthquake load),
  6. dead load plus live load plus thermal load,
  7. dead load plus (wind load or earthquake load) plus thermal load,
- and
8. dead load plus live load plus (wind load or earthquake load) plus thermal load.

Thermal load is the loads, forces, and effects due to contraction or expansion resulting from temperature changes, shrinkage, moisture changes, creep in component materials, movement due to differential settlement or combinations thereof.

**717.2 Probability factor:** The total of the combined load effects may be multiplied by the following load combination probability factors. An increase in the allowable stresses will not be allowed in conjunction with a decrease due to the above load combinations.

1. 1.00 for combinations 1 through 4 listed in Section 717.1 above.
2. 0.75 for combinations 5 through 7 listed in Section 717.1 above.
3. 0.66 for combination 8 listed in Section 717.1 above.

**717.3 Dead load counteracting live load:** When loads other than dead loads counteract dead loads in a structural member or joint, special care shall be exercised by the designer to ensure adequate safety for possible stress reversals.

**717.4 Wind neglected:** When the stress due to wind is less than one-third ( $\frac{1}{3}$ ) of the stress due to dead load plus live load, the wind stress may be neglected.

**SECTION 718.0 LIVE LOAD REDUCTION**

**718.1 General:** In all buildings and structures the design live loads may be reduced on columns, piers, walls, trusses, girders, slab systems designed for flexure in more than one (1) direction, and on foundations as herein specified.

**718.2 Live loads 100 pounds or less:** For live loads of one hundred (100) pounds or less per square foot, the design live load on any member supporting one hundred fifty (150) square feet or more may be reduced at the rate of eight-hundredths per cent (0.08%) per square foot of area supported by the members, except that a reduction shall not be made for garages, open parking structures, roofs or for areas to be occupied as places of public assembly. The reduction shall exceed neither "R" as determined by the following formula, nor sixty (60) per cent:

$$R = 23 \left( 1 + \frac{D}{L} \right)$$

where

R = reduction in per cent;

D = dead load per square foot of an area supported by the member; and

L = design live load per square foot of area supported by the member.

**718.3 Live loads more than 100 pounds:** For live loads exceeding one hundred (100) psf, a reduction shall not be made, except that the design live loads on columns may be reduced twenty (20) per cent.

**SECTION 719.0 ALLOWABLE WORKING STRESSES**

**719.1 Controlled materials:** The design and working stresses of all controlled materials as defined in Section 201.0, or of any structural material that is identified as to manufacture and grade by mill tests or the strength and stress grade is otherwise confirmed to the satisfaction of the building official, shall conform to the specifications and methods of design of accepted engineering practice or to the approved rules in the absence of applicable standards. A building or structure may be erected in whole or in part of controlled materials or ordinary materials. See Section 719.2.

**719.2 Ordinary material:** The use of ordinary materials without selection and without controlled design and supervision, or when the material is not identified as to strength and stress grade, shall be limited to the average unit working stresses prescribed in Appendix K.

**719.3 New materials:** For materials which are not specifically provided for in this code, the working stresses shall be established by tests as provided in Sections 702.0 and 802.0.

**SECTION 720.0 BEARING VALUE OF SOILS**

**720.1 Soil analysis:** All applications for permits for the construction of new buildings or structures, and for the alteration of a permanent structure which require changes in foundation loads and distribution, shall be accompanied by a statement describing the soil in the ultimate bearing strata, including sufficient records and data to establish its character, nature and load-bearing capacity. Such records shall be certified by a licensed professional engineer or a licensed architect.

**720.2 Satisfactory foundation materials:** Satisfactory bearing materials for spread footings shall include ledge rock on its natural bed; natural deposits of sand, gravel or firm clay, or a combination of such materials, provided they do not overlie an appreciable amount of peat, organic silt, soft clay, or other objectionable materials.

**720.3 Presumptive bearing values:** Except when determined by field loading tests or as otherwise provided herein, the maximum allowable pressure on supporting soils under spread footings at or near the surface shall not exceed the values specified in Table 720. Presumptive bearing values shall apply to all materials of similar physical characteristics and disposition. Surface values shall be adjusted for deep footings, and for the bearing strata under piles as provided in this code. When foundation piles are driven to penetrate into sound rock, the allowable bearing values in Table 720 may be increased as prescribed in Section 739.0.

Table 720  
PRESUMPTIVE SURFACE BEARING VALUES OF FOUNDATION MATERIALS

Class of material	Tons per square foot
1. Massive crystalline bed rock including granite, diorite, gneiss, trap rock, hard limestone and dolomite	100
2. Foliated rock including bedded limestone, schist and slate in sound condition	40
3. Sedimentary rock including hard shales, sandstones, and thoroughly cemented conglomerates	25
4. Soft or broken bed rock (excluding shale), and soft limestone	10
5. Compacted, partially cemented gravels, and sand and hardpan overlying rock	10
6. Gravel and sand-gravel mixtures	6
7. Loose gravel, hard dry clay, compact coarse sand, and soft shales	4
8. Loose, coarse sand and sand-gravel mixtures and compact fine sand (confined)	3
9. Loose medium sand (confined), stiff clay	2
10. Soft broken shale, soft clay	1.5

**720.4 Light weight structures:** Mud, organic silt, or unprepared fill shall be assumed not to have presumptive bearing capacity unless approved by test, except where the bearing capacity is deemed adequate by the building official for the support of light weight and temporary structures.

### SECTION 721.0 FOUNDATION INVESTIGATIONS

**When required:** The owner or applicant shall make borings, test pits, or other soil investigations at such locations and to sufficient depths of the bearing materials to the satisfaction of the building official. For all buildings which are more than three (3) stories or forty (40) feet in height, and whenever it is proposed to use float, mat or any type of deep foundation, there shall be at least one (1) exploratory boring to rock or to an adequate depth below the load-bearing strata for every twenty-five hundred (2500) square feet of built-over area, and such additional tests that the building official may direct. When the safe sustaining power of the soil is in doubt, or superior bearing value than specified in this code is claimed, the building official shall direct that the necessary borings or tests be made.

**721.2 Soil samples:** Samples of the strata penetrated in test borings or test pits, representing the natural disposition and conditions at the site, shall be available for examination by the building official. Wash or bucket samples shall not be accepted.

**721.3 Varying soil values:** When test borings indicate non-uniformity of bearing materials, a sufficient number of additional borings shall be made to establish strata levels of equal bearing capacity.

**721.4 Cost of tests:** Costs of soil investigations shall be at the expense of the owner.

### SECTION 722.0 SOIL TEST PROCEDURE

**722.1 Soil test method:** The test procedure and testing apparatus shall be approved by the building official before they are used; and a complete record of the tests, together with a record of the soil profile, shall be filed by the licensed engineer or architect who shall have a fully qualified representative on the site during all boring and test operations.

**722.2 Loaded area:** For spread footings, the soil shall be loaded at one (1) or more places and at the required level or levels. The loaded area shall be approximately four (4) square feet for all bearing materials; except that when the footing overlies wet clay or other soft materials, the test load shall be applied to an area of not less than ten (10) square feet.

**722.3 Recorded settlements:** Loads shall be applied in continuous increments of not more than one-quarter ( $\frac{1}{4}$ ) of the proposed safe load. When the proposed load has been reached, it shall remain undisturbed and readings shall be recorded to determine the rate of settlement until the settlement in eight (8) consecutive hours is less than one-hundredth (0.01) inches. A fifty (50) per cent excess load shall then be applied and allowed to remain in place until the rate of settlement is less than one-hundredth (0.01) inches in twenty-four (24) hours.

## STRUCTURAL AND FOUNDATION LOADS AND STRESSES

**722.4 Accuracy of loading:** Test loads applied by mechanical devices shall be automatically controlled so as to insure not more than five (5) per cent variation in applied load. Such devices shall be calibrated prior to the test.

**722.5 Test acceptance:** The load settlement shall be represented diagrammatically, and a test shall not be deemed satisfactory if the net settlement after removal of the test load exceeds one-hundredth (0.01) inches per ton of gross load applied.

### SECTION 723.0 ALLOWABLE FOUNDATION LOADS

**723.1 General:** The maximum allowable loads under all types of foundations shall be limited by accepted engineering practice and as provided herein.

**723.2 Rock foundations:** Where subsurface explorations at the project site indicate variations or doubtful characteristics in the structure of the rock upon which it is proposed to construct foundations, a sufficient number of borings shall be made to a depth of not less than ten (10) feet below the level of the footings to provide assurance of the soundness of the foundation bed and its bearing capacity.

**723.3 Increased rock capacity:** The presumptive bearing capacity of Class 1 or Class 2 rock may be increased when the surface is leveled or benched; provided such increased safe capacity is determined by load tests on an area of not less than one (1) square foot in accordance with the provisions of Section 722.0; but such loads shall not be increased to exceed the unit compressive stress permitted on reinforced concrete footings under the provisions of this code.

### SECTION 724.0 DEPTH OF FOOTINGS

**724.1 Frost protection:** Except when erected upon solid rock or otherwise protected from frost, foundation walls, piers and other permanent supports of all buildings and structures larger than one hundred (100) square feet in area or ten (10) feet in height shall extend to forty-two (42) inches below grade unless the frost line of the locality is demonstrated to be less than this depth. Spread footings of adequate size shall be provided when necessary to properly distribute the load within the allowable bearing value of the soil, or such structures shall be supported on piles when solid earth or rock is not available.

**724.2 Isolated footings:** Footings on granular soil of Classes 5 to 10 inclusive in Table 720 shall be so located that the line drawn between the lower edges of adjoining footings shall not have a steeper slope than thirty (30) degrees with the horizontal, unless the material supporting the higher footing is braced or retained or otherwise laterally supported in an approved manner.

**724.3 Floating mat:** Floating mat foundations shall be located on permanently undisturbed soil of adequate bearing capacity. The building official may approve a continuous foundation mat which is located directly on the ground when adequate sub-soil drainage and a rat-proof apron as specified in Section 873.0 are provided when required. Where subject to freezing, the footings shall be designed to resist frost action. The requirements of Section 507.0 governing the ventilation of crawl spaces under grade construction shall be waived provided adequate provision is made for dampproofing and waterproofing when required.

#### **SECTION 725.0 FOOTING DESIGN**

**725.1 Design loads:** The full dead load including the weight of foundations, footings, and overlying fill and the reduced live loads as specified in Section 718.0, shall be used in designing footings.

**725.2 Pressure due to lateral loads:** If the increased pressure on any footing due to wind, earthquake or other lateral loads does not exceed one-third ( $\frac{1}{3}$ ) of the dead and live load pressures alone, such loads may be neglected. When such increased pressure is more than one-third ( $\frac{1}{3}$ ), the lateral loads shall be considered in the design with a one-third ( $\frac{1}{3}$ ) increase in allowable soil pressure under the combined load.

**725.3 Earthquake loads:** In localities subject to seismic disturbances, special provision shall be made in the foundation design to comply with the provisions of Section 716.0.

**725.4 Vibratory loads:** Where machinery or other vibrations may be transmitted through the foundations, consideration shall be given in the design of the footings to prevent detrimental disturbances of the soil.

**725.5 Varying unit pressures:** Footings shall be so designed that the unit soil pressure under the dead load shall be as uniform as possible under all parts of the building or structure. When necessary for stability in the structure due to settlement or varying soil conditions, variations may be permitted in the unit pressure under different footings in accordance with accepted engineering practice.

#### **SECTION 726.0 TIMBER FOOTINGS, WOOD FOUNDATIONS**

**726.1 Timber footings:** Timber footings may be used for wood frame structures and as otherwise approved by the building official. Such footings shall be treated in accordance with the applicable standards in Appendix C or shall be placed entirely below permanent water level, except that untreated timbers may be used as capping of wood piles which project above the water level over submerged or marsh lands. The compressive stresses perpendicular to grain in untreated timber footings supported upon piles shall not exceed seventy (70) per cent of the allowable stresses for the species and grade of timber as specified in the National Design Specification for Wood Construction listed in Appendix B.

## STRUCTURAL AND FOUNDATION LOADS AND STRESSES

**726.2 Pole buildings:** Pole type buildings shall be designed and erected in accordance with the applicable standards listed in Appendix B. The poles shall be treated in accordance with the applicable standards in Appendix C.

**726.3 Wood foundations:** Wood foundation systems shall be designed and installed in accordance with the standards listed in Appendix B. All lumber and plywood shall be treated in accordance with the applicable standards listed in Appendix C and shall be identified as to conformance with such standards by an approved inspection agency.

### SECTION 727.0 STEEL GRILLAGES

**727.1 General:** All steel grillage beams shall be separated with approved steel spacers and shall be entirely encased in at least three (3) inches of concrete and the spaces between beams shall be completely filled with concrete or cement grout. When used on yielding soils, steel grillages shall rest on approved concrete beds not less than six (6) inches thick.

### SECTION 728.0 CONCRETE FOOTINGS

**728.1 Concrete strength:** Concrete in footings shall have an ultimate compressive strength of not less than twenty-five hundred (2500) pounds per square inch (psi) at twenty-eight (28) days.

**728.2 Design:** Concrete footings shall comply with Sections 840.0 through 843.0 and the Building Code Requirements for Reinforced Concrete listed in Appendix B.

#### 728.3 Thickness

**728.3.1 Plain concrete:** In plain concrete footings, the edge thickness shall be not less than eight (8) inches for footings on soil; except that for one- and two-family dwellings and buildings less than two (2) stories in height of Type 4 construction, the edge thickness may be reduced to six (6) inches, provided the footing does not extend beyond four (4) inches on either side of the supported wall.

**728.3.2 Reinforced concrete:** In reinforced concrete footings the thickness at the edge above the bottom reinforcement shall be not less than six (6) inches for footings on soil, nor less than twelve (12) inches for footings on piles. The clear cover on reinforcement where the concrete is cast against the earth shall not be less than three (3) inches. Where concrete is exposed to soil after it has been cast, the clear cover shall be not less than one and one-half (1½) inches for reinforcement smaller than No. 5 bars or five-eighths (5/8) inch diameter wire, nor two (2) inches for larger reinforcement.

**728.4 Pile caps:** Pile caps shall be of reinforced concrete. The soil immediately below the pile cap shall not be considered as carrying any vertical load. The top of all piles shall be embedded not less than three (3) inches into pile caps and the caps shall extend at least three (3) inches beyond the edge of all piles.

**728.5 Deposition:** Concrete footings shall not be poured through water unless otherwise approved by the building official. When poured under, or in the presence of, water, the concrete shall be deposited by approved means which insure minimum segregation of the mix and negligible turbulence of the water.

**728.6 Protection of concrete:** Concrete footings shall be protected from freezing during deposition and for a period of not less than five (5) days thereafter and water shall not be allowed to flow through the deposited concrete.

#### SECTION 729.0 MASONRY UNIT FOOTINGS

**729.1 Dimensions:** Masonry unit footings shall be laid in type M or S mortar complying with Section 815.0 and the depth shall be not less than twice the projection beyond the wall, pier or column; and the width shall be not less than eight (8) inches wider than the wall supported thereon.

**729.2 Offsets:** The maximum offset of each course in brick foundation walls stepped up from the footings shall be one and one-half (1½) inches if laid in single courses, and three (3) inches if laid in double courses.

#### SECTION 730.0 MAT, RAFT AND FLOAT FOUNDATIONS

**730.1 General:** Mat, raft and float foundations shall be used only when the applied loads of the building or structure are so arranged as to result in practically uniformly balanced loading, and the soil immediately below the mat is of uniform bearing capacity. The characteristics of the soil under the mat or raft shall be considered in the analysis of loading on mats and other continuous footings and due allowance shall be made for possible concentrated soil pressures under heavily loaded columns.

#### SECTION 731.0 PIER FOUNDATIONS

##### 731.1 Dimensions

**731.1.1 Lateral dimensions and height:** Except for one- and two-family dwellings and other light structures, the minimum dimension of isolated piers used as foundations shall be two (2) feet, and the height shall not exceed twelve (12) times the least horizontal dimension, unless constructed of reinforced concrete or structural steel, or when entirely encased in a steel shell at least one-quarter (¼) inch thick. Greater heights may be approved by the building official when surrounding foundation materials furnish adequate lateral support.



**731.1.2 Belled bottoms:** When pier foundations are belled at the bottom, the edge thickness of the bell shall be not less than that required for the edge of footings. If the sides of the bell slope at an angle less than sixty (60) degrees from the horizontal, the effects of vertical shear shall be considered.

**731.2 Design**

**731.2.1 Plain concrete:** When the unsupported height of foundation piers exceeds six (6) times the least dimension, the allowable working stress on piers of unit masonry or plain concrete shall be reduced in accordance with accepted engineering practice.

**731.2.2 Reinforced concrete:** When constructed of reinforced concrete, foundation piers may be reinforced with spiral or vertical reinforcement in accordance with the applicable standards for the design of columns listed in Appendix B; except that when adequate lateral support is furnished by the surrounding materials as defined in Section 734.0, the requirements for long columns shall be waived.

**731.2.3 Steel shell:** When concrete piers are entirely encased with a circular steel shell, the area of the shell steel may be considered as reinforcing steel, provided the steel is protected under the conditions specified in Section 733.0. All horizontal joints in the shell shall be spliced to comply with Section 732.0.

**731.3 Dewatering:** When piers are carried to depths below water level, the piers shall be constructed by a method which will insure accurate preparation and inspection of the bottom and the deposition or construction of sound concrete or other masonry in the dry.

**SECTION 732.0 PILE FOUNDATIONS**

**732.1 Design:** Pile foundations shall be designed to transmit building loads to lower strata of foundation materials when the supporting materials immediately underlying the structure are of inadequate load capacity or for the purpose of altering the physical properties of the surrounding strata. The bearing value of the supporting soil shall be evaluated as prescribed in Section 734.0. Piles may be constructed of any approved structural materials within the limitations of design and allowable working stresses of this code.

**732.2 Site investigation:** The building site shall be investigated for all conditions which might promote deterioration of pile foundations, and approved protective measures shall be taken to prevent corrosion or other destructive action from deleterious conditions. When the boring records or site conditions indicate destructive action because of soil conditions or changing water level, the pile shall be protected by approved preservative treatments or impervious encasements as provided in Section 733.0.

**732.3 Spacing:** The minimum center-to-center spacing of piles shall be not less than twice the average diameter of a round pile, nor less than one and three-quarter ( $1\frac{3}{4}$ ) times the diagonal dimension of a rectangular pile. When driven to or penetrating into rock, the spacing shall be not less than twenty-four (24) inches. When receiving principal support from end-bearing on materials other than rock or through frictional resistance, the spacing shall be not less than thirty (30) inches.

**732.4 Wall piles:** All piles in wall foundations shall be staggered about the center line of the wall at a minimum distance of one-half ( $\frac{1}{2}$ ) the top diameter therefrom; except that under wood frames, light gage steel and other light weight construction not over thirty-five (35) feet in height, piles may be driven in a single row.

**732.5 Isolated pier piles:** When supported on piles, not less than three (3) piles shall be furnished under columns, piers or other isolated loads, unless lateral bracing is provided to insure stability.

**732.6 Minimum dimensions:** Tapered piles shall have a minimum butt diameter of eight (8) inches and a diameter of not less than six (6) inches at any other section; except as provided for timber piles in Section 735.0. Piles of uniform circular section shall have a minimum outside diameter of eight (8) inches, and if of other than circular section, a minimum diameter of seven and one-half ( $7\frac{1}{2}$ ) inches. Tapered shoes or points of lesser dimensions than herein prescribed may be attached to the pile unit.

**732.7 Minimum length and penetration:** Piles located within twenty-five (25) feet of lot lines shall be driven so that the point shall be not less than ten (10) feet below the nearest established curb level; and a pile shall not be less than ten (10) feet in length below the cut-off level unless otherwise approved by the building official.

**732.8 Splices:** Splices shall be avoided insofar as practicable. Where used, splices shall be such that the resultant vertical and lateral loads at the splices are adequately transmitted. Splices shall be so constructed as to provide and maintain true alignment and position of the component parts of the pile during installation and subsequent thereto. The ends of each section of steel pipe or other steel elements shall be cut perpendicular to the axis and bearing surfaces shall be true-fitted with milled or ground faces or by flame cutting or other approved method. Proper consideration shall be given to the design of splices at sections of piles which may be subject to tension or to bending. Except for piles which can be visually inspected after driving, splices shall develop not less than fifty (50) per cent of the value of the pile in bending.

**732.9 Jetting:** Piles may be jetted through foundation material listed as Classes 6 to 9 inclusive in Table 720, and only when approved by the building official in other classes of materials. The approval to permit jetting of piles shall be issued by the building official in writing. Immediately after completion of jetting the piles shall be driven to the required load resis-

## STRUCTURAL AND FOUNDATION LOADS AND STRESSES

tance as determined by the application of an approved pile driving formula.

**732.10 Precautions:** During driving, all piles shall be held in their design location and position. If any pile is out of alignment more than two (2) per cent of the pile length, or is driven more than three (3) inches laterally from design location, the design shall be modified to provide for resultant eccentricity. When necessitated by the severity of driving, both the butt and the point of the pile shall be protected from injury to the satisfaction of the building official. A competent and qualified inspector satisfactory to the building official shall be on the work at all times while pile foundations are being cast, driven or fabricated and while test piles are being loaded. The inspector shall make and submit to the building official complete records of all installations and tests.

**732.11 Installation:** Piles shall be driven in such manner and sequence as to prevent distortion or injury of piles already in place.

### SECTION 733.0 CORROSION PROTECTION

**733.1 Preservative treatments:** The preservative treatment of timber piles shall comply with the provisions of Section 735.0 and the applicable standards in Appendix C.

**733.2 Protection:** When the soil or the surrounding medium in contact with an all-metal, metal encased, concrete or timber caisson or pile, contains destructive chemical elements, the pile, caisson, or pier shall be provided with a suitable method of protection which may include protective coatings, electrolytic methods, protective jackets or other approved protective methods. When the protective jacket is of concrete, the thickness of cover over the steel shall be not less than one and one-half (1½) inches.

**733.3 Cinder fill:** The presence of cinder fill or waste from any kind of chemical operation shall be considered sufficient reason for protective jacketing unless chemical study and analysis of the soil indicates it to be inactive.

### SECTION 734.0 ALLOWABLE PILE LOADS

**734.1 General:** The allowable load on piles shall be determined by the applicable formulas complying with accepted engineering practice. The maximum load capacity shall be limited by the supporting capacity of the soil as determined by driving resistance or by load test as herein prescribed; but the load shall not exceed the capacity of the pile designed as a short or long column in accordance with accepted engineering practice and the provisions of this code.

**734.2 Lateral support:** Any soil other than water or fluid soil shall be deemed to afford sufficient lateral support to permit the design of any type

## CONNECTICUT BASIC BUILDING CODE/1978

of pile as a short column. When piles are driven through soil which will be removed subsequent to the completion of the foundation, the resistance offered by such material shall not be considered to contribute to the lateral supporting capacity.

**734.2.1 Fixed ends:** When not assumed laterally supported by the surrounding soils and when fixed by lateral supports at the upper end only, the unsupported length of pile or other isolated foundation shall be assumed as three-quarters ( $\frac{3}{4}$ ) the total length; and when supported at the bottom by drilling or other rigid attachment into the bedrock in addition to the top lateral support, the unsupported length shall be assumed as one-half ( $\frac{1}{2}$ ) the total length.

**734.3 Short column load:** Except when extending above permanent ground level or when driven in surrounding material which furnishes negligible lateral support as defined in Section 734.2, or when driven through soil which will be removed subsequent to the completion of the pile, all piles used to support a building or structure or part thereof shall be designed as short columns under the provisions of this code for the structural materials involved. The average compressive stress on any cross-section of a pile produced by that portion of the design load which is transmitted to that section shall not exceed the allowable column values of this code.

**734.4 Driving formula load:** The allowable load on any pile when determined by the application of an approved driving formula shall not exceed forty (40) tons. The formula load shall be determined for gravity-drop or power-actuated hammers and the hammer energy used shall be the maximum consistent with the size, strength and weight of the driven piles. The use of a follower shall be permitted only with the approval of the building official.

**734.5 Approved test load:** When greater loads per pile than permitted by Section 734.4 are desired, control-test piles shall be tested in each area by maintaining constant load under increasing settlements in accordance with the procedure prescribed for soil tests in Section 722.0. The resulting allowable load shall be not more than one-half ( $\frac{1}{2}$ ) of that test load which produces a permanent net settlement per ton of test load of not more than one-hundredth (0.01) inch. In subsequent driving of the balance of foundation piles, all piles shall be deemed to have a supporting capacity equal to the control-pile, when the rate of penetration of such piles is equal to or less than that of the control-pile through a comparable driving distance; except as provided in Section 734.6. Not less than three (3) test piles shall be driven in any area of uniform foundation materials and one (1) of such test piles shall be test loaded. At least one (1) test shall be made for each fifteen thousand (15,000) square feet of building area.

**734.6 Group pile load**

## STRUCTURAL AND FOUNDATION LOADS AND STRESSES

**734.6.1 Limiting load:** The total allowable load on any cluster or group of piles shall not exceed the bearing capacity on the gross loaded area of the underlying soil stratum, assuming a uniform load spread within an angle of sixty (60) degrees with the horizontal from the area occupied by the pile group plus a margin of one (1) foot surrounding the periphery of the cluster. There shall not be overlap of pressure areas from similar distribution of loads for adjacent pile groups.

**734.6.2 Load test of pile groups:** In determining the load capacity by load tests of any group, when driven through materials subject to displacement or shift, the immediately surrounding pile groups shall be driven in place before the test load is applied to that group.

**734.7 Limiting pile loads:** The capacities of any single pile shall not exceed the following values when the maximum pile load is determined in accordance with Section 734.5.

Approved test load:

1. two hundred (200) tons when open-ended concrete-filled steel pipe piles are installed to bear on rock;
2. one hundred and fifty (150) tons on all other types of piles when bearing on rock except timber piles (see Section 735.5);
3. one hundred (100) tons when bearing on or in materials of Classes 3, 4, and 5 in Table 720; and
4. sixty (60) tons when bearing on or in other materials classified in Table 720.

**734.7.1 Substantiation of higher allowable loads on piles:** Individual pile loads higher than those indicated in Section 734.7 may be approved by the building official when they are substantiated by test and analysis and the submission of a report by the licensed or registered professional architect or engineer establishing that the proposed construction under a one hundred (100) per cent overload of the foundation is safe against failure of the pile and soil materials and showing that the probable total magnitude and distribution of settlement to be expected under design conditions will not result in instability of the building or stresses in the structure in excess of the allowable values permitted by this code.

### SECTION 735.0 TIMBER PILES

**735.1 Quality:** Timber piles shall conform to the applicable provisions of the standard for Round Timber Piles, ASTM D-25 listed in Appendix C.

**735.2 Pressure treatment:** Treated foundation piles shall be treated in accordance with the applicable standards listed in Appendix C. The tops of wood piles at "cut-off" shall be given three (3) coats of hot creosote

**CONNECTICUT BASIC BUILDING CODE/1978**

followed by a coat of coal-tar pitch; and the "cut-off" shall be made in sound wood.

**735.3 Untreated piles:** Untreated piles may be used where the cut-off is below the lowest ground water level expected during the life of the structure, but not less than three (3) feet below the existing ground-water level.

**735.4 Allowable stresses:** Allowable unit stresses for timber piles shall be determined in accordance with the standard for Establishing Design Stresses in Round Timber Piles, ASTM D-2899, listed in Appendix C.

**735.5 Allowable loads:** The loads on wood piles shall not exceed the allowable load computed in accordance with Section 734.0.

**735.6 End bearing piles:** Any sudden decrease in driving resistance of an end bearing timber pile shall be investigated with regard to the possibility of damage; and if the sudden decrease in driving resistance cannot be correlated to bearing data, the pile shall be removed for inspection or rejected.

**SECTION 736.0 PRECAST CONCRETE PILES**

**736.1 Concrete strength:** A precast concrete pile shall not be driven until the concrete has attained a compressive strength of not less than three thousand (3,000) pounds per square inch (psi) based on tests of cylinders cast from the same batches and cured under the same conditions as the pile concrete.

**736.2 Design:** The piles shall be designed and reinforced in accordance with the applicable reinforced concrete regulations cited in Appendix B. When designed as short columns under the provisions of Section 734.3, the design moment in the pile shall be that resulting from analysis or from an eccentricity of five (5) per cent of the pile thickness, whichever is greater. After casting, such piles shall be handled, driven and loaded to avoid all overstressing or injury. If for any reason the pile is injured, or, the reinforcement is exposed, its use shall be condemned. The lateral reinforcement at both ends of the pile shall be spaced sufficiently close to resist impact stresses due to driving and not more than three (3) inches on centers. When driven to rock, all precast concrete piles shall be reinforced with an approved metal shoe.

**736.3 Protection:** A minimum covering of two (2) inches of concrete shall be provided over all reinforcements, except that for piles to be subjected to the action of sea water, waves or other severe exposure, a three (3) inch protective covering shall be furnished in the zone of such exposure.

**SECTION 737.0 CAST-IN-PLACE CONCRETE PILES**

**737.1 Concrete strength:** All concrete for cast-in-place piles shall develop a compressive strength of not less than twenty-five hundred (2500) psi at twenty-eight (28) days. The concrete shall be deposited in a continuous operation so as to insure a full-sized pile without voids or segregation. All concrete shall be placed in the dry; except when the bottom of the pile is sealed by depositing concrete by tremie or other approved method, after removing all soil and other foreign matter.

**737.2 Design:** When designed as short columns under the provisions of Section 736.3, the design moment in the pile shall be that resulting from analysis or from an eccentricity of five (5) per cent of the pile thickness, whichever is greater.

**737.3 Reinforcement:** Except for dowels, all reinforcements, if required, shall be designed and installed as an assembled unit, and a reinforcement shall not be placed within one (1) inch of a protective metal casing. If a permanent casing is not used, the protective coating of concrete shall be not less than two (2) inches thick; except when subjected to severe exposure, it shall be not less than three (3) inches.

**737.4 Inspection:** Previous to the placing of concrete, full facilities shall be provided for inspecting the shell and other unfilled space of each pile.

**SECTION 738.0 STEEL PIPE AND TAPERED TUBULAR PILES**

**738.1 Concrete strength:** Concrete-filled pipe and tapered tubular piles may be driven open-ended or closed-ended. Pipe or tapered tube piles driven with closed ends shall be treated as cast-in-place concrete piles and shall be governed by the same regulations applicable thereto with suitable load-bearing allowance for the metal casing. Concrete shall have a minimum compressive strength of twenty-five hundred (2500) psi at twenty-eight (28) days' age. When driven open-ended to rock, concrete shall not be deposited until the pipe shall have been cleaned free of all soil or loose rock chips and satisfactory proof furnished of the condition of the rock. The concrete shall be deposited either in the dry, or by means of tremie, or by other approved process.

**738.2 Steel pipe:** All steel pipe and tapered tubing shall conform to the applicable standards listed in Appendix C for welded and seamless steel pipe and tubes and for hot rolled carbon steel sheets. The yield point used in the design of steel casings shall be that of the fabricated element as determined by test.

**738.3 Design:** When reinforcement is required, it shall be installed as an assembly unit or may consist of one (1) or more rolled structural shape cores complying with the applicable standards listed in Appendix B. A minimum clearance of one (1) inch shall be maintained between the reinforcement and the enclosing shell.

**738.4 Minimum dimensions**

**738.4.1 Open-ended pipe piles:** Pipe to be installed open-ended shall have a nominal outside diameter of not less than ten (10) inches. Minimum nominal wall thickness for diameters between ten (10) and fourteen (14) inches shall be one-quarter ( $\frac{1}{4}$ ) inch, and for diameters of fourteen (14) inches or more shall be three-eighths ( $\frac{3}{8}$ ) inch. Pipe of less wall thickness may be installed open-ended if a cutting shoe is provided to protect the tip from injury during driving.

**738.4.2 Closed-ended pipe piles:** Steel pipe piles installed with ends closed for concrete-filled steel pipe piles shall have a minimum nominal wall thickness of ten one-hundredths (0.10) inch. A pile of uniform section shall not have a nominal outside diameter of less than eight (8) inches. Ends shall be closed with flat plate, forged or cast steel conical point, or other end closure of approved design.

**738.5 Splices:** All splices of the steel section shall comply with Section 732.5 and shall be designed to insure true alignment of the shells and uniform transmission of load from one pipe length to another.

**SECTION 739.0 CAISSONS**

**739.1 Construction:** Caissons shall consist of a shaft section of concrete-filled pipe or other approved steel sheet extending to bed rock with an uncased socket drilled into the bed rock which is filled with concrete thoroughly bonded to the rock wall. The caisson may be provided with a structural steel core or other suitable reinforcement, installed so as to deliver its load to the rock through the socket filling. When such steel core is provided, it shall be bedded in cement grout at the base of the rock socket before initial set.

**739.2 Steel shell:** The steel shell shall be seamless or welded steel pipe with a minimum yield point of thirty-three thousand (33,000) psi fitted with an approved cutting shoe and structural cap, or with other approved means of transmitting the superstructure load. None but the top section of the pipe shall be less than forty (40) feet in length. The minimum diameter shall be twenty-four (24) inches and the minimum shell thickness shall be five-sixteenths ( $\frac{5}{16}$ ) inches. Steel shall be protected under the conditions specified in Section 733.0. Splices shall comply with Section 732.8.

**739.3 Concrete fill:** The concrete fill of caissons shall be controlled concrete, with a compressive strength of not less than twenty-five hundred (2500) pounds per square inch at twenty-eight (28) days, deposited with a slump of not more than six (6) inches. When deposited in water, the concrete shall be placed with an approved bottom dump bucket or tremie to eliminate segregation.



## STRUCTURAL AND FOUNDATION LOADS AND STRESSES

**739.4 Rock socket:** The socket shall be into sound rock, and shall be thoroughly cleaned of all foreign matter and loose rock. After examination and approval of the rock surface, the concrete fill shall be deposited in the dry or by an approved method under a water seal. The depth of socket shall be adequate to develop the full load-bearing capacity of the caisson on the approved spread area of distribution within the limitations of Table 720 and without overlapping of stress cones.

**739.5 Reinforcing core:** Structural steel cores used for reinforcement shall not exceed in area twenty-five (25) per cent of the gross caisson section. The minimum clearance between structural core and shell shall be two (2) inches. When such cores are installed in more than one (1) length, they shall be assembled to develop the full compressive strength of the section. In all cases not less than one (1) inch of covering shall be provided around any reinforcement.

**739.6 Alignment:** Caissons shall not be more than two (2) per cent of the length out of plumb.

**739.7 Spacing:** The minimum center-to-center spacing between caissons when a steel core is not used shall be twice the diameter of the shell, and when reinforced with a core such spacing shall be not less than two and one-half (2½) times the diameter.

### SECTION 740.0 STRUCTURAL STEEL PILES

**740.1 Steel:** The steel in structural steel pile sections shall have a minimum nominal thickness of metal of three-eighth (¾) inches. When of H section, the flange projection shall not be more than fourteen (14) times the minimum thickness of metal. The flange width shall be not less than eighty (80) per cent of the depth of the section. The nominal depth in the direction of the web shall not be less than eight (8) inches.

**740.2 Splices:** Splices of rolled steel sections shall comply with Section 732.8.

**740.3 Protection:** Structural steel piles shall be protected under the conditions specified in Section 733.0, or due allowance shall be made for corrosion as therein specified.

### SECTION 741.0 COMPOSITE PILES

**741.1 Design:** Composite piles consisting of two (2) or more approved pile types shall be designed to meet the conditions of installation.

**741.2 Limitation of load:** The maximum allowable load shall be limited by the capacity of the weakest section incorporated in the pile.

**741.3 Splices:** Splices between concrete sections and steel or wood sections shall be designed to prevent separation of the sections both before and after the concrete portion has set, and to insure the alignment and

transmission of the total pile load. Splices shall be designed to resist uplift due to upheaval during driving of adjacent piles and shall develop the full compressive strength and not less than fifty (50) per cent of the strength in tension and bending of the weaker section.

#### SECTION 742.0 SPECIAL PILES AND CAISSONS

**742.1 General:** Types of piles or caissons not specifically covered by the provisions of this code may be permitted provided sufficient test data, design and construction information is filed for the approval of any new type of pile, caisson or soil consolidation system by vibro-flotation, wick-drainage, electric, chemical, pressure or impact methods. Before approving new types or methods for actual use, the building official shall require complete test demonstrations on the site to determine the adequacy of design and the suitability of method of installation.

#### SECTION 743.0 STRUCTURES IN SPECIAL FLOOD HAZARD AREAS

**743.1 Application:** Structures located within special flood hazard areas shall be governed by the provisions of this section. The building official shall determine whether the proposed work is located within a special flood hazard area as designated in the documents listed in Appendix O.

**743.1.1 Exceptions:** When specifically permitted by the State of Connecticut Department of Environmental Protection Water Resources Unit, the building official may partially exempt a structure from the requirements of this section, but such partial exemption shall not exceed that specifically permitted by the Connecticut D.E.P. Water Resources Unit.

**743.2 Construction control:** All structures regardless of size shall be subject to the requirements of Section 127.0.

**743.3 Records:** The plans submitted with the application for a building permit shall indicate with respect to mean sea level:

1. The elevation of the lowest floor level, including basement, and
2. The elevation of the top of the floodproofing.

**743.4 Structural requirements in special flood hazard areas:** Buildings in special flood hazard areas where the level of the flood having a one hundred (100) year mean recurrence interval has been recorded in the documents listed in Appendix O shall meet the following design requirements:

1. In use group R (residential) the elevation of the lowest floor containing habitable space, including basement, shall not be lower than the one hundred (100) year flood elevation.
2. In all other use groups all buildings shall be floodproofed to the one hundred (100) year flood elevation.

**743.5 Structural requirements in coastal high hazard areas:** In addition to the requirements of Section 743.4, structures located in coastal high hazard areas

**STRUCTURAL AND FOUNDATION LOADS AND STRESSES**

shall meet the following requirements.

1. The minimum basic wind speed shall be one hundred (100) miles per hour. (See Section 712.0 and Table 712.1.)
2. Structures shall be designed and constructed to withstand velocity waters and hurricane wavewash. Waves shall be assumed to be at least three (3) feet high.
3. Fill shall not be used as a substitute for piles or columns as a means of structural support.
4. Buildings shall be elevated on piles or columns in such manner that the lowest portion of the superstructure, exclusive of the piles or columns, shall be clear of and above the one hundred (100) year flood elevation plus the maximum wave height.



## **ARTICLE 8—Part A**

### **MATERIALS AND TESTS**

#### **SECTION 800.0 GENERAL**

**800.1 Scope:** The provisions of this article shall govern the quality, workmanship and requirements for all materials and methods and the minimum specifications for enclosure walls and wall thickness hereafter used in the construction of buildings and structures. All materials and methods of construction shall conform to the approved rules and the standards for materials and tests and the requirements of accepted engineering practice as herein listed.

Appendix B .....	Accepted Engineering Practice
Appendix C .....	Material Standards
Appendix D .....	Structural Unit Test Standards
Appendix E .....	Structural Assembly Test Standards
Appendix F .....	Durability Test Standards
Appendix G .....	Fire Test Standards
Appendix H .....	Standard Time-Temperature Test Controls
Appendix I .....	Fire Protection Standards

**800.2 Accepted engineering practice:** The quality, use and installation of all materials and methods of building construction shall be controlled by the standards of accepted engineering practice as listed in Appendix B except where otherwise specifically provided in this code.

**800.3 Material standards:** All building units used in wall, partition and floor construction and for fireproofing or other insulation purposes shall comply with the applicable standards listed in Appendix C.

**800.4 New materials:** All new building materials, equipment, appliances, systems or methods of construction not provided for in this code, and any material of questioned suitability proposed for use in the construction of a building or structure, shall be subjected to the tests prescribed in this article and in the approved rules to determine its character, quality and limitations of use.

**800.5 Used materials:** The use of all second-hand materials which meet

the minimum requirements of this code for new materials shall be permitted.

**800.6 Alternate test procedure:** In the absence of approved rules or other accepted standards, the building official shall make or cause to be made the necessary tests and investigations, or he shall accept duly authenticated reports from recognized authoritative sources in respect to the quality and manner of use of new materials or assemblies as provided in Section 108.0. The cost of all tests and other investigations required under the provisions of this code shall be borne by the applicant.

#### **SECTION 801.0 BASIC CLASSIFICATION OF CONSTRUCTION MATERIALS**

**801.1 General:** All materials and methods used in the design and construction of buildings and structures shall be classified as controlled materials and ordinary materials as defined in Sections 201.0 and 719.0. The design and construction shall be based on the assumptions, limitations, and methods of stress determination of recognized design procedures.

#### **SECTION 802.0 TESTS**

**802.1 Test standards:** All structural units and assemblies shall be tested in accordance with the standards listed in Appendices D, E and F. In the absence of test procedures governing any specific material or method of construction, the building official shall accept authenticated reports from recognized authoritative sources which meet the requirements of this code.

**802.2 Strength tests:** To determine the safe uniformly distributed working load, when not capable of design by accepted engineering analysis, or to check the adequacy of the structural design of an assembly when there is reasonable doubt as to its strength or stability, every system of construction, sub-assembly or assembled unit and its connections shall be subjected to strength tests prescribed in this code, or to such other tests acceptable to the building official that simulate the loads and conditions of application that the completed structure will be subjected to in normal use. Structural load determinations shall include transverse floor and roof, wall compression and racking, concentrated load, plaster bond, puncture penetration and soil tests.

**802.2.1 Strength tests for glass:** The working strength of glass for any location in which it is required to withstand wind or impact loads shall be determined according to the following design procedure and criteria.

1. Design for wind loads by Section 857.5.4.
2. Design for impact loads of fully-tempered, laminated and wired glass shall comply with the requirements of the standard listed in Appendix B.

**802.3 Durability and endurance tests:** Whenever required by the building official or specified herein or in the approved rules, the material or construction shall be subjected to sustained and repetitive loading to determine its resistance to fatigue, and to tests for durability and weather resistance.

**802.4 Maintenance test:** In addition to durability and endurance tests, tests of all materials shall be made to assure the maintenance of the standards of approved materials when reasonable doubt exists as to quality and when required by the building official.

**802.5 Workmanship test:** All work shall be conducted and completed in an acceptable manner, so as to secure the results intended in all sections of this code. Whenever there is reasonable doubt as to the stability or structural safety of a completed building or structure or part thereof for the intended use, the building official may require a load test of the building unit or portion of the structure in question. Such existing structure shall be subjected to a superimposed load equal to two (2) times the design live load. The test load shall be left in place for a period of twenty-four (24) hours. If during the test, or upon removal of the test load, the structure shows evidence of failure, the building official shall order such reinforcement or modifications deemed necessary to insure adequacy of the structure for the rated capacity; or in lieu thereof, he may specify a reduced working load to which the structure shall be limited. The structure shall be considered to have successfully met the test requirements if the total deflection does not exceed the theoretical deflection computed by accepted engineering formulae. When the total deflection is greater than such theoretical value, the structure shall be considered safe for the design load, if it recovers seventy-five (75) per cent of the maximum deflection within twenty-four (24) hours after removal of the test load.

**802.6 Tests of service equipment and devices:** Tests of service equipment and accessories shall include proscenium curtain and stage ventilation, Section 417.7; structural load tests, Section 702.0; flues and chimneys, Section 1002.0; boilers, the mechanical code listed in Appendix B; electric installations, Section 1502.0; moving stairways, elevator interlocks and safety devices, Section 1602.0; refrigerating equipment, and other mechanical and plumbing systems and devices as required by the mechanical code and the plumbing code listed in Appendix B and all other service tests required by the approved rules.

**802.7 Fire tests:** In the determination of flash points, combustibility, flameresistance and fire-resistance rating of construction materials and methods, all tests shall be conducted in conformity to Sections 902.0, 903.0 and 904.0 and the applicable standards listed in Appendices G and I.

**802.8 Prefabricated construction tests:** Prefabricated assemblies or sub-assemblies not capable of design by accepted engineering analysis, shall

meet all the requirements and tests for at-site construction. The floor panels and other prefabricated units shall be assembled to form an integrated test specimen constructed as in practice, of not less than three (3) units in width with two (2) longitudinal joints; and when designed on the assumption of a simple span, such units shall be tested with flat end supports.

**802.9 Test specimens:** The selection and construction of all test specimens and the details of test procedure herein required shall conform to the recognized test procedures listed in the appendices. All test specimens and constructions shall be truly representative of the materials, workmanship and details to be normally applied in practice. When structural or fire-resistance rated properties of the material are dependent upon adequate curing, the age of the specimen shall be not less than seven (7) nor more than twenty-eight (28) days, unless otherwise approved by the building official.

**Note:** Test procedures. Test requirements constitute fundamental performance standards and therefore come within the scope of this code. The detail test specifications and procedures are formulated and defined in the approved rules or by reference to accepted test standards of authoritative test agencies and organizations. Details of test procedures have been omitted from this code, except for essential basic requirements when deemed necessary.

### SECTION 803.0 CONDITIONS OF ACCEPTANCE

**803.1 General:** In evaluating the physical properties of materials and methods of construction when not subject to design by accepted engineering analysis, the structural requirements shall be based on the criteria established by the provisions of the following Sections 803.2 through 803.7.

**803.2 Test load factor:** The test assembly shall sustain without failure superimposed loads equal to two and one-half (2½) times the design live load.

**803.3 Working load deflection:** Under the approved working load, the deflection of floor and roof assemblies shall not be greater than one three-hundred-sixtieth (1/360) of the span for plastered construction; one two-hundred-fortieth (1/240) of the span for unplastered floor construction; and one one-hundred-eightieth (1/180) of the span for unplastered roof construction.

**803.4 Wall and partition assemblies:** Bearing wall and partition assemblies shall sustain the load test both with and without window framing.

**803.5 Comparative tests:** When not available from existing authoritative test data, the building official may require comparative tests of assemblies of standard traditional forms of construction used for similar purposes to assist in determining the adequacy of the new construction.



**803.6 Concentrated load tests:** When not capable of design, all floor constructions in the use classification groups specified in Table 707 shall be subjected to the concentrated loads therein prescribed when such loading exceeds in stress effect the uniformly distributed load specified for such uses in Table 706.

**803.7 Puncture penetration tests:** All finish floor constructions in which light gage metal or other thin materials are used as the structural floor shall withstand the application of a two hundred (200) pound concentrated load applied to the top surface on an area of one (1) square inch at any point or points of the construction designated by the building official.

#### SECTION 804.0 APPROVALS

**804.1 Written approval:** Any material, appliance, equipment, system or method of construction meeting the requirements of this code, but requiring the satisfactory completion of testing, shall be approved by the building official in writing within a reasonable time after satisfactory completion of all required tests and submission of required test reports.

**804.2 Reserved**

**804.3 Identification of product:** When identification of a material is necessary for structural safety, the approved material shall be identified by the approved label and the grade mark, trademark or other manufacturer's identification for which official recognition is desired. A drawing of the identification marks shall be filed with the building official and kept in the official records.

**804.4 Heretofore approved materials:** The use of any material already fabricated or of any construction already erected, which conformed to requirements or approvals heretofore in effect, shall be permitted to continue, if not detrimental to life, health or safety of the public.

#### SECTION 805.0 MASONRY CONSTRUCTION UNITS

**805.1 Nominal dimensions:** Dimensions and thicknesses specified in this code are nominal dimensions; actual dimensions may vary from the prescribed minimum in accordance with accepted tolerances in the building industry.

**805.2 Second-hand units:** Brick and other second-hand masonry units may be reused subject to the approval of the building official as to quality, condition and compliance with the requirements for new masonry units. The unit shall be good, whole, sound material, free from cracks and other

**CONNECTICUT BASIC BUILDING CODE/1978**

defects that would interfere with its proper laying or use; and shall be cleaned free from old mortar before reuse.

**SECTION 806.0 BRICK UNITS**

**806.1 General:** All clay, shale and sand-lime brick shall be selected on the appropriate grade specified by the applicable standards. Brick in contact with the ground and subject to water, frost and freezing action, shall have a minimum compressive strength of three thousand (3,000) pounds per square inch (psi); when subject to frost without danger of water saturation, a minimum compressive strength of twenty-five hundred (2500) psi; and when not subject to severe weathering or when used as a back-up in exterior walls or for interior construction, a minimum compressive strength of fifteen hundred (1500) psi. Underburned clay brick shall not be used in isolated brick piers, nor in any part of a building exposed to the weather, nor in a bearing wall which is more than forty (40) feet in height.

**SECTION 807.0 STRUCTURAL CLAY TILE UNITS**

**807.1 Load-bearing wall tile:** Load-bearing wall tile for general masonry use exposed to weathering shall have a minimum compressive strength on the gross area of not less than fourteen hundred (1400) psi when tested with cells vertical, and not less than seven hundred (700) psi when tested with cells horizontal; and for use with an approved weather-protective veneer, or when not exposed to frost or water action, a minimum compressive strength on the gross area of one thousand (1,000) psi when tested with cells vertical, and not less than seven hundred (700) psi when tested with cells horizontal.

**807.2 Floor tile:** Structural clay floor tile for use in end construction arches shall have a minimum compressive strength on the net area of two thousand (2,000) psi and not less than twelve hundred (1200) psi for side construction arches.

**807.3 Fireproofing tile:** Structural clay tile for use in nonbearing partitions, in fireproofing of structural members and in wall furring shall not be required to meet compressive strength specifications. The fireresistance rating shall be determined by standard test procedure to comply with the requirements of Table 214.

**SECTION 808.0 GLAZED MASONRY UNITS**

**808.1 Strength:** All glazed masonry units shall have the following minimum compressive strengths on the gross area when tested as laid in the wall; with cells vertical three thousand (3,000) psi, and with cells horizontal two thousand (2,000) psi.

## SECTION 809.0 CONCRETE UNITS

**809.1 Quality:** Cast concrete units shall be of sound, compact structure, uniform in shape and free from cracks, warpage or other defects that would impair their serviceability or strength when laid in the wall.

**809.2 Hollow load-bearing units:** Approved hollow load-bearing concrete units for use below grade or unprotected against the weather by stucco, brick or other approved facings or veneers shall have a minimum compressive strength on the gross area of one thousand (1,000) psi; and for protected exterior use and general interior construction not less than seven hundred (700) psi.

**809.3 Hollow nonload-bearing units:** Approved hollow nonload-bearing concrete units shall have a minimum compressive strength on the average gross area of three hundred and fifty (350) psi.

**809.4 Solid load-bearing units:** Approved solid load-bearing concrete masonry units when unprotected against the weather or subject to frost and water action shall have a minimum compressive strength of eighteen hundred (1800) psi, and for protected exterior use or general interior use not less than twelve hundred (1200) psi.

**809.5 Concrete brick:** Approved concrete brick for use when exposed to freezing in the presence of moisture, shall have a minimum compressive strength of thirty-five hundred (3500) psi; and when used as a back-up in exterior walls or for general interior construction, a compressive strength of not less than twelve hundred and fifty (1250) psi.

**809.6 Concrete fireproofing and furring units:** Approved concrete block or tile used in fireproofing or furring, when not exposed to the weather, shall have a minimum compressive strength of three hundred (300) psi of net area tested as laid in practice. When exposed to the weather, the compressive strength shall be not less than seven hundred (700) psi of gross area. All nonbearing units shall be clearly marked to distinguish them from load-bearing units.

**809.7 Concrete floor tile**

**809.7.1 Structural fillers:** Structural concrete filler-block or tile when included in strength calculations in ribbed floor construction shall have webs and shells not less than one (1) inch thick and shall develop an average compressive strength on the net area not less than that of the rib concrete.

**809.7.2 Other fillers:** Removable tile and permanent fillers which are not included in strength calculations shall be of adequate strength to insure integrity of the unit and safety in handling as approved by the building official.

**SECTION 810.0 GYPSUM UNITS**

**810.1 General:** Gypsum tile or block shall not be used in bearing walls or in any location exposed to frequent or continuous wetting or in exterior walls unless protected from the weather. Approved gypsum units shall develop a compressive strength of not less than seventy-five (75) psi on the gross area.

**SECTION 811.0 STRUCTURAL GLASS BLOCK UNITS**

**811.1 General:** Solid or hollow approved structural glass blocks shall not be used in fire walls, party walls or fire separation walls, or for load-bearing construction. All mortar-bearing surfaces of the block shall be precoated or prepared to insure adhesion between mortar and glass.

**SECTION 812.0 ARCHITECTURAL TERRA COTTA**

**812.1 General:** All approved architectural terra cotta units shall be formed with a strong, homogeneous body of hard-burned, weather-resisting clay which gives off a sharp, metallic ring when struck and shall meet the strength and durability requirements of accepted engineering practice. All units shall be formed to engage securely with and anchor to the structural frame or masonry wall.

**SECTION 813.0 NATURAL STONE**

**813.1 General:** Natural stone for masonry shall be sound and free from loose or friable inclusions; and shall meet the strength, fireresistance, durability and impact resistance for the intended use in accordance with accepted engineering practice.

**SECTION 814.0 CAST STONE**

**814.1 General:** All approved cast stone shall be fabricated of concrete or other approved materials of required strength, durability and fireresistance for the intended use and shall be reinforced where necessary to comply with Section 841.0.

**SECTION 815.0 MORTAR FOR MASONRY**

**815.1 Materials:** All portland, natural and masonry cements, quick-lime and hydrated lime for use in masonry mortar and concrete shall meet the minimum strength and durability requirements of the standards listed in Appendices B and C.

**815.2 Mortar types and proportions:** Mortar for masonry construction shall conform to one (1) of the following types shown in Table 815.2 and

shall be mixed to a consistent workability in the specified proportions measured by volume with clean fresh water free from harmful amounts of acids, alkalis, oils or organic materials; and with approved aggregates composed of hard, strong, durable mineral particles well graded from fine to coarse, free from injurious amounts of acid, alkalis, oils, saline, organic and other deleterious substances in accordance with accepted engineering practice. Masonry mortars shall have a flow after suction of not less than seventy (70) per cent.

**Table 815.2**  
**MORTAR PROPORTIONS (PARTS BY VOLUME)**

Mortar type	Portland cement	Masonry cement	Hydrated lime or lime putty		Damp loose aggregate
			Min.	Max.	
M	1	—	—	¾	Not less than 2¼ and not more than 3 times the sum of the volumes of the cements and lime used.
S	1	1	¼	½	
N	½	1	—	1¼	
O	—	1	—	—	
	1	—	1¼	2½	

**815.3 Types of mortar permitted:** Unit masonry shall be laid in mortar of the following types listed in Table 815.3.

**Table 815.3**  
**MASONRY AND MORTAR TYPES**

Type of masonry	Types of mortar permitted
Masonry in contact with earth	M or S
Grouted and filled cell masonry	M or S
Masonry above grade or interior masonry	
Piers of solid units	M, S, or N
Piers of hollow units	M or S
Walls of solid units	M, S, N or O
Walls of hollow units	M, S or N
Cavity walls and masonry bonded hollow walls	
Design wind pressure exceeds 20 psf	M or S
Design wind pressure 20 psf or less	M, S or N
Glass block masonry	S or N
Nonloadbearing partitions and fireproofing	M, S, N, O or Gypsum
Gypsum partition tile or block	Gypsum
Fire brick	Refractory air-setting mortar
Linings of existing masonry, above or below grade	M or S
Masonry other than above	M, S or N

**815.4 Special mortars:** The building official may approve other special masonry mortars in place of the mortar types listed in Section 815.2, provided they develop the minimum compressive strengths specified for the respective mortars they replace. The strength classification of a special

mortar or special mix may be determined by compressive strength tests with the materials and in the proportions representative of those to be used in actual practice. The allowable unit working stresses in the masonry shall not be more than one-fourth ( $\frac{1}{4}$ ) the average ultimate compressive strength of the assembled test samples.

**815.5 Gypsum mortar:** Gypsum mortar shall be composed of one (1) part of unfibered calcined neat gypsum to not more than three (3) parts sand by weight. Only gypsum mortar shall be used with gypsum tile and block units.

**815.6 Mortars for ceramic wall and floor tile:** Portland cement mortars for installing ceramic wall and floor tile shall be of the following compositions indicated in Table 815.6.

**Table 815.6  
CERAMIC TILE MORTAR COMPOSITIONS**

Walls:	Scratchcoat	1 cement; 1/5 hydrated lime; 4 dry or 5 damp sand
	Setting bed and leveling coat	1 cement; 1/2 hydrated lime; 5 damp sand to 1 cement; 1 hydrated lime; 7 damp sand
Floors:	Setting bed	1 cement; 1/10 hydrated lime; 5 dry or 6 damp sand; or 1 cement; 5 dry or 6 damp sand
Ceilings:	Scratchcoat and setting bed	1 cement; 1/2 hydrated lime; 2 1/2 dry sand or 3 damp sand

**815.6.1 Dry-set portland cement mortars:** Premixed prepared portland cement mortars, requiring only the addition of water, may be used in the installation of ceramic tile if complying with the Standard Specification for Dry-set Portland Cement Mortar listed in Appendix C. Dry-set mortars which are labeled for use with a particular type of tile, such as glazed wall tile, ceramic mosaics, pavers, or quarry tile, shall not be used to set other types of tile for which they are not intended. The shear bond strength for tile set in such mortar shall be as required for the kind of mortar used when tested in accordance with the standard. Mortars which are not restricted by their labeling to particular types of the tile shall pass all of the shear tests listed in the standard. Tile set in dry-set portland cement mortar shall be installed in accordance with the standard for Ceramic Tile Installed with Dry-set Portland Cement Mortar listed in Appendix B.

**815.7 Organic adhesives:** Water-resistant organic adhesives complying with Standard for Organic Adhesives for Installation of Ceramic Tile listed in Appendix C may be used in the installation of ceramic tile. The shear bond strength shall be not less than forty (40) psi for Type I adhesive, and not less than twenty (20) psi for Type II adhesive, when tested in accor-

dance with Standard for Organic Adhesives for Installation of Ceramic Tile listed in Appendix C. Tile set in organic adhesives shall be installed in accordance with the Standard Specifications for Ceramic Tile Installed with Water-resistant Organic Adhesives listed in Appendix B.

**815.8 Epoxy mortar:** Ceramic tile may be set and grouted with epoxy complying with the Standard Specifications for Chemical Resistant, Water Cleanable Tile-setting and Grouting Epoxy listed in Appendix C. Tile set in epoxy shall be installed in accordance with the Standard Specifications for Ceramic Tile Installed with Chemical Resistant, Water Cleanable Tile-setting and Grouting Epoxy listed in Appendix B.

#### SECTION 816.0 CONCRETE AGGREGATES

**816.1 Aggregate quality:** All concrete aggregates shall meet the standard specifications of accepted engineering practice for organic impurities, soundness, mortar strength, durability, weather-resistance, fire-resistance rating and wearing qualities.

**816.2 Fire-resistance rating:** Coarse aggregate in concrete shall be rated in respect to the fire-resistance of concrete made therewith on the basis of performance in fire test on building elements such as columns, floors, partitions and walls conducted in accordance with standard fire test specifications applicable to such test. Protective coverings or encasements of concrete for steel in fire-resistance rated construction shall likewise be selected on the basis of performance in applicable standard fire tests. All concrete constructions shall meet the requirements of Article 9 as regulated by the provisions of Table 214.

**816.2.1 Grade 1 concrete:** Grade 1 concrete shall mean concrete made with aggregates such as blast-furnace slag, burned clays, and calcareous, igneous, and most silicate crushed stones and gravels and shales, as well as any other aggregates performing as required by this code for the appropriate construction when tested in accordance with Standard Methods of Fire Tests of Building Construction and Materials listed in Appendix G.

**816.2.2 Grade 2 concrete:** Grade 2 concrete shall mean concrete made with aggregates such as cinders and crushed stones and gravels composed essentially of quartz and quartzite cherts as well as any other aggregates performing as required by this code for the appropriate construction when tested in accordance with Standard Methods of Fire Tests of Building Construction and Materials listed in Appendix G.

**816.3 Size of aggregates:** Fine aggregates shall meet all the requirements of the approved rules and shall be well graded from fine to coarse. Coarse aggregates shall not exceed one-fifth ( $\frac{1}{5}$ ) of the narrowest dimension between sides of the form nor three-fourths ( $\frac{3}{4}$ ) of the minimum clear spacing between reinforcing bars.

**816.4 Special aggregates:** Special aggregates, including among others, perlite, vermiculite and other processed mica, pumice, lava, tufa, volcanic glass, slag, coke, expanded clay and shale used in concrete and plaster construction shall meet all the requirements of the approved rules and shall be classified in their respective fire-resistance rating grades as determined by test. When used for fire protection purposes only, the building official may waive mortar strength requirements for such aggregates providing the concrete is shown by test to have adequate strength for the intended use.

#### SECTION 817.0 READY-MIX CONCRETE

**817.1 Control:** Ready-mixed concrete for use in ordinary or in controlled materials procedure shall conform to Section 841.0 for reinforced concrete and to the applicable standards listed in Appendix C.

**817.2 Transportation:** Ready-mixed concrete shall be transported in approved conveyances which insure delivery of the concrete at the site in a plastic, workable and unhardened state. The maximum amount of concrete hauled in an agitator shall not exceed the approved rating of the conveyance; and the period of delivery shall not exceed the time in which loss of plasticity may occur and generally not more than one and one-half (1½) hours.

**817.3 Ordinary materials procedure:** When ready-mix is used under the ordinary materials procedure, either the cement content in bags per yard of concrete together with the maximum allowable water content, or the compressive strength and maximum permissible slump shall be specified.

#### SECTION 818.0 STRUCTURAL WOOD GLUES

**818.1 Quality of glue:** Glues used in structural assemblies of built-up or laminated lumber sections shall develop the full strength of the wood, shall not produce decomposition or deleterious chemical reaction in the wood structure and shall not be attractive to vermin.

**818.2 Manufacturers' requirements:** Approved structural glues shall be handled, mixed and applied as prescribed by the manufacturer and the gluing shall be done only in accordance with the timber construction standards listed in Appendix B.

**818.3 Types of glue:** Structural glues shall be classified as described in the following Sections 818.3.1 and 818.3.2.

**818.3.1 Group 1 glues:** For general interior use or for exterior use protected against the weather, Group 1 glues shall include casein glue with mold-resistant preservative, urea-resin glue, phenol or phenol-resorcinol resin glue and any other glue meeting the requirements of the approved rules for such use.



**818.3.2 Group 2 glues:** For use under full exposure to the weather or for interior use when subjected to high humidity, Group 2 glues shall include resorcinol resin, phenol resin, melamine resin glues and any other glue meeting the requirements of the approved rules for such use.

#### SECTION 819.0 INTERIOR LATHING AND PLASTERING

**819.1 General:** All interior lathing and plastering shall conform to the standards of accepted engineering practice for lathing, furring and accessories and gypsum and portland cement plastering listed in Appendices B and C; except as may be otherwise provided by statute or in this code for specific materials.

##### 819.2 Installation

**819.2.1 Inspection:** The building official shall be notified not less than twenty-four (24) hours in advance of all plastering work, and plaster shall not be applied until after the lathing or other plaster base has been inspected and approved by him.

**819.2.2 Weather protection:** When plastering work is in progress, the building or structure shall be temporarily enclosed, and in freezing weather the enclosure shall be heated to protect the plaster from injury.

#### SECTION 820.0 EXTERIOR LATHING AND STUCCO

**820.1 General:** All exterior lathing, plastering and stucco work shall be installed of portland cement or other approved mortar as provided in the standards listed in Appendices B and C, in accordance with accepted engineering practice or as provided in this code for specific materials.

**820.2 Reinforcement:** All stucco work shall be reinforced with approved metal lath or wire fabric except when applied directly to a masonry or concrete base, or when installed on a masonry base which is protected with bituminous surfacing.

**820.3 Minimum weight:** Metal lath, expanded metal and wire reinforcing fabric shall weigh not less than that indicated in the following Table 820.

**820.4 Corrosion resistance:** All metal lath and stucco reinforcing fabric shall be protected with a zinc, or other approved rust-resistive coating or rust-inhibitive paint, or shall be manufactured from approved corrosion-resistive alloys.

**820.5 Sheathing:** Except in back-plastered construction, the studs shall be covered with approved sheathing complying with Section 854.0; or not less than No. 18 Steel Wire Gage (0.048 inch) galvanized wire shall be stretched horizontally at six (6) inch centers and shall be covered with not less than fourteen (14) pound waterproof felt or paper before applying

**Table 820  
MINIMUM REINFORCEMENT WEIGHT**

Type of reinforcement	Minimum steel wire gage	Maximum mesh (inches)	Minimum weight (pounds per square yard)
Metal lath	—	—	3.4
Expanded metal	—	—	1.8
Woven wire	18 (0.048 in.)	1	1.74
Woven wire	17 (0.054 in.)	1½	1.41
Woven wire	16 (0.063 in.)	2	1.47
Welded wire	18 (0.048 in.)	4 sq. in.	0.67
Welded wire	17 (0.054 in.)	4 sq. in.	0.82
Welded wire	16 (0.063 in.)	4 sq. in.	1.10

the reinforced stucco; or an approved paper-backed wire fabric may be used of not less than No. 16 Steel Wire Gage (0.063 inch) galvanized wire with stiffening ribs not more than five (5) inches on centers to which is attached a double layer of fibrous waterproof backing. The mesh opening shall not exceed two by two (2x2) inches.

**820.6 Back-plastered construction:** In back-plastered construction, when spacing of studs exceeds sixteen (16) inches, approved horizontal noncombustible cross-furring at not more than sixteen (16) inch centers shall be first applied; unless approved stiffened lath is used and the frame is adequately stiffened as provided in Section 854.0.

**820.7 Application on masonry base:** When applied directly to masonry or monolithic concrete, the surfaces shall be roughened, hacked or bush-hammered to provide bond, or a preparatory dash coat of portland cement grout shall be applied. The dash coat shall be kept damp for at least two (2) days after application and before applying succeeding stucco coats.

**820.8 Protection**

**820.8.1 From freezing:** At all times during application and for a period of not less than forty-eight (48) hours after application of each coat, provision shall be made to keep stucco work above fifty (50) degrees F.

**820.8.2 From moisture:** Stucco shall be kept a sufficient height above ground surfaces as provided in Section 854.0 and all sills, coping and projecting courses shall be flashed and provided with drips as therein specified.

**SECTION 821.0 PLASTERING MATERIALS**

**821.1 General:** All sand, quick-lime, hydrated lime, hair binder, gypsum, keene and portland cements, pozzuolanic cements and aggregates and other materials used in plastering shall be stored, protected and applied in accordance with the standards of accepted engineering practice listed in Appendices B and C and the approved rules.

**821.2 Special cements and plasters:** Approved cements used in plastering may have admixtures of approved plasticity agents added in the manufacturing process or when mixing the plaster at the site in the approved proportions. All premixed special plasters, cements and aggregates shall be packaged and identified with the approved label.

**821.3 Lime plaster:** Lime and hydrated lime plasters for use in base and finish coats shall be applied in accordance with the approved rules and the manufacturers' specifications.

**821.4 Gypsum plaster:** All gypsum plaster shall comply with the standard specifications listed in Appendix C.

**821.5 Gypsum plasters with special aggregates:** When gypsum is used with manufactured aggregates in place of natural sand for plaster, the mixture shall be proportioned and applied in accordance with the manufacturer's recommendations and the applicable standard in Appendix B.

#### SECTION 822.0 PLASTER BASES

**822.1 Fiber boards:** Approved fiber boards used as plaster bases shall comply with Section 823.0. The surface of such boards shall be of a rough, fibrous texture to insure mechanical and suction bond; and the boards shall meet the bond and strength tests specified by the standards listed in Appendix C and the approved rules.

**822.2 Gypsum lath:** Except when greater thickness is required for fire-resistance rating under the provisions of Article 9, or as herein specified, gypsum lath used for plastering shall be not less than three-eighths (3/8) inch thick and shall comply with the standards listed in Appendix C.

**822.3 Perforated gypsum lath:** Where required to provide specified time-temperature performance, perforated gypsum lath shall be not less than three-eighths (3/8) inch thick. The openings shall be equivalent to three-quarter (3/4) inch diameter holes for each sixteen (16) square inches of lath surface; or the lath shall be perforated as determined by full size tests for load, strength and fireresistance ratings.

**822.4 Metal lath:** The dimensions and sizes of expanded, ribbed and sheet metal lath shall comply with accepted engineering practice and the standards listed in Appendix B; and shall be fabricated from not less than No. 30 Manufacturer's Standard Gage (0.012 inch) steel sheets. It shall be manufactured from copper-bearing steel, coated with rust-inhibitive paint after cutting, or cut from zinc-coated steel sheets.

**822.5 Wire lath:** All types of wire lath shall comply with accepted engineering practice and the standards listed in Appendix B; and shall be fabricated from woven or welded wire of not less than No. 19 Steel Wire Gage (0.041 inch) with not more than two and one-half (2½) meshes to the inch. Woven or welded wire reinforcement shall be coated with zinc or rust-inhibitive paint.

**822.6 Paper-backed lath:** Expanded metal or wire lath backed with integral approved paper shall be fabricated from the minimum gages and weights specified in Sections 822.4 and 822.5.

**822.7 Combustible lath:** Wood lath shall be erected horizontally on walls and partitions and ceiling lath shall run in one (1) direction only; but in either case it shall not extend through cross-partitions from room to room. Wood lath shall be not less than one (1) inch wide nor less than five-sixteenth ( $\frac{5}{16}$ ) inches thick and shall comply with all the requirements of accepted engineering practice. The lath joints shall be staggered so that not more than seven (7) laths occur in any one (1) continuous break.

#### SECTION 823.0 FIBER BOARDS

**823.1 General:** Insulating boards manufactured with wood or other vegetable fibers used as building boards for sheathing, roof decks, plaster bases, interior wall and ceiling finish, roof insulation or sound deadening, shall be vermin proof, resistant to rot-producing fungi, water-repellent and shall meet the strength and durability tests specified in the standards listed in Appendix C. When required under the provisions of Article 9, the boards shall be protected or treated to develop the required fire-resistance rating or flame-resistance as determined by test.

**823.2 Jointing:** To insure tight-fitting assemblies, edges shall be manufactured square or shiplapped, beveled, tongue-and-grooved or U-jointed; and shall be installed in accordance with accepted engineering practice.

**823.3 Plaster base:** When used as a plaster base, fiber boards shall be permitted in fire-resistive construction complying with the test provisions of Article 9, except where specifically prohibited in fireproof (Type 1) and noncombustible (Type 2) construction.

**823.4 Roof insulation:** When used as roof insulation in all types of construction, fiber boards shall be protected with an approved type of roof covering.

**823.5 Wall insulation:** When installed and firestopped to comply with Article 9, fiberboards may be used for wall insulation in all types of construction. In fire wall and fire separation wall construction, unless treated to be fire-retardant as provided in Sec. 904.0 for Class I materials, the boards shall be cemented directly to the masonry or other noncombustible base and shall be protected with an approved noncombustible veneer anchored to the base without intervening air spaces.

**823.6 Dry wall construction:** Where fire-resistance ratings are required, provision shall be made for interlocking, lapping or otherwise protecting the joints between adjacent boards to insure smoke and flame tightness.

**823.7 Insulating roof deck:** When used as roof decking in open beam construction fiber board insulating roof deck shall have a minimum nominal thickness not less than one (1) inch.

**SECTION 824.0 PLYWOOD**

**824.1 Quality:** All plywood when used structurally shall meet the performance standards and all other requirements of U. S. Product Standard PS 1 listed in Appendix C for the type, grade and identification index or species group of plywood involved and shall be so identified by an approved agency. Working stresses shall conform to the standards of accepted engineering practice as listed in Appendices B and C.

**824.2 Types:** Plywood for interior use may be either of the moisture resistant or exterior type; plywood for exterior use shall be of the exterior waterproof type. Exterior plywood may be applied directly to the framing as a siding, provided it has a nominal thickness of three-eighths ( $\frac{3}{8}$ ) inch. Joints shall occur over framing members, unless wood or plywood sheathing is used or joints are lapped horizontally a minimum of one and one-half ( $1\frac{1}{2}$ ) inches or otherwise made waterproof to the satisfaction of the building official. If plywood is used as lapped siding without sheathing, the wall framing to which it is attached shall be diagonally braced.

**824.3 Spans:** The maximum spans for plywood roof sheathing and subflooring shall be limited by the allowable stresses and deflections for the design live load but shall have not less than the following identification index specified in Table 824.3.1, provided it is continuous over two (2) or more spans and laid with face grain perpendicular to the supports.

**824.3.1 Floor and roof sheathing:** Allowable spans for floor and roof sheathing shall be as specified in the following Table 824.3.1.

**824.3.2 Plywood combination subfloor underlayment:** Allowable spans for combination subfloor underlayment shall be as specified in the following Table 824.3.2.

**824.3.3 Vertical maximum stud spacing:** Stud spacing for vertical sheathing and for use in stress-skin panel or other prefabricated constructions shall be determined by accepted engineering analysis or by the tests prescribed for prefabricated assemblies in Section 802.0.

**SECTION 825.0 WALLBOARDS AND SHEATHING**

**825.1 Sheathing:** Sheathing of particleboard, gypsum, processed fiber or other approved materials shall conform to accepted engineering practice. All sheathing shall be identified as to compliance with appropriate standards. When used in frame construction, they shall meet requirements of Sections 854.2 and 854.3. When required to meet fireresistance ratings, the assembled construction shall comply with Table 214 for structural elements and Article 9 for trim and finishes.

**825.2 Wallboards:** Wallboard of particleboard, gypsum, processed fiber or other approved materials shall conform to accepted engineering practice. All wallboards shall be identified as to compliance with appropriate

CONNECTICUT BASIC BUILDING CODE/1978

Table 824.3.1

ALLOWABLE SPANS FOR PLYWOOD FLOOR AND ROOF SHEATHING CONTINUOUS OVER TWO OR MORE SPANS AND FACE GRAIN PERPENDICULAR TO SUPPORTS<sup>1</sup> (SPAN IN INCHES)

Panel Identification Index <sup>2</sup> Roof span, roof/floor span	Roof					Floor
	Maximum Span (inches)			Load (psf)		Maximum span <sup>5</sup> (inches)
	Thickness (inches)	Edges blocked <sup>3</sup>	Edges unblocked	Total Load	Live Load	
12/0	3/4	12	12	155	150	0
16/0	3/4, 3/8	16	16	95	75	0
20/0	3/4, 3/8	19.2	19.2	75	65	0
24/0	3/4	24	20	65	50	0
24/0	1/2	24	24	65	50	0
30/12	3/4	30	26	70	50	12 <sup>7</sup>
32/16	1/2, 3/8	32	28	55	40	16 <sup>8</sup>
36/16	3/4	36	30	55	50	16 <sup>8</sup>
42/20	3/4, 3/8, 3/8	42 <sup>9</sup>	32	40 <sup>4</sup>	35 <sup>1</sup>	20 <sup>8</sup>
48/24	3/4, 3/8	48	36	40 <sup>4</sup>	35 <sup>4</sup>	24

Note 1: These values apply for Structural I and II, C-D and C-C grades only. Spans shall be limited to values shown because of possible effect of concentrated loads.

Note 2: Identification Index appears on all panels in the construction grades listed in footnote (1).

Note 3: Edges may be blocked with lumber or other approved type of edge support.

Note 4: For roof live load of forty (40) psf or total load of fifty-five (55) psf, decrease spans by thirteen (13) per cent or use panel with next greater identification index.

Note 5: Plywood edges shall have approved tongue-and-groove joints or shall be supported with blocking, unless one-fourth (1/4) inch minimum thickness underlayment is installed, or finish floor is twenty-five thirty-seconds (25/32) inch wood strip. Allowable uniform load based on deflection of one three-sixtieths (1/300) of span is one hundred sixty-five (165) psf.

Note 6: Plywood roof sheathing continuous over two or more spans may be placed with face grain parallel to supports spaced not over twenty-four (24) inches on center if all panel edges are blocked or other approved type edge support is provided, and if live loads do not exceed twenty-five (25) psf for one-half (1/2) inch Structural I (4-ply) and one-half (1/2) inch 5-ply in other grades, or forty (40) psf for one-half (1/2) inch Structural I (5-ply) and five-eighths (5/8) inch 5-ply in other grades.

Note 7: May be sixteen (16) inches, if twenty-five thirty-seconds (25/32) inch wood strip flooring is installed at right angles to joists.

Note 8: May be twenty-four (24) inches if twenty-five thirty-seconds (25/32) inch wood strip flooring is installed at right angles to joists.

Note 9: For joists spaced twenty-four (24) inches on center plywood sheathing with Identification Index Numbers 42/20 or greater can be used for subfloors when supporting one and one-half (1 1/2) inches of lightweight concrete.

Table 824.3.1.A

ALLOWABLE LOADS FOR PLYWOOD ROOF SHEATHING CONTINUOUS OVER TWO OR MORE SPANS AND FACE GRAIN PARALLEL TO SUPPORTS\*

	Thickness	No. of plies	Span	Total load	Live load
Structural I	1/2	4	24	35	25
	3/4	5	24	55	40
Other grades covered in PS 1	1/2	5	24	30	25
	3/8	4	24	40	30
	5/8	5	24	55	45

\*Uniform load deflection limitations: 1/180 of span under live load plus dead load, 1/240 under live load only. Edges shall be blocked with lumber or other approved type of edge supports.

**Table 824.3.2**  
**ALLOWABLE SPANS FOR PLYWOOD COMBINATION SUBFLOOR-UNDERLAYMENT,<sup>1</sup>**  
**PLYWOOD CONTINUOUS OVER TWO (2) OR MORE SPANS AND FACE GRAIN PERPENDICULAR**  
**TO SUPPORTS (THICKNESS IN INCHES)**

Species groups	Maximum spacing of joists (inches)		
	16	20	24
1	1/2	5/8	3/4
2, 3	5/8	3/4	7/8
4	3/4	7/8	1

**Note 1.** Applicable to underlayment grade, C-C (plugged) and all grades of sanded exterior type plywood. Spans limited to values shown because of possible effect of concentrated loads. Allowable uniform load based on deflection of one three hundred sixtieth (1/60) of span is one hundred twenty-five (125) psf. Plywood edges shall have approved tongue-and-groove joints or shall be supported with blocking, unless one-fourth (1/4) inch minimum thickness underlayment is installed, or finish floor is twenty-five thirty-seconds (5/16) inch wood strip. If wood strips are perpendicular to supports, thicknesses shown for sixteen (16) inch and twenty (20) inch spans may be used on twenty-four (24) inch span. Except for one-half (1/2) inch, underlayment grade and C-C (plugged) panels may be of nominal thickness one thirty-second (1/32) inch less than the nominal thicknesses shown when marked with the reduced thickness.

standards. Wallboard shall conform to the standards of accepted engineering practice for gypsum or processed fiber wallboard interior finishes, listed in Appendices B and C. When required to meet fireresistance ratings, the assembled construction shall comply with Table 214 for structural elements and Article 9 for trim and finishes.

**825.2.1 Water resistant gypsum backer board:** In all areas subjected to repeated damp conditions and moisture accumulation such as bath tub and shower compartments, water resistant gypsum backer board (ASTM C630) shall be used as a substratum unless protected with a moisture proof and vapor proof covering.

1. 13

1. 14

1. 15

1. 16

1. 17



## **ARTICLE 8—Part B**

### **STEEL, MASONRY, CONCRETE, GYPSUM AND LUMBER CONSTRUCTION**

#### **SECTION 826.0 STRUCTURAL STEEL CONSTRUCTION**

**826.1 General:** Structural steel construction used in all buildings and structures shall be fabricated from materials of uniform quality, free from defects that would vitiate the strength or stability of the structure. Workmanship, design, fabrication, transportation and erection shall conform to accepted engineering practice as defined by the standards listed in Appendix B.

**826.2 Plans:** Design plans drawn to appropriate scale shall show the size, section and relative locations of all structural members with floor levels, column centers and all offsets fully dimensioned; and the design loads shall be clearly indicated for all parts of the building or structure.

**826.3 Temporary and special stresses:** Due provision shall be made in the design for temporary stresses occurring during erections and for the influence of special loads producing impact or vibrations as provided in Section 709.5. Stresses caused by eccentric loading shall be fully provided for; and eccentric details shall be shown on the design and shop drawings.

**826.4 Shop drawings:** Complete shop drawings shall be prepared in conformity to best modern practice in advance of the actual fabrication. Such drawings shall clearly distinguish between shop and field rivets, bolts and welds in all connections and details. An erection plan bearing the approval of the architect or engineer responsible for the design of the building or structure shall be submitted to the building official as he may require.

**826.5 Welding:** All welded construction shall be designed and supervised by engineers experienced and skilled in welded construction and the welded work shall be performed by qualified and approved operators in accordance with the standards of accepted engineering practice listed in Appendix B.

**826.6 Painting and special protection:** All painting shall comply with the specifications for design, fabrication, and erection of structural steel for buildings listed in Appendix B. When exposed to highly corrosive fumes or vapors, or subject to destruction from other highly hazardous industrial processes, all structural steelwork shall be protected in accordance with accepted engineering practice and the approved rules.

**SECTION 827.0 FORMED STEEL CONSTRUCTION**

**827.1 Design:** The design of all cold-formed steel members and assembled wall, floor and roof panels, used alone or in combination with other structural members, or with component materials, shall be based on allowable unit stresses and maximum deflections in accordance with the standards of accepted engineering practice listed in Appendix B.

**827.2 Secondary structural systems:** Formed steel floor, wall, and roof systems may be designed and constructed to resist all vertical and horizontal moments and shears resulting from lateral forces. Such members, when designed to transmit horizontal shears due to wind or other lateral forces, shall be connected to the supporting structure so as to adequately resist all primary and secondary stresses. When concrete topping or other approved decking is installed in a manner to insure composite action of the assembly, the strength of the composite member may be included in the calculations.

**827.3 Protection**

**827.3.1 Shop coat:** All individual structural members and assembled panels of light gage and formed steel construction, except where fabricated of approved corrosion-resistive metallic steel or of steel having a corrosion-resistive or other approved coating, shall be protected against corrosion with an acceptable shop coat of paint, enamel, or other approved protection.

**827.3.2 Field coat:** After erection where directly exposed to the weather, except when encased in concrete made of non-corrosive aggregates, or where fabricated of approved corrosion-resistive steel, or of galvanized or otherwise adequately protected steel, individual structural members and assembled panels of light gage and formed steel construction shall be given an additional coat of acceptable protection.

**827.3.3 Siding:** Exposed siding or sheathing shall be fabricated of approved corrosion-resistive steel or otherwise protected at the ground level for sufficient height above grade as determined by the depth of average snowfall in the locality, but not less than eight (8) inches.

**827.3.4 Protection at exterior walls:** Floor or roof construction which extends into an exterior wall shall be adequately waterproofed and protected from the weather to prevent corrosion.

**827.4 Tests:** When not capable of design by accepted engineering analysis, the building official shall require tests of the individual or assembled structural units and their connections as prescribed in Sections 802.0 and 803.0. At least three (3) specimens truly representative of the construction to be used in practice shall be subjected to the prescribed test and the mean of the results shall determine the safe working value; provided that any individual test varying more than ten (10) per cent from the mean value shall cause rejection of the series.

## STEEL, MASONRY, CONCRETE, GYPSUM AND LUMBER CONSTRUCTION

### SECTION 828.0 STEEL JOIST CONSTRUCTION

**828.1 General:** Steel joists may be used as secondary members in floor and roof construction, other than around stairwells, shafts and other floor openings in accordance with the standard for steel joist construction listed in Appendix B.

#### 828.2 Design

**828.2.1 Loads and stresses:** Connections of all members shall be designed with the minimum possible eccentricity and all secondary stresses shall be included with primary stresses in the design. In buildings subject to heavy concentrations or moving loads, the construction shall be designed to resist the vertical and lateral components of such loads in addition to the live and dead loads specified in Article 7.

**828.2.2 Partitions:** The joists shall be designed to support the dead load of partitions, wherever they occur, in addition to all other imposed dead and live loads.

**828.2.3 Protection:** Painting of steel joists shall be in accordance with the requirements of Section 827.0 for formed steel construction; or the joist shall be dipped in an approved hot asphalt, or shall be protected by painting, dipping or spraying with approved cold asphalt at the place of manufacture.

**828.3 Height and area limitations:** When the main structural frame is designed to resist all horizontal and vertical moments and shears due to lateral forces, and the secondary system consists of steel joists which are attached to the supporting beams and girders of the frame as specified in the standard, steel joist construction of the required fireresistance rating may be used in all buildings within the height limits of Table 305.

**828.4 Tests:** When not subject to accepted engineering analysis as regulated by the standard for steel joist construction, the assembly shall meet the load test requirements specified in Sections 802.0 and 803.0.

### SECTION 829.0 REINFORCING STEEL

**829.1 General:** Metal reinforcement for reinforced concrete, reinforced gypsum concrete, reinforced brickwork and reinforced hollow block construction shall comply with the applicable standards listed in Appendix B.

**829.2 Identification:** All reinforcing bars shall be rolled with raised symbols or letters impressed on the metal identifying the manufacturing mill. When required by the building official, the grade of material shall be identified by satisfactory mill tests. All bundles or rolls of cold-drawn steel wire reinforcement and of one-quarter ( $\frac{1}{4}$ ) inch rounds shall be securely tagged to identify the manufacturer and the grade of steel.

## CONNECTICUT BASIC BUILDING CODE/1978

**829.3 High yield steels:** When the yield point of reinforcing bar steel is fifty thousand (50,000) pounds per square inch (psi) or more, the building official shall approve tension stresses in bending and compression stresses in vertical column reinforcement not more than forty (40) per cent of the minimum yield point; but such stresses shall be not more than thirty thousand (30,000) psi. Exceptions to this section may be made for one-way slabs in accordance with Section 841.2 for prestressed concrete reinforcement, and when allowed under the provisions of accepted engineering practice standards listed in Appendix B.

### **829.4 Column reinforcement**

**829.4.1 Structural steel sections:** The allowable unit stress on structural steel column sections shall be not more than sixteen thousand (16,000) psi.

**829.4.2 Cast iron sections:** All cast iron used as reinforcement in combination with concrete shall be of pit-cast water pipe grade complying with the standards listed in Appendix C; and the allowable unit stress shall be not more than ten thousand (10,000) psi.

**829.4.3 Steel pipe sections:** The allowable unit stress on steel pipe used in concrete-filled pipe columns shall be not more than forty-five (45) per cent of the yield point of the steel, but the combined stress in the shell shall not be more than twenty thousand (20,000) psi.

**829.5 Tests:** When unidentified reinforcement is approved for use under ordinary material procedure, not less than three (3) tension and three (3) bending tests shall be made on representative specimens of the reinforcement from each shipment and grade of reinforcing steel proposed for use in the work.

## **SECTION 830.0 CAST STEEL CONSTRUCTION**

**830.1 Materials:** Carbon steel casting for building construction shall be cast from steel conforming to the requirements of accepted engineering practice listed in Appendix B and the applicable standards listed in Appendix C. All castings shall be free from injurious blow holes or other defects which would impair the structural strength.

**830.2 Higher strength cast steel:** Higher strength cast steel may be used when approved under controlled material procedure.

**830.3 Welding cast steel:** Cast steel designed for use in welding shall be of weldable grade complying with the approved rules.

## **SECTION 831.0 CAST IRON CONSTRUCTION**

**831.1 Materials:** Cast iron for building construction shall be a good foundry mixture providing clean, tough, gray iron, free from serious blow

## STEEL, MASONRY, CONCRETE, GYPSUM AND LUMBER CONSTRUCTION

holes, cinder spots and cold shuts; conforming to the applicable standards listed in Appendix C for medium gray iron castings.

**831.2 Limitations of use:** Cast iron columns shall not be used where subject to eccentric loads which produce a net tension in the section, nor in any part of a structural frame which is required to resist stress due to wind.

**831.3 Multi-story columns:** Cores of superimposed columns shall be of the same dimensions above and below a splice. When a column of smaller diameter is superimposed over one of larger diameter, the larger column shall be tapered down to the smaller diameter over a length of not less than six (6) inches.

**831.4 Thickness of metal:** The minimum thickness of cast iron shall be not less than herein specified.

**831.4.1 Columns:** In columns, the metal shall be not less than one-twelfth ( $\frac{1}{12}$ ) the smallest dimension of the cross-section and not less than three-quarter ( $\frac{3}{4}$ ) inch.

**831.4.2 Bases and brackets:** In bases and flanges, the metal shall be not less than one (1) inch thick reinforced with fillets and brackets.

**831.4.3 Lintels:** In lintels, the metal shall be not less than three-quarter ( $\frac{3}{4}$ ) inch thick and shall be limited to use on spans of not more than six (6) feet.

**831.5 Inspection:** A cast iron column shall not be erected in place before it has been inspected and approved by the building official. The use of any cast iron column in which blow holes or imperfections reduce the effective area of the cross-section more than ten (10) per cent shall be prohibited. Where required by the building official, three-eighth ( $\frac{3}{8}$ ) inch round inspection holes shall be drilled in the section to expose the thickness of metal for inspection purposes.

### SECTION 832.0 SPECIAL STEELS

**832.1 General:** Alloy, high carbon or other special high strength steels not listed in Appendix C, may be used in the design and construction of buildings and structures as controlled materials as prescribed in Section 721.0.

### SECTION 833.0 LIGHT WEIGHT METAL ALLOYS

**833.1 General:** Aluminum and other approved light weight metals and alloys shall be used for structural purposes in buildings and structures in accordance with the applicable standards listed in Appendix B.

### SECTION 834.0 MASONRY WALL CONSTRUCTION

**834.1 Design:** All masonry construction shall comply with the provisions of this article governing quality of materials and manner of construction, and

shall be of adequate strength and proportions to support all super-imposed loads within working stresses prescribed by this code and the standards of accepted engineering practice. Masonry and mortar material not provided for in the standards of accepted practice listed in the Appendices hereto shall be subject to approval by the Connecticut State Board of Materials Review.

**834.2 Wetting of brick:** Brick (clay or shale) shall be wetted when laid unless their gain in weight resulting from partial immersion flatwise in one-eighth ( $\frac{1}{8}$ ) inch of water for one (1) minute is less than twenty-five thousandths (0.025) ounce per square inch of immersed area.

**834.3 Precautions against freezing:** All masonry shall be protected against freezing for not less than forty-eight (48) hours after installation; and shall not be constructed below twenty-eight (28) degrees F. on rising temperatures or below thirty-six (36) degrees F. on falling temperatures, without temporary heated enclosures or without heating materials or other precautions necessary to prevent freezing. Frozen materials shall not be used, nor shall frozen masonry be built upon.

**834.4 Incorporation of combustibles:** Lumber or other combustible materials, except nailing blocks and ornamental timber to an extent permitted by the chasing restrictions of Section 837.0 and the provisions of Section 900.3, shall not be incorporated in masonry walls, except as approved for combustible aggregates or component materials after fire test.

#### SECTION 835.0 BONDING OF WALLS

**835.1 General:** Walls of solid, composite and hollow masonry and cavity and other hollow walls shall be bonded in accordance with accepted engineering practice.

**835.2 Rubble stone walls:** All stones in rubble masonry shall be laid on their natural bed and the walls shall be bonded with not less than one (1) through bond stone for each nine (9) superficial square feet of area.

**835.3 Buttresses and piers:** All buttresses shall be bonded into the wall by a masonry bond. The piers and buttresses shall have sufficient strength and stability with sufficient bonding or anchorage between the walls and the supports to resist wind pressure and suction.

**835.4 Intersecting walls and partitions:** Masonry walls and partitions shall be securely anchored or bonded at points where they intersect by one (1) of the following methods.

1. Walls may be bonded by laying at least fifty (50) per cent of the units at the intersection in true masonry bond with alternate units having a bearing of not less than three (3) inches upon the unit below, or they may be anchored with not less than three-sixteenths ( $\frac{3}{16}$ ) inch corrosion-resistant metal wire ties or joint reinforcement at vertical intervals not to exceed two (2) feet, or by other equivalent approved anchorage.

## STEEL, MASONRY, CONCRETE, GYPSUM AND LUMBER CONSTRUCTION

2. Where walls are carried up separately, the interesection shall be toothed or blocked with eight (8) inch maximum offsets and shall be provided with approved metal anchors at vertical intervals of not more than four (4) feet or, when approved, blocking may be eliminated and rigid steel anchors shall be provided, spaced not more than two (2) feet apart vertically.
3. Interior non-loadbearing walls may be bonded or anchored as required by 1 or 2 above or they may be anchored at their intersection, at vertical intervals of not more than two (2) feet, with at least No. 22 Galvanized Sheet Gage (0.034 in.) corrosion-resistant corrugated metal ties seven-eighths ( $\frac{7}{8}$ ) inch in width, or other equivalent approved method of anchorage.

**835.5 Erecting precautions:** Where hollow walls decrease in thickness, a course of solid masonry or of concrete-filled units, or a continuous bearing plate shall be interposed between the thicker and thinner sections. A wall shall not be built up more than twenty-five (25) feet in advance of other walls of the same building or structure unless supported independently at each floor; and all walls shall be temporarily braced during erection.

### SECTION 836.0 LATERAL BRACING OF WALLS

**836.1 General:** All masonry walls shall be laterally supported by horizontal bracing of floor and roof framing or vertical bracing of columns, buttresses or cross-walls at vertical or horizontal intervals as specified in the accepted engineering practice standards for masonry listed in Appendix B; and provision shall be made in the structure to transfer wind pressures and other lateral forces to the foundations.

### SECTION 837.0 CHASES AND RECESSES IN BEARING WALLS

**837.1 Where permitted:** Chases and recesses shall be prohibited in any wall less than twelve (12) inches thick or in the required area of piers and buttresses; except that eight (8) inch walls where permitted in residential buildings and the apron under window openings may be chased not more than four (4) inches in depth.

**837.2 Maximum size:** The maximum permitted depth of a chase in any wall shall be not more than one-third ( $\frac{1}{3}$ ) the wall thickness, and the maximum length of a horizontal chase or the maximum horizontal projection of a diagonal chase shall not exceed four (4) feet except as provided in Section 837.5; and except further that the length of the apron below window sills in all walls may equal the width of the window opening; and such aprons in eight (8) inch walls may be chased not more than four (4) inches in depth when waterproofed. The aggregate area of recesses and chases in any wall shall be not more than one-fourth ( $\frac{1}{4}$ ) of the area of the face of the wall in any one (1) story.

**837.3 Fireresistive limitations:** It shall be unlawful to have chases or recesses which reduce the thickness of material below the minimum specified in Article 9 for fire walls, fire separation walls or required fire-protective covering of structural members.

**837.4 Hollow walls:** When chases and recesses are permitted in hollow walls and walls constructed of hollow blocks or tile, they shall be built-in with the wall. It shall be unlawful to cut chases in such walls after erection.

**837.5 Continuous chases:** Horizontal chases for the bearing of reinforced concrete floor and roof slabs may be continuous, provided anchors are installed above and below the floor construction to resist the bending and uplift in the wall due to flexure of the slab.

#### SECTION 838.0 CORBELED AND PROJECTED MASONRY

**838.1 Limitations:** A wall less than twelve (12) inches thick shall not be corbeled except to support firestopping around floor framing; and except that eight (8) inch foundation walls may be corbeled to support brick-veneer frame and ten (10) inch cavity walls as provided in Section 869.0. The maximum total horizontal projection of corbels shall be not more than one-half ( $\frac{1}{2}$ ) the thickness of the wall. The maximum projection of one (1) unit shall neither exceed one-half ( $\frac{1}{2}$ ) the depth of the unit nor one-third ( $\frac{1}{3}$ ) its width at right angles to the face which is offset.

**838.2 Hollow walls:** Corbeling of hollow masonry or masonry built of hollow units shall be supported on at least one (1) full course of solid masonry.

**838.3 Molded cornices:** Unless structural support and anchorage is provided to resist the overturning moment, the center of gravity of all projecting masonry or molded cornices shall lie within the middle third of the supporting wall. Terra cotta and metal cornices shall be provided with a structural frame of approved noncombustible material anchored in an approved manner.

#### SECTION 839.0 BEARING ON HOLLOW UNIT WALLS

**839.1 Bearing area:** Beam, girder and other concentrated loads shall be provided with a bearing of solid masonry or filled cores of hollow unit masonry at least four (4) inches in height or with a bearing plate of adequate design and dimensions to distribute the load safely on the wall or pier.

**839.2 Closure tile:** All open cells in tiles or blocks at wall ends and at openings shall be filled solidly with concrete for a length of not less than twelve (12) inches, or reversed closure tile shall be used.



## STEEL, MASONRY, CONCRETE, GYPSUM AND LUMBER CONSTRUCTION

### SECTION 840.0 PLAIN CONCRETE

**840.1 General:** Except for controlled materials, cast-in-place concrete masonry shall contain not more than seven and one-half (7½) gallons of water per sack of cement, and not more than six (6) parts of aggregate for each one (1) part of cement by separate, dry volumetric measure.

**840.2 Design stress:** Plain concrete masonry shall conform to the applicable requirements of Section 841.0 for reinforced concrete, but the allowable working stress in compression shall not exceed twenty-five (25) per cent of the compressive strength, and the extreme fiber stress in bending shall not exceed three (3) per cent of the compressive strength except as provided in the applicable standard listed in Appendix B.

### SECTION 841.0 REINFORCED CONCRETE

**841.1 Design:** The design of reinforced concrete construction shall be based on the generally accepted theory of flexure and elasticity of materials as applied to reinforced concrete and as specified in Section 842.0 for controlled materials and in Section 843.0 for ordinary materials and in accordance with the standards listed in Appendix B.

**841.2 One-way slabs:** In one (1) way slabs designed in accordance with accepted engineering practice of not more than twelve (12) foot span, the allowable tension in the reinforcement may be increased to fifty (50) per cent of the minimum yield point of the particular kind and grade of reinforcement used when the main reinforcement is three-eighths (¾) inch or less in diameter; but the allowable stress shall not exceed thirty thousand (30,000) pounds per square inch (psi).

**841.3 Cinder concrete:** Cinders shall not be used as coarse aggregate in reinforced concrete structural members, except as provided in Section 844.0.

**841.4 New systems:** Any system of construction which is not covered by, or which conflicts with the requirements of, this code may be approved by the building official on the basis of satisfactory experience records and tests as prescribed by Sections 802.0 and 803.0 and Sections 902.0 and 903.0.

**841.5 Embedded mechanical facilities:** Plumbing and heating piping and electrical conduits may be embedded in reinforced concrete floor and wall construction and in column fireproofing as provided in Section 911.0. Piping for radiant heating purposes may be embedded in the structural floor or wall slabs, or may be installed in a separate concrete layer placed in addition to the required fireproof covering, as approved by the building official. In any case, the required area of reinforcement shall be provided in addition to such piping; and the conduits, pipes or other embedded mechanical facilities shall be so placed as to leave the strength and fireresistance rating of the construction undiminished.

#### SECTION 842.0 CONTROLLED CONCRETE

**842.1 General:** When controlled materials procedure is followed in the design and construction of a reinforced concrete building or structure, the allowable working stresses shall conform to accepted engineering practice in accordance with Building Code Requirements for Reinforced Concrete listed in Appendix B. The ultimate compressive strength of the concrete shall not be limited in controlled concrete procedure, provided proper provision is made to limit deflections and cracking.

**842.2 Controlled concrete:** Concrete work on the site shall be inspected by a qualified engineer or architect, preferably the one responsible for its design, or by a qualified testing or inspection agency, who shall keep a record which shall cover the quality and quantity of concrete materials; mixing, placing, and curing of concrete; the placing of reinforcing steel; the sequence of erection in connection of precast members; and the general progress of the work. The records shall be available to the Department for inspection during the progress of the work and for three (3) years thereafter and shall be preserved by the engineer or architect for that purpose.

#### SECTION 843.0 ORDINARY CONCRETE

**843.1 General:** When ordinary material procedure is followed in the design and construction of a reinforced concrete building or structure, the allowable working stresses shall be as specified in Appendix K and the design shall conform to accepted engineering practice.

#### SECTION 844.0 STRUCTURAL CINDER CONCRETE

**844.1 Aggregates:** Approved cinder aggregates where permitted for use in structural and fireproofing concretes shall consist of clean, well burned cinders, containing a maximum of thirty-five (35) per cent of unburned carbon and not more than one and one-half (1½) per cent of sulphur nor more than a total of five (5) per cent of volatile materials.

**844.2 Cinder concrete proportions:** Structural cinder concrete shall be mixed in the proportions of one (1) part portland cement and not more than seven (7) parts of fine and coarse aggregate measured separately with a compressive strength of not less than eight hundred (800) psi at twenty-eight (28) days' age.

#### SECTION 845.0 SHORT SPAN FLOOR FILLING

**845.1 General:** For spans not exceeding ten (10) feet between steel flanges, the safe supporting capacity of concrete floor and roof slabs built as fire-resistance rated floor filling between steel beams shall be determined by the provisions of Section 841.2 or in accordance with the approved rules for stone and cinder concrete and other approved fire-resistance rated floor filling.

**SECTION 846.0 CONCRETE-FILLED PIPE COLUMNS**

**846.1 General:** Concrete-filled pipe columns shall be manufactured from standard, extra strong, or double extra strong steel pipe and tubing, filled with concrete so placed and manipulated as to secure maximum density and to insure complete filling of the pipe without voids.

**846.2 Design:** The safe supporting capacity of concrete-filled pipe columns shall be computed in accordance with the approved rules or as determined by test.

**846.3 Connections:** All caps, base-plates and connections shall be of approved types and shall be positively attached to the shell and anchored to the concrete core. Welding of brackets without mechanical anchorage shall be prohibited. When the pipe is slotted to accommodate webs of brackets or other connections, the integrity of the shell shall be restored by welding to insure hooping action of the composite section.

**846.4 Reinforcement:** To increase the safe load supporting capacity of concrete-filled pipe columns, the steel reinforcement shall be in the form of rods, structural shapes or pipe embedded in the concrete core with sufficient clearance to insure the composite action of the section, but not nearer than one (1) inch to the exterior steel shell. All structural shapes used as reinforcement shall be milled to insure bearing on cap and base plates.

**846.5 Fire-resistance rating protection:** Pipe columns shall be of such size or so protected as to develop the required fire-resistance ratings specified in Table 214. When an outer steel shell is used to enclose the fireproof covering, it shall not be included in the calculations for strength of the column section. The minimum diameter of pipe columns shall be four (4) inches except that in frame structures not exceeding three (3) stories or forty (40) feet in height, three (3) inch columns may be used in the basement and as secondary steel members.

**846.6 Approvals:** All details of column connections and their splices shall be shop-fabricated by approved methods and shall be approved only after tests in accordance with the approved rules. Shop-fabricated concrete-filled pipe columns shall be inspected by the building official or by an approved representative of the manufacturer at the plant.

**SECTION 847.0 PNEUMATIC CONCRETE**

**847.1 Application:** Mortar or concrete deposited pneumatically shall be applied only with the approval of the building official and shall be protected and cured to prevent the temperature falling below fifty (50) degrees F. or from loss of moisture at the surface. Reinforcement for pneumatic mortar shall be adequate to meet structural requirements and shall consist of round bars or mesh not less than No. 12 Steel Wire Gage (0.016 in. diameter), spaced not less than two (2) nor more than four (4) inches either way, with a gross areas of not less than two-tenths per cent (0.2%) of the cross-sectional area of the mortar layer.

**CONNECTICUT BASIC BUILDING CODE/1978**

**847.2 General requirements:** Pneumatically placed concrete shall consist of a mixture of fine aggregate and cement pneumatically applied by suitable mechanism, and to which water is added immediately prior to discharge from the applicator. Except as specified in the following sections, pneumatically placed concrete shall conform to the requirements of this code for reinforced concrete.

**847.2.1 Proportions:** The proportion of cement to aggregate, in loose dry volume, shall not be less than one (1) to four and one-half (4½).

**847.2.2 Water:** The water content at the time of discharge, including moisture in the aggregate, shall not exceed three and one-half (3½) gallons per sack of cement.

**847.2.3 Mixing:** The cement and aggregate shall be thoroughly mixed prior to the addition of water. At the time of mixing the aggregate shall contain not less than three (3) per cent moisture.

**847.3 Rebound:** Any rebound or accumulated loose aggregate shall be removed from the surfaces to be covered prior to placing the initial or any succeeding layers of pneumatically placed concrete. Rebound may be reused if it conforms to the requirements for aggregate, provided the amount of rebound material used shall not exceed twenty-five (25) per cent of the total aggregate in any batch.

**847.4 Joints:** Unfinished work shall not be allowed to stand for more than thirty (30) minutes unless all edges are sloped to a thin edge. Before placing additional material adjacent to previously applied work, these sloping edges shall be cleaned and wetted.

**847.5 Damage:** Any pneumatically placed concrete which subsides after placement shall be removed.

**847.6 Test cylinders:** Test cylinders of pneumatically placed concrete shall be made in a manner that will permit the blast of air to firmly compact the materials and provide escapement of the air to eliminate possible back pressure. Such cylinders shall be cured and tested as required for reinforced concrete.

**SECTION 848.0 MINIMUM CONCRETE DIMENSIONS**

**848.1 General:** The protection of reinforced concrete structural elements in buildings and structures of fireproof (Type 1) construction shall be adequate to meet the fire and strength tests of this code; but not less than the minimum dimensions established by the standards of accepted engineering practice. Any floor finish not placed monolithically with floor slabs, shall not be included in the calculations for structural strength.

**SECTION 849.0 REINFORCED GYPSUM CONCRETE**

**849.1 General:** Reinforced gypsum concrete for use in buildings and structures shall consist of a mixture of calcined gypsum and water, with or

## STEEL, MASONRY, CONCRETE, GYPSUM AND LUMBER CONSTRUCTION

without the addition of wood chips, shavings, fiber or other approved aggregates. The wood aggregates and gypsum shall be pre-mixed at the mill, requiring only the addition of water at the job or site. The manufacture, design and construction shall comply with the requirements of the standards of accepted engineering practice listed in Appendix B.

**849.2 Limitations of use:** Gypsum concrete shall not be used where exposed directly to the weather or where subject to frequent or continuous wetting. To prevent saturation or freezing, protection from the weather and from contact with moisture shall be furnished during shipment and storage of prefabricated units, and after erection or pouring at the site.

### SECTION 850.0 REINFORCED BRICKWORK

**850.1 General:** All systems of brick masonry reinforced with steel in grouted mortar joints for use in the design and construction of buildings and structures shall conform to the requirements of this section and the standards of accepted engineering practice listed in Appendix B. Reinforced brickwork shall be used only under controlled materials procedure.

**850.2 Design:** The formulae and assumptions used in the design of reinforced concrete shall apply to reinforced brick masonry insofar as they are applicable.

### SECTION 851.0 REINFORCED HOLLOW BLOCK CONSTRUCTION

**851.1 General:** Walls constructed of hollow block or other hollow unit masonry, filled solidly with concrete or grout and reinforced with steel rods shall be designed as specified for reinforced brick masonry in Section 850.0.

### SECTION 852.0 LUMBER AND TIMBER CONSTRUCTION

**852.1 Design:** Structural lumber and timber and its fastenings shall be adequately designed and assembled to safely sustain all imposed loads. When stress-grade lumber is used and properly identified and controlled, working stresses may be in accordance with the accepted engineering practice standards listed in Appendix B. All lumber used for load supporting purposes shall be identified by the grade mark of a lumber grading inspection agency approved by the building official. Grading practices and identification shall be in accordance with rules published by an agency recognized as being competent. In lieu of a grade mark on the material, a certificate of inspection as to species and grade issued by a lumber grading or inspection agency approved by the building official may be accepted for precut, remanufactured, or rough sawn lumber; also for sizes larger than three (3) inches nominal thickness.

**852.2 Minimum dimensions**

**852.2.1 Sizes of structural members:** All lumber sizes specified in this code are nominal sizes. Nominal sizes may be shown on the plans. Computations to determine the required size of members shall be based on the net dimensions (actual sizes).

**852.2.2 Structural posts:** All isolated structural posts shall have a minimum dimension of four (4) inches.

**852.3 Fabrication**

**852.3.1 Connections:** All connections shall be fabricated with approved timber connectors, bolts, lag screws, spikes, nails or gluing or other approved connecting devices in accordance with accepted engineering practice. Bolted connections shall be snugged up tightly without crushing wood fibers under the washers. All nailed connections shall meet the minimum requirements of Appendix M.

**852.3.2 Cambering:** Trusses and long span girders shall be designed with sufficient camber or other provision shall be made to counteract any possible deflection.

**852.3.3 Cutting and notching:** It shall be unlawful to notch, cut or pierce wood beams, joists, rafters or studs in excess of the limitations herein specified unless proven safe by structural analysis, or suitably reinforced to transmit all calculated loads. Notches in the top or bottom of joists shall not exceed one-sixth ( $\frac{1}{6}$ ) the depth of the member and shall not be located in the middle one-third ( $\frac{1}{3}$ ) of the span. Notches located closer to the supports than three (3) times the depth of the member shall not exceed one-fifth ( $\frac{1}{5}$ ) the depth. Holes bored or cut into joists for piping or electrical cables shall not be closer than two (2) inches to the top or bottom of the joist and the diameter of the hole shall not exceed one-third ( $\frac{1}{3}$ ) the depth of the joist. In studs of bearing walls or partitions, notches or bored holes made to receive piping, electrical conduit, air conditioning or heating duct work or for other fabricating purposes shall not be cut or bored more than one-third ( $\frac{1}{3}$ ) the depth of the stud. When the stud is cut or bored in excess of one-third ( $\frac{1}{3}$ ) its depth it shall be reinforced to be equal in load carrying capacity to a stud notched not more than one-third ( $\frac{1}{3}$ ) its depth.

**852.4 Trimmer and header beams:** When determined necessary by stress analysis, trimmer and header beams shall be hung in approved metal or other approved noncombustible stirrups or hangers, unless supported on a masonry wall or girder. All such beams shall be spiked together.

**852.5 Bearing and anchorage on girders:** All members framing into girders shall be anchored or tied to secure continuity. The ends of all wood beams or joists resting on girders shall bear not less than four (4) inches or shall be supported in approved metal stirrups, hangers or on wood clips

## STEEL, MASONRY, CONCRETE, GYPSUM AND LUMBER CONSTRUCTION

or ribbon strips. Beams framing from opposite sides shall lap at least six (6) inches and be bolted or spiked together; and when framing end to end, they shall be secured together by metal ties, straps or dogs.

**852.6 Maintenance:** All connections in the joints of timber trusses and structural frames shall be inspected periodically and bolts and other connectors shall be maintained tight.

### SECTION 853.0 HEAVY TIMBER TYPE CONSTRUCTION

**853.1 Wood:** All structural wood members, sawn or glued laminated, used in heavy timber type construction shall be stress-grade timbers identified as to grade and strength by authoritative manufacturing, testing or inspection agencies or bureaus. All structural timber members shall have the minimum dimensions specified in Section 217.0 for Type 3A construction.

**853.2 Other structural materials:** Structural steel or reinforced concrete members may be substituted for timber in any part of the structural frame, protected to develop the required fire-resistance rating specified in Table 214, but not less than one (1) hour fire-resistance rating. Structural members supporting walls shall be protected to afford the same fire-resistance rating as the wall supported.

**853.3 Columns:** Columns shall be continuous or superimposed throughout all stories by means of reinforced concrete or metal caps with brackets, or shall be connected by properly designed steel or iron caps, with pintles and base plates, or by timber splice plates affixed to the columns by means of metal connectors housed within the contact faces, or by other approved methods. Girders or trusses supporting columns shall have at least one (1) hour fire-resistance rating.

**853.4 Floors:** The planks shall be laid so that a continuous line of joints will not occur except at points of support and so that they are not spiked to supporting girders. Flooring shall not extend closer than one-half ( $\frac{1}{2}$ ) inch to walls to provide an expansion joint, but the joint shall be covered at top or bottom to avoid flue action.

#### 853.5 Beams and girders

**853.5.1 Wall and girder supports:** Wall plate boxes of self-releasing type or approved hangers shall be provided where beams and girders enter masonry. An air space of one-half ( $\frac{1}{2}$ ) inch shall be provided at the top, end and sides of the member unless approved durable or treated wood is used. Where intermediate beams are used to support a floor, they shall rest on top of the girders, or shall be supported by ledgers or blocks securely fastened to the sides of the girders, or they may be supported by approved metal hangers into which the ends of the beams shall be closely fitted. Wood beams and girders supported by walls required to have a fire-resis-

tance rating of two (2) hours or more shall have not less than four (4) inches of solid masonry between their ends and the outside face of the wall and between adjacent beams. Adequate roof anchorage shall be provided.

**853.5.2 Column connections:** Where intermediate beams are used to support a floor, they shall rest on top of the girders, or shall be supported by ledgers or blocks securely fastened to the sides of the girders, or they may be supported by approved metal hangers into which the ends of the beams shall be closely fitted.

#### **SECTION 854.0 WOOD FRAME CONSTRUCTION**

**854.1 General:** The exterior walls, interior partitions, floors and roofs of wood frame construction shall be designed and constructed to develop adequate strength to resist all vertical and lateral forces due to both dead and live loads. Standard balloon, braced, platform, and post and beam types of construction shall be acceptable framing methods.

##### **854.2 Wood stud frame**

**854.2.1 Bearing walls:** Posts and studs in bearing walls and partitions shall be designed as columns, with due allowance for lateral support furnished by sheathing, intermediate bracing, horizontal bridging, wall coverings and the floor and roof assemblies. The walls shall be fabricated in such a manner as to provide adequate support for the material used to enclose the building and to provide for transfer of all lateral loads to the foundation, in accordance with Section 803.4.

**854.2.2 Non-bearing walls:** Studs in non-bearing walls and partitions shall not be spaced more than forty-eight (48) inches on centers, and may be erected with the long dimension parallel to the wall, unless otherwise approved after test as an integrated assembly.

**854.2.3 Bracing:** In buildings more than one (1) story in height and where necessary for strength in one (1) story buildings, the corner posts shall be the equivalent of not less than three (3) pieces of two (2) by four (4) inch studs, braced by not less than one (1) piece of one (1) by four (4) inch continuous diagonal brace let into the studs. Bracing may be omitted when diagonal wood sheathing or plywood panels are used, or other sheathing specified in Section 854.3 is applied vertically in panels of not less than four (4) feet by eight (8) feet in area with approved nailing complying with Appendix M. Ledger or ribbon boards used to support joists shall be not less than one (1) by four (4) inches in size, cut into and securely nailed to each stud.

**854.2.4 Mortise and tenon framing:** Where mortise and tenon framing is used, the vertical members of the frame shall be not less than four (4) by six (6) inches in size and shall be designed as a column.

**854.2.5 Multiple stories:** When the frame is more than one (1) story in height and studs and posts are not continuous from sill to roof, the



**STEEL, MASONRY, CONCRETE, GYPSUM AND LUMBER CONSTRUCTION**

members shall be secured together with approved clips, splices or other connections to insure a continuous, well integrated structure. Sheet metal clamps, ties or clips shall be formed of galvanized steel or other approved corrosion-resistive materials equivalent to No. 20 Galvanized Sheet Gage (0.040 in.) steel sheets for two (2) inch framing members and not less than No. 18 Galvanized Sheet Gage (0.052 in.) for three (3) inch structural members. For four (4) inch and larger members, column splices and beam and girder supports shall comply with Section 853.0.

**854.2.6 Framing over openings:** Headers, double joists, trusses or other approved assemblies of adequate size to transfer all superimposed loads to the vertical member shall be provided over all window and door openings in bearing walls and partitions.

**854.3 Wall sheathing:** Except as provided in Section 854.4 for weather boarding or when stucco construction complying with Section 820.6 is used, all enclosed buildings shall be sheathed with one (1) of the materials of the following nominal thickness or any other material of equal strength and durability approved by the building official:

Reinforced cement mortar	.....	1 inch
Wood sheathing	.....	5/8 inch
Plywood	.....	5/16 inch
Gypsum sheathing	.....	1/2 inch
Fiber boards	.....	1/2 inch
Particle boards	.....	3/8 inch

**854.3.1 Paper-backed lath sheathing:** In one- and two-family dwellings and one (1) story commercial buildings with brick or similar veneers, the sheathing may consist of a layer of paper-backed lath complying with Section 820.5 with a one (1) inch intermediate space which shall be mortar filled as each course of veneering is applied.

**854.4 Exterior weather boarding, veneers and condensation:** To secure weather-tightness in framed walls and other unoccupied spaces, the exterior walls shall be faced with an approved weather-resisting covering properly attached to resist wind and rain. The cellular spaces shall be so ventilated as not to vitiate the firestopping at floor, attic and roof levels or shall be provided with interior non-corrodible vapor-type barriers complying with the approved rules; or other means shall be used to avoid condensation and leakage of moisture. The following materials shall be acceptable as approved weather coverings of the nominal thickness specified.

Brick masonry veneers	.....	2 inches
Stone veneers	.....	2 inches
Clay tile veneers	.....	1/4 to 1 inch
Stucco or exterior plaster	.....	3/4 inch
Precast stone facing	.....	5/8 inch
Wood siding (without sheathing)	.....	1/2 inch
Wood siding (with sheathing)	.....	1/2 inch

CONNECTICUT BASIC BUILDING CODE/1978

Protected fiberboard siding	1/2 inch
Wood shingles	3/8 inch
Exterior plywood (without sheathing)	see Sec. 824.2
Exterior plywood (with sheathing)	5/16 inch
Aluminum clapboard siding	0.024 inch
Formed steel siding	29 gage (0.017 in.)
Hardboard siding	1/4 inch
Particle board (with sheathing)	3/8 inch
Particle board (without sheathing)	5/8 inch

**854.4.1 Masonry veneers:** Veneers of unit masonry shall be attached to the wood frame with at least No. 22 Galvanized Sheet Gage (0.034 in.) corrosion-resistive, corrugated metal ties not less than seven-eighths (7/8) inch in width at vertical intervals of not more than sixteen (16) inches and horizontal intervals of not more than thirty-two (32) inches.

**854.4.2 Metal veneers:** Veneers of metal shall be fabricated from approved corrosion-resistive materials or shall be protected front and back with porcelain enamel or shall be otherwise treated to render the metal resistant to corrosion. Such veneers shall be not less than No. 29 (0.017 in.) Galvanized Sheet Gage in thickness mounted on wood or metal furring strips or approved sheathing on the frame construction.

**854.4.3 Height of veneers:** The average height of four (4) inch brick veneer shall be not more than twenty-five (25) feet above its supports on foundation wall or on corbels of masonry or steel; and not more than eighteen (18) feet in height for two (2) inch veneers.

**854.4.4 Nailing:** All weatherboarding and wall and roof coverings shall be securely nailed with aluminum, copper, zinc, zinc-coated or other approved corrosion-resistive nails in accordance with the recommended nailing schedule or the approved manufacturer's standards. Shingles and other weather coverings shall be attached with appropriate standard shingle nails to furring strips securely nailed to studs, or with approved mechanically-bonding nails, except when sheathing is wood not less than one (1) inch nominal thickness or plywood not less than five-sixteenths (5/16) inch thick. Wood shingles or shakes attached with approved corrosion-resistive annular grooved nails may be applied over fiberboard shingle backer and fiberboard sheathing when the installation is in accordance with the approved manufacturer's standards listed in Appendix C. Wood shingles or shakes and asbestos shingles or siding may be nailed directly to nail base fiberboard sheathing not less than one-half (1/2) inch nominal thickness with approved corrosion-resistive annular grooved nails when the installation is in accordance with the approved manufacturer's standards listed in Appendix C.

**854.5 Foundation anchorage:** Wall sill plates, a minimum of a two-by-four inch (2" x 4") member, shall be sized and anchored to foundation

## STEEL, MASONRY, CONCRETE, GYPSUM AND LUMBER CONSTRUCTION

**855.2 Splices:** Splices and connections between panels shall be weathertight and of sufficient strength to resist two and one-half ( $2\frac{1}{2}$ ) times the design live load to which they will be subjected in normal use. The fastenings of covering assemblies to structural studs, ribs or joists shall provide rigidity equivalent to approved gluing. Nailing shall not be acceptable for that purpose.

**855.3 Molded plywood units:** Structural units of plywood or other approved plastics of similar combustible characteristics formed and molded into prefabricated load-bearing members shall conform to the approved rules and shall be identified by the approved label. The design shall be based on accepted engineering analysis confirmed by the tests prescribed in Sections 802.0 and 803.0.

### SECTION 856.0 STRUCTURAL GLUED LAMINATED TIMBER AND BUILT-UP WOOD CONSTRUCTION

**856.1 General:** Buildings and structures may be designed and erected of glued laminated structural members or of composite members of plywood and dimension lumber.

**856.2 Structural glued laminated timber members:** Stress rated fabricated units of suitably selected and prepared wood laminations not exceeding two (2) inches in net thickness, which may be comprised of pieces joined end to end or of pieces placed or glued edge to edge, securely bonded together with adhesives so that the grain of all laminations is approximately parallel longitudinally shall be designed and manufactured under controlled material procedure to meet the requirements of timber construction standards listed in Appendices B and C.

**856.3 Glued laminated members and plywood components:** Built up beam and column sections consisting of one (1) or more webs with glued lumber flanges and stiffeners shall be designed in accordance with accepted engineering analysis. Plywood components consisting of plywood alone or plywood in combination with sawn or glued laminated lumber and bonded together with adhesives shall be designed, fabricated and identified in accordance with the applicable standards listed in Appendices B and C.

**856.3.1 Gluing surfaces:** In glued lumber constructions, the surfaces to be glued shall be worked to a smooth, flat surface without sanding and free from wax, grease or oil to insure a complete glue bond over the entire contact. Factory sanded plywood shall not be prohibited.



## **ARTICLE 8—Part C**

### **BUILDING ENCLOSURES, WALLS AND WALL THICKNESS**

#### **SECTION 857.0 ENCLOSURE WALLS**

**857.1 General:** All buildings, except as may be provided for miscellaneous structures designed for special uses, shall be enclosed on all sides with independent or party walls of frame, masonry or other approved construction. Such walls shall be constructed to afford the fire-resistance rating specified in Table 214 and as required in this code for location, use and type of construction.

**857.2 Projections:** Exterior enclosure walls shall be constructed entirely within property lines or building lines when established by law, except for authorized projections beyond the street lot line in accordance with the provisions of Section 309.0.

**857.3 Exterior wall pockets:** In exterior walls of all buildings and structures, wall pockets or crevices in which moisture may accumulate shall be avoided or protected with adequate caps or drips, or other approved means shall be provided to prevent water damage.

**857.4 Exceptions:** The provisions of this article shall not be deemed to prohibit the omission of exterior walls for all or part of a story of a building in accordance with the provisions of Section 906.2.

#### **857.5 Glass in walls**

**857.5.1 Labeling:** Each light of glass shall be labeled with a removable paper label showing type, thickness and manufacturer. To qualify as glass with special performance characteristics, each unit of laminated, heat strengthened, fully tempered, and insulating glass shall be permanently identified by the manufacturer. The identification shall be etched or ceramic fired on the glass and be visible when the unit is glazed. Heat strengthened and tempered spandrel glasses are exempted from perma-

ment labeling. This type of glass shall be labeled with a removable paper label by the manufacturer.

**857.5.2 Glass supports:** Where one (1) or more sides of any light of glass is not firmly supported, or is subjected to unusual load conditions, detailed shop drawings, specifications and analysis or test data assuring safe performance for the specific installation shall be prepared by engineers experienced in this work and approved by the building official. Analysis shall be based on the wind loads specified in Section 713.4 for secondary framing members. The elevation of the glazed opening shall be computed by adding the distances from grade to the head and sill, respectively, and dividing the sum by two (2).

**857.5.3 Glass dimensional tolerance:** Glass thickness tolerances shall comply with those established in the Table 857. Where thickness is to be controlled, nominal values are stated subject to the tolerances shown in the following Table 857.

**Table 857  
MINIMUM GLASS THICKNESS**

Nominal thickness	Plate glass min. thickness (inches)	Sheet glass min. thickness (inches)
SS	.....	0.085
OS	.....	0.115
1/8	0.094	.....
3/16	0.156	0.182
1/4	0.172	.....
5/16	.....	0.205
3/8	0.218	0.236
1/2	0.281	.....
5/8	0.343	0.357
3/4	0.468	0.478
7/8	0.562	.....
1	0.689	.....
1 1/8	0.750	.....
1 1/4	0.875	.....
1 3/4	1.125	.....

**857.5.4 Wind loads:** Glass exposed to wind pressure shall be capable of withstanding the design criteria of Section 713.4 for secondary framing members but shall in no case be less than the thickness prescribed in Table 857.5.4.2. The wind load used to enter Table 857.5.4.2 shall be modified by dividing the load prescribed in Section 713.4 by the value shown in Table 857.5.4.1 for the type of glass involved.

## BUILDING ENCLOSURES, WALLS AND WALL THICKNESS

Table 857.5.4.1  
RELATIVE RESISTANCE TO WIND LOAD  
(Assuming equal thickness)

Glass type	Approximate relationship*
Laminated	0.6
Wired glass	0.5
Heat strengthened	2.0
Fully-tempered	4.0
Factory fabricated double glazing**	1.5
Rough-rolled plate	1.0
Sandblasted	0.4
Regular plate or sheet	1.0

\*Before using Table 857.5.4.2 divide the design wind load from Section 713.0 by the value shown here for the glass type involved.

\*\*Use thickness of the thinner of the two lights, not thickness of unit.

**857.5.5 Jalousies:** In jalousie windows and doors regular plate, float sheet or rolled glass thickness shall be not less than three-sixteenths (3/16) inch; glass length shall be not more than forty-eight (48) inches; glass edges shall be smooth. Other types of glass may be used if detailed shop drawings, specifications and analysis by methods described in Section 857.5.2 or test data assuring safe performance for the specific installation are prepared by engineers experienced in this work and approved by the building official.

**857.5.6 Human impact loads:** Individual glazed areas in hazardous locations such as those indicated in Section 857.5.6.1 shall pass the test requirements of CPSC 16-CFR, Part 1201 listed in Appendix B, or by comparative test shall be proven to produce at least equivalent performances. Annealed glass shall not be used.

**857.5.6.1 Specific hazardous location:** The following shall be considered specific hazardous locations for the purposes of glazing:

1. glazing in ingress and egress door except wired glass in required fire doors and jalousies (see Section 857.5.5);
2. glazing in fixed and sliding panels of sliding type doors (patio and mall type);
3. glazing in storm doors;
4. glazing in unframed swinging doors;
5. glazing in shower and bathtub doors and enclosures;
6. glazing, operable or nonoperable, whose nearest vertical edge is within forty-eight (48) inches of a door in non-residential occupancies or

within twelve (12) inches of a door in residential occupancies and whose bottom edge is below the top of the door unless an intervening interior permanent wall is between the door and the glazing; and

7. glazing in fixed panels having a glazed area in excess of nine (9) square feet with the lowest edge less than eighteen (18) inches above the finish floor level or walking surface and having a walking surface on both sides, both of which are within thirty-six (36) inches of such glazing and the horizontal planes of such surfaces are within twelve (12) inches of each area. In lieu of safety glazing such glazed panels may be protected with a horizontal member not less than one and one-half (1½) inches in width when located between twenty-four (24) and thirty-six (36) inches above the walking surfaces.

#### SECTION 858.0 PROTECTION OF WALL OPENINGS

**858.1 Fire-protected openings:** Openings in exterior walls when required to be fire-protected shall comply with the provisions of Article 9.

**858.2 Area of openings:** All openings facing on a street, yard, court, or public space which are required for light and ventilation shall comply with the provisions of Article 5.

#### 858.3 Structural strength

**858.3.1 Against wind forces:** In all buildings required to resist wind pressure under the provisions of Article 7, exterior window openings shall be designed to resist the specified wind load when such protectives are more than one hundred (100) square feet in area in the first story or more than fifty (50) square feet in area in the upper stories.

**858.3.2 Sash or frames:** The glass, or other approved glazing material shall be of adequate thickness or shall be provided with steel frames or otherwise reinforced to resist the wind loads specified in Article 7 blowing both inwardly and outwardly.

#### SECTION 859.0 FIRE ACCESS PANELS

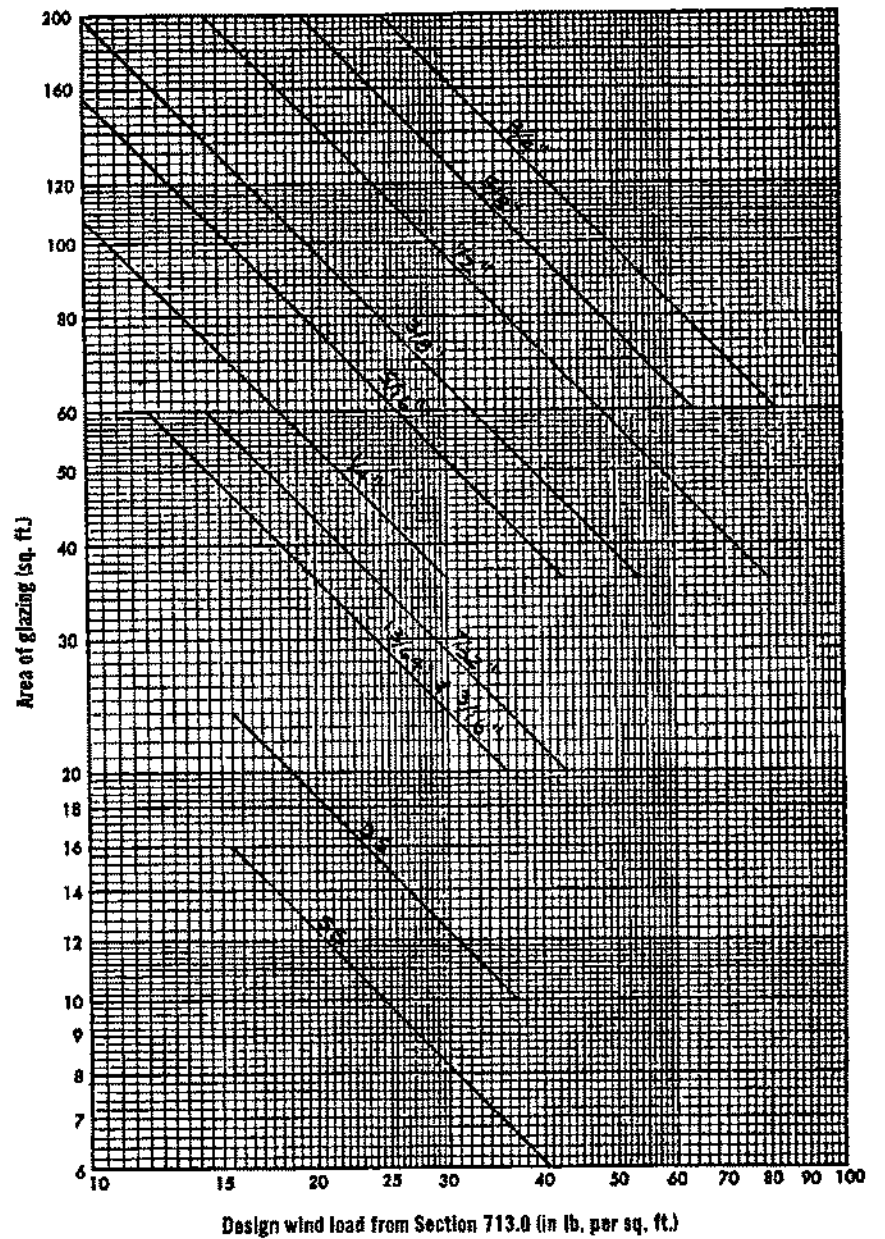
**859.1 Required:** Completely enclosed buildings, without exterior openings in the enclosure walls, or without ready access for the purpose of fighting fire, shall be provided with access panels as required herein.

**859.2 Multi-story buildings:** In all exterior walls of the building required to have thirty (30) foot wide open space adjacent thereto (see Sections 305.2 and 306.2), each floor below the thirteenth (13th) floor shall be provided with access panels as follows:



BUILDING ENCLOSURES, WALLS AND WALL THICKNESS

Table 857.5.4.2  
REQUIRED NOMINAL THICKNESS OF REGULAR PLATE OR SHEET GLASS  
(Based on minimum thicknesses allowed in Federal Specifications DD-G-451b)  
Design Factor = 2.5



## CONNECTICUT BASIC BUILDING CODE/1978

1. if such access panels are not less than thirty-two (32) inches by forty-eight (48) inches in size, they shall be spaced not more than one hundred (100) feet apart in each story; or
2. if such access panels are not less than twenty-two (22) inches by forty-two (42) inches in size, they shall be spaced not more than thirty (30) feet apart in each story.

**859.3 Single-story buildings:** In one (1) story buildings, not more than eighty-five (85) feet in height:

1. roof vents shall be provided, spaced not more than one hundred twenty-five (125) feet apart; and
2. grade level doors, or fire access panels shall be provided spaced not more than one hundred twenty-five (125) feet apart in all exterior walls of the building required to have thirty (30) foot wide open space adjacent thereto (see Sections 305.2 and 306.2)

**859.4 Construction of access panels:** Access panels shall have a sill height of not more than thirty-six (36) inches; shall be readily identifiable from the outside; and shall be readily openable from the outside, or shall be glazed with plain flat glass. When required to be fireresistance rated, access panels shall be equipped with approved opening protectives, complying with Article 9, which are readily openable from both the outside and inside. Access panels shall be not less than thirty-two (32) inches by forty-eight (48) inches in size, except in buildings of moderate fire hazard such as schools and offices, wherein the sizes may be reduced to a minimum of twenty-two (22) inches by forty-two (42) inches.

## SECTION 860.0 STRUCTURAL GLASS BLOCK WALLS

**860.1 Exterior wall panels:** The maximum dimensions of glass block wall panels in exterior walls, when used singly or in multiples forming continuous bands of structural glass blocks between structural supports, shall be twenty-five (25) feet in length and twenty (20) feet in height between structural supports and expansion joints; and the area of each individual panel shall be not more than two hundred and fifty (250) square feet. Intermediate structural supports shall be provided to support the dead load of the wall and all other superimposed loads. When individual panels are more than one hundred and forty-four (144) square feet in area, a supplementary stiffener shall be provided behind the panels, anchored thereto and to the structural supports.

**860.2 Joint materials:** Glass blocks shall be laid up in Type S or N mortar with approved galvanized or other noncorrosive metal wall ties in the horizontal mortar joints of exterior panels. The sills of glass block

## BUILDING ENCLOSURES, WALLS AND WALL THICKNESS

panels shall be coated with approved asphaltic emulsion, or other elastic waterproofing material, previous to laying the first mortar course, and the perimeter of the panels shall be calked to a depth of not less than one-half ( $\frac{1}{2}$ ) inch with non-hardening caulking compound on both faces; or other approved expansion joints shall be provided. When laid up in joint materials other than mortars herein defined, a single panel shall not be more than one hundred (100) square feet in area nor more than ten (10) feet in either length or height.

**860.3 Wind and earthquake loads:** Exterior wall panels shall be held in place in the wall opening to resist both the internal and external pressures due to wind and earthquake loads specified in Sections 712.0, 713.0 and 716.0.

**860.4 Interior wall panels:** Structural glass blocks shall not be used in fire walls or party walls or for load-bearing construction. Such blocks shall be erected with mortar in metal frames or reinforcement as provided in this section for exterior walls or other approved joint materials, except that wood strip framing may be used in partitions not required to be fire-resistance rated.

**860.5 Fire-resistance rating:** Nothing herein contained shall be construed to prohibit the use of glass blocks in an opening protective assembly or non-bearing partition or wall when required to afford a specific fire-resistance rating, provided approval of the building official is secured after satisfactory time-temperature performance under the prescribed test procedure of Article 9.

**860.6 Access panels:** Access panels shall be provided in exterior glass block walls for fire department use to comply with Section 859.0.

## SECTION 861.0 WALL FACINGS AND VENEERS

**861.1 Backing surfaces for veneers:** Veneers for other than frame buildings, shall be attached only to substantial, rigid, noncombustible surfaces which are plumb, straight and of true plane; and wood backing surfaces shall not be used, except in frame construction. The backing shall provide sufficient rigidity, stability and weather resistance; and the veneer shall be installed and anchored as required in this code for the specific material.

**861.2 Veneer thickness:** Materials used for non-bearing veneers on masonry walls shall not have less than the thickness indicated in Table 861.

**861.2.1 Nonstructural:** Masonry or other approved noncombustible materials used as facing on bearing walls or partitions shall not be considered to have structural value and shall be excluded in the determination of required wall thickness.

Table 861  
MINIMUM THICKNESS OF NONBEARING VENEERS ON MASONRY WALLS

Ceramic veneer (architectural terra cotta, anchored type)	.1 inch
Brick	2 inches
Stone (natural)	2 inches
Stone (cast artificial)	1½ inches
Clay tile (structural)	1¾ inches
Clay tile (flat slab)	¼ to 1 inch
Marble slabs	1 inch
Precast stone facing	¾ inch
Structural glass	½ inch
Aluminum clapboard siding	.024 inch
Metal (approved corrosion-resistive)	No. 28 Galvanized Sheet Gage (0.019 in)

**SECTION 862.0 STRUCTURAL GLASS VENEERS**

**862.1 Dimensions:** The minimum thickness of glass veneer shall be eleven thirty-seconds ( $1\frac{1}{32}$ ) inch and the area of individual panels shall not exceed ten (10) square feet, with a maximum length of four (4) feet. The edge of each unit shall be ground square with a slight arris; and all exposed, external corners and angles shall be rounded to a radius of not more than three-sixteenths ( $\frac{3}{16}$ ) inch.

**862.2 Construction**

**862.2.1 Backing surface:** The glass veneer shall be set in mastic cement on a float coat of one (1) inch thick cement mortar reinforced with wire lath attached to noncombustible furring spaced not more than twelve (12) inches on centers.

**862.2.2 Support of veneer:** The base course of glass units shall be supported on a corrosion-resistive metal frame anchored to the backing and calked with a waterproof compound at grade.

**862.3 Reinforcement:** Metal reinforcing of cold formed corrosion-resistive angles of not less than No. 16 Galvanized Sheet Gage (0.064 in.), or other approved reinforcement shall be provided in all horizontal joints anchored into the masonry wall with expansion or toggle bolts.

**862.4 Expansion joints:** Expansion joints shall be provided at ends and intermediate sections calked with an approved waterproofing compound as required by the approved rules. Where necessary for water-tightness, exposed edges shall be protected with corrosion-resistive metal or other approved noncombustible flashing.

**862.5 Other loads:** Signs, awning brackets or other loads shall not be hung directly from glass veneers, but shall be supported on framing anchored to or otherwise supported by the masonry wall, free from contact with the glass.

**SECTION 863.0 THIN STONE AND TILE VENEERS**

**863.1 Size of units:** In localities subject to frost and freezing temperatures, tile and terra cotta units shall be frost-proof and shall not be more than two hundred and eighty-eight (288) square inches in area; and where not subject to frost action, the size of the tile may be increased not more than fifty (50) per cent in area.

**863.2 Construction:** One (1) inch thick marble, granite, terra cotta, and similar materials; or ceramic tile facing one-quarter ( $\frac{1}{4}$ ) to one (1) inch in thickness shall be set in accordance with the applicable standards listed in Appendix B.

**SECTION 864.0 METAL VENEERS**

**864.1 Materials:** Veneers of metal shall be fabricated from approved corrosion-resistive alloys, or shall be covered front and back with approved porcelain enamel, or otherwise treated to render the metal resistant to corrosion.

**864.2 Construction:** The metal veneer shall be securely attached to the masonry or supported on approved metal framing protected by painting, galvanizing or other approved protection, or on wood studs and furring strips, treated with an approved preservative process.

**864.3 Waterproofing:** All joints and edges exposed to the weather shall be calked with approved durable waterproofing material or by other approved means to prevent penetration of moisture.

**864.4 Grounding metal veneers:** Metal veneers on all buildings shall be made electrically continuous by bonding together each course when applied horizontally and each strip or panel when applied vertically.

**864.4.1 Horizontally applied metal veneers:** Electrical continuity between horizontally applied courses of metal veneer shall be assured by bonding each course at all inner and outer corners with a conductor having no greater resistance than the grounding conductor used for grounding the electrical system within the building on which the veneer is applied. All conductors grounding such veneer shall be joined together and attached in an approved manner to the same grounding electrode used to ground the electrical system in the building.

**864.4.2 Vertically applied metal veneers:** Electrical continuity between vertically applied metal veneer shall be assured by bonding each strip of panel at the lower edge with a conductor having no greater resistance than the conductor used for grounding the electrical system within the building on which such veneer is applied. All conductors grounding such veneers shall be joined together and attached in an approved manner to the grounding electrode used to ground the electrical system within the building.

**864.4.3 Grounding in cases where there is no electrical wiring system:** In cases where metal veneer is to be applied on a building with no electrical wiring systems, grounding shall be by one of the methods outlined in Article 250 of the National Electrical Code, if deemed necessary by the building official.

**864.4.4 Alternate methods:** Alternate methods of grounding metal veneer may be used provided they are at least equal in performance to the methods prescribed herein, and further provided that such desired method is first submitted to and approved by the building official.

#### SECTION 865.0 PLASTIC VENEERS

**865.1 General:** Veneers of weather-resisting plastics shall comply with the definition of approved plastics in Section 1900.2.1 and shall be erected and anchored on a foundation coat, waterproofed or otherwise protected from moisture absorption and sealed with a coat of mastic or other approved waterproof coating in accordance with the approved rules.

**865.2 Height limitation:** Plastic veneer shall not be attached to any exterior wall to a height greater than thirty-five (35) feet above grade. Within the fire limits as provided in Section 301.0 exterior veneer shall be limited to the first story.

**865.3 Area limitation:** Sections of plastic veneer shall not exceed two hundred (200) square feet in area. Outside the fire limits the area may be increased by fifty (50) percent.

**865.4 Separation:** Sections of plastic veneer shall be separated by a minimum of four (4) feet vertically.

#### SECTION 866.0 THICKNESS OF SOLID MASONRY WALLS

**866.1 General:** All masonry walls shall be of the minimum thickness specified in the Building Code Requirements for Masonry listed in Appendix B. The combined stress due to all loads shall not exceed the allowable working stresses specified in this code for the materials of construction.

#### SECTION 867.0 THICKNESS OF PANEL WALLS

**867.1 Solid panel walls:** Panel, apron or spandrel walls as defined in this code supported at vertical intervals not exceeding thirteen (13) feet in height, shall not be limited in thickness, provided they meet the fireresistance rating requirements of Article 9 and Table 214, and are constructed of approved noncombustible weather-resisting materials of adequate strength to resist the wind loads specified in Sections 712.0 and 713.0.

## BUILDING ENCLOSURES, WALLS AND WALL THICKNESS

**867.2 Hollow panel walls:** Unless constructed of the materials and thickness specified by the accepted engineering standards for masonry, hollow panel walls shall be tested and approved in the assembled unit as constructed in normal practice to develop the required fire-resistance ratings specified in Table 214 for exposure on both faces.

**867.3 Weather resistance:** When the construction as tested and approved for a fire-resistance rating does not possess the required weather resistance, it shall be covered on the exterior with approved corrosion-resistant metal facings or other approved noncombustible weather-resisting veneers.

**867.4 Anchorage:** All panel walls shall be anchored to the structural frame to insure adequate lateral support and resistance to wind and to earthquake forces where subject to seismic disturbances.

### SECTION 868.0 PARAPET WALLS

**868.1 Required:** Exterior walls required to have a fire-resistance rating of one (1) hour or more shall be constructed with parapet walls having the same fire-resistance rating as the wall upon which they are erected. The height of the parapet shall not be less than thirty (30) inches above the point where the roof surface and the wall intersect.

**868.2 Not required:** Parapets are not required on:

1. exterior walls and fire walls connecting with roofs of fireproof construction (Type IA and IB);
2. an exterior wall of a building, the roof of which is at least three (3) feet lower than the roof of, or any opening in, an adjacent building;
3. exterior walls facing on an unoccupied open space having a width of thirty (30) feet or more;
4. exterior walls of one- and two-family dwellings (use group R-3) or buildings not exceeding one thousand (1,000) square feet in area;
5. exterior walls of a building where the roof has an angle of more than twenty (20) degrees with horizontal; and
6. exterior walls connecting with roofs of noncombustible construction when the exterior wall is carried up tightly against the underside of the roof deck.

**868.3 Construction:** Parapets shall be properly coped and flashed with noncombustible, weatherproof material. All corners of masonry parapet walls shall be reinforced with at least one (1) one-quarter (1/4) inch bar in

every third joint, continuous around the corner and extending into the masonry at least three (3) feet from the corner.

**SECTION 869.0 FOUNDATION WALLS**

**869.1 Design:** Foundation walls shall be designed to resist frost action and to support safely all vertical and lateral loads as provided in Article 7. The maximum stresses due to combined load shall be within the values specified for the materials used in the construction. Unless properly reinforced, tensile stresses shall not exceed those permitted in plain masonry.

**869.2 Minimum thickness:** The thickness of foundation walls shall be not less than the thickness of the wall supported and the minimum thickness shall be limited for the various materials of construction as herein specified. Eight (8) inch foundation walls shall be permitted under brick-veneered frame and under ten (10) inch cavity walls when the total height of the wall supported, including gables, is not more than twenty (20) feet.

**869.2.1 Reinforced concrete:** When reinforced concrete is required to resist all stresses, foundation walls shall be not less than eight (8) inches thick.

**869.2.2 Hollow and solid masonry and mass concrete:** The thickness of masonry foundation walls shall not be less than shown in Table 869 for the type of foundation and superstructure construction used. The combined height of an eight (8) inch foundation wall and the wall supported shall not exceed thirty-five (35) feet.

**Table 869  
THICKNESS OF FOUNDATION WALLS**

Foundation wall construction		Maximum depth below grade (feet) <sup>1,2</sup> Supported wall construction		
Type	Thickness (inches)	Frame	Masonry veneer	Masonry
Hollow masonry	8	4 (6)	4.5 (6)	5 (7)
	10	5 (7)	5.5 (7)	6 (7)
	12	7	7	7
Solid masonry	8	5 (7)	5.5 (7)	6 (7)
	10	6 (7)	6 (7)	6.5 (7)
	12	7	7	7
Mass concrete	8	7	7	7

Note 1. Depth below grade may be increased up to that indicated in parentheses where such increased is warranted by soil conditions and local experience and is approved by the building official.

Note 2. Where height of unbalanced fill (height of finish grade above basement floor or inside grade) exceeds seven (7) feet, foundation wall thickness shall be determined by structural analysis as required in Section 870.2.

**869.2.3 Hollow unit walls:** Foundation walls of approved hollow masonry units shall be provided with not less than four (4) inches of solid masonry at girder bearings or shall be strengthened with buttresses.



## BUILDING ENCLOSURES, WALLS AND WALL THICKNESS

**869.2.4 Rubble stone:** Foundation walls of rough or random rubble stone shall be not less than sixteen (16) inches thick.

**869.2.5 Bonding:** All foundation walls shall be bonded as required for superstructure walls in Section 835.0.

**869.3 Increased thickness with depth:** When any foundation wall, other than a wall that is designed as a retaining wall, extends more than twelve (12) feet below the top of the first floor beams, the thickness of the wall shall be increased four (4) inches for each additional twelve (12) feet or fraction thereof in depth.

**869.4 Corbels on eight inch walls:** Where an eight (8) inch wall is corbeled, the top corbel course shall be a full header course of headers at least six (6) inches in length, extending not higher than the bottom of the floor framing. The maximum projection of one (1) unit shall neither exceed one-half ( $\frac{1}{2}$ ) the depth of the unit nor one-third ( $\frac{1}{3}$ ) its width at right angles to the face which is offset.

**869.5 Lateral stability:** Foundation walls of buildings and structures which serve as retaining walls shall conform to the applicable requirements of Section 870.0 or shall be strengthened with buttresses or additional wall thickness to resist lateral soil and hydrostatic pressure when subjected thereto.

## SECTION 870.0 RETAINING WALLS

**870.1 General:** Walls built to retain or support the lateral pressure of earth or water or other superimposed loads shall be designed and constructed of approved masonry, reinforced concrete, steel sheet piling or other approved materials within the allowable stresses of accepted engineering practice (see Section 874.5).

**870.2 Design:** Retaining walls shall be designed to resist the pressure of the retained material, including both dead and live load surcharges to which they may be subjected, and to insure stability against overturning, sliding, excessive foundation pressure and water uplift.

**870.3 Hydrostatic pressure:** Unless drainage is provided, the hydrostatic head of water pressure shall be assumed equal to the height of the wall.

**870.4 Coping:** All masonry retaining walls other than reinforced concrete walls shall be protected with an approved coping.

**870.5 Guard rails:** Retaining walls with a difference in grade level on each side of the wall in excess of four (4) feet shall be provided with a forty-two (42) inch high guard rail or other approved protective measure.

**SECTION 871.0 ISOLATED PIERS**

**871.1 General:** Isolated masonry piers shall be bonded as required for solid walls of the same thickness and shall be provided with adequate means for distributing the load on the top of the pier.

**SECTION 872.0 WATERPROOFING AND FLOODPROOFING**

**872.1 General:** The exterior structural elements of all buildings herein specified shall be waterproofed in accordance with the approved rules.

**872.2 Steel frame:** Exterior steel columns and girders, before embedment in masonry of the required fireresistance rating specified in Table 214, shall be protected from moisture by approved waterproofing material, a parging coat of cement mortar or by a minimum of eight (8) inches of weather-tight masonry.

**872.3 Chases:** The backs and sides of all chases in exterior walls with less than eight (8) inches of approved masonry to the exterior surface shall be insulated and waterproofed.

**872.4 Foundations:** Exterior walls below grade and the cellar floors of all buildings for institutional and residential uses (use groups I and R) enclosing habitable or occupiable rooms or spaces below grade shall be made watertight, and when necessary shall be reinforced to withstand water pressure as prescribed in Sections 709.0 and 870.0. The basement walls of buildings in the residential use groups and the walls of all habitable and occupiable rooms and spaces below grade shall be protected with not less than a one (1) coat application of approved waterproofing paint, or a one-half (½) inch parging coat of portland cement mortar or other approved dampproof covering.

**872.4.1 Subsoil drains:** Subsoil drains shall be provided around foundations enclosing habitable or usable spaces located below grade and which are subjected to ground water conditions. Drains shall be installed at or below the area to be protected and shall discharge by gravity or by mechanical means into an approved drainage system complying with the plumbing code listed in Appendix B.

**872.5 Types of waterproofing:** The processes and methods used to render buildings, structures or parts thereof watertight as herein required shall comply with accepted engineering practice covering types of waterproofing.

**872.6 Floodproofing:** Where a structure is located within a special flood hazard area as determined by the building official, such a structure shall conform to the provisions of Section 743.0.

**SECTION 873.0 RATPROOFING**

**873.1 General:** All buildings and structures and the walls enclosing habitable or occupiable rooms and spaces in which persons live, sleep or work; or in which feed, food or foodstuffs are stored, prepared, processed, served or sold shall be constructed rat and vermin-proof in accordance with the provisions of this section.

**873.2 Grade protection**

**873.2.1 Apron:** When required for protection against rodents, all exterior walls at and near grade shall be constructed or assembled of component materials, or chemically or otherwise treated to render the construction rat or vermin-proof. When not provided with a continuous masonry foundation wall, a masonry or reinforced concrete apron, not less than four (4) inches in thickness or of other approved nondecayable, water-resisting and rat-proofing material of required strength, shall be installed around the entire perimeter of the building.

**873.2.2 Height of apron:** The apron shall extend sufficiently above grade to provide for the average snow fall in the locality, but not less than eight (8) inches above, nor less than twenty-four (24) inches below grade level; and, if serving as a foundation bearing wall, to sufficiently greater depth to assure protection from frost action as required in Section 724.0. When the superstructure walls are not constructed of masonry, the spaces between studs shall be filled to a height of two (2) feet above grade with concrete or other material indestructible by rats.

**873.3 Grade floors:** Where continuous concrete grade floor slabs are provided, open spaces shall not be left between slab and walls, and all openings in the slab shall be protected.

**873.4 Opening protection**

**873.4.1 Wall openings:** Openings in the apron required for ventilation or other purposes shall be guarded with corrosion-resistive rodent-proof shields of not less than No. 22 Galvanized Sheet Gage (0.034 in.) perforated steel sheets, or No. 20 B & S gage aluminum or No. 16 Galvanized Sheet Gage (0.064 in.) expanded metal or wire mesh screens, with not more than one-half (1/2) inch mesh openings.

**873.4.2 Slab openings:** Access openings in grade floor slabs shall be protected with concrete, masonry, metal or other corrosion-resistive non-combustible covers of adequate strength to support the floor loads.

**873.4.3 Pipes and conduits:** All openings for pipe, conduit, cable and similar purposes at or near grade shall have snugly-fitted collars to eliminate all open spaces.

**SECTION 874.0 PROTECTION AGAINST DECAY AND TERMITES**

**874.1 Approval:** The term "approval" as used in the following statements means approval in accordance with the procedure established by this code.

**874.2 Where conditions are favorable to decay**

**874.2.1 Wood in contact with the ground:** All wood in contact with the ground and supporting permanent structures shall be approved treated wood.

**874.2.2 Untreated wood:** Untreated wood may be used where entirely below ground water level or continuously submerged in fresh water; and may be used for temporary structures and for fences.

**874.3 Wood joists or the bottom of wood structural floors:** When wood joists or the bottom of wood structural floors without joists are closer than eighteen (18) inches, or wood girders are closer than twelve (12) inches, to exposed ground located within the periphery of the building over crawl spaces or unexcavated areas, they shall be approved durable or treated wood. Ventilation shall be provided as required in Section 507.0.

**874.4 Sills:** All sills which rest on concrete or masonry exterior walls and are less than eight (8) inches from exposed earth shall be of approved durable or treated wood.

**874.4.1 Sleepers and sills:** Sleepers and sills on a concrete or masonry slab which is in direct contact with earth shall be of approved durable or treated wood.

**874.4.2 Posts or columns:** Posts or columns in cellars shall be supported by piers projecting at least two (2) inches above the finish floor and separated therefrom by an approved impervious barrier except when approved durable or treated wood is used. Posts or columns used in damp locations below grade shall be of approved durable or treated wood.

**874.4.3 Wall pockets:** Ends of wood girders entering masonry or concrete walls shall be provided with a one-half ( $\frac{1}{2}$ ) inch air space on top, sides and end, unless approved durable or treated wood is used.

**874.4.4 Clearance between wood siding:** Clearance between wood siding and earth on the exterior of a building shall be not less than six (6) inches.

**874.5 Wood used in a retaining wall:** Wood used in a retaining wall shall be approved durable or treated wood, except as follows:

1. when the wall is not more than two (2) feet in height and is located on the property line; or
2. when the wall is not more than four (4) feet in height and is separated from the property line by a minimum distance equal to the height of the wall.

## BUILDING ENCLOSURES, WALLS AND WALL THICKNESS

A retaining wall of durable wood shall not exceed six (6) feet in height. A wood retaining wall shall be separated from any permanent building by a minimum distance equal to the height of the wall.

**874.6 Where approved durable or treated woods are required:** Where approved durable or treated woods are required in this code, the building official may require identification by an approved mark or certificate of inspection. All lumber and plywood required to be preservatively treated shall bear an approved quality mark of an inspection agency that maintains continuing control, testing and inspection over the quality of the product as described in the quality control standards listed in Appendix C.

**874.7 Pressure treatment:** Where pressure treatment of wood members is required by this code, preservatives and methods of treatment shall conform to the standards for pressure treatment and preserving of lumber listed in Appendix C.

**874.7.1 Geographical areas:** In those geographical areas where experience has demonstrated a need for greater protection, the requirements in the preceding items may be modified to the extent required by local conditions.

### SECTION 875.0 FIRE PROTECTION AND FIRESTOPPING

**875.1 General:** To prevent the free passage of flame through concealed spaces or openings in event of fire, provision shall be made to trim all combustible framing away from sources of heat, to provide effective fire barriers against the spread of fire between all subdivisions and all stories of the building, to provide adequate fire separation against exterior exposure, and to firestop all vertical and horizontal draft openings as specified herein or in Section 919.2.

**875.2 Beam separation in ordinary construction (Types 3B and 3C):** All wood and other combustible floor, roof and other structural members framing into masonry walls shall be cut to a bevel of three (3) inches in the depth and shall project not more than four (4) inches into the wall; and the distance between embedded ends of adjacent beams or joists entering into the wall from opposite sides shall be not less than four (4) inches.

**875.3 Girder separation in heavy timber construction (Type 3A):** Wood girders framing into walls shall have at least eight (8) inches of masonry between their ends and the outside face of walls and at least eight (8) inches of masonry between adjacent beams entering the wall from opposite sides. The girders shall be fire-cut, supported in pockets or in self-releasing metal boxes, or otherwise supported to minimize destruction of the wall in the event of fire.

**CONNECTICUT BASIC BUILDING CODE/1978**

**875.4 Flues and chimneys:** Combustible framing shall be trimmed not less than two (2) inches away from all flues, chimneys and fireplaces, and six (6) inches away from flue openings.

**875.5 Fireplaces:** Hearths of noncombustible construction and fireboards, mantels and other combustible trim shall comply with Section 1007.0 governing fireplace construction.

**875.6 Concealed roof spaces:** Concealed roof spaces of all buildings, except where the roof and attic are of noncombustible or fireproof construction, shall be subdivided into areas not exceeding three thousand (3,000) square feet by means of approved fire stops. When doors or other openings are provided in such subdividing partitions, they shall be of noncombustible or similarly protected materials and the construction shall be tightly fitted around all ducts or other assemblies piercing such partitions.

**875.6.1 Automatic fire suppression system:** Attic spaces, equipped with an approved automatic fire suppression system throughout, may be subdivided into areas not exceeding nine thousand (9,000) square feet by means of approved fire stops in compliance with this section.

**875.7 Architectural trim:** Exterior cornices and other exterior architectural elements, where permitted of combustible construction in Section 924.0, or when erected with combustible frames, shall be firestopped at maximum intervals of twenty (20) feet. If non-continuous, they shall have closed ends, with at least four (4) inches separation between adjoining sections.

**875.8 Combustible trim and finish:** The space behind combustible trim and finish where permitted under this code and all other hollow spaces where permitted in fireresistance rated construction shall be back-filled with noncombustible materials or firestopped as required in Section 920.0.

**875.9 Firestopping:** Firestopping meeting the requirements of Section 919.0 shall be provided in stud walls and partitions and in all furred or studded off spaces of masonry walls at each floor level; between the ceiling of the top story and roof space and at maximum intervals of eight (8) feet in all such spaces; at the top and bottom and at least once in the middle of each run of stairs; in concealed wall pockets for sliding doors; at openings for pipes, belts, shafting, chutes and conveyors passing through combustible floors or partitions with close-fitting noncombustible caps or metal shutters or other approved noncombustible means; and in all other locations that would permit the free travel of flame.

**SECTION 876.0 THERMAL INSULATING MATERIALS**

**876.1 General:** Insulating batts, blankets, fills or similar types of materials, including vapor barriers and breather papers or other coverings

which are a part of the insulation, incorporated in construction elements shall be installed and used in a manner that will not increase the fire hazard characteristics of the building or any part thereof.

**876.2 Installation in Type 1 and Type 2 construction:** Such materials when exposed as installed in buildings of fireproof or non-combustible (Types 1 or 2) construction shall comply with the requirements of Section 904.2 for Class I materials.

**876.3 Installation in Type 3 and Type 4 construction:** Such materials, when exposed as installed in attic spaces in buildings of ordinary or frame (Types 3 and 4) construction shall comply with the requirements of Section 904.2 for Class III materials.

**876.4 Facings and coverings:** Vapor barriers, breather papers or other coverings of insulating materials, when installed adjacent to or not more than one and one-half (1½) inches from the unexposed surface of ceiling or sidewall interior finish, or when installed in completely enclosed wall, ceiling joist or rafter spaces and firestopped as required in Section 875.0, are not required to have a flame resistance rating.

**876.5 Foam plastics:** Foam plastics shall have a smoke developed rating not greater than four hundred fifty (450) when tested in accordance with ASTM E-84 listed in Appendix G.

Unless otherwise specifically approved, based on accepted diversified tests such as ASTM E-84, ignition temperature and full scale corner tests, the requirements listed below shall apply to all uses of foam plastics in or on walls and ceilings.

1. Foam plastics having a flame spread of seventy-five (75) or less may be used within the cavity of a masonry wall, in cores of masonry units, or within the stud space of an unprotected wood frame wall or on the inside of a building to cover the surface of a complying wall or ceiling if it is fully protected by a thermal barrier of fire-resistive materials having a finish rating of not less than fifteen (15) minutes.
2. Foam plastic insulation having a flame spread of seventy-five (75) or less when tested in a thickness of four (4) inches, may be used in thicknesses up to ten (10) inches for use in cold storage rooms, food processing rooms, ice plants and similar rooms when the room is protected with automatic sprinklers and the insulation is covered with one-half (½) inch portland cement plaster or other approved

material having a finish rating of not less than fifteen (15) minutes.

3. Foam plastic insulation having a flame spread of twenty-five (25) or less may be used in a thickness of not more than four (4) inches when the foam plastic is covered by a metal facing of No. 20 B&S Gage (0.032 inches) aluminum or No. 26 Manufacturers Standard Gage (0.0179 inches) steel or greater thicknesses of either metal and the insulated area is protected with automatic sprinklers. Such panels shall not be used where noncombustible or fireresistance rated construction is required.

#### SECTION 877.D SAFETY DEVICES

**877.1 Springs in roll-up doors:** Any spring in the operating mechanism of a roll-up door shall be secured by an approved safety cable or other approved device to keep the spring in place in the event of its failure.



## **ARTICLE 9**

### **FIRERESISTIVE CONSTRUCTION REQUIREMENTS**

#### **SECTION 900.0 GENERAL**

**900.1 Scope:** The provisions of this article shall govern the use and design of all materials and methods of construction in respect to required fireresistance rating and flameresistance as determined by the potential fire hazard of the use and occupancy of the building or structure and the location and function of all integral structural and other fire-protective elements of the building; and the installation of safeguards against the spread of fire to and from adjoining structures.

**900.2 Performance standards:** The requirements of this article shall constitute the minimum functional performance standards for fire-protection purposes; and shall not be deemed to decrease or waive any strength provisions or in any other manner decrease the requirements of this code in respect to structural safety.

**900.3 Use of combustibles:** All materials and forms of construction that develop the fireresistance rating required by this code shall be acceptable for fireproofing and structural purposes; except that the use of combustible component materials in structural units or structural assemblies shall be limited in types of construction specified in Sections 215.0 and 216.0 and in the following Section 900.3.1.

**900.3.1 Combustible components:** Combustible aggregates may be incorporated in concrete mixtures approved for fireresistance rated construction as provided in Sections 810.0 and 849.0 for gypsum concrete, in Section 844.0 for cinder concrete, and any other approved component material or admixture may be used in assemblies that meet the fireresistive test requirements of this code; and wood nailing strips or any other material of similar combustible characteristics may be embedded in concrete and masonry construction for securing trim and finish.

#### **SECTION 901.0 PLANS AND SPECIFICATIONS**

**901.1 General:** Plans for all buildings shall designate the type of construction and the fireresistance rating of all structural elements as required

by this code. The plans or specifications shall include documentation or supporting data substantiating all required fireresistance ratings.

**SECTION 902.0 FIRE HAZARD CLASSIFICATION**

**902.1 General:** The degree of fire hazard of buildings and structures for each specific use group as defined by the fire grading in Table 902 shall determine the requirements for fire walls, fire separation walls and the segregation of mixed uses as prescribed in Section 213.0 and all structural members supporting such elements unless otherwise provided for in this code.

**902.2 Unclassified uses:** The building official shall determine the fire hazard classification of a building or structure design for a use not specifically provided in Table 902 in accordance with the fire characteristics and potential fire hazard of the use group which it most nearly resembles; or its designation shall be fixed by the approved rules.

**Table 902  
FIRE GRADING OF USE GROUPS**

Class	Use group	Fire grading in hours
A-1	Assembly, theatres	3
A-2	Assembly, night clubs	3
A-3	Assembly, recreation centers, lecture halls, terminals, restaurants	2
A-4	Assembly, churches, schools	1½
B	Business	2
F	Factory and industrial	3
H	High hazard	4
I-1	Institutional, restrained occupants	3
I-2	Institutional, incapacitated occupants	2
M	Mercantile	3
R-1	Residential, hotels	2
R-2	Residential, multifamily dwellings	1½
R-3	Residential, 1 and 2 family dwellings	1
S-1	Storage, moderate hazard	3
S-2	Storage, low hazard	2

**SECTION 903.0 FIRERESISTANCE TESTS**

**903.1 Structural building assemblies:** Built-up masonry units and composite assemblies of structural materials including walls, partitions, columns, girders, beams and slabs and assemblies of slabs and beams or other combinations of structural units for use in floor and roof construction shall be regulated by the fireresistance ratings of Table 214. The fireresistance rating of the floor and ceiling assemblies shall extend to and be tight against the exterior wall.

**903.2 Column, beam and girder protection**

**903.2.1 Tests without load:** To evaluate column, beam and girder protection for structural units when the fireproofing is not a structural part of the element, in lieu of full size tests of loaded specimens, the structural sections encased in the material proposed for use as insulation and fire protection may be subjected to the standard test procedure without load.

**903.2.2 Alternate protection:** When it can be shown to the building official that the structural integrity of structural framing elements will not be reduced below a safe level by a fire, within the building or in an adjacent building, having a severity corresponding to the fire resistance rating required for the elements, through the use of heat shields, separations or other approved means of protection, fire protective coverings or insulating enclosing materials need not be provided for such elements.

**903.3 Roof coverings**

**903.3.1 Test procedure and classification:** Roof covering materials shall be classified in accordance with the severity of exposure to exterior fire and ability to resist the spread of fire from surrounding buildings and structures when tested in accordance with the roof covering standard listed in Appendix G.

**903.3.2 Class A roofings:** Are those which are effective against severe fire exposure. In addition to roof coverings which have been classified, asbestos cement, metal, portland cement concrete, slate, concrete masonry and tile are acceptable where Class A roof coverings are required.

**903.3.3 Class B roofings:** Are those which are effective against moderate fire exposure.

**903.3.4 Class C roofings:** Are those which are effective against light fire exposure.

**903.3.5 Non-classified roofings:** Are those not tested.

**903.4 Opening protectives**

**903.4.1 Fire assembly:** Shall include the fire doors, fire window, or fire damper and all required hardware, anchorage, frames and sills necessary for the assembly.

**903.4.2 Labeled fire doors:** Opening protective assemblies including the frames, hardware and operation which comply with the standards listed in Appendix G and accepted practice, including shop inspection, of an accredited authoritative testing or inspection agency shall be deemed to meet the requirements of this code for their recommended and approved locations and use as listed in Section 915.0.

**903.4.3 Door openings more than 120 square feet:** Fire doors for openings which are more than one hundred and twenty (120) square feet in area may be approved as conforming to all the standard construction requirements of tested and approved fire door assemblies except as to size.

**CONNECTICUT BASIC BUILDING CODE/1978**

**903.4.4 Labeled fire windows and shutters:** Fire window assemblies and shutters which comply with Section 916.0, and the standards listed in Appendix G and accepted practice of an accredited authoritative testing or inspection agency shall be deemed to meet the requirements of their recommended and required locations under this code.

**903.4.5 Labeled fire dampers:** Only fire dampers which have been tested in accordance with the standards listed in Appendix G and listed by an accredited authoritative testing or inspection agency shall be deemed to meet the requirements of this code.

**903.5 Combustibility tests:** Where the behavior of materials under exposure to fire is specified in this code, the characteristics of materials shall be determined by the following tests and criteria.

**903.5.1 Tests:** The following tests shall serve as criteria for acceptance of building materials (when tested in the form and thickness in which they are used) as set forth in Sections 215.0, 216.0 and 217.0 governing the combustibility of building materials for use in Types 1, 2 and 3 construction.

1. Materials which pass the test procedure for defining noncombustibility of elementary materials set forth in ASTM E 136 listed in Appendix G when exposed to a furnace temperature of thirteen hundred eighty-two (1382) degrees F. for a period of five (5) minutes, and do not cause a fifty-four (54) degrees F. above the furnace air temperature at the beginning of the test and which do not flame after an exposure of thirty (30) seconds.
2. Materials having a structural base of noncombustible material as defined in paragraph 1 above, with a surfacing not more than one-eighth ( $\frac{1}{8}$ ) inch thick which has a flame-spread rating not greater than fifty (50) when tested in accordance with the method of test for surface burning characteristics of building materials as set forth in ASTM E 84 listed in Appendix G.

The term noncombustible does not apply to the flame spread characteristics of interior finish or trim materials. A material shall not be classed as noncombustible building construction material which is subject to increase in combustible or flame spread rating beyond the limits herein established through the effects of age, moisture or other atmospheric conditions.

**903.6 Fire-retardant treated wood**

**903.6.1 Tests:** Where permitted for use as a structural element, fire-retardant treated wood shall be tested in accordance with the standard method of test for surface burning characteristics of building materials (tunnel test) listed in appendix G and shall show a flame spread rating not greater than twenty-five (25) when exposed for a period of not less than thirty (30)

## FIRERESISTIVE CONSTRUCTION REQUIREMENTS

minutes, without evidence of significant progressive combustion. The material shall bear the identification of an accredited authoritative testing or inspection agency showing the performance rating thereof.

**903.6.2 Use limitations:** Wood that has been pressure treated with fire-retardant chemicals in accordance with the standards for pressure treatment of lumber or plywood in buildings listed in Appendix G or treated by other approved means during manufacture may be used in Types 1 and 2 construction for partitions, structural elements and roof framing and sheathing as indicated by Note h in Table 214, provided that the assembly in which such material is used shall produce the required fireresistance rating when tested in accordance with the standard method of fire test for building construction and materials listed in Appendix G. Where the material is to be subjected to sustained high humidity or exposed to the weather, it shall be further identified to indicate that there is not an increase in listed fire hazard classification after being subjected to the Underwriters' Laboratories (ULI) Standard Rain Test. Where used as a structural element, such material shall meet the requirements of Section 903.6.1. Where used as interior finish, such material shall meet the requirements of Section 904.0.

### SECTION 904.0 FLAMERESISTANCE TESTS

**904.1 General:** All materials which are required to restrict the spread of flame or to be flameresistant under the provisions of this code, including, but not limited to, interior finish materials, fire-retardant treated wood, tents and tarpaulins, and interior hangings and decorations, shall meet the requirements for their respective use and classifications as determined by the applicable test procedures listed in Appendix G.

**904.2 Interior finish materials:** All materials used for interior finish shall be classified in accordance with the Method of Test for Surface Burning Characteristics of Building Materials as listed in Appendix G.

Table 904  
INTERIOR FINISH CLASSIFICATION

Class of material	Surface burning characteristics test (tunnel test)
I	0 to 25
II	26 to 75
III	76 to 200

#### 904.3 Interior hangings and decorations

**904.3.1 Acceptance criteria:** Where required to be flameresistant under the provisions of this code all materials specified or required for artistic enhancement or use for decorations, draperies, curtains, scenery and hang-

ings shall comply with this section for noncombustible or fire-retardant materials or if treated to be flameresistant shall not generate smoke or gases more dense or more toxic than those given off by untreated wood or paper burning under comparable conditions when tested in the vertical flame test listed in Appendix G.

**904.3.2 Limitation of approval:** All approvals of organic decorative material shall be limited to one (1) year. The owner or his authorized agent shall file an affidavit with the building official certifying that the process and materials used comply with this code and stating the date of treatment and the warranted period of effectiveness of the process.

**904.3.3 Field test for decorative materials:** The building official shall subject decorative materials where required to be flameresistant to a field test consisting of the application of the flame from a three-quarter ( $\frac{3}{4}$ ) inch paraffin candle for a period of one (1) minute. The material shall not flash, nor support combustion, nor continue to flame for more than two (2) seconds or glow for more than thirty (30) seconds after removal of the test flame.

**904.3.4 Replacement of defective materials:** All treated hangings, draperies, canvas and other decorative and tent materials that fail to meet the field test requirements shall be retreated or replaced by an approved installation.

#### SECTION 905.0 SPECIAL FIRERESISTIVE REQUIREMENTS

**905.1 General:** In buildings or parts thereof of the uses and types of construction herein specified, the general fireresistive requirements of Table 214 and the height and area limitations of Table 305 shall be subject to the exceptions and modifications described in Sections 905.2 through 905.5.

**905.2 Public garages:** All existing buildings and structures altered or converted for use to a garage, motor vehicle repair shop or gasoline service station, more than one (1) story in height, unless of fireproof (Type 1) construction, or heavy timber (Type 3A) construction, shall have the partitions, columns and girders and all floor and roof construction protected and insulated with noncombustible materials or assemblies of component materials having a fireresistance rating of not less than one (1) hour; except that existing roof trusses shall be exempt from all fireproofing requirements.

**905.3 Petroleum bulk storage buildings:** Warehouses for the bulk-storage of not more than fifty thousand (50,000) gallons of lubricating oils with a flash point of not less than three hundred (300) degrees F, in approved sealed containers may be erected outside the fire limits of masonry wall (Type 3) construction not more than five thousand (5,000) square feet in area and not more than one (1) story or twenty (20) feet in

## FIRERESISTIVE CONSTRUCTION REQUIREMENTS

height; or to proportionate areas in other types of construction as regulated by Table 305. Not more than one (1) motor vehicle may be stored in such buildings unless separately enclosed with a fire separation wall of two (2) hour fire resistance rating.

**905.4 Packing and shipping rooms:** Every packing or shipping room located on or below a floor occupied for use group M (mercantile) use shall be separated therefrom by fire separation walls or floor-ceiling assemblies of not less than the fire resistance rating of the type of construction but not less than one (1) hour fire resistance rating.

**905.5 Truck loading and shipping areas:** Truck loading and shipping areas shall be permitted within any use group B (Business) building, provided such areas are enclosed in construction of not less than the fire resistance rating of the type of construction as set forth in Table 214 but not less than one (1) hour, and direct access is provided therefrom to the street.

### **905.6 Use group R (residential) buildings**

**905.6.1 Protected ordinary construction:** Multi-family dwellings (use group R-2) of protected ordinary (Type 3B) construction may be increased to six (6) stories or seventy-five (75) feet in height when the first floor construction above the basement or cellar has a fire resistance rating of not less than three (3) hours and the floor area is subdivided by two (2) hour fire walls into fire areas of not more than three thousand (3,000) square feet.

**905.6.2 Protected noncombustible construction:** When of protected noncombustible (Type 2B) construction, multi-family dwellings (use group R-2) may be increased to nine (9) stories or one hundred (100) feet in height when separated by not less than fifty (50) feet from any other building on the lot and from interior lot lines, the exitways are segregated in a fire area enclosed in a fire wall of two (2) hour fire resistance rating and the first floor construction has a fire resistance rating of not less than one and one half (1½) hours.

**905.6.3 Mercantile and business uses:** The first floor of buildings of unprotected noncombustible (Type 2C), masonry wall (Type 3C) or frame (Type 4B) construction may be occupied for mercantile (M) and business (B) use groups, provided the floor-ceiling and enclosure walls are protected to afford one (1) hour fire resistance rating and the exitways from the residential floors are separately enclosed in accordance with the requirements of Article 6.

### **905.7 Grade floor protection**

**905.7.1 Non-fireproof construction:** In all buildings other one- and two-family dwellings (use group R-3) and other than fireproof (Type 1) construction with habitable or occupiable stories or basements below grade, the floor-ceiling assemblies and supports below the grade floor shall be protected by one (1) of the following methods:

CONNECTICUT BASIC BUILDING CODE/1978

1. fire-resistance rating of not less than one (1) hour, or
2. heavy masonry (Type 3A) construction, or
3. automatic fire suppression system.

The fire-resistance rating provided shall not be less than the rating required by Table 214 for type of construction.

**905.7.2 Protected noncombustible construction:** In all buildings of protected noncombustible (Type 2A) construction, more than four (4) stories or fifty (50) feet in height, in other than residential (R) use groups, the floor-ceiling assembly above the basement or cellar shall be constructed with a fire-resistance rating of not less than two (2) hours.

**905.7.3 Basement assembly uses:** Places of public assembly for amusement, entertainment, instruction, or service of food or refreshment shall not be located in stories or rooms below grade unless the floor-ceiling assembly above and below is of not less than one and one-half (1½) hour fire-resistance rating.

**905.8 Noncombustible construction exemptions:** One (1) story buildings of Type 2C construction which do not exceed three thousand (3,000) square feet in area in all use groups except high hazard (H), assembly (A) and institutional (I) shall be exempt from all protected exterior wall requirements.

**905.9 Interior partitions:** In buildings and structures of other than institutional (I) and residential (R) use groups of fireproof (Type 1) and protected noncombustible (Types 2A and 2B) constructions, partitions of a single thickness of wood or approved composite panels, and glass or other approved materials of similar combustible characteristics, may be used to subdivide rooms or spaces into offices, entries, or other similar compartments, provided they do not establish a corridor serving an occupant load of thirty (30) or more in areas occupied by a single tenant and not exceeding five thousand (5,000) square feet between fire separation assemblies or fire walls. An area not exceeding seventy-five hundred (7,500) square feet may be subdivided with fire-retardant treated wood when complying with Section 903.6.

**905.10 Plenums:** The use of uninhabited basements, cellars, crawl space, cavity walls, areas above ceilings or attic spaces as supply, make up, exhaust air or return air plenums or ducts is prohibited.

**Exception:** Air ceiling plenums may be installed as supply or return air plenums in all occupancies except one- and two-family dwellings, provided such air plenums meet the requirements of other applicable articles of this code and of the mechanical code listed in Appendix B and provided fuel-fired equipment or exposed combustible materials are not located therein. The use of air ceiling plenums shall be confined to one (1) fire area. The floor or roof assembly above an unlisted air ceiling plenum shall not



## FIRERESISTIVE CONSTRUCTION REQUIREMENTS

depend upon the air ceiling for a portion of its fire-resistive rating. Insulated cold water, hot water, steam, fire protection and electric lines are allowed in air ceiling plenums. The use of air ceiling plenums in evaporative cooling systems is prohibited. Panning of the joist or stud space for return air is permitted in one- and two-family dwellings only.

**905.11 Fire dampers:** Fire dampers shall be provided in accordance with the requirements of the State Fire Safety Code.

### SECTION 906.0 EXTERIOR WALLS

**906.1 General:** All exterior walls shall comply with the structural provisions of Articles 7 and 8 and with the fire-resistance rating requirements of Table 214.

**906.2 Exceptions:** The provisions of this code shall not be deemed to prohibit the omission of exterior walls for all or part of a story when required for special uses and occupancies; except that when so omitted, the open areas shall be separated from the rest of the area and from the upper and lower stories of the building by wall and floor construction of the fire-resistance rating required in Table 214; and except as otherwise specifically permitted in this code, the piers, columns and other structural supports within the open portion shall be constructed with the fire-resistance rating required for exterior bearing walls in Table 214, but in no case less than the fire grading for the use group as defined in Table 902.

#### 906.3 Vertical separation of windows

**906.3.1 Where required:** In all buildings and structures designed for business (B), factory and industrial (F), high hazard (H), mercantile (M) or storage (S) uses, exceeding three (3) stories or forty (40) feet in height, openings located vertically above one another in exterior walls which are required to have a fire-resistance rating of more than one (1) hour shall be separated by apron or spandrel walls not less than three (3) feet in height extending between the top of any opening and the bottom of the opening next above.

**906.3.2 Fire-resistance rating:** The apron or spandrel walls shall be constructed with the same fire-resistance rating required for the exterior wall in which it is located as specified in Table 214; except when such required rating exceeds one (1) hour, approved wire glass construction in fixed noncombustible sash and frames not exceeding one-third ( $\frac{1}{3}$ ) of the area of such apron or spandrel may be located therein, and except further that in exterior non-bearing enclosure walls which are not required to be of more than one (1) hour fire-resistance rating the provisions of this section in respect to apron or spandrel walls shall not apply.

**SECTION 907.0 FIRE WALLS AND PARTY WALLS**

**907.1 General:** Walls shall have sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall and shall be constructed of any approved noncombustible materials providing the required strength and fireresistance rating specified in Table 214 for the type of construction, but not less than the fire grading of the use group specified in Table 902. The construction shall comply with all the structural provisions for bearing or nonbearing walls of this code.

**907.2 Solid masonry:** When constructed of solid masonry, the wall thickness shall be not less than the requirements of Section 866.0.

**907.3 Reinforced concrete:** When constructed of reinforced concrete, the wall thickness shall be not less than nine (9) inches for the uppermost thirty-five (35) feet or portion thereof measured down from the top of the wall.

**907.4 Cutting walls:** A wall, eight (8) inches or less in thickness, shall not be cut for chases or socketed for insertion of structural members subsequent to erection (see Section 837.0).

**907.5 Hollow walls:** When combustible members frame into hollow walls or walls of hollow units, all hollow spaces shall be solidly filled for the full thickness of the wall and for a distance not less than four (4) inches above, below and between the structural members, with noncombustible materials approved for firestopping in Section 919.0. The wall shall be not less than the minimum thickness specified in the Building Code Requirements for Masonry listed in Appendix B.

**907.6 Combustible insulation:** The building official may permit the application of cork, fiberboard or other combustible insulation if laid up without intervening air spaces and attached directly to the face of the wall, and protected on the exposed surface as provided in Sections 823.0 and 876.0.

**907.7 Continuity of walls:** In all buildings and structures, walls shall be continuous from foundation to two (2) feet eight (8) inches above the roof surface, except for the following.

1. The wall may terminate at the underside of the roof deck where the roof is of noncombustible construction and is properly firestopped at the wall.
2. The wall may terminate at the underside of the roof deck in Types 3 and 4 construction if properly firestopped, and the roof sheathing or deck is constructed of approved noncombustible materials for a distance of four (4) feet on either side of the wall and combustible material does not extend through or over the wall.

**907.8 Offset fire walls:** If fire walls are offset at intermediate floor levels in fire-protected skeleton frame construction, the offset floor construction

## FIRERESISTIVE CONSTRUCTION REQUIREMENTS

and the intermediate wall supports shall be constructed of noncombustible materials with a fireresistance rating not less than that required for the fire wall.

### SECTION 908.0 FIRE WALL OPENINGS

**908.1 General:** Openings in fire walls shall not exceed the limits in size and area herein prescribed and the opening protectives shall conform to the provisions of Sections 903.0 and 914.0.

**908.2 Size of opening:** Except in sprinklered buildings, an opening through a fire wall shall not exceed one hundred and twenty (120) square feet in area, and aggregate width of all openings at any floor level shall not exceed twenty-five (25) per cent of the length of the wall.

**908.2.1 First story exception:** When the entire areas on both sides of a fire wall are protected with an approved automatic fire suppression system complying with the requirements of Article 12, openings designed for the passage of trucks may be constructed not more than two hundred and forty (240) square feet in area with a minimum distance of three (3) feet between adjoining openings. Such openings shall be protected with approved automatic opening protectives of three (3) hour fireresistance rating and provided with an approved water curtain for such openings in addition to all other requirements.

**908.3 Opening protectives:** Every opening in a fire wall shall be protected on both sides with an approved automatic protective assembly as herein required, or the approved labeled equivalent, except horizontal exit openings.

**908.3.1 Hold-open devices:** Heat-actuated hold-open devices used on an automatic fire assembly providing three (3) hour fireresistance rating shall be installed, one (1) on each side of the wall at ceiling height where the ceiling is more than three (3) feet above the opening. Fire assemblies protecting openings required to have one and one-half (1½), one (1) or three-fourths (¾) hour fireresistance rating, and which are not exitway doors, may be activated in a similar manner, or by a single fusible link incorporated in the closing device. Doors opening in a means of egress shall be closed by actuation of a smoke detector conforming to the standards listed in Appendix I.

### SECTION 909.0 FIRE SEPARATION WALLS

#### 909.1 Uses

**909.1.1 Mixed uses:** When a building contains more than one (1) occupancy, and each part of the building is separately classified as to use, the mixed uses shall be completely separated with fire separation walls as specified in Section 213.0.

**909.1.2 One- and two-family dwellings:** The requirements for the construction of fire separation walls in buildings containing single-family dwellings or two-family dwellings (use group R-3) are as follows.

**Two-family dwelling, superimposed dwelling units:** When one (1) dwelling unit of a two-family dwelling is located wholly or partly above the other dwelling unit, the two (2) dwelling units shall be completely separated by fire separation walls and floor-ceiling assemblies of not less than one (1) hour fire-resistance rated construction.

**Two-family dwelling, side-by-side dwelling units:** When adjacent dwelling units of a two-family dwelling are attached by a common wall, said wall shall be a fire separation wall, having a minimum one (1) hour fire-resistance rating that shall serve to completely separate the dwelling units.

**Multiple, single-family dwellings; side-by-side:** When multiple, single-family dwellings (use group R-3) are attached by a common wall, said wall shall be a fire separation wall, having a minimum one (1) hour fire-resistance rating. Said wall shall extend from the foundation to the underside of the roof sheathing, and to the inside of the exterior wall sheathing.

**Multiple, two-family dwellings; side-by-side:** When multiple, two-family dwellings (use group R-3) are attached by a common wall, said wall shall be a fire separation wall, having a minimum one (1) hour fire-resistance rating. Said wall shall extend from the foundation to the underside of the roof sheathing and to the inside of the exterior wall sheathing.

**909.1.3 Exitways:** Fire separation walls required for the enclosure of exitways and areas of refuge shall be constructed of masonry, reinforced concrete or any other approved noncombustible materials having the minimum fire-resistance rating prescribed by Table 214; except that such walls may be constructed of combustible materials as regulated by Sections 616.9 and 909.3.

**909.1.4 Other uses:** Fire separation walls used for subdividing purposes other than exitways and areas of refuge shall be constructed of the types of materials and have the minimum fire-resistance rating as prescribed by Table 214 for the type of construction.

## **909.2 Openings**

**909.2.1 Size:** Exitway doors located in fire separation walls shall be limited to a maximum aggregate width of twenty-five (25) per cent of the length of the wall and the maximum area of any single opening shall not exceed forty-eight (48) square feet.

**909.2.2 Protectives:** All opening protectives in fire separation walls shall comply with the provisions of Section 903.0 and shall have the minimum fire-resistance rating as set forth in Section 915.0.

## **909.3 Combustible stair enclosures**

## FIRERESISTIVE CONSTRUCTION REQUIREMENTS

**909.3.1 Construction:** Stair enclosures constructed of approved combustible assemblies protected with component materials to afford the required fire-resistance ratings shall be continuous through combustible floor construction and shall provide an unbroken fire barrier in combustion with protected floors, ceilings and fire doors separating the exitways from the unprotected areas of the building. Such enclosures shall be firestopped to comply with Sections 875.9 and 919.0.

**909.3.2 Openings for lighting:** Openings for the purpose of providing light in such enclosures may be protected with wired glass with single panes not more than three hundred and sixty (360) square inches in area and a total area in one (1) story of not more than seven hundred and twenty (720) square inches. Such light panels shall comply with the provisions of Section 917.0, and shall be contained in stationary sash and frames of steel or other approved noncombustible materials.

**909.4 Continuity:** All fire separation walls shall extend from the top of the fire-resistance rated floor-ceiling assembly below to the fire-resistance rated floor-ceiling or roof-ceiling assembly above, unless otherwise provided for in this code, and shall be securely attached thereto. Where these walls enclose required exitways, areas of refuge and shafts, or where these walls separate mixed uses, they must be continuous through all concealed spaces such as the space above a suspended ceiling, and they must be constructed tight to the underside of the floor slab or roof deck above. The supporting construction shall be protected to afford the required fire-resistance rating of the wall supported. All hollow vertical spaces shall be firestopped at every floor level as required in Sections 875.0 and 919.0.

**909.5 Exterior walls:** Where exterior walls serve as a part of a required fire-resistance rated enclosure, such walls shall comply with the requirements of Table 214 for exterior walls and the fire enclosure requirements shall not apply.

### SECTION 910.0 VERTICAL SHAFTS

**910.1 General:** The provisions of this section shall apply to all vertical shaft enclosures, except as provided for stairway enclosures in Sections 616.9 and 909.0, refuse chutes in Section 1107.0, and elevator and dumb-waiter hoistways in Section 1809.0.

**910.2 Open shaft enclosures:** The enclosing wall of shafts that are open to the outer air at the top shall be constructed of materials specified in Article 8 for exterior walls of buildings and structures of the required fire-resistance rating specified in Table 214.

**910.3 Covered shaft enclosures:** The enclosing walls and the top of interior covered shafts shall be constructed of approved masonry, rein-

forced concrete or other approved construction with a fire-resistance rating of not less than two (2) hours, except as provided in Section 910.4.

**910.4 Shafts in residential buildings:** In one- and two-family dwellings of other than fireproof or noncombustible construction, shafts may be supported on and constructed of combustible materials or assemblies having a fire-resistance rating of not less than one (1) hour and shall extend not less than three (3) feet above the roof with a ventilating skylight of noncombustible construction as specified in Section 924.0.

**910.5 Duct and pipe shafts:** In all buildings other than one- and two-family dwellings, vertical pipes arranged in groups of two (2) or more which penetrate two (2) or more floors and occupy an area of more than one (1) square foot, and vertical ducts which penetrate two (2) or more floors, shall be enclosed by construction of not less than one (1) hour fire-resistance rating to comply with this section. All combustible pipes and ducts connecting two (2) or more stories shall be enclosed as indicated herein.

**910.6 Top enclosure**

**910.6.1 Not extending to roof:** A shaft that does not extend into the top story of the building shall be enclosed with top construction of the same strength and fire-resistance rating as the floors of the building or structure in which it occurs, but not less than that of the fire-resistance rating of the shaft enclosure. Such shafts shall be provided with noncombustible vents for the relief of smoke and gases in the event of fire, with an area not less than ten (10) per cent of the shaft area.

**910.6.2 Extending to roof:** All shafts that extend to the roof of the buildings shall be covered at the top with a thermostatically controlled skylight of not less than ten (10) per cent of the area of the shaftway, constructed in accordance with the requirements of Section 925.0. The automatic operation of the skylight may be controlled by fusible links designed to operate at a fixed temperature of not more than one hundred and sixty (160) degrees F. or by electric or pneumatic operation under a rapid rise in temperature at a rate of fifteen (15) to twenty (20) degrees F. per minute or by other approved methods.

**910.6.3 Alternate shaft ventilation:** The skylight herein required may be replaced by a window of equivalent area in the side of the shaft, provided the sill of such window is not less than two (2) feet above the adjoining roof, is equipped with an automatic vent opening, does not face on an interior lot line or within ten (10) feet thereof, and is not located within twenty (20) feet of an opening in adjacent walls.

**910.7 Bottom enclosure:** All shafts that do not extend to the bottom of the building or structure shall be enclosed at the lowest level with construction of the same strength and fire-resistance rating as the lowest floor

through which it passes, but not with a fireresistance rating less than that of the shaft enclosure.

**910.8 Existing shaftways:** In all existing shaftways of buildings of assembly (use group A) and institutional classifications (use group I), which are not already enclosed as herein required, the building official shall direct such construction as he may deem necessary to insure the safety of the occupants, subject to review by a board of survey as provided in Section 127.0.

**910.9 Shaft openings:** Openings other than necessary for the purpose of the shaftway shall not be constructed in shaft enclosures; and all openings shall be protected with approved fire doors, fire windows or fire shutters complying with the provisions of Sections 914.0, 915.0 and 916.0.

#### SECTION 911.0 FIRERESISTANCE OF STRUCTURAL MEMBERS

**911.1 Requirements:** The fireresistance rating of construction assemblies and structural members shall comply with the requirements of Table 214 and Section 903.0.

**911.2 Protection of structural members:** Columns, girders, trusses, beams, lintels, or other structural members that are required to have a fireresistance rating and that support more than two (2) floors or one (1) floor and roof, or support a bearing wall, or a non-bearing wall more than two (2) stories high, shall be individually protected on all sides for their length or height with materials having the required fireresistance rating. All other structural members required to have a fireresistance rating may be protected by individual encasement, by a membrane or ceiling protection as specified in Section 912.0, or by a combination of both.

**911.3 Embedments and enclosures:** Pipes, wires, conduits, ducts or other service facilities shall not be embedded in the required fire protective covering of a structural member that is required to be individually encased.

**911.4 Impact protection:** Where the fire protective covering of a structural member is subject to impact damage from moving vehicles, the handling of merchandise, or other activity, the fire protective covering shall be protected by corner guards or by a substantial jacket of metal or other noncombustible material, to a height adequate to provide full protection, but not less than five (5) feet from the finished floor.

**911.5 Exterior structural members:** Structural members located in exterior walls or along the outer lines of a building or structure shall be protected as required by Table 214 for exterior bearing walls for the type of construction and shall be protected against corrosion by an approved method complying with Section 872.0. The interior faces of exterior structural members shall be protected and insulated with cover-

ings of the required fire-resistance rating specified for interior structural members in Table 214.

**911.6 Wall beams:** Beams and girders which support walls required to have a fire-resistance rating shall be protected to afford not less than the fire-resistance rating of the wall supported, but the fire-resistance rating shall not be less than one (1) hour for members supporting masonry walls.

**911.7 Wall lintels:** Unless supported or suspended from structural wall girders protected with insulating materials of the required fire-resistance rating or when the opening is spanned by a masonry arch of the required strength, all lintels over openings in masonry walls more than eight (8) feet in length shall be protected as required for structural members supporting walls for the type of construction.

**911.7.1 Stone lintels:** The use of stone lintels on spans exceeding four (4) feet shall not be permitted unless supplemented by fire-resistance rated structural members or masonry arches of the required strength to support the superimposed loads.

**911.8 First story columns:** In buildings of exterior masonry wall (Type 3) construction, required fire protection may be omitted from first story columns supporting enclosure walls located on the street lot line.

## SECTION 912.0 FIRE-RESISTANCE RATED FLOOR/ROOF-CEILING ASSEMBLIES

**912.1 Installation of ceiling fixtures:** Fire-resistive ceilings which constitute an integral part of a floor or roof assembly to meet a required fire-resistance rating may have openings to accommodate noncombustible piping, ducts or electric outlets. The aggregate area of such openings in the ceiling shall be not greater than one hundred (100) square inches in any one hundred (100) square feet of ceiling area. The fixtures and attachments shall be installed so as not to decrease the fire-resistance rating of the assembly. All duct openings shall be protected with approved noncombustible fire dampers.

**912.2 Ceiling panels:** Where the weight of lay-in ceiling panels, used as a part of fire-resistive floor-ceiling or roof-ceiling assemblies, is not adequate to resist an upward force of one (1) pound per square foot (psf), wire or other approved devices shall be installed above the panels to prevent vertical displacement under such upward force.

**912.3 Firestopping of ceiling spaces:** Floor and roof construction in which the secondary structural members are not individually encased in fire-resistance rated materials or assemblies of component materials, shall be firestopped in areas of not more than three thousand (3,000) square feet with noncombustible materials. Such firestopping shall comply with Section 919.0, or solid web structural members may be substituted for such



**CONNECTICUT BASIC BUILDING CODE/1978**

construction shall have approved opening protectives meeting the requirements of this code and the provisions of Article 4 for special uses and occupancies.

**914.2 Horizontal exposure:** Approved protectives shall be provided in every opening where the fire separation is less than fifteen (15) feet.

**914.3 Vertical exposure:** Approved protectives shall be provided in every opening which is less than fifty (50) feet vertically above the roof of an adjoining or adjacent structure that is within a horizontal distance of thirty (30) feet of the wall in which the opening is located, unless such roof construction affords a fireresistance rating of not less than one and one-half (1½) hours.

**914.4 First story openings:** The required fireresistance rated opening protectives may be omitted in first story openings facing on a street or other public space not less than thirty (30) feet wide, when not extending more than twenty-five (25) feet above grade.

**914.5 Protected openings:** Required protective assemblies in exterior openings shall be fixed, or they may be self-closing, or provided with approved automatic self-closing devices.

**914.6 Unprotected openings:** Where a fireresistance rating is not required by this section for openings in exterior walls, windows and doors may be of unprotected wood. Glazing shall conform to the requirements of Article 8 and Article 19.

**SECTION 915.0 FIRE DOORS**

**915.1 Fire door assemblies:** Approved fire door assemblies as defined in this code shall be constructed of any material or an assembly of component materials which meets the test requirements of Sections 903.0 and 904.0 and the fireresistance ratings herein required, unless otherwise specifically provided for in this code.

**Table 915  
FIRE DOOR FIRERESISTANCE RATINGS**

Location	Fireresistance rating in hours
Fire walls and fire separation walls of three (3) or more hour construction . . . . .	3
Fire walls, fire separation walls and exitway enclosures of two (2) hour construction . . . . .	1½
Shaft enclosures and elevator hoistways of two (2) hour construction . . . . .	1½
Shaft enclosures of one (1) hour construction . . . . .	1
Fire separation walls of one (1) hour construction . . . . .	¾

**915.2 Labeled protective assemblies:** Labeled protective assemblies meeting the requirements of Sections 903.4.2 and 903.4.4 and the applicable standards listed in Appendix I, including shop inspection, shall be approved for use as provided for in this code.

**915.3 Multiple doors**

## FIRERESISTIVE CONSTRUCTION REQUIREMENTS

**915.3.1 Fire walls:** Two (2) doors, each with a fireresistance rating of one and one-half (1½) hours, installed on opposite sides of the same opening, shall be deemed equivalent in fireresistance rating to one (1) three (3) hour fire door.

**915.3.2 Fire separation walls:** Two (2) doors of three-quarter (¾) hour fireresistance rating each, installed on opposite sides of the same opening shall be deemed equivalent in fireresistance rating to a one and one-half (1½) hour fire door; except when used in a required exitway.

**915.4 Glass panels:** Wired glass panels shall be permitted in fire doors within the limitations of Section 917.0 and as herein specifically prescribed.

**915.5 Closing devices:** Except as may be otherwise provided for openings in fire walls and fire separation walls, all fire doors shall be self-closing and shall be closed during occupancy of the building or part thereof. The building official may accept the use of rate of rise heat actuated devices, or smoke detection devices, meeting the requirements of the approved rules on doors that are normally required to be open for ventilation or other specified purposes when the safety of the occupants is not endangered thereby.

### SECTION 916.0 FIRE WINDOWS AND SHUTTERS

**916.1 Fireresistance rating:** Approved assemblies of fire windows and fire shutters shall meet the test requirements of Sections 903.0 and 904.0 or shall be approved labeled assemblies meeting the requirements of Section 903.4.4.

**916.1.1 Exception:** Steel window frame assemblies of one-eighth (⅛) inch minimum solid section or of not less than No. 18 Manufacturers Standard Gage (0.048 in.) formed sheet steel members fabricated by pressing, mitering, riveting, interlocking or welding and having provision for glazing with one-quarter (¼) inch wire glass as required in Section 917.0 when securely installed in the building construction and glazed with one-quarter (¼) inch labeled wired glass, shall be deemed to meet the requirements for a three-quarter (¾) hour fire window assembly.

**916.2 Window mullions:** All metal mullions which exceed a nominal height of twelve (12) feet shall be protected with insulating materials to afford the same fireresistance rating as required for the wall construction in which the protective is located.

**916.3 Swinging fire shutters:** When fire shutters of the swinging type are used in exterior openings, not less than one (1) row in every three (3) vertical rows shall be arranged to be readily opened from the outside and shall be identified by distinguishing marks or letters not less than six (6) inches high.

**916.4 Rolling fire shutters:** When fire shutters of the rolling type are used, they shall be of approved counterbalance construction that can be readily opened from the outside.

## FIRERESISTIVE CONSTRUCTION REQUIREMENTS

firestops. Where floor and roof construction with accompanying ceilings is made entirely of noncombustible or fireproof construction, firestopping may be omitted.

**912.4 Firestopping of wood floor construction:** Where ceilings are suspended below solid wood joists or, suspended or attached directly to the bottom of wood trusses with open web structural members, the space between the ceiling and the floor above shall be firestopped in areas of not more than one thousand (1,000) square feet with materials meeting the requirements of Section 919.0.

**912.5 Location of firestops:** Firestops shall be located directly over tenant separation walls, if the walls do not extend to the floor above.

**912.6 Unusable space:** In an assembly required to be of one (1) hour fire resistance rating, the ceiling membrane may be omitted over unusable space or the flooring may be omitted where unusable space occurs above.

**912.7 Openings in fire resistance rated floors:** The required fire resistance rating of floor or floor/ceiling assemblies shall be maintained where a penetration is made for electrical, mechanical, plumbing and communication conduits, pipes and systems.

### SECTION 913.0 ROOF CONSTRUCTION

**913.1 General:** Roof construction shall be protected with noncombustible material or assemblies of noncombustible materials to afford the fire resistance rating required by Table 214 as herein modified.

**913.2 Roofs 20 feet or higher:** When every part of the structural framework of roofs in Type 1 or Type 2 buildings is twenty (20) feet or more above the floor immediately below, all fire protection of the structural members may be omitted, including the protection of trusses, roof framing and decking. Heavy timber members, in accordance with Section 217.1, may be used for such unprotected members in one (1) story buildings.

**913.3 Roof slabs, arches and decking:** Where the omission of fire protection from roof trusses, roof framing and decking is permitted, the horizontal or sloping roofs in Type 1 and Type 2 buildings, immediately above such members, shall be constructed of noncombustible materials of the required strength without a specified fire resistance rating, or of mill type construction in buildings not over five (5) stories or sixty-five (65) feet in height.

**913.4 Firestopping:** Firestopping of ceiling and attic spaces shall be provided as required by Sections 875.0, 912.0 and 919.0.

### SECTION 914.0 EXTERIOR OPENING PROTECTIVES

**914.1 Where required:** Where specified herein, the exterior openings of all buildings and structures other than churches (use group A-4), residential buildings (use groups R-2 and R-3), buildings of unprotected noncombustible (Type 2C) construction, and buildings of frame (Type 4)

**SECTION 917.0 WIRED GLASS**

**917.1 Maximum size:** One-quarter (1/4) inch wired glass, which has been listed and labeled for use in approved labeled opening protectives, may be used with the size limitations described in Table 917.

**Table 917  
LIMITING SIZE OF WIRED GLASS PANELS**

Rating, opening	Max. area sq. in.	Max. height inches	Max. width inches
3 hour, Class A door	0	0	0
1 & 1 1/2 hour, Class B doors	100	33	10
3/4 hour, Class C door	1296	54	54
1 1/2 hour, Class D door	0	0	0
3/4 hour, Class E door	1296	54	54
Fire windows	1296	54	54

**917.1.1 Fire walls:** Wire glass in fire doors located in fire walls shall be prohibited, except when serving as horizontal exits, the self-closing swinging door may be provided with a vision panel of not more than one hundred (100) square inches.

**917.1.2 Fire separation walls:** Wired glass vision panels may be used in fire doors of one and one-half (1 1/2) hour fire-resistance rating intended for use in fire separation walls; but the glass panels shall not be more than one hundred (100) square inches.

**917.2 Exitway protectives:** Unless specifically required in Article 4 to be solid in such locations where unusually hazardous conditions prevail, fire doors in elevator and stairway shaft enclosures may be equipped with approved wired glass vision panels which shall be so located as to furnish clear vision of the passageway or approach to the elevator or stairway. Such vision panels shall not exceed the size limitations specified for Class B doors.

**917.3 Fire separation walls:** One-quarter (1/4) inch wired glass panels may be used in fire separation walls used for subdividing purposes as set forth in Section 909.1.3, provided the required fire-resistance rating of the wall does not exceed one (1) hour. The maximum size of such panels shall not exceed the limitations for a three-quarter (3/4) hour Class C door.

**SECTION 918.0 FIRERESISTIVE REQUIREMENTS FOR PLASTER**

**918.1 Thickness of plaster:** The required thickness of fire-resistance rated plaster protection shall be determined by the prescribed fire tests for specified use and type of construction and in accordance with the provisions of Section 819.0 for interior plastering and Section 820.0 for exterior plastering. The thickness in all cases shall be measured from the face of the

## FIRERESISTIVE CONSTRUCTION REQUIREMENTS

lath when applied to fiber board, wood, or gypsum lath and from the back of metal lath.

**918.2 Plaster equivalents:** For fireresistive purposes, one-half ( $\frac{1}{2}$ ) inch of unsanded gypsum plaster shall be deemed equivalent to three-quarter ( $\frac{3}{4}$ ) inches of one (1) to three (3) sanded gypsum or one (1) inch portland cement sand plaster.

**918.3 Noncombustible furring:** In fireproof (Type 1) and noncombustible (Type 2) construction, plaster shall be applied directly on masonry or on approved noncombustible plastering base and furring.

**918.4 Double reinforcement:** Except in solid plaster partitions, or when otherwise determined by the prescribed fire tests, plaster protections more than one (1) inch in thickness shall be reinforced with an additional layer of approved lath imbedded at least three quarter ( $\frac{3}{4}$ ) inch from the outer surface and fixed securely in place.

**918.5 Plaster alternates for concrete:** In reinforced concrete construction, gypsum or portland cement plaster may be substituted for one-half ( $\frac{1}{2}$ ) inch of the required poured concrete protection, except that a minimum thickness of three-eighth ( $\frac{3}{8}$ ) inch of poured concrete shall be provided in all reinforced concrete floors and one (1) inch in reinforced concrete columns in addition to the plaster finish and the concrete base shall be prepared in accordance with Section 820.7.

### SECTION 919.0 FIRESTOPPING

**919.1 Where required:** Firestopping shall be designed and constructed to close all concealed draft openings and to form effectual fire barriers against the spread of fire between stories of every building and in all open structural spaces therein, including the following locations: for the subdivision of attic spaces in Section 875.6; for combustible wall, partition and floor framing in Section 875.0; for ceiling spaces in Section 912.0; for open spaces behind acoustical and other finishes in Section 921.0; for floor sleeper spaces in Section 922.0; and for pipe, duct and flue openings in the mechanical code listed in Appendix B.

**919.2 Firestopping materials:** All firestopping shall consist of approved noncombustible materials securely fastened in place. Firestops of two (2) thicknesses of one (1) inch lumber with broken lap joint or one thickness of  $\frac{3}{4}$ -inch plywood with joints backed by  $\frac{3}{4}$ -inch plywood or of two (2) inch lumber installed with tight joints shall be permitted in open spaces of wood framing.

**919.3 Required inspection:** Firestopping shall not be concealed or covered from view until inspected and approved by the building official.

**SECTION 920.0 INTERIOR FINISH AND TRIM**

**920.1 General:** Interior finish and interior trim of buildings shall conform to the requirements of this section. Interior finish shall include all wainscoting and paneling or other finish applied structurally or for acoustical treatment, insulation, decoration or similar purposes. The use of a surface finish of paper or of material of not greater fire hazard than paper shall not be prohibited provided such finish does not exceed one twenty-eighth (1/28) of an inch in thickness, and is applied directly to a noncombustible base or substrate meeting the requirements of Section 903.6.2. Show windows in the first story of buildings may be of wood or of unprotected metal framing.

**920.2 Exposed construction:** These requirements shall not be considered as requiring the installation of interior finish, but where construction or fire protection materials are exposed in rooms or spaces used for the occupancies specified, the hazard from rate of flame spread of such exposed materials shall be not greater than that of the interior finish permitted for such occupancy or use. Exposed portions of structural members complying with the requirements for heavy timber type construction in Sections 217.0 and 853.0 shall not be subject to interior finish regulations.

**920.3 Smoke or gases:** Interior finish materials shall not be permitted that have a smoke developed factor greater than four hundred and fifty (450) when tested in accordance with the method of test for surface burning characteristics of building materials listed in Appendix G. When restrictions are not otherwise established in this code, interior finish is not controlled, except that pyroxlin or similar finishes shall not be applied which, as dry films, produce excessive smoke or toxic fumes when exposed to fire.

**920.4 Materials:** Material may be used for interior finish and trim only as specifically provided in this code for the occupancy or use of the space in which it is installed. Use of any material for floor finish, interior finish, and trim in a building of Type 1 or Type 2 construction within the scope permitted in this section or Section 922.0 shall not declassify the building with respect to its type of construction.

**920.4.1 Foam plastics:** Foam plastics shall not be used as interior finish except as provided in Section 876.5, or as interior trim except as provided in Section 920.6.

**920.5 Interior finish:** Interior finish of wall and ceilings shall have a flame spread rating not greater than that designated by the class prescribed for the various occupancy groups listed in Table 920 when tested in accordance with the requirements of Section 904.0.

FIRERESISTIVE CONSTRUCTION REQUIREMENTS

Table 920  
INTERIOR FINISH REQUIREMENTS

Use groups	Required vertical exitways and passageways (d)	Corridors providing exitway access	Rooms or enclosed spaces (a)
A-1 Assembly, theatres	I	I	II (b)
A-2 Assembly, night clubs	I	I	II (b)
A-3 Assembly, halls, terminals, restaurants	I	I	II (b)
A-4 Assembly, churches, schools	I	I	III
B Business	I	II	III
F Factory and industrial	I	II	III
H High hazard	I	II	III
I-1 Institutional, restrained	I	I	I (c)
I-2 Institutional, incapacitated	I	II	I (c)
M Mercantile walls, ceilings	I	II	III
R-1 Residential, hotels	I	II	III
R-2 Residential, multi-family dwellings	I	II	III
R-3 Residential, 1 and 2 family dwellings	III	III	III
S-1 Storage, moderate hazard	I	I	III
S-2 Storage, low hazard	I	II	III

Note a. Requirements for rooms or enclosed spaces are based upon spaces enclosed in partitions of the building or structure and where fire-resistance rating is required for the structural elements the enclosing partitions shall extend from the floor to the ceiling. Partitions which do not comply with this shall be considered as enclosing spaces and the rooms or spaces on both sides thereof shall be counted as one. In determining the applicable requirements for rooms or enclosed spaces, the specific use or occupancy thereof shall be the governing factor, regardless of the occupancy group classification of the building or structure. When an approved automatic fire suppression system is provided, the interior finish of Class II or III materials may be used in place of Class I or II materials respectively, where required in the table.

Note b. Class III interior finish materials may be used in place of assembly with a capacity of three hundred (300) persons or less.

Note c. Class III interior finish materials may be used in administrative areas. Class II interior finish materials may be used in individual rooms of not over four (4) persons capacity. Provisions in Note a allowing a change in interior finish classes when the fire suppression protection is provided shall not apply.

Note d. Class III interior finish materials not in excess of ten (10) percent of the aggregate wall and ceiling areas of any room or space may be used for trim and incidental finish in use groups where interior finish of Class I or II is required.

Note e. Class III interior finish materials may be used in mercantile occupancies of three thousand (3,000) square feet or less gross area. Used for sales purposes on the street floor only. (Balcony permitted).

**920.5.1 Basements:** In buildings other than one- and two-family residences, Class I or II interior finish shall be used in all basements or other underground spaces from which there is not direct exit to the outside of the building if subject to occupancy for any purpose other than storage or service facilities.

**920.5.2 Maximum flame spread:** Interior finish materials with flame spread classifications in excess of two hundred (200) shall not be used in any room or space subject to human occupancy, except to such extent as may be specifically permitted by the building official on the basis of a finding that such use does not significantly increase the life hazard.

**920.6 Interior trim:** Baseboards, chair-rails, mouldings, trim around openings and other interior trim, not in excess of ten (10) per cent of the aggregate wall and ceiling areas of any room or space, may be of Class I, II or III materials, except that trim around fire windows and fire doors shall comply with the requirements of Section 915.0 and Section 916.0.

**920.7 Carpets:** Carpet type floor coverings shall qualify under the provisions of the Department of Commerce (DOC) "Pill Test" (DOC FF-1-70) listed in Appendix G.

#### SECTION 921.0 APPLICATION OF INTERIOR FINISH

**921.1 Attachment:** Where interior finish is regulated by the requirements of this code, interior finish materials shall be applied or otherwise fastened in such a manner that they will not readily become detached when subjected to room temperatures of two hundred (200) degrees F. or less for thirty (30) minutes, or otherwise become loose through changes in the setting medium from the effects of time or conditions of occupancy.

**921.2 Application to structural elements:** Interior finish materials applied to walls, ceilings, or structural elements of a building or structure which are required to be fire-resistance rated or to be constructed of noncombustible component materials, shall be applied directly against the exposed surface of such structural elements, or to furring strips attached to such surfaces with all concealed spaces created thereby firestopped where in excess of ten (10) square feet in area or eight (8) feet in any dimension.

**921.3 Furred construction:** Where walls, ceilings or other structural elements are required to be fire-resistance rated or to be constructed of noncombustible component materials and interior finish is set out or dropped distances greater than one and three-quarter (1¾) inches from the surface of such elements, only material of which both faces qualify as Class I shall be used, unless the finish material is protected on both sides by an automatic fire suppression system (see Note a to Table 920) or is attached to a noncombustible backing complying with Section 921.6 or to furring strips applied directly to such backing as provided in Section 921.2.

**921.4 Heavy timber construction:** Interior finish materials may be applied directly to the wood members and decking of heavy timber (Type 3 A) construction, where permitted, or to furring strips applied to such members or wood decking as provided in Section 921.2.

**921.5 Class II and III material:** Interior finish materials, other than Class I material, which are less than one-fourth (¼) inch in thickness shall be applied directly against a noncombustible backing or a backing com-



plying with the requirements of Section 903.6.2 unless the tests under which such material has been classed were made with the materials suspended from the noncombustible backing.

**921.6 Backing material:** Backing for interior finish materials shall be a continuous surface with permanently tight joints, equal in area to the area of the finish, and extending completely behind such finish in all directions; and may be of any materials meeting the requirements of this code for noncombustible classification of material under Section 903.5.1 or of fire-retardant treated wood. When the backing does not constitute an integral part of the structural elements or system, it shall be attached directly to the structural elements or to furring strips as required for the application of finish according to Section 921.2, or may be suspended from the structural members at any distance provided concealed spaces created thereby shall be firestopped in accordance with the applicable requirements of this code. Where Class III interior finish is applied to a continuous noncombustible backing beneath wood joist construction, the allowable area for firestopping required in Section 912.4 may be increased to three thousand (3,000) square feet.

**SECTION 922.0 COMBUSTIBLE MATERIALS PERMITTED IN  
FLOOR CONSTRUCTION OF TYPE 1 AND TYPE 2 BUILDINGS**

**922.1 General:** Except as provided in Section 616.0 for stairs and Section 417.0 for theatres and similar places of public assembly (use groups A-1 and A-2), the use of combustible materials in or on floors of Type 1 and Type 2 buildings shall be herein specified.

**922.2 Sleepers, bucks, and grounds:** Floor sleepers, bucks, nailing blocks and grounds may be constructed of combustible materials, provided the space between the fireresistance rated floor construction and the flooring is either solidly filled with noncombustible materials or firestopped in areas of not more than one hundred (100) square feet, provided such open spaces shall not extend under or through permanent partitions or walls.

**922.3 Flooring:** Wood finish floorings may be attached directly to the embedded or firestopped wood sleepers and wood finish flooring shall be permitted when cemented directly to the top surface of approved fireresistance rated construction or cemented directly to a wood subfloor attached to sleepers as provided in Section 922.2. Combustible insulating boards not more than one-half ( $\frac{1}{2}$ ) inch thick and covered with approved finished flooring may be used for sound deadening or heat insulating when attached directly to a noncombustible floor assembly or to wood subflooring attached to sleepers as provided in Section 922.2.

**SECTION 923.0 DECORATIVE MATERIAL RESTRICTIONS**

**923.1 General:** In places of public assembly, all draperies, hangings, and other decorative materials suspended from walls or ceilings shall be noncombustible or flameresistant meeting the requirements of Section 904.0 as herein specified.

**923.2 Noncombustible:** The permissible amount of noncombustible decorative hangings shall not be limited.

**923.3 Flameresistant:** The permissible amount of flameresistant decorative hangings shall not exceed ten (10) per cent of the total wall and ceiling area.

**SECTION 924.0 EXTERIOR TRIM RESTRICTIONS**

**924.1 Gutters and leaders:** All gutters and leaders hereafter placed on buildings and structures other than frame (Type 4) buildings, one- and two-family dwellings and private garages and similar accessory buildings shall be constructed of noncombustible materials.

**924.2 Architectural trim**

**924.2.1 Construction requirements:** All architectural trim, such as cornices and other exterior architectural elements attached to the exterior walls of buildings of Types 1 and 2 construction shall be constructed of approved noncombustible materials and shall be secured to the wall with metal or other approved noncombustible brackets; except that outside the fire limits, such trim may be of combustible material when the building does not exceed three (3) stories or forty (40) feet in height. Combustible trim may be used on all buildings of Types 3 and 4 construction.

**924.2.2 Location:** When combustible architectural trim is located along the top of exterior walls it must be completely backed up by the exterior wall and shall not extend over or above the top of exterior walls.

**924.2.3 Firestopping:** Continuous exterior architectural trim constructed of combustible materials shall be firestopped as required in Section 875.0.

**924.3 Combustible half timbering:** In buildings of masonry (Type 3) construction that do not exceed three (3) stories or forty (40) feet in height, exterior half-timbering and similar architectural decorations may be constructed of wood or other equivalent combustible materials, provided such trim is backed up solidly with approved noncombustible materials.

**924.4 Balconies:** All exterior balconies attached to or supported by buildings of any type of construction shall be constructed of noncombustible materials.

**Exception:** Exterior balconies attached to or supported by buildings of

## FIRERESISTIVE CONSTRUCTION REQUIREMENTS

Types 3 and 4 construction not over two (2) stories in height may be of unprotected noncombustible materials or frame construction. Balconies of frame construction shall afford the fireresistance rating required by Table 214 for floor construction and the aggregate length shall not exceed fifty (50) per cent of the building perimeter.

**924.5 Bay and oriel windows:** All bay and oriel windows attached to or supported by walls other than frame construction shall be of noncombustible construction, framed with brackets of steel, concrete or other approved noncombustible materials, unless specifically exempted by Section 302.0.

**924.6 Existing combustible construction:** Any existing cornice or other exterior architectural element constructed of wood or similar combustible materials may be repaired with the same material to the extent of fifty (50) per cent of its area in any one (1) year if the public safety is not thereby endangered.

**924.7 Wood veneers:** Inside the fire limits wood veneers are permitted in accordance with Section 302.0.

### SECTION 925.0 ROOF STRUCTURES

**925.1 General:** All construction, other than aerial supports, clothes dryers and similar structures less than twelve (12) feet high, water tanks and cooling towers as hereinafter provided and flag poles, erected above the roof of any part of any building or structure located within the fire limits or of any building or structure more than forty (40) feet in height outside the fire limits shall be constructed of noncombustible materials.

**925.2 Scuttles:** Trap doors and scuttles as required by Section 617.0 shall be not less than two (2) feet by three (3) feet in size. In Types 1 and 2 construction, trap doors and scuttles shall be of approved noncombustible materials.

#### 925.3 Skylight

**925.3.1 Sash and frames:** Sashes and frames of all skylights on buildings of Types 1 and 2 construction shall be constructed of steel or other approved noncombustible materials. In foundries or buildings where acid fumes deleterious to metal are incidental to the use of the building, treated wood or other approved noncorrosive materials shall be permitted.

**925.3.2 Glass, wired or plain:** Skylights shall be glazed with wired glass or of approved glass block construction conforming to Sections 811.0 and 860.0, except that skylights placed over shafts and stair enclosures and skylights used for emergency heat and smoke ventings shall be glazed with plain glass not over one-eighth ( $\frac{1}{8}$ ) inch thick. A single panel of wired glass in skylights shall not exceed seven hundred twenty (720) square inches in

area or forty-eight (48) inches in any dimension. Light transmitting plastic may be used as specified in Section 1905.0.

**925.3.3 Screens:** Plain glass skylights shall be protected by substantial corrosion-resistive metal or other approved noncombustible screens having a mesh not less than three-quarter ( $\frac{3}{4}$ ) by three-quarter ( $\frac{3}{4}$ ) inches nor larger than one-by-one (1x1) inches, constructed of not lighter than No. 12 B and S Gage (0.0808 inch) wires. The screen shall be erected at a distance of not less than four (4) nor more than ten (10) inches above all glazed portions of the skylight and shall project on all sides for a distance of not less than the height of the screen above the glass. A similar screen shall be placed below the skylight to afford protection to the occupants of the building. The provisions for wired glass or screen protection shall not apply to glass block skylights or to greenhouse construction.

**925.4 Penthouses:** Penthouses shall be considered a part of the next lower story and the enclosure shall conform to the requirements for exterior walls of the building type as regulated by Table 214 and Article 8 except as modified herein.

**925.4.1 Recessed walls:** When the exterior wall of a penthouse is recessed five (5) feet or more from the exterior wall of the next lower story and the exterior wall of the next lower story is required to have a fireresistance rating of greater than one and one-half ( $1\frac{1}{2}$ ) hours, the penthouse exterior wall may be constructed with a fireresistance rating of not less than one and one-half ( $1\frac{1}{2}$ ) hours, covered on the outside with noncombustible, weatherproof material and supported on protected steel or reinforced concrete construction.

**925.4.2 Doors, frames, and sash:** Doors, frames, and window sash, except where otherwise specifically required to be fireproof or fireresistance rated under this code, shall be constructed the same as other similar elements in the building or structure.

**925.5 Other enclosed roof structures:** Enclosed roof structures, other than the penthouses as defined in Article 2, shall be considered a story of the building and the enclosure shall conform to the requirements for exterior walls of the building type as regulated by Table 214 and Article 8 and the provisions described in the following Sections 925.5.1 and 925.5.2.

**925.5.1 Noncombustible materials:** Unless constructed of masonry or reinforced concrete in accordance with Article 8, roof structures erected on buildings and structures of fireproof or noncombustible (Types 1 or 2) constructions shall be enclosed in walls of noncombustible materials having a fireresistance rating of not less than one (1) hour, protected with weather-resistive roof coverings complying with Section 926.0.

**925.5.2 Combustible materials:** Roof structures erected on the roof of exterior masonry buildings (Type 3) and protected frame buildings (Type

## FIRERESISTIVE CONSTRUCTION REQUIREMENTS

4A) may be constructed of combustible materials protected to afford a one (1) hour fireresistance rating covered on the outside with approved roofing materials.

### 925.6 Mansard roofs and other sloping roofs

**925.6.1 High slope roofs:** Every mansard roof or other sloping roof having a pitch of more than sixty (60) degrees to the horizontal hereafter erected on any building or structure of other than Type 4 frame construction more than three (3) stories or forty (40) feet in height shall be constructed of noncombustible materials with a fireresistance rating of not less than one (1) hour; except that when the building is more than seven (7) stories or eighty-five (85) feet in height, such roofs shall afford the same fireresistance rating required for the exterior walls of the building but need not exceed one and one-half (1½) hour fireresistance rating.

**925.6.2 Low slope roofs:** When the pitch is less than sixty (60) degrees to the horizontal, the mansard roof or other sloping roof located on any building may be constructed of the same materials as required for the roof of the building.

**925.7 Dormers:** The sides and roofs of dormers shall be of the same type of construction as the main roof construction; except that where a side of the dormer is merely a vertical extension of an exterior wall it shall be subject to the same fireresistance rating requirements as apply to the wall of the building. The roofs of dormers shall be protected with approved roof coverings complying with Section 926.0. The side of dormers shall be protected with approved roof coverings or with material which would be permitted for covering the exterior walls of the building.

### 925.8 Water tanks

**925.8.1 Supports:** Water tanks having a capacity of more than five hundred (500) gallons placed in or on a building shall be supported on masonry, reinforced concrete, steel or other approved noncombustible framing or on timber conforming to heavy timber mill construction (Type 3A); provided that, when such supports are located in the building above the lowest floor, they shall be fireresistance rated as required for fireproof (Type 1A) construction.

**925.8.2 Emergency discharge:** A pipe or outlet shall be located in the bottom or in the side close to the bottom, or the tank shall be fitted with a quick-opening valve to enable the contents to be discharged in an emergency to a suitable drain complying with the plumbing code listed in Appendix B.

**925.8.3 Location:** A tank shall not be located over or near a stairway or elevator shaft unless a solid roof or floor deck is constructed underneath the tank.

## CONNECTICUT BASIC BUILDING CODE/1978

**925.8.4 Tank cover:** All unenclosed roof tanks exposed to the weather shall have approved covers sloping towards the outer edges.

**925.8.5 Hoop and strap protection:** When metal hoops are used in the construction of wood tanks, they shall be protected with acceptable corrosion-resistive coatings or shall be manufactured from approved corrosion-resistive alloys.

### **925.9 Cooling towers**

**925.9.1 Located in fire limits:** Within the fire limits, cooling towers erected on the roofs of buildings shall be constructed of noncombustible materials, except that drip bars may be of wood. Cooling towers may be constructed entirely of fire retardant treated wood, including drip bars.

**925.9.2 Located outside fire limits:** Outside the fire limits, cooling towers may be constructed of wood or other approved materials of similar combustible characteristics; except that when the base of the tower is more than fifty-five (55) feet above grade and the tower is located on a building, the drip bars only may be fabricated of combustible materials as herein provided.

**925.10 Miscellaneous roof structures:** Except as herein specifically provided, all towers, spires, dormers or cupolas shall be erected of the type of construction and fireresistance rating required for the building to which they are accessory as regulated by Tables 214 and 305; except that when the height of such appurtenant structures exceeds eighty-five (85) feet above grade or when the area at any horizontal section of the tower, spire, dormer or cupola exceeds two hundred (200) square feet or when it used for any purpose other than as a belfry or architectural embellishment, the structure and its supports shall be of fireproof (Type 1) construction, noncombustible (Type 2) construction or fire-retardant treated wood complying with Sections 903.6.1 and 903.6.2. Radio and television towers and antennae shall be constructed to comply with Sections 426.0 and 427.0.

## **SECTION 926.0 ROOF COVERINGS**

**926.1 Classification:** All approved roof coverings shall meet the test requirements and be classified in accordance with Section 903.3 of this code.

**926.2 Existing roofs:** The repair of existing roofs shall comply with provisions of Section 106.0 but more than twenty-five (25) per cent of the roof covering of any building shall not be replaced in a period of twelve (12) months unless the entire roof covering is made to conform to the requirements for new roofing.

### **926.3 Classification of use**

**926.3.1 Class A roof coverings:** Class A roof coverings shall be permitted for use in buildings and structures of all types of construction.

## FIRERESISTIVE CONSTRUCTION REQUIREMENTS

**926.3.2 Class B roof coverings:** Class B roof coverings shall be permitted as the minimum for use in buildings and structures of Type 1 construction.

**926.3.3 Class C roof coverings:** Class C roof coverings shall be permitted as the minimum for use in buildings and structures of Types 2, 3 and 4A construction.

**926.3.4 Non-classified roof coverings:** Non-classified roof coverings shall be permitted on the buildings and structures listed below.

1. Buildings and structures of unprotected frame (Type 4B) construction when the distance from any other building is not less than twelve (12) feet.
2. Private garages, airplane hangers and similar accessory structures, not exceeding one (1) story or twenty (20) feet in height and twenty-five hundred (2500) square feet in area, when outside the fire limits, located in the same lot with a dwelling and with a fire separation of not less than twelve (12) feet.
3. Moderate and low hazard storage buildings (use groups S-1 and S-2) not exceeding one (1) story or twenty (20) feet in height and six thousand (6,000) square feet in area with a fire separation of not less than twelve (12) feet.

Fire walls may be used to obtain the required fire separation.

**926.4 Roof insulation:** The use of cork, fiber board and other combustible roof insulation shall be permitted provided it is covered with approved roof coverings directly applied thereto.

**926.5 Grounding of metal roofs:** Whenever, because of hazard resulting from electrical equipment or apparatus located thereon, or because of proximity to power lines, or for any other reason, it is deemed necessary by the building official, metal roofs shall be grounded by bonding together each course or strip and the bonding conductor or conductors shall be extended to and attached in an approved manner to the grounding electrode used to ground the electrical system within the building on which such metal roofing is applied. The conductors used to bond courses or strips of metal roofing together, or any conductor extended for grounding to the grounding electrode, shall not have greater resistance than the conductor used to ground the electrical system within the building.

**926.5.1 Alternate methods of grounding metal roofing:** Alternate methods of grounding metal roofing may be used, provided they are at least equal in performance to the methods described herein, and further provided that such desired method is first submitted to and approved by the building official.

**926.6 Shingle application:** Asphalt shingles laid with double coverage may be installed on slopes below four (4) to twelve (12) inches to as low

CONNECTICUT BASIC BUILDING CODE/1978

as two (2) to twelve (12) inches, provided the shingles are approved self-sealing shingles or are hand sealed and are installed with an underlayment consisting of two layers of No. 15 felt, applied shingle fashion. In areas where the January daily average temperature is twenty-five (25) degrees F. or less, or where there is a possibility of ice forming along the eaves and causing a back up of water, the two layers of felt shall be cemented together from the eaves up the roof to overlie a point twenty-four (24) inches inside the interior wall line of the building.

926.7 Re-roofing

sec section  
854.8.3-276

**926.7.1 Asphalt shingle application:** Not more than one (1) overlay of asphalt shingles shall be applied over an existing asphalt shingle roof. Not more than one (1) overlay of asphalt shingles shall be applied over wood shingles. Asphalt shingles applied over wood shingles shall have an underlay of not less than Type 30 non-perforated felt.

**926.7.2 Wood shake application:** Not more than one (1) overlay of wood shakes shall be applied over an existing asphalt shingle or wood shingle roof. One (1) layer of eighteen (18) inch Type 30 felt shall be interlaced between each layer of shakes.

**926.7.3 Application over shakes:** New roof covering shall not be applied over an existing shake roof.

**926.7.4 Flashing and edgings:** Rusted or damaged flashing, vent caps and metal edgings shall be replaced with new materials as necessary.



## **ARTICLE 10**

### **CHIMNEYS, FLUES AND VENT PIPES**

#### **SECTION 1000.0 GENERAL**

**1000.1 Scope:** The provisions of this article shall control the design, installation, maintenance, repair and approval of all chimneys, vents and connectors hereafter erected or altered in all building and structures.

**1000.2 Other standards:** Unless otherwise specifically provided herein, conformity to the applicable requirements for chimney construction and vents contained in the mechanical code listed in Appendix B shall be deemed to meet the requirements of this code.

**1000.3 Minor repairs:** Minor repairs for the purpose of maintenance and upkeep which do not increase the capacity of the heating apparatus or appliances, or which do not involve structural changes in the permanent chimney and vents of a building, may be made without a permit.

#### **SECTION 1001.0 PLANS AND SPECIFICATIONS**

**1001.1 General:** The structural plans and specifications shall describe in sufficient detail, the location, size and construction of all chimneys, vents and ducts and their connections to boilers, furnaces, appliances and fireplaces. The thickness and character of all insulation materials, clearances from walls, partitions and ceilings and proximity of heating devices and equipment to wall openings and exitways shall be clearly shown and described.

**1001.2 Appliances:** All appliances required to be vented shall be connected to a vent or chimney, except as provided in Section 1006.3 and as provided in the standards listed in Appendix B for special venting arrangements.

#### **SECTION 1002.0 PERFORMANCE TEST AND ACCEPTANCE CRITERIA**

**1002.1 Tests:** The building official may require a test or tests of any chimney or vent to insure fire safety and the removal of smoke and products of combustion.

**CONNECTICUT BASIC BUILDING CODE/1978**

**1002.2 Acceptance criteria:** The system shall be accepted if the following conditions are fulfilled.

1. There shall not be spillage at the draft hood when any one (1) or combination of appliances connected to the system is in operation.
2. Temperature on adjacent combustible surfaces shall not be raised more than limits acceptable to nationally recognized testing or inspection agencies.
3. Condensation shall not be developed in a way that would cause deterioration of the vent or chimney drip from joints or bottom end of the vent or chimney.
4. The draft reading taken at the place recommended in the installation instructions shall be within the range specified by the appliance manufacturer.

**1002.2.1 Approved installations:** Factory-built chimneys and gas vents which have been tested and listed by a nationally recognized testing or inspection agency shall be accepted as complying with the requirements of item 2 of Section 1002.2 when installed in accordance with the clearances specified in their listing.

**SECTION 1003.0 CHIMNEYS**

**1003.1 Classification:** Chimneys as used in this article shall be classified as:

1. factory-built chimneys,
2. masonry chimneys, and
3. metal chimneys (smokestacks).

**SECTION 1004.0 APPLIANCES REQUIRING CHIMNEYS**

**1004.1 General:** All heating appliances, except those appliances specifically exempted by the provisions of Section 1006.3 shall be connected to chimneys as specified in the Chimney selection chart contained in the mechanical code listed in Appendix B.

**SECTION 1005.0 EXISTING BUILDINGS**

**1005.1 Raising existing chimneys:** Whenever a building is hereafter erected, enlarged or increased in height so that a wall along an interior lot line, or within three (3) feet thereof, extends above the top of an existing chimney or vent of an adjoining existing building, the owner of the building so erected, enlarged or increased in height shall carry up at his own expense, with the consent of the adjoining property owner, either independently, or in his own building, all chimneys connected to fuel burning appliances. Vents within six (6) feet of any portion of the wall of

such adjoining building shall be extended two (2) feet above the roof or parapet of the adjoining building.

**1005.2 Size of extended chimneys:** The construction of an extended chimney shall conform to the requirements of this article for new chimneys, but the internal area of such extension shall not be less than that of the existing chimney.

**1005.3 Notice to adjoining owner:** It shall be the duty of the owner of the building which is erected, enlarged or increased in height to notify in writing, and to secure the consent of, the owner of existing chimneys affected at least ten (10) days before starting such work.

**1005.4 Existing chimneys:** An existing chimney, except one which does not endanger the fire safety of a building or structure and is acceptable to the building official, shall not be continued in use unless it conforms to all requirements of this article for new chimneys.

**1005.5 Cleanouts and maintenance:** Whenever a new chimney is completed or an existing chimney is altered, it shall be cleaned and left smooth on the inside. If the chimney is constructed of masonry or tile, the interior mortar joints must be left smooth and flush. Cleanouts or other approved devices shall be provided at the base of all chimneys to enable the passageways to be maintained and cleaned.

#### SECTION 1006.0 VENT SYSTEMS

**1006.1 Listed appliances:** For the purpose of determining vent requirements, gas-fired and oil-fired appliances shall be classified as "listed" or "unlisted." A listed appliance is one that is shown in a list published by an accredited authoritative testing agency, qualified and equipped for experimental testing of such appliances, and maintaining an adequate periodic inspection of current production of listed models and whose listing states either that the appliance or accessory complies with nationally recognized safety requirements or has been tested and found safe for use in a specific manner. Compliance may be determined by the presence on the appliance or accessory of a label of the testing agency stating that the appliance or accessory complies with nationally recognized safety requirements. An unlisted appliance or accessory is one that is not shown on such a list or does not bear such a label. In cases where an applicable standard has not been developed for a given class of appliance or accessory, approval of the authority having jurisdiction should be obtained before the appliance or accessory is installed.

**1006.2 Appliances required to be vented:** Appliances shall be connected to a listed venting system or provided with other means for exhausting the flue gases to the outside atmosphere in accordance with the Venting system selection chart contained in the mechanical code listed in Appendix B.

**1006.3 Exemption:** Connections to vent systems shall not be required for appliances of such size or character that the absence of such connection does not constitute a hazard to the fire safety of the building or its occupants. The following appliances are not required to be vented unless so required by their listing:

1. listed gas ranges;
2. built-in domestic cooking units listed and marked as unvented units;
3. listed hot plates and listed laundry stoves;
4. listed domestic clothes dryers;
5. listed gas refrigerators;
6. counter appliances;
7. space (room) heaters listed for unvented use, only upon prior approval by the building official;
8. specialized equipment of limited input such as laboratory burners or gas lights; and
9. electric appliances.

When any or all of the appliances listed in items 5, 6 and 7 above are installed so that the aggregate input rating exceeds thirty (30) British thermal units (Btus) per hour per cubic foot of room or space in which they are installed, one (1) or more of them shall be vent connected or provided with approved means for exhausting the vent gases to the outside atmosphere so that the aggregate input rating of the remaining unvented appliance does not exceed thirty (30) Btus per hour per cubic foot of room or space in which they are installed. Where the room or space in which they are installed is directly connected to another room or space by a doorway, arch, or other opening of comparable size, which cannot be closed, the volume of such adjacent room or space may be included in the calculations.

#### SECTION 1007.0 FIREPLACES AND WOOD BURNING STOVES

**1007.1 General:** Fireplaces, wood burning stoves, barbeques, smoke chambers, and chimneys for fireplaces and wood burning stoves shall be of solid masonry or reinforced concrete or other approved materials, and shall conform to the requirements of this section.

**1007.2 Construction:** Structural walls of fireplaces shall be at least eight (8) inches thick. Where a lining of low duty refractory brick (ASTM C64) or the equivalent, at least two (2) inches thick laid in fire clay mortar (ASTM C105, medium duty), or the equivalent, or other approved lining is provided, the total thickness of back and sides, including the lining, shall be not less than eight (8) inches. Where such lining is not provided, the thickness of back and sides shall be not less than twelve (12) inches. The firebox shall be twenty (20) inches in depth and will be permitted to be open on all

sides, provided all fireplace openings are located entirely within one (1) room.

**1007.3 Lining:** The lining shall extend from the throat of the fireplace to a point at least four (4) inches above the top of the enclosing masonry walls.

#### **1007.4 Clearance**

**1007.4.1 Distance:** The distance between fireplace and combustibles shall be at least four (4) inches; and such combustibles shall not be placed within six (6) inches of the fireplace opening. Wood facings or trim normally placed around the fireplace opening may be permitted when conforming to the requirements of this section; however, such facing or trim shall be furred out from the fireplace wall at least four (4) inches and attached to noncombustible furring strips. The edges of such facings or trim shall be covered with a noncombustible material. Where the walls of the fireplace are twelve (12) inches thick, the facings or trim may be directly attached to the fireplace.

**1007.4.2 Metal hoods:** Metal hoods used as part of a fireplace or barbecue shall be at least eighteen (18) inches from combustible material unless approved for reduced clearances.

**1007.5 Metal:** Metal hoods used as a part of a fireplace or barbecue shall be at least No. 18 B&S (0.0403 inch) Gage sheet copper, No. 18 Galvanized Steel Gage (0.052 in.) galvanized steel or other equivalent corrosion-resistant ferrous metal with all seams and connections of smokeproof unsoldered construction. The hoods shall be sloped at an angle of forty-five (45) degrees or less from the vertical and shall extend horizontally at least six (6) inches beyond the limits of the firebox.

**1007.6 Metal heat circulators:** Approved metal heat circulators may be installed in fireplaces, provided the thickness of the fireplace walls is not reduced.

**1007.7 Smoke chamber:** All walls, including back walls, shall be at least eight (8) inches in thickness.

**1007.8 Areas of flues, throats and dampers:** The net cross-sectional area of the flue and of the throat between the firebox and the smoke chamber of a fireplace shall be at least that required in the mechanical code listed in Appendix B. All fireplaces shall be equipped with a damper of not less than No. 12 Manufacturer's Standard Gage (0.105 inch) metal. Damper openings shall be at least, when fully opened, equal to the required flue area. Other methods which will provide equal air flow shut-off may be provided subject to the approval of the building official.

**1007.9 Lintel:** Masonry over the fireplace opening shall be supported by a noncombustible lintel.

## CONNECTICUT BASIC BUILDING CODE/1978

**1007.10 Hearth:** Every fireplace shall be constructed with a hearth of brick, stone, tile or other noncombustible material. For fireplaces with an opening of less than six (6) square feet, the hearth shall extend not less than sixteen (16) inches in front and not less than eight (8) inches on each side of the fireplace opening. For fireplaces with an opening of six (6) square feet or more, the hearth shall extend not less than twenty (20) inches in front and not less than twelve (12) inches on each side of the fireplace opening. Such hearths shall be supported on trimmer arches of brick, stone, tile or concrete not less than four (4) inches thick or other equally strong and fireresistance rated materials. All combustible forms or centering shall be removed after completion of the supporting construction.

**1007.11 Firestopping:** Firestopping between chimneys and wooden construction shall meet the requirements specified in Section 919.0 and the mechanical code listed in Appendix B.

**1007.12 Support:** Fireplaces shall be supported on foundations designed in conformity with Section 725.0.

**1007.13 Screens:** Screens or other acceptable protection devices shall be provided for all fireplace openings.

**1007.14 Other type fireplaces:** Other fireplaces not conforming to the requirements of this section shall be subject to approval by the building official prior to installation. Imitation fireplaces shall not be used for the burning of gas, solid or liquid fuel. Approved factory-built fireplaces may be installed and shall conform to the applicable portions of this code. Factory-built fireplaces shall bear the seal of a nationally recognized testing or inspection agency.

**1007.14.1 Wood burning or coal burning stoves:** The building official may approve the installation of wood burning or coal burning stoves which have been tested in accordance with UL Standard 1482 listed in Appendix B. Such stoves shall be installed in accordance with required clearances from combustible materials and in accordance with applicable provisions of this code.

**1007.15 Combustion air:** The building official may require evidence satisfactory to him that the supply of air required for combustion is adequate and does not diminish the supply of air required for ventilation.

## SECTION 1008.0 INCINERATORS

**1008.1 Mechanical code:** Incinerators of all types shall be installed in accordance with the applicable provisions of the mechanical code listed in Appendix B.

## SECTION 1009.0 CONSTRUCTION OF METAL DUCTS AND VENTS

**1009.1 Mechanical code:** All metal vents, ducts and duct systems re-

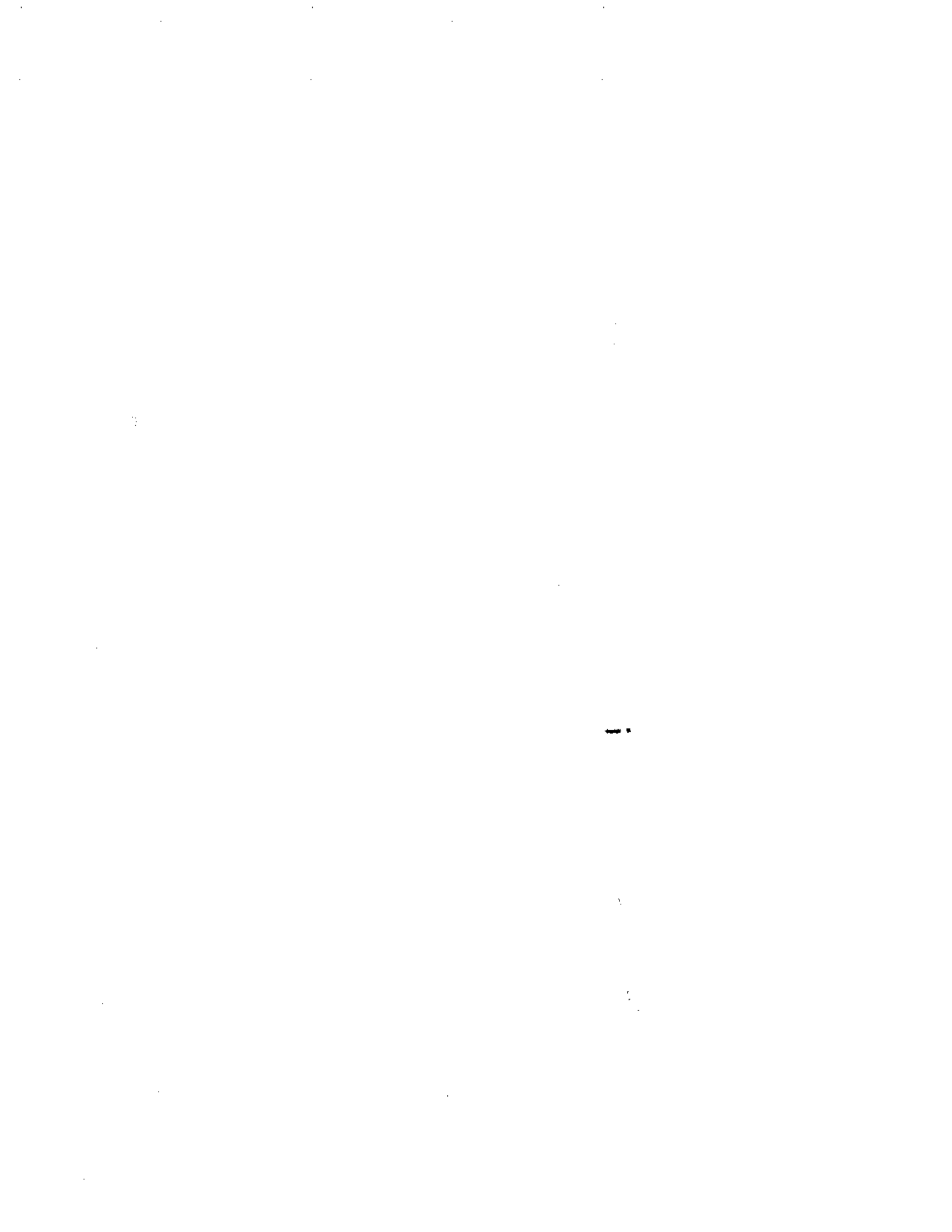
**CHIMNEYS, FLUES AND VENT PIPES**

quired under the provisions of this article for heating systems and equipment, and under the provisions of Article 5 for ventilating and air-conditioning systems shall be constructed and installed in accordance with the requirements of the mechanical code listed in Appendix B.

**1009.2 Construction of ducts:** Ducts and plenums may be constructed of approved material constructed in accordance with the requirements of the mechanical code listed in Appendix B. Non-metallic ducts shall be constructed and installed in accordance with their approval and the applicable standards listed in Appendix B. Aluminum ducts shall not be used in equipment rooms with fuel-fired equipment, encased in or under concrete slabs on grade, for kitchen or fume exhausts or in systems where air entering the duct is over two hundred fifty (250) degrees F.

**SECTION 1010.0 SPARK ARRESTORS**

**1010.1 Mechanical code:** All chimneys, stacks and flues, including incinerator stacks, which emit sparks shall be provided with a spark arrester conforming to the requirements of the mechanical code listed in Appendix B.





# **ARTICLE 11**

## **MECHANICAL EQUIPMENT AND SYSTEMS**

### **SECTION 1100.0 GENERAL**

**1100.1 Scope:** The provisions of this article shall control the construction, inspection and maintenance of all mechanical equipment and systems in respect to structural strength, fire safety and operation.

**1100.2 Mechanical code:** All mechanical equipment and systems shall be constructed, installed and maintained in accordance with the mechanical code listed in Appendix B.

#### **1100.3 Listed code**

**1100.3.1 General:** The mechanical code listed in Appendix B is the Basic Mechanical Code, BOCA-78; its provisions shall govern for accepted engineering practice. The mechanical official named therein shall be the building official named in this code, or his technical assistant.

#### **1100.3.2 Exceptions to listed code:**

The following articles of the listed mechanical code shall not apply:

Article 1	Administration and Enforcement
Article 10	Fire Suppression Systems
Article 11	Air Pollution Control

The following sections of the listed mechanical code shall not apply:

Section M-301.11	Fire dampers
Section M-314.9	Fire dampers

**1100.3.3 Design criteria:** To the extent that criteria for a given condition or application are jointly covered by the provisions of Article 20 of this code and by the provisions of the listed mechanical code, the provisions of Article 20 of this code shall govern and the corresponding provisions of the listed mechanical code shall not be applicable.

**1100.3.4 Prohibited space heaters:** Any heating device having a barometric fed fuel control, which has a fuel supply tank located less than forty-two (42) inches from the center of the burner and adapted for burning kerosene, range oil or No. 1 fuel oil is prohibited in accordance with the General Statutes of Connecticut, Section 29-60a.

### SECTION 1101.0 PLANS AND SPECIFICATIONS

**1101.1 General:** Plans and specifications for the installation, repair, extension or removal of any mechanical equipment or system shall be submitted in accordance with the mechanical code listed in Appendix B and a permit shall be secured prior to the commencement of any work.

**1101.2 Matter covered:** The plans and specifications shall show in sufficient detail all pertinent features and clearances of the appliances and systems, including: size and type of apparatus; construction of flue, stack or chimney; stack connections; type of fuel; method of operation; and the method of compliance with all regulations for the class and type of equipment installed.

**1101.3 Details:** An application for permit shall be accompanied by specifications and diagrammatic mechanical drawings in sufficient detail, complying with the provisions of the mechanical code listed in Appendix B, before a permit shall be issued for the mechanical equipment and system. The plans shall be drawn to a scale of not less than one-eighth ( $\frac{1}{8}$ ) inch to the foot and shall show the location and arrangement of all equipment and distribution elements including safeties and pressure controlling devices.

### SECTION 1102.0 INSPECTIONS AND TESTS

**1102.1 Inspection:** All mechanical equipment and systems requiring a permit shall be inspected in accordance with the mechanical code listed in Appendix B and shall not be placed in operation until it has been tested and approved.

**1102.2 Concealment:** It shall be unlawful for owners, contractors or workmen to lath over, or in any way to conceal, any piping, outlet boxes or other parts of the mechanical equipment or system requiring a permit until an inspection has been made thereof and due notice given that the work has been approved.

**1102.3 Defects and repairs:** Upon inspection or reinspection of a mechanical system, any defects or deficiencies which require repair to insure safe operation shall be rectified before the system is placed in use.

**1102.4 Power of condemnation:** When a system or any part thereof is found unsafe to life or property, it shall be condemned and such system shall not be restored to use until it has been made safe and approved.

### SECTION 1103.0 EXISTING BUILDINGS

**1103.1 Unsafe orders:** All existing mechanical equipment and systems shall be maintained and operated in accordance with the requirements of this code and the mechanical code listed in Appendix B. Any such equipment which does not comply with the requirements, and the operation of which is deemed

## MECHANICAL EQUIPMENT AND SYSTEMS

unsafe to the building occupants, shall be altered as ordered by the building official to secure adequate safety.

**1103.2 Minor repairs:** Minor repairs to existing mechanical equipment and systems, which do not increase their capacity or which do not involve any substantial alteration in their method of operation or means of smoke prevention, may be made without a permit.

### SECTION 1104.0 RESERVED

### SECTION 1105.0 BOILER ROOMS

**1105.1 Boiler room:** Every boiler, furnace, or combination heating and cooling unit shall be installed in a space which allows minimum clearance of twenty-four (24) inches on all service sides. Where oil-fired equipment is used, spilled oil shall be prevented from leaving the room or space by means of a depressed floor, a curb, or other approved method. Such room shall be constructed of at least one (1) hour fire-resistance rated construction, with opening protectives as required by Section 915.0. The number of egress facilities shall conform to Section 612.2. Combustion air shall be provided to such room in conformance with the mechanical code listed in Appendix B. Storage or living quarters shall not be permitted in any boiler or similar heating equipment room.

**Exception:** One- and two-family dwellings, except for combustion air requirements as set forth in the mechanical code listed in Appendix B.

**1105.2 Boiler room location:** Boiler rooms shall not be located immediately below exitways; nor shall any space heater, floor furnace or other similar equipment be located in any aisle or passageway used as an element of a required means of egress from the building or structure.

### SECTION 1106.0 RESERVED

### SECTION 1107.0 REFUSE CHUTES

**1107.1 Chute discharge:** A refuse chute shall not feed directly to the combustion chamber of an incinerator, but shall discharge into an enclosed room or bin separated from the incinerator room by ceiling and walls of not less than two (2) hour fire-resistance rating, unless otherwise approved by the building official.

**1107.2 Chute enclosures:** Refuse chutes shall be enclosed with walls of masonry of not less than two (2) hour fire-resistance rating for interior chutes and of noncombustible (Type 2) construction for exterior chutes. All chutes shall be supported on substantial foundations complying with Article 7.

**CONNECTICUT BASIC BUILDING CODE/1978**

**1107.3 Chute height:** An interior refuse chute shall extend not less than four (4) feet above the roof and shall be covered with an approved ventilating skylight complying with Section 925.0.

**1107.4 Service compartments:** Service openings for chutes shall be located in separate rooms or compartments enclosed in walls, partitions, floors and ceilings which have a fire-resistance rating of not less than one (1) hour and in which the openings are equipped with fire doors or other approved protectives of not less than three-quarter (¾) hour fire-resistance rating or their approved labeled equivalent.

**1107.5 Opening protectives:** All openings between refuse rooms, chutes and incinerator rooms shall be protected with one and one-half (1½) hour fire doors or their approved labeled equivalent complying with Article 9.

**SECTION 1108.0 REFUSE VAULTS**

**1108.1 Refuse vault enclosures:** A vault for receiving combustible refuse from an exhaust system shall be constructed of not less than three (3) hour fire-resistance rated assemblies.

**1108.2 Openings to boiler rooms:** The opening between a vault and a boiler room shall not exceed nine (9) square feet in area and shall be located at least eight (8) feet from the firing door of the boiler, and the bottom of the opening shall be not less than six (6) inches above the boiler room floor. All openings shall be equipped with approved automatic fire doors of not less than one and one-half (1½) hour fire-resistance rating or the approved labeled equivalent complying with Article 9.

**1108.3 Location:** When located within a building, a refuse vault shall extend above the roof or shall be directly vented to the outer air with ducts complying with Section 1009.0.

**1108.4 Fire protection:** A vault for combustible refuse which exceeds three hundred sixty (360) cubic feet in volume shall be protected by an automatic fire suppression system conforming to Article 12 and the mechanical code listed in Appendix B.

**SECTION 1109.0 DUST, STOCK AND REFUSE CONVEYOR SYSTEMS**

**1109.1 Power transmission:** Power for fans located in rooms from which flammable dust is being removed shall be transmitted by means of a shaft passing through a bushed hole, or by a belt, chain or similar driving mechanism which is encased in a metal or other noncombustible dust-tight enclosure, both within and without the room.

## MECHANICAL EQUIPMENT AND SYSTEMS

**1109.2 Collectors and separators:** Cyclone collectors and separators and their supports shall be constructed of noncombustible materials and shall be located whenever possible on the exterior of the building or structure. A collector or separator shall not be located nearer than ten (10) feet to combustible construction or to an unprotected wall or floor opening, unless the collector is provided with a metal vent pipe which extends above the highest part of any roof within a distance of thirty (30) feet.

**1109.3 Discharge pipes:** Discharge pipes shall conform to all the requirements for ducts, including clearances required for high heat appliances, as contained in the mechanical code listed in Appendix B. A delivery pipe from a cyclone collector shall not convey refuse directly into the fire-box of a boiler, furnace, dutch oven, refuse burner, incinerator or other appliance.

**1109.4 Vents for exhaust conveyor systems:** An exhaust system shall be vented to the outside of the building either directly by flue, or indirectly through the separator, bin, or vault into which it discharges.

**1109.5 Spark protection:** The outlet of an open air vent shall be protected with an approved metal or other noncombustible screen or by other equally efficient means to prevent the entry of sparks.

**1109.6 Explosion relief vents:** A safety or explosion relief vent shall be provided on all systems which convey combustible refuse or stock of an explosive nature, in accordance with the requirements of Article 4.

**1109.6.1 Screens:** When a screen is used in a safety relief vent, it shall be so attached as to permit ready release under emergency pressure.

**1109.6.2 Hoods:** The relief vent shall be provided with an approved noncombustible cowl or hood, or with a counterbalanced relief valve or cover arranged to prevent the escape of hazardous materials, gases or liquids.



## ARTICLE 12

### FIRE PROTECTION SYSTEMS

#### SECTION 1200.0 GENERAL

**1200.1 Scope:** The provisions of this article and the provisions of the Connecticut State Fire Safety Code shall specify where fire protection systems are required in all buildings or structures or parts thereof.

**1200.2 Installation requirements:** The installation methods, repair, operation or maintenance of fire protection systems shall be in accordance with this code and with the Connecticut State Fire Safety Code.

**1200.3 Maintenance:** The owner, tenant or lessee of every building or structure shall be responsible for the care and maintenance of all fire protection systems, including equipment and devices, to insure the safety and welfare of the occupants. Fire protection systems shall not be disconnected or otherwise rendered unserviceable without first notifying the responsible fire official. When installations of required fire protection systems are interrupted for repairs or other necessary reasons, the owner, tenant or lessee shall immediately advise the responsible fire official and shall diligently prosecute the restoration of the protection.

**1200.4 Threads:** All threads provided for fire department connections to sprinkler systems, standpipe systems, yard hydrants or any other fire hose connections shall be uniform to those used by the local fire department.

**1200.5 Signs:** If fire suppression control valves are located in a separate room, or building, a sign shall be provided on the entrance door. The lettering for such sign shall be of a conspicuous color and shall be at least four (4) inches in height and shall read *Sprinkler control valves* and/or *Standpipe control valves* or indicate other types of systems (see Section 1213.8 for additional signs).

**1200.6 Material and equipment:** All materials and equipment used in a fire protection system shall be approved, consistent with the requirements of this code (see Section 108.0) and of the Connecticut State Fire Safety Code.

**1200.7 Tests:** Where required by this article or by the Connecticut State Fire Safety Code, all flow test connections and points of fluid discharge shall be reasonably accessible and acceptable to the building official and to the responsible fire official.

## SECTION 1201.0 PLANS AND SPECIFICATIONS

### 1201.1 Required submittals

**1201.1.1 Preliminary plans:** Before any standpipe or fire suppression equipment is installed or existing equipment is remodeled, or before the installation or extension of any interior fire alarm system, two (2) sets of preliminary plans shall be filed with the building official for review and approval by the responsible fire official.

**1201.1.2 Final approved plans:** After acceptance and approval of the preliminary plans by the responsible fire official, three (3) sets of final plans shall be submitted for approval. When final plans have been approved by the responsible fire official, one (1) set of final approved plans shall be filed with the building official.

**1201.2 Plans:** Plans submitted shall include specifications. Plans submitted shall be drawn to suitable scale and contain sufficient information to indicate conformance to this code. Plans shall show essential features of construction, height of stories, location, size and arrangement of all required piping and accessories for each proposed standpipe fire line and fire suppression system installation, and layout and wiring of the fire alarm system.

**1201.3 Calculations:** The details of the fire protection system shall include the design considerations, calculations and other information as required by this code.

## SECTION 1202.0 FIRE SUPPRESSION SYSTEMS

**1202.1 Other regulations:** In general, fire suppression systems shall be provided in accordance with the requirements of the State Fire Safety Code.

### 1202.2 Other provisions

**1202.2.1 Where required:** Fire suppression systems shall be installed and maintained in full operating condition, as specified in the State Fire Safety Code, and where specified elsewhere in this code.

## SECTION 1203.0 SUPPRESSION SYSTEM SELECTION

**1203.1 Other regulations:** In general, the selection of fire suppression systems shall be in accordance with the provisions of the State Fire Safety Code.

**1203.2 Tests:** All tests required by this code and the standards listed in Appendices B and I shall be conducted at the expense of the owner or his representative.

## SECTION 1204.0 WATER SPRINKLER SYSTEMS

**1204.1 Other regulations:** Water sprinkler systems shall be provided in accordance with the requirements of the State Fire Safety Code.



**SECTION 1205.0 LIMITED AREA SPRINKLER SYSTEMS**

**1205.1 General:** A limited area sprinkler system shall be of an approved type and installed in accordance with the provisions of this code and the standards listed in Appendices B or I.

**1205.2 Installation:** Where the provisions of this code require a limited number of sprinklers, a limited area sprinkler system may be installed to comply with these requirements.

**1205.3 Design:** The detail on the system supplied with the plans and specifications shall include information and the calculations on the sprinkler spacing and arrangement with water supply and discharge requirements, size and equivalent lengths of pipe and fittings and water supply source. Sufficient information shall be included to identify the apparatus and devices used.

**1205.4 Actuation:** A limited area sprinkler extinguishing system shall be automatically activated.

**1205.5 Sprinkler alarms:** Alarms and alarm attachments shall not be required.

**1205.6 Water supply:** Limited area sprinklers may be supplied from the domestic water system provided the domestic water system is designed to adequately support the design flow of the largest number of sprinklers in any one (1) of the enclosed areas. When supplied by the domestic water system, the maximum number of sprinklers in any one (1) enclosed room or area shall not exceed twenty (20) sprinklers which must totally protect the room or area.

**1205.6.1 Fire department connections:** A fire department connection is not required for limited area sprinkler systems supplied from the domestic water system.

**1205.6.2 Standpipe connection:** The water supply for the limited area sprinkler system shall be from the building standpipe system when available (see Section 1211.4.1).

**1205.6.3 Cross connection:** A limited area sprinkler system may be supplied individually from the domestic water system or from the standpipe system. There shall not be a cross-connection between the domestic and standpipe system.

**1205.7 Use:** Limited area sprinklers shall be used only in rooms or areas enclosed with construction assemblies as required by this code.

**SECTION 1206.0 WATER SPRAY FIXED SYSTEMS**

**1206.1 Other regulations:** Water spray fixed systems shall be provided in accordance with the requirements of the State Fire Safety Code.

**SECTION 1207.0 FOAM EXTINGUISHING SYSTEMS**

**1207.1 Other regulations:** Foam extinguishing systems shall be provided in accordance with the requirements of the State Fire Safety Code.

**SECTION 1208.0 CARBON DIOXIDE EXTINGUISHING SYSTEMS**

**1208.1 Other regulations:** Carbon dioxide extinguishing systems shall be provided in accordance with the requirements of the State Fire Safety Code.

**SECTION 1209.0 HALOGENATED FIRE EXTINGUISHING SYSTEMS**

**1209.1 Other regulations:** Halogenated fire extinguishing systems shall be provided in accordance with the requirements of the State Fire Safety Code.

**SECTION 1210.0 DRY CHEMICAL EXTINGUISHING SYSTEMS**

**1210.1 Other regulations:** Dry chemical extinguishing systems shall be provided in accordance with the requirements of the State Fire Safety Code.

**SECTION 1211.0 STANDPIPE SYSTEMS**

**1211.1 General:** Standpipe systems in all buildings and structures shall conform to the requirements of this section and the standards listed in Appendix I.

**1211.2 Where required:** Standpipes shall be installed and maintained in full operating condition, as specified in this article and the standards listed in Appendix I, in the locations described in Sections 1211.2.1 through 1211.2.4.

**1211.2.1 Assembly (A-1, A-2 or A-3):** In buildings two (2) or more stories in height of use group A-1, A-2, or A-3 (assembly) with an occupancy load of more than three hundred (300).

**1211.2.2 Three stories:** In buildings three (3) stories in height when:

1. of use groups B (business), F (factory and industrial), M (mercantile) or S-1 (moderate hazard storage) more than three thousand (3,000) square feet in area per floor; or
2. of use groups A (assembly), I (institutional), or R-1 (residential, hotels); or
3. of any use group more than ten thousand (10,000) square feet in area per floor.

**1211.2.3 Four stories:** In buildings four (4) stories or more in height regardless of the area per floor.

**1211.2.4 Public garages:** In all public garages:

1. when more than ten thousand (10,000) square feet in area; or
2. when more than seven thousand five hundred (7,500) square feet in area and more than one (1) story in height; or
3. when more than five thousand (5,000) square feet in area, and more

- than two (2) stories in height; or
- 4. when more than three (3) stories in height; or
- 5. when located in buildings where the upper stories are designed for other uses; or
- 6. when located in any story that is more than fifty (50) per cent below grade.

**1211.3 Sizes:** Standpipes shall extend from the lowest portion of the building to a height five (5) feet above the finished floor of the topmost story and shall have a minimum diameter as described in the following Table 1211.

**Table 1211  
BUILDING HEIGHT AND STANDPIPE SIZE**

Maximum building height	Minimum standpipe size**
3 stories or 40 feet	2½ inches
4 stories or 50 feet	2½ inches
5 stories or 65 feet	4 inches
6 stories or 75 feet	4 inches
7* stories or 85 feet	6 inches
8* stories or 95 feet	6 inches
95* feet to 250 feet	6 inches
over 250* feet	8 inches

\*At least one (1) standpipe shall extend through the roof and terminate in a two-way, two and one-half (2½) inch hose connection.

\*\*In sprinklered buildings, the minimum standpipe diameter may be based on hydraulic calculations.

**1211.4 Number of risers:** The number of standpipe risers shall be such that all parts of every floor area can be reached by a thirty (30) foot hose stream from a nozzle attached to not more than one hundred (100) feet of hose connected to a riser outlet. In those buildings equipped with an interior smokeproof enclosure vestibule, at least one standpipe hose connection shall be located in the vestibule.

**SECTION 1212.0 STANDPIPES FOR BUILDINGS UNDER CONSTRUCTION**

**1212.1 General:** Standpipes required by this section may be temporary or permanent in nature, with or without a water supply, provided, however, that such standpipes shall remain in service until completion of the work.

**1212.2 Number required:** Every building or structure under construction five (5) or more stories in height above grade, shall be equipped with one (1) or more standpipes at least four (4) inches in diameter. A sufficient number of standpipes with hose(s) shall be provided so that every portion of the building can be reached with one hundred (100) feet of hose and a thirty (30) foot hose stream.

**1212.3 Construction:** All standpipes shall be constructed of approved materials. All pipe, fittings and valves shall be extra heavy pattern when the working pressure exceeds one hundred seventy-five (175) psi.

**1212.4 Height:** The standpipe systems shall be carried up with each floor and shall be installed and ready for use as each floor progresses. Standpipes shall not be more than one (1) floor below the highest forms or staging.

**1212.5 Fire department connections:** At the street level there shall be provided for each temporary or permanent standpipe installation one (1) or more two (2) way fire department inlet connections. Fire department inlet connections shall be prominently marked and readily and easily accessible at all times (see Section 1213.8).

**1212.6 Outlets:** At each floor level and on each standpipe, there shall be provided one (1) two and one-half (2½) inch hose outlet and one (1) two and one-half (2½) inch hose valve with cap and chain. At each floor level and on each standpipe, there shall be provided a one and one-half (1½) inch hose outlet with one hundred (100) feet of approved hose. Outlets shall be located not more than five (5) feet above floor level.

**Exception:** In sprinklered buildings, the one and one-half (1½) inch outlet is not required, however, the one and one-half (1½) hose line shall be provided with a one and one-half (1½) to two and one-half (2½) reducer (see Section 1211.5.1).

#### SECTION 1213.0 FIRE DEPARTMENT CONNECTIONS

**1213.1 Required:** All water sprinkler and standpipe systems shall be provided with at least one (1) two (2) way fire department connection. Single fire department connections may be installed when approved by the responsible fire official.

**Exception:** A fire department connection shall not be required for limited area sprinkler systems.

**1213.2 Other regulations:** Fire department connections for all water sprinkler and standpipe systems shall conform to the standards listed in Appendix I and to the requirements of the State Fire Safety Code.

#### SECTION 1214.0 WATER SUPPLY AND OTHER EXTINGUISHING SUPPLY MEDIA

**1214.1 Required:** All fire suppression and standpipe systems shall be provided with at least one (1) automatic supply of extinguishing material of adequate pressure, capacity and reliability to perform the function intended.

**1214.2 Other regulations:** The water supply and other extinguishing supply media for all fire suppression and standpipe systems shall conform to the standards listed in Appendix I and to the requirements of the State Fire Safety Code.

#### SECTION 1215.0 YARD HYDRANTS

**1215.1 Other regulations:** Yard hydrants shall be provided in accordance with the requirements of the State Fire Safety Code.

**SECTION 1216.0 AUTOMATIC FIRE ALARM SYSTEMS**

**1216.1 Other regulations:** Automatic fire alarm systems shall be provided in accordance with the requirements of the State Fire Safety Code.

**SECTION 1217.0 MANUAL FIRE ALARM SYSTEMS (PULL STATIONS)**

**1217.1 Other regulations:** Manual fire alarm systems (pull stations) shall be provided in accordance with the requirements of the State Fire Safety Code.

**SECTION 1218.0 SUPERVISION**

**1218.1 Other regulations:** Supervision of fire protection systems shall be provided in accordance with the requirements of the State Fire Safety Code.



## **ARTICLE 13**

### **PRECAUTIONS DURING BUILDING OPERATIONS**

#### **SECTION 1300.0 GENERAL**

**1300.1 Scope:** The provisions of this article shall apply to all construction operations in connection with the erection, alteration, repair, removal or demolition of buildings and structures. The execution of the detail requirements shall be regulated by the approved rules and the safety codes for building construction listed in Appendix B.

**1300.2 Other laws:** Nothing herein contained shall be construed to nullify any rules, regulations or statutes of state agencies governing the protection of the public or workmen from health or other hazards involved in manufacturing, mining and other processes and operations which generate toxic gases, dust or other elements dangerous to the respiratory system, eyesight or health.

**1300.3 Combustible and explosive hazards:** The provisions of this code which apply to the storage, use or transportation of explosives, highly flammable and combustible substances, gases and chemicals shall be construed as supplemental to the requirements of the federal laws, the regulations of the Department of Transportation (DOT) and the rules and regulations of the jurisdiction.

#### **SECTION 1301.0 PLANS, SPECIFICATIONS AND SPECIAL PERMITS**

**1301.1 Temporary construction:** Before any construction operation is started, plans and specifications shall be filed with the building official showing the design and construction of all sidewalk sheds, truck runways, trestles, foot bridges, guard fences and other similar devices required in the operation; and the approval of the building official shall be secured before the commencement of any work.

**1301.2 Special permits:** All special licenses and permits for the storage of materials on sidewalks and highways, for the use of water or other public facilities and for the storage and handling of explosives shall be secured from the administrative authorities having jurisdiction.

## CONNECTICUT BASIC BUILDING CODE/1978

**1301.3 Temporary encroachments:** Subject to the approval of the building official, sidewalk sheds, underpinning and other temporary protective guards and devices may project beyond the interior and street lot lines as may be required to insure the safety of the adjoining property and the public. When necessary, the consent of the adjoining property owner shall be obtained.

### SECTION 1302.0 TESTS

**1302.1 Loading:** It shall be unlawful to load any structure, temporary support, scaffolding, sidewalk bridge or sidewalk shed or any other device or construction equipment during the construction or demolition of any building or structure in excess of its safe working capacity as provided in Article 7 for allowable loads and working stresses.

**1302.2 Unsafe equipment:** Whenever any doubt arises as to the structural quality or strength of scaffolding plank or other construction equipment, such material shall be replaced; provided, however, the building official may accept a strength test performed in accordance with the regulations of the Department of Public Safety. The member shall sustain the load test without failure.

### SECTION 1303.0 INSPECTION

**1303.1 Unsafe conditions:** When inspection of any construction operation reveals that any unsafe or illegal conditions exist, the building official shall notify the Department of Public Safety and direct it to take the necessary remedial measures to remove the hazard or violation.

**1303.2 Failure to comply with orders:** Unless the owner so notified proceeds to comply with the orders of the building official within twenty-four (24) hours, the building official shall have full power to correct the unsafe conditions as provided in Sections 124.0 and 125.0. All expenses incurred in the correction of such unsafe conditions shall become a lien on the property.

**1303.3 Unsafe construction equipment:** When the strength and adequacy of any scaffold or other device or construction equipment is in doubt, or when any complaint is made, the building official shall inspect such equipment and shall prohibit its use until tested as required in Section 1302.2 or until all danger is removed.

### SECTION 1304.0 MAINTENANCE

**1304.1 General:** All construction equipment and safeguards shall be constructed, installed and maintained in a substantial manner and shall be so operated as to insure protection to the workmen engaged thereon and to the general public. It shall be unlawful to remove or render inoperative



any structural, fire-protective or sanitary safeguard or device herein required except when necessary for the actual installation and prosecution of the work.

**SECTION 1305.0 EXISTING BUILDINGS**

**1305.1 Protection:** All existing and adjoining public and private property shall be protected from damage incidental to construction operations.

**1305.2 Chimney, soil and vent stacks:** Whenever a new building or structure is erected to greater or less heights than an adjoining building, the construction and extension of new or existing chimneys shall conform to the provisions of Section 1005.0 and of soil and vent stacks and the location of window openings shall conform to the provisions of Section 1706.0.

**1305.3 Adjoining walls:** The owner of the new or altered structure shall preserve all adjoining independent and party walls from damage as provided herein. He shall underpin where necessary and support the adjoining building or structure by proper foundations to comply with Section 1307.0.

**1305.3.1 Maintenance:** In case an existing party wall is intended to be used by the person who causes an excavation to be made, and such party wall is in good condition and sufficient for the use of both the existing and proposed building, such person shall preserve the party wall from injury and support it by proper foundations at his own expense, so that it shall be and shall remain as safe and useful as it was before the excavation was commenced. During the demolition, the party wall shall be maintained weather-proof and structurally safe by adequate bracing until such time as the permanent structural supports shall have been provided.

**1305.3.2 Beam holes:** When a structure involving a party wall is being demolished, the owner of the demolished structure shall, at his own expense, bend over all wall anchors at the beam ends of the standing wall and shall brick-up all open beam holes and otherwise maintain the safety and usefulness of the wall.

**1305.3.3 Party wall exitways:** A party wall balcony or horizontal exit shall not be destroyed unless and until a substitute means of egress has been provided and approved by the building official.

**1305.4 Adjoining roofs:** When a new building or demolition of an existing building is being prosecuted at a greater height, the roof, roof outlets and roof structures of adjoining buildings shall be protected against damage with adequate safeguards by the person doing the work.

**SECTION 1306.0 PROTECTION OF PUBLIC AND WORKMEN**

**1306.1 General:** Whenever a building or structure is erected, altered, repaired, removed or demolished, the operation shall be conducted in a

## CONNECTICUT BASIC BUILDING CODE/1978

safe manner and suitable protection for the general public and workmen employed thereon shall be provided.

**1306.2 Fences:** Every construction operation located five (5) feet or less from the street lot line shall be enclosed with a fence not less than eight (8) feet high to prevent entry of unauthorized persons. When located more than five (5) feet from the street lot line, a fence or other barrier shall be erected when required by the building official. All fences shall be of adequate strength to resist the wind pressure as specified in Section 715.0.

**1306.3 Sidewalk bridge:** Whenever the ground is excavated under the sidewalk, a sidewalk bridge shall be constructed at least four (4) feet wide, or a protected walkway of equal width shall be erected in the street, provided the required permit for such walkway is obtained from the administrative authority.

### **1306.4 Sidewalk shed**

**1306.4.1 Within ten feet of street lot line:** When any building or part thereof which is located within ten (10) feet of the street lot line is to be erected or raised to exceed forty (40) feet in height, or whenever a building more than forty (40) feet in height within ten (10) feet of the street lot line is to be demolished, a sidewalk shed shall be erected and maintained for the full length of the building on all street fronts for the entire time that work is performed on the exterior of the building.

**1306.4.2 Within 20 feet of street lot line:** When the building being demolished or erected is located within twenty (20) feet of the street lot line and is more than forty (40) feet in height, exterior flare fans or catch platforms shall be erected at vertical intervals of not more than two (2) stories.

**1306.4.3 Buildings higher than six stories:** When the building being demolished or erected is more than six (6) stories or seventy-five (75) feet in height, unless set back from the street lot line a distance more than one-half ( $\frac{1}{2}$ ) its height, a sidewalk shed shall be provided.

**1306.4.4 Walkway:** An adequately lighted walkway at least four (4) feet wide and eight (8) feet high in the clear shall be maintained under all sidewalk sheds for pedestrians. Where ramps are required, they shall conform to the provisions of this article and Section 615.0.

**1306.5 Thrust-out platforms:** The building official may approve thrust-out platforms or other substitute protections in lieu of sidewalk sheds when deemed adequate to insure the public safety. Thrust-out platforms shall not be used for the storage of materials.

**1306.6 Watchman:** Whenever a building is being demolished, erected or altered, a watchman shall be employed to warn the general public when intermittent hazardous operations are conducted across the sidewalk or walkway.

**SECTION 1307.0 EXCAVATIONS**

**1307.1 Temporary support:** Until permanent support has been provided, all excavations shall be safeguarded and protected by the person causing the excavations to be made, to avoid all danger to life or limb. Where necessary, such excavations shall be retained by temporary retaining walls, sheet-piling and bracing or other approved method to support the adjoining earth.

**1307.1.1 Examination of adjoining property:** Before any excavation or demolition is undertaken, license to enter upon adjoining property for the purpose of physical examination shall be afforded by the owner and tenants of such adjoining property to the person undertaking such excavation or demolition, prior to the commencement and at reasonable periods during the progress of the work.

**1307.1.2 Notice to the building official:** If the person who causes an excavation to be made or an existing structure to be demolished has reason to believe that an adjoining structure is unsafe, he shall forthwith report in writing to the building official. The building official shall inspect such premises, and if the structure is found unsafe, he shall order it repaired as provided in Section 124.0.

**1307.1.3 Responsibility of adjoining owner:** The person making or causing an excavation to be made shall, before starting the work, give at least one (1) week's notice in writing to the owner of each neighboring building or structure, the safety of which may be affected. Having received consent to enter a building, structure or premises, he shall make the necessary provisions to protect it structurally and to insure it against damage by the elements which may ensue from such excavation. If license to enter is not afforded, then the adjoining owner shall have the entire responsibility of providing both temporary and permanent support of his premises at his own expense; and for that purpose, he shall be afforded the license when necessary to enter the property where the excavation is to be made.

**1307.1.4 Excavations for other than construction purposes:** Excavations made for the purpose of removing soil, earth, sand, gravel, rock or other materials shall be performed in such a manner as will prevent injury to neighboring properties or to the street which adjoins the lot where such materials are excavated, and to safeguard the general public health and welfare.

**1307.2 Permanent Support**

**1307.2.1 Deep excavations:** Whenever an excavation is made to a depth of more than ten (10) feet below the established curb, the person who causes such excavation to be made, if afforded the necessary license to enter the adjoining premises, shall preserve and protect from injury at all times and at his own expense such adjoining structure or premises which may be affected by the excavation. If the necessary license is not afforded, it shall then be the duty of

the owner of the adjoining premises to make his building or structure safe by installing proper underpinning or foundations or otherwise; and such owner, if it be necessary for the prosecution of his work shall be granted the necessary license to enter the premises where the excavation or demolition is contemplated.

**1307.2.2 Shallow excavations:** Whenever an excavation is made to a depth less than ten (10) feet below the curb, the owner of a neighboring building or structure the safety of which may be affected by the proposed excavation, shall preserve and protect from injury and shall support his building or structure by the necessary underpinning or foundations. If necessary for that purpose, he shall be afforded a license to enter the premises where the excavation is contemplated.

#### SECTION 1308.0 REGULATION OF LOTS

**1308.1 Grading of lot:** When a building has been demolished and building operations have not been projected or approved, the vacant lot shall be filled, graded and maintained in conformity to the established street grades at curb level. The lot shall be maintained free from the accumulation of rubbish and all other unsafe or hazardous conditions which endanger the life or health of the public; and provisions shall be made to prevent the accumulation of water or damage to any foundations on the premises or the adjoining property.

**1308.2 Utility connections:** All service utility connections shall be discontinued and capped in accordance with the approved rules and the requirements of the authoritative agency having jurisdiction.

#### SECTION 1309.0 RETAINING WALLS AND PARTITION FENCES

**1309.1 General:** When the adjoining grade is not higher than the legal level, the person causing an excavation to be made shall erect, when necessary, a retaining wall at his own expense and on his own land. Such wall shall be built to a height sufficient to retain the adjoining earth, shall be properly coped as required in Section 870.0 and shall be provided with a guard-rail or fence not less than forty-two (42) inches in height.

#### SECTION 1310.0 STORAGE OF MATERIALS

**1310.1 General:** All materials and equipment required in construction operations shall be stored and placed so as not to endanger the public, the workmen or adjoining property.

**1310.2 Design capacity:** Materials or equipment stored within the building, or on sidewalks, sheds or scaffolds shall be placed so as not to overload any part of the construction beyond its design capacity, nor interfere with the safe prosecution of the work.

## PRECAUTIONS DURING BUILDING OPERATIONS

**1310.3 Special loading:** Unless the construction is designed for special loading, materials stored on sidewalk sheds and scaffolds shall not exceed one (1) day's supply. All materials shall be piled in an orderly manner and height, to permit removal of individual pieces without endangering the stability of the pile.

**1310.4 Pedestrian walkways:** Materials or equipment shall not be stored on the street without a permit issued by the administrative official having jurisdiction. When so stored they shall not unduly interfere with vehicular traffic, or the orderly travel of pedestrians on the highways and streets. The piles shall be arranged to maintain a safe walkway not less than four (4) feet wide, unobstructed for its full length, and adequately lighted at night and at all necessary times for the use of the public.

**1310.5 Obstructions:** Material and equipment shall not be placed or stored so as to obstruct access to fire hydrants, standpipes, fire or police alarm boxes, utility boxes, catch basins, or manholes, nor shall they be located within twenty (20) feet of a street intersection, or so placed as to obstruct normal observations of traffic signals or to hinder the use of street car loading platforms.

### SECTION 1311.0 REMOVAL OF WASTE MATERIAL

**1311.1 General:** Material shall not be dropped by gravity or thrown outside the exterior walls of a building during demolition or erection. Wood or metal chutes shall be provided for this purpose and any material which in its removal will cause an excessive amount of dust shall be wet down to prevent the creation of a nuisance.

### SECTION 1312.0 PROTECTION OF ADJOINING PROPERTY

**1312.1 General:** Adjoining property shall be completely protected from any damage incidental to the building operation when the owner of the adjoining property permits free access to the building at all reasonable times to provide the necessary safeguards in accordance with Section 1307.0.

### SECTION 1313.0 PROTECTION OF FLOOR AND WALL OPENINGS

**1313.1 Other regulations:** The protection of floor and wall openings during construction operations is controlled by regulations of the Department of Public Safety.

### SECTION 1314.0 SCAFFOLDS

**1314.1 Other regulations:** The design, construction and use of scaffolds are controlled by regulations of the Department of Public Safety.

**SECTION 1315.0 HOISTS**

**1315.1 Other regulations:** The design, construction and use of hoists are controlled by regulations of the Department of Public Safety.

**SECTION 1316.0 STAIRWAYS AND LADDERS**

**1316.1 Other regulations:** The design, construction and use of stairways used during construction operations are controlled by regulations of the Department of Public Safety.

**SECTION 1317.0 LIGHTING**

**1317.1 Other regulations:** The lighting of buildings and structures during construction operations is controlled by regulations of the Department of Public Safety.

**SECTION 1318.0 FIRE HAZARDS**

**1318.1 General:** The provisions of this code and of the fire prevention regulations shall be strictly observed to safeguard against all fire hazards attendant upon construction operations.

**1318.2 Temporary heating:** Whenever salamanders or other heating devices are used for temporary heating, all regulations as to maximum temperature, distance from combustible materials, spark arrestors, removal of noxious gases, and other requirements prescribed by the building official shall be fully observed. When the source of temporary heat consists of salamanders or other open-flame devices, temporary canvas enclosures shall comply with Section 904.0.

**1318.3 Steam boilers:** All temporary or permanent high pressure steam boilers shall be operated only by qualified operating engineers in accordance with the provisions of the mechanical code listed in Appendix B. When located within a building or within ten (10) feet thereof, all such boilers shall be enclosed with approved noncombustible construction.

**1318.4 Storage of flammables:** The storage of gasoline for hoists, oils, paints and other highly flammable materials is controlled by regulations of the Department of Public Safety.

**1318.5 Flame cutting and welding:** The use of oxyacetylene torches for cutting or welding shall be permitted only in accordance with the applicable standards for air and gas welding in building construction.

**1318.6 Concrete forms:** Combustible materials shall not be stored on any floor of a building under construction until all combustible concrete forms are removed from the tier immediately above.

**1318.7 Fire-extinguishing equipment:** Required fire extinguishers, water buckets, auxiliary fire-fighting tools or other portable extinguishing equipment shall be installed and maintained on all floors of a construction

## PRECAUTIONS DURING BUILDING OPERATIONS

operation in accessible locations as required in Article 12 and the fire prevention regulations.

**1318.8 Standpipes and fire lines:** Where standpipes are provided as a permanent part of the building, they shall be installed and made ready for instant use of the fire department as the structure progresses in accordance with the provisions of Section 1212.0. Free access from the street to such standpipes shall be maintained at all times; and materials shall not be stored within five (5) feet of any fire hydrant or in the roadway between such hydrant and the center line of the street.

**1318.9 Housekeeping:** Rubbish and trash shall not be allowed to accumulate on the site and shall be removed as fast as conditions warrant; combustible rubbish shall be removed daily, and shall not be disposed of by burning on the premises or in the immediate vicinity, and the entire premises and area adjoining and around the operation shall be kept in a safe and sanitary condition and free of accumulations of trash, rubbish, nuts, bolts, small tools and other equipment.

### SECTION 1319.0 HEALTH HAZARDS

**1319.1 General:** Every construction or maintenance operation which results in the diffusion of dust, stone and other small particles, toxic gases or other harmful substances in quantities hazardous to health shall be safeguarded by means of local ventilation or other protective devices to insure the safety of the public as required by the regulations of the administrative official.

**1319.2 Removal of dust:** Dust, sand blasts or other harmful agents, when employed or occurring in construction operations, shall be disposed of at or near the point of origin to prevent their diffusion over adjoining premises or streets.

**1319.3 Protective equipment:** Facilities shall be provided for housing the necessary vision, respiratory and protective equipment required in welding operations in approved closed containers and in accordance with the regulations of the administrative official.

### SECTION 1320.0 WELDING SAFETY PRECAUTIONS

**1320.1 Welding enclosures:** All welding and flame-cutting operations shall be performed in protected areas with full consideration to safety and fire hazards. Such closed spaces shall be properly ventilated while welding or cutting is being done. Suitable protection against the rays of the electric arc shall be maintained by the contractor where arc-welding operations might be viewed within harmful range by persons other than the welding operators and inspectors.

**1320.2 Flammable materials:** Proper precautions shall be taken to

**CONNECTICUT BASIC BUILDING CODE/1978**

avoid all risk of fire or explosion, and flammable or explosive materials shall not be stored in the vicinity of welding or cutting operations.

**SECTION 1321.0 SANITATION**

**1321.1 General:** Toilet and drinking water facilities shall be made available for all persons engaged in the erection, repair, or demolition of every building.

**SECTION 1322.0 DISPUTES**

**1322.1 General:** The building official, when requested by any person, aggrieved or otherwise, shall serve a written notice on any owner, tenant and their agents who fail to conform to the requirements of this article directing him to take the necessary remedial action. If the person whose duty it is to protect his own or adjoining property under those provisions fails to proceed to fully comply with such notice within three (3) days of the receipt thereof, or within a reasonable time thereafter as determined by the building official, he may cause the necessary work to be done when the health, safety and general welfare of the public are involved. The cost of such work shall become a lien against the property of the offending owner and the legal authority of the jurisdiction shall institute appropriate action for its recovery.



## **ARTICLE 14**

### **SIGNS**

#### **SECTION 1400.0 GENERAL**

**1400.1 Scope:** The provisions of this article shall govern the construction, alteration, repair and maintenance of all signs, together with their appurtenant and auxiliary devices in respect to structural and fire safety.

**1400.2 Zoning law:** Where more restrictive in respect to location, use, size or height of signs, the limitations of the zoning laws affecting required light and ventilation requirements and use of land shall take precedence over the regulations of this code.

**1400.3 Approved rules:** In the absence of approved rules governing details of construction, the provisions of the applicable standards listed in Appendix B shall be deemed to conform to the requirements of this code unless otherwise specified in this article.

#### **SECTION 1401.0 PLANS, SPECIFICATIONS AND PERMITS**

**1401.1 Owner's consent:** Before any permit is granted for the erection of a sign; plans and specifications shall be filed with the building official showing the dimensions, materials and required details of construction, including loads, stresses and anchorage. The applications shall be accompanied by the written consent of the owner or lessee of the premises upon which the sign is to be erected.

**1401.2 New signs:** A new sign shall not hereafter be erected, constructed, altered or maintained except as herein provided and until after a permit has been issued by the building official and the required bond shall have been filed in accordance with Section 1406.0.

**1401.3 Identification:** Every sign for which a permit has been issued and hereafter erected, constructed or maintained shall be plainly marked with the name of the person, firm or corporation owning, erecting, maintaining or operating such sign. The method and location of this identification shall appear on the plans and within the specification filed with the building official.

**CONNECTICUT BASIC BUILDING CODE/1978**

**1401.4 Alterations:** A sign shall not be enlarged or relocated except in conformity to the provisions of this article for new signs, nor until a proper permit has been secured. The changing of movable parts of an approved sign that is designed for such changes, or the repainting or reposting of display matter, shall not be deemed an alteration; provided the conditions of the original approval and the requirements of this article are not violated.

**SECTION 1402.0 EXEMPTIONS**

**1402.1 General:** A permit shall not be required for the signs covered by the provisions of this section. Such exceptions, however, shall not be constructed to relieve the owner of the sign from responsibility for its erection and maintenance in a safe manner.

**1402.2 Wall signs:** A sign painted on the surface of a fence or approved building wall; or any non-illuminated wall sign on a building or structure which is not more than ten (10) square feet in area.

**1402.3 Ground signs:** The ground signs listed in the following Sections 1402.3.1 through 1402.3.3 shall not require a permit.

**1402.3.1 Sale or rent:** Signs erected to announce the sale or rent of the property so designated, provided such signs are not more than twenty-five (25) square feet in area.

**1402.3.2 Transit directions:** The erection or maintenance of a sign designating the location of a transit line, a railroad station or other public carrier when not more than three (3) square feet in area.

**1402.3.3 Street signs:** Signs erected by a jurisdiction for street direction.

**1402.4 Projecting signs:** A projecting sign not exceeding two and one-half (2½) square feet of display surface.

**SECTION 1403.0 UNSAFE AND UNLAWFUL SIGNS**

**1403.1 Notice of unsafe signs:** When any sign becomes insecure, in danger of falling, or otherwise unsafe, or if any sign shall be unlawfully installed, erected or maintained in violation of any of the provisions of this code, the owner thereof or the person or firm maintaining same, shall upon written notice of the building official, forthwith in the case of immediate danger and in any case within not more than ten (10) days, make such sign conform to the provisions of this article or shall remove it. If within ten (10) days the order is not complied with, the building official may remove such sign at the expense of the owner or lessee thereof as provided in Section 124.0.

**1403.2 Unlawful signs:** The location or positioning of signs listed in the following Sections 1403.2.1 through 1403.2.4 shall be considered unlawful.

**1403.2.1 Egress obstructions:** A sign shall not be erected, constructed, or maintained so as to obstruct any fire escape, required exitway, window or door opening used as an element of a means of egress or to prevent free passage from one part of a roof to another part thereof or access thereto as required by the provisions of Article 6 or for the fire-fighting forces having jurisdiction.

**1403.2.2 Obstruction to ventilation:** A sign shall not be attached in any form, shape or manner which will interfere with any opening required for ventilation by Article 5; except that such signs may be erected in front of and may cover transom windows when not in violation of the provisions of this code.

**1403.2.3 Projecting signs:** A projecting sign erected at other than right angles to the wall of a building or structure outside of the building line which extends above the roof cornice or parapet wall, or above the roof level when there is not a cornice or parapet wall and which obstructs access to the roof is hereby deemed unlawful. Such signs shall be reconstructed or removed as herein required.

**1403.2.4 Alley signs:** Signs shall not be permitted to project beyond alley lot lines.

#### **SECTION 1404.0 EXISTING SIGNS**

**1404.1 Removing or reconstructing signs:** A sign heretofore approved and erected shall not be repaired, altered or moved, nor shall any sign, or any substantial part thereof, which is blown down, destroyed or removed be re-erected, reconstructed, rebuilt or relocated unless it is made to comply with all applicable requirements of this article.

**1404.2 Repair of unsafe signs:** This section shall not be construed to prevent the repair or restoration to a safe condition as directed by the building official of any part of an existing sign when damaged by storm or other accidental emergency.

**1404.3 Relocating signs:** Any sign that is moved to another location either on the same or to other premises shall be considered a new sign and a permit shall be secured for any work performed in connection therewith when required by this article.

#### **SECTION 1405.0 MAINTENANCE AND INSPECTION**

**1405.1 Removal:** The building official may order the removal of any sign that is not maintained in accordance with the provisions of this article.

**1405.2 Maintenance:** All signs for which a permit is required, together with all their supports, braces, guys, and anchors shall be kept in repair in accordance with the provisions of this article and Article 1; and when

**CONNECTICUT BASIC BUILDING CODE/1978**

not galvanized or constructed of approved corrosion-resistive noncombustible materials shall be painted when necessary to prevent corrosion.

**1405.3 Housekeeping:** It shall be the duty and responsibility of the owner or lessee of every sign to maintain the immediate premises occupied by the sign in a clean, sanitary and healthful condition.

**1405.4 Inspection:** Every sign shall be subject to the inspection and approval of the building official.

**SECTION 1406.0 BONDS AND LIABILITY INSURANCE**

**1406.1 Filing:** A person shall not erect, install, remove, rehang or maintain over public property any sign for which a permit is required under the provisions of this code until an approved bond shall have been filed as herein required or until an insurance policy shall have been filed for public liability per accident and for property damage. The amount of the bond and the amount of insurance coverage per accident and for property damage shall be as required by municipal regulation.

**1406.2 Conditions:** Such bond or insurance policy shall protect and save the municipality harmless from any and all claims or demands for damages by reason of any negligence of the sign hanger, contractor or his agents, or by any reason of defects in the construction, or damages resulting from the collapse, failure or combustion of the sign or parts thereof.

**1406.3 Notice of cancellation:** The obligation herein specified shall remain in force and effect during the life of every sign and shall not be cancelled by the principal or surety until after thirty (30) days' notice to the building official.

**SECTION 1407.0 GENERAL REQUIREMENTS FOR ALL SIGNS**

**1407.1 Construction:** All signs shall be designed and constructed in conformity to the provisions for materials, loads and stresses of Articles 7 and 8 and the requirements of this article.

**1407.2 Design loads:** Loads listed in the following Sections 1407.2.1 through 1407.2.2 shall be as the minimum for the design of signs.

**1407.2.1 Wind:** All signs shall be designed and constructed to withstand wind pressure as provided in Section 715.1 for ground signs and Section 715.2 for roof signs.

**1407.2.2 Earthquake:** Signs adequately designed to withstand wind pressures shall generally be considered capable of withstanding earthquake shocks, except as provided in Section 716.0 and for combined loading in Section 717.0.

**1407.3 Illumination:** A sign shall not be illuminated by other than

electrical means and electrical devices and wiring shall be installed in accordance with the requirements of the National Electrical Code listed in Appendix B. Any open spark or flame shall not be used for display purposes unless specifically approved by the building official for locations outside of the fire limits.

**1407.4 Use of combustibles:** The following Sections 1407.4.1 through 1407.4.2 shall apply to combustible material for signs.

**1407.4.1 Ornamental features:** Wood or approved plastic as provided in Article 19 or other materials of combustible characteristics similar to wood may be used for moldings, cappings, nailing blocks, letters and latticing when permitted in Section 1408.2, and for other purely ornamental features of signs in accordance with the approved rules.

**1407.4.2 Sign facings:** Sign facings may be made of approved combustible plastic providing the area of such facing section is not more than one hundred and twenty (120) square feet, and the wiring for electric lighting is entirely enclosed in the sign cabinet with a clearance of not less than two (2) inches from the facing material.

**1407.5 Servicing devices:** Ladders, platforms, hooks, rings and all other devices for the use of servicing personnel shall have safety devices and design loading in accordance with the safety requirements in Appendix B.

**1407.6 Animated devices:** Signs which contain moving sections or ornaments shall have fail-safe provisions to prevent the section or ornament from releasing and falling or shifting its center of gravity more than fifteen (15) inches. The fail-safe device shall be in addition to the mechanism and its housing which operate the movable section or ornament. The fail-safe device shall be capable of supporting the full dead weight of the section or ornament when the moving mechanism releases.

#### SECTION 1408.0 GROUND SIGNS

**1408.1 Bottom clearance:** The bottom capping of all ground signs shall be at least thirty (30) inches above the ground but the intervening space may be filled with open lattice work or platform decorative trim.

**1408.1.1 Fire limits:** In the fire limits, a ground sign shall not be constructed of combustible materials, except as provided in Section 1407.4.

**1408.1.2 Outside fire limits:** Outside the fire limits, the structural frame of ground signs shall not be erected of combustible materials to a height of more than thirty-five (35) feet above the ground.

**1408.2 Maximum size:** In all locations, when constructed entirely of noncombustible material, ground signs may be erected to a height of one hundred (100) feet above the ground; and to greater heights when approved by the building official and located so as not to create hazard or danger to the public.

**SECTION 1409.0 ROOF SIGNS**

**1409.1 Materials:** All roof signs shall be constructed entirely of metal or other approved noncombustible materials except as provided in Section 1407.4. Provisions shall be made for electric ground of all metallic parts; and where combustible materials are permitted in letters or other ornamental features, all wiring and tubing shall be kept free and insulated therefrom.

**1409.2 Bottom clearance:** There shall be a clear space of not less than six (6) feet between the lowest part of the sign and the roof level, except for necessary structural supports.

**1409.3 Closed signs:** A closed roof sign shall not be erected to a height greater than fifty (50) feet above the roof of Types 1 and 2 constructed buildings nor more than thirty-five (35) feet above the roof of Type 3 and 4 constructed buildings.

**1409.4 Open signs:** An open roof sign shall not exceed a height of one hundred (100) feet above the roof of buildings of Types 1 and 2 construction; and not more than sixty (60) feet above the roof of buildings of Type 3 and 4 construction.

**1409.5 Combustible supports:** Within the fire limits, a roof sign which exceeds forty (40) feet in height shall not be supported on or braced to wooden beams or other combustible construction of a building or structure unless otherwise approved by the building official.

**SECTION 1410.0 WALL SIGNS**

**1410.1 Materials:** Wall signs which have an area exceeding forty (40) square feet shall be constructed of metal or other approved noncombustible materials, except for nailing rails and as provided in Section 1407.4.

**1410.2 Extension:** Wall signs shall not be erected to extend above the top of the wall, nor extend beyond the ends of the wall to which they are attached, unless meeting all the requirements for roof signs, projecting signs or ground signs as the case may be.

**SECTION 1411.0 PROJECTING SIGNS**

**1411.1 Materials:** Projecting signs shall be constructed entirely of metal or other approved noncombustible materials except as provided in Section 1407.4.

**1411.2 Maximum projection:** A projecting sign shall not extend beyond a vertical plane two (2) feet inside the curb line.

**1411.3 Clearances:** A clear space of not less than ten (10) feet shall be provided below all parts of such signs.

**1411.4 Additional loads:** Projecting sign structures which could be used to support an individual on a ladder or other servicing device whether or not specifically designed for the servicing device shall be capable of supporting the anticipated additional load but in no case less than one hundred (100) pounds concentrated horizontal load and three hundred (300) pounds vertical concentrated load applied at the point of assumed loading or point of most excentric loading. The building component to which the projecting sign is attached shall also be designed to support the additional loads.

**SECTION 1412.0 MARQUEE SIGNS**

**1412.1 Materials:** Marquee signs shall be constructed entirely of metal or other approved noncombustible materials except as provided in Section 1407.4.

**1412.2 Marquee:** Marquee signs shall be attached to approved marquees constructed in accordance with Section 310.10.

**1412.3 Dimensions:** Marquee signs may extend the full length, but they shall not project beyond the perimeter of the marquee.

**SECTION 1413.0 MISCELLANEOUS AND TEMPORARY SIGNS**

**1413.1 Banner and cloth signs:** Temporary signs and banners attached to or suspended from a building, constructed of cloth or other combustible material shall be strongly constructed and shall be securely attached to their supports. They shall be removed as soon as torn or damaged, and not later than sixty (60) days after erection; except that permits for temporary signs suspended from or attached to a canopy or marquee shall be limited to a period of ten (10) days.

**1413.2 Maximum size:** Temporary signs of combustible construction shall be not more than ten (10) feet in one (1) dimension nor more than five hundred (500) square feet in area.

**1413.3 Supports:** When more than one hundred (100) square feet in area, temporary sign and banners shall be constructed and fastened to supports capable of withstanding the design loads listed in Section 715.0.

**1413.4 Special permits:** Temporary signs used for holiday, public demonstrations or promotion of civic welfare or charitable purposes which extend across streets or other public spaces, shall be subject to special approval of the authority having jurisdiction.

**SECTION 1414.0 ILLUMINATED SIGNS**

**1414.1 Certificates:** All electrically illuminated signs shall be certified as to electric wiring and devices by the authoritative agency having juris-

**CONNECTICUT BASIC BUILDING CODE/1978**

diction, and all wiring and accessory electrical equipment shall conform to the requirements of the National Electrical Code listed in Appendix B.

**1414.2 Additional permits:** Electrical permits shall be issued for the erection or maintenance of illuminated signs.

**1414.3 Relettering signs:** The requirements of this section shall not apply to the relettering of illuminated signs, except where such relettering requires a change of wiring or piping of the sign.

**SECTION 1415.0 PORTABLE SIGNS**

**1415.1 Conformance:** Portable signs shall conform to all requirements for ground, roof, projecting flat and temporary signs when they are used in a similar capacity. The stipulations in this section shall not be construed as to require portable signs to have connections to surfaces, tie-downs or foundations when provisions are made by temporary means or configuration of the structure to provide stability for the expected duration of the installation.

**1415.2 Electrical:** Portable signs which require electrical service shall have a positive connecting device on the sign. Electrical service lines to the sign shall be protected from damage from all anticipated traffic.



## **ARTICLE 15**

### **ELECTRIC WIRING AND EQUIPMENT**

#### **SECTION 1500.0 GENERAL**

**1500.1 Scope:** The provisions of this article shall control the design and construction of all new installations of electrical conductors and equipment in buildings and structures; and all alterations to existing wiring systems therein to insure safety. All such installations shall conform to the provisions of this article and accepted engineering practice as defined in the National Electrical Code listed in Appendix B.

**1500.2 Exceptions:** Electrical wiring shall not be installed in a building or structure, nor shall an alteration of an existing electric wiring system be made until a permit has been issued therefor as required in Section 1501.0, except as provided in the following Sections 1500.2.1 through 1500.2.3.

**1500.2.1 Public service agencies:** The provisions of this code shall not apply to installations for electric supply or communication agencies in the generation, transmission or distribution of electricity, or the operation of signals, or the transmission of intelligence, or to installations located within or on buildings or premises used exclusively by such agency, or on public thoroughfares.

**1500.2.2 Railway utilities:** The provisions of this code shall not apply to the installations or equipment employed by a railway utility in the exercise of its functions as a public carrier, and located outdoors or in buildings used exclusively for that purpose.

**1500.2.3 Radio and television transmitting stations:** The provisions of this code shall not apply to electrical equipment used for radio and television transmission, except the equipment and wiring for power supply and the installations of towers and antennae, whether erected on buildings or on the ground.

**1500.3 Electric installation standards:** Conformity of installations of electric conductors and equipment to the applicable standards of the National Electrical Code and other accepted engineering standards listed in Appendix B shall be the prima facie evidence that such installations

**CONNECTICUT BASIC BUILDING CODE/1978**

are reasonably safe for use in the service intended and in compliance with the provisions of this code.

**1500.4 Electric equipment standards:** The materials, appliances, and other equipment listed in publications of inspected electrical equipment of the Underwriters Laboratories, Inc. (UL), and other accredited authoritative agencies and testing organizations, and installed in accordance with any instructions included as part of such listing, shall be accepted as meeting the requirements of this code.

**SECTION 1501.0 PLANS AND SPECIFICATIONS**

**1501.1 General:** Plans, specifications and schedules in sufficient detail shall be filed with the building official, showing the location and capacity of all lighting facilities, electrically operated equipment and electrical circuits required for all service equipment of the building or structure, except as may be modified by the administrative official.

**1501.2 Items covered:** All electrically-controlled devices, signal, communicating and lighting systems, and their wiring, whenever required under the provisions of this code, shall be shown on the plans and elevations of the building or structure with respect to those uses covered by the following Sections 1501.2.1 through 1501.2.9.

**1501.2.1 Emergency and hazard use lighting:** Places of public assembly and control of emergency lighting systems, Sections 417.0 and 624.0, and hazardous uses in Article 4.

**1501.2.2 Exitway and elevator lighting:** Stairway and exitway illumination equivalent to three (3) foot candles, Sections 513.0 and 614.0; *Exit* sign lighting circuits, Section 623.0; elevator car illumination, Section 1605.0.

**1501.2.3 Service equipment:** Electrical equipment and control of heating, refrigerating and ventilating machinery and devices, mechanical code listed in Appendix B.

**1501.2.4 Fire alarm and signal systems:** Fire alarm signal systems, fire department communication and supervisory service, Sections 1216.0, 1217.0 and 1218.0.

**1501.2.5 Construction operations:** Temporary construction lighting requirements equivalent to three (3) foot candles, Section 1317.0.

**1501.2.6 Signs and towers:** Wiring of display signs, Sections 1407.0 and 1414.0; and radio and television antennae, Sections 426.0 and 427.0.

**1501.2.7 Elevators and moving stairways:** Power control and electric operation and circuit wiring of elevators and moving stairways, Article 16.

**1501.2.8 Toilet and bathrooms:** Illumination of toilets and bathrooms equivalent to three (3) foot candles, Section 512.0.

**1501.2.9 Prefabricated circuits:** Loop wiring for prefabricated construction, Sections 1801.0 and 1818.0.

**1501.3 Other authorities:** Where required by local law or ordinance, the plans and specifications for electric wiring shall be approved by all authorities having jurisdiction.

#### SECTION 1502.0 INSPECTION AND TESTS

**1502.1 During installation:** During the installation of electric systems and equipment, the building official shall make inspections to insure compliance with the provisions of this article, except as provided in Section 1504.0.

**1502.2 Concealing work:** Work in connection with an electric system shall not be covered or concealed until it has been inspected and permission to do so has been granted by the building official.

**1502.3 Final inspection and test:** On completion of the work, the administrative official shall inspect the work and cause tests to be made of the operation of the entire system to insure compliance with all requirements.

**1502.4 Reinspection:** An electrical installation from which electrical service has been discontinued for a period of thirty (30) days or more, shall not have service restored until the system has been reinspected and a new certificate of inspection issued.

#### SECTION 1503.0 TEMPORARY USE

**1503.1 Permission:** The building official may in his discretion give temporary permission for a reasonable time to supply and use current in part of an electric installation before such installation has been fully completed and the final certificate of approval has been issued; provided that the part covered by the temporary certificate complies with all the requirements specified for temporary lighting, heat or power in the National Electrical Code.

#### SECTION 1504.0 PERMIT AND CERTIFICATE OF INSPECTION

**1504.1 General:** Electrical wiring or equipment shall not be installed within or on any building or structure or premises, nor shall any alteration be made in any such existing installations, without first securing approval and a permit from the building official except as provided in Section 1504.2. It shall be unlawful to use or permit the use of, or to supply current for an electrical system in a building or structure, unless the required certificate of inspection and permit has been issued by the building official.

**1504.2 Exemptions:** A permit shall not be required for the execution

## CONNECTICUT BASIC BUILDING CODE/1978

and use of the classes of work specified in the following Sections 1504.2.1 through 1504.2.4.

**1504.2.1 Repairs and maintenance:** Minor repair work, including the replacement of lamps or the connection of approved portable electrical equipment to approved permanently installed receptacles.

**1504.2.2 Public service agencies:** The installation, alteration or repair of electrical equipment for the operation of communications and signals or the transmission of intelligence by wire by public service agencies except as provided in Article 12 for fire alarm systems.

**1504.2.3 Power companies:** The installation, alteration or repair of electrical equipment of a power or public service company for its use in the generation, transmission, distribution or metering of electricity.

**1504.2.4 Temporary testing systems:** The installation of any temporary system required for the testing or servicing of electrical equipment or apparatus.

**1504.3 Annual permit:** In lieu of an individual permit for each alteration to an already approved electrical installation, the building official may issue an annual permit upon application therefor to any person, firm or corporation regularly employing one (1) or more certified electricians in the building, structure or premises owned or operated by the applicant for the permit.

**1504.4 Annual records:** The person to whom an annual permit is issued shall keep a detailed record of all alterations to an approved electrical installation made under such annual permit and such records shall be accessible to the building official at all times or shall be filed with him as he may designate.

### SECTION 1505.0 EXISTING INSTALLATIONS

**1505.1 General:** Alterations shall not be made to any existing installations of electric wiring or equipment for which a permit is required within or on any building, structure or premises except as provided in Section 1504.0, without first securing the approval and a permit from the building official.

**1505.2 Defective wiring:** If, upon reinspection, an electric wiring system is found defective and unsafe, the building official shall revoke all certificates and permits in effect; and the use of such system shall be discontinued until it has been made to conform to this article and the approved rules and after a new permit has been issued.

**1505.3 (Reserved)**

**SECTION 1506.0 ENERGY CONSERVATION IN  
ELECTRICAL DISTRIBUTION SYSTEMS**

**1506.1 Power factor:** The power factor of the overall electric distribution system in a building shall be not less than ninety (90) per cent under rated design installed load of the building, either by utilization equipment design or by the use of power factor corrective devices. The power factor corrective devices may be installed on individual equipment, rated greater than one thousand (1,000) watts, and switched therewith, regionally grouped, located at the service equipment or power factor correction achieved by other equivalent means. The choice among these corrective methods should be made based upon an engineering evaluation of each distribution system.

**1506.2 Service voltage:** Where a choice of service voltages is available, the voltage resulting in the least energy loss shall be used.

**1506.3 Voltage drop:** In any building, the maximum total voltage drop shall not exceed three (3) per cent in branch circuits or feeders, for a total of five (5) per cent to the farthest outlet based on steady state design load conditions.

**1506.4 Lighting switching:** Switching shall be provided for each lighting circuit, or for portions of each circuit, so that the partial lighting required for custodial or for effective complementary use with natural lighting may be operated selectively.

**1506.5 Separate metering:** In all multi-family dwellings (use group R-2) provisions shall be made to determine the electrical energy consumed by each tenant.



## ARTICLE 16

### ELEVATOR, DUMBWAITER AND CONVEYOR EQUIPMENT, INSTALLATION AND MAINTENANCE

#### SECTION 1600.0 GENERAL

**1600.1 Scope:** The design, construction, installation, maintenance, operation, inspection and tests of all elevators, dumbwaiters, manlifts and moving stairways hereafter operated, installed, relocated or altered shall be in conformity to the requirements of Chapter 356 of the General Statutes and the provisions of Section 1600.2 of this code; such requirements and provisions shall be administered by the Department of Public Safety. The provisions of this article shall control the design, construction, installation, maintenance, operation, inspection and tests of moving walks and special hoisting and conveying equipment hereafter operated, installed, relocated or altered. The design, construction, alteration, maintenance, operation, inspection and tests of manlifts shall be in conformity to the safety code for manlifts listed in Appendix B. Provisions for construction hoists, personnel hoists and similar devices are included in Article 13 of this code.

Except as may be otherwise provided by the administrative regulations of the Department of Public Safety for amusement devices, the design, construction, installation, maintenance and operation of all amusement devices shall be subject to such special requirements as are deemed necessary by the building official to secure their safe operation. The provisions of this article shall not apply to portable elevating devices used to handle materials only, and located and operated entirely within one story. All such equipment shall be constructed, operated and maintained in compliance with accepted engineering practice.

**1600.2 Standard code adopted:** Except as otherwise provided in this code, and except where more restrictive provisions govern, the construction, alteration, maintenance, operation, inspections and tests of elevators, dumbwaiters, moving walks and moving stairways shall be in conformity to the Safety Code for Elevators, Dumbwaiters, Escalators and Moving Walks listed in Appendix B.

**1600.3 Purpose and exceptions:** The purpose of this code is to provide reasonable safety for life and limb. In case of practical difficulty or unnecessary hardship, the Commissioner of Public Safety may grant exceptions from the literal requirements or permit the use of other methods, but only when it is clearly evident that reasonable safety is thereby secured.

#### SECTION 1601.0 PLANS, SPECIFICATIONS AND PERMITS

**1601.1 Application:** The person, firm or corporation responsible for the installation, relocation, or alteration of any equipment covered by this article shall file an application for permit with the Commissioner accompanied by governing specifications and accurately scaled and fully dimensioned plans showing the location of the installation in relation to the plan and elevation of the building; the location of the machinery room and equipment to be installed, relocated or altered; and all structural supporting members thereof, including foundations; and shall specify all materials to be employed and all loads to be supported or conveyed. Such plans and specifications shall be sufficiently complete to illustrate all details of construction and design.

**1601.2 Permits:** Equipment or devices subject to the provisions of this code shall not be constructed, installed, relocated or altered unless a permit has been received from the building official or the appropriate State agency before the work is commenced. A copy of such permit shall be kept at the construction site at all times while the work is in progress.

**1601.3 Identification of equipment:** In buildings containing more than one (1) elevator or device and where such devices are subject to periodic inspections, each such elevator or device shall be identified by a serial number attached to or painted, stenciled or otherwise registered on the crosshead of the elevator car and on the motor or machine, in figures not less than one (1) inch high. After such devices have been so designated, their numbers shall not be changed except by permission of the appropriate State agency and all correspondence in regard to such device shall refer to said number.

#### SECTION 1602.0 TESTS AND INSPECTIONS

**1602.1 General:** All equipment and devices covered by the provisions of this code shall be subjected to acceptance and maintenance tests and periodic inspections as required herein and in the accepted standard.

**1602.2 Acceptance tests:** Acceptance tests and inspections shall be required on all new, relocated and altered equipment subject to the provisions of this article. The tests and inspection shall be of such nature as to determine whether the entire installation is designed, constructed and installed in compliance with this code and the accepted standards, and shall include all parts of the equipment and machinery. All such tests shall be made in conformity to the requirements of Section 1602.5, in the presence of the Commissioner, by the person, firm or corporation installing such equipment.



## ELEVATOR, DUMBWAITER AND CONVEYOR EQUIPMENT, INSTALLATION AND MAINTENANCE

**1602.3 Maintenance tests and periodic inspections:** Maintenance tests shall be required on all new and existing power elevators and periodic inspections shall be made of all new and existing equipment subject to the provisions of this article.

**1602.3.1 Maintenance tests:** Maintenance tests shall be made by a qualified agent or agency approved by and in the presence of the Commissioner, and shall be made at the expense and responsibility of the owner.

**1602.3.2 Periodic inspections:** Periodic inspections shall be made by the Commissioner or by a qualified agent or agency approved by him. Where such inspections are not made by the Commissioner, the approved agent or agency shall submit a detailed report of the inspection to the Commissioner on forms approved by him not more than thirty (30) days following the completion of such inspection.

### **1602.4 Frequency of tests and inspections**

**1602.4.1 Periodic inspection intervals:** Inspections shall be made in accordance with the regulations of the Department of Public Safety. Miscellaneous hoisting and elevating equipment, conveyors and amusement devices shall be inspected at such intervals as may be deemed necessary by the building official or by the Commissioner to insure reasonable safety of operation.

**1602.4.2 Maintenance test intervals:** Maintenance tests shall be made at intervals not exceeding the following:

1. power elevator car and counterweight safeties, governors and oil buffers, every five (5) years; and
2. hydraulic elevator and dumbwaiter pressure tanks and piston rods of roped hydraulic elevators and dumbwaiters, every three (3) years.

**1602.5 Minimum requirements for tests and inspections:** The minimum requirements for the inspection and test of the devices subject to this article shall conform to this section.

**1602.5.1 Elevators, dumbwaiters and moving stairways:** The equipment and machinery of elevator, dumbwaiter and moving stairways shall be inspected and tested to the requirements of the standard listed in Appendix B.

**1602.5.2 Material lifts, conveyors and amusement devices:** Material lifts, conveyors and amusement devices shall be inspected and subjected to tests to insure the load capacity and safety of operation. The tests shall cover all operating protectives and safety devices, structural adequacy of the supports and anchorage to floors, walls, ceilings and foundations.

**1602.5.3 Manlifts:** All equipment and machinery of manlifts shall be inspected and tested to insure reasonable safety of operation and shall include tests of the brake, terminal stopping device, belt tension and emergency stopping device. Acceptance tests shall also include a load capacity test as provided in the accepted standard listed in Appendix B.

**1602.5.4 Miscellaneous hoisting and elevating equipment:** All miscellaneous hoisting and elevating equipment shall be subjected to such tests and inspections as may be required by the Commissioner to insure safe operation.

#### SECTION 1603.0 CERTIFICATE OF COMPLIANCE

**1603.1 General:** The operation of all equipment governed by the provisions of this article and hereafter installed, relocated or altered shall be unlawful by persons other than the installer thereof until such equipment has been inspected and tested as herein required and a final or limited certificate of compliance has been issued therefor by the Commissioner.

**1603.2 Final certificate of compliance:** The Commissioner shall issue a final certificate of compliance for each unit of equipment which has satisfactorily met all the inspections and tests required by this article. Such final certificate shall bear the signature of the person who made the inspection and tests and shall designate the rated load and speed, the date of the acceptance tests and inspections, and the name of the Commissioner who made or witnessed such test and inspection. The final certificate shall also include the necessary space for inserting the information indicated below.

1. The name of the person who made the periodic inspection and witnessed the periodic and maintenance tests.
2. The date of the periodic inspection and test and of the maintenance test.

**1603.3 Limited certificate of compliance:** The Commissioner may within his discretion issue a limited certificate of compliance for any equipment covered by this article, which is hereafter being installed, relocated or altered, to permit its limited use by the person designated therein during the period of such installation, relocation or alteration. Such certificate shall be signed by the Commissioner and shall bear the dates of issue, renewal and expiration, and shall designate the class of service allowed.

**1603.3.1 Tests and minimum safeguards required:** A limited certificate shall not be issued for an elevator until such elevator has satisfactorily passed the following tests: rated load, car and counterweight safety, and terminal stopping devices. Permanent or temporary guards and enclosures shall be installed on the car, around the hoistway and at the landing entrances. Equipment other than elevators shall be tested and protectives provided as deemed necessary by the Commissioner to insure reasonable safe operation for the limited service specified.

**1603.3.2 Special conditions:** Automatic and continuous-pressure operation elevators shall not be placed in temporary operation from the landing push buttons unless the door locking device and interlocks required by the safety code are installed and operative. When the car can be operated only from the inside, landing entrance guards shall be provided with locks that can be released from the hoistway side only.

**1603.3.3 Time limitation:** Limited certificates of operation shall be issued for periods of not more than thirty (30) days; but may be renewed within the

## ELEVATOR, DUMBWAITER AND CONVEYOR EQUIPMENT, INSTALLATION AND MAINTENANCE

discretion of the Commissioner for additional periods of not more than thirty (30) days each.

**1603.4 Posting certificates of compliance:** The owner or lessee shall post the last issued certificate of compliance in a conspicuous place inside all elevator cars and on, or immediately adjacent to, the entrance to all other approved equipment.

### SECTION 1604.0 MAINTENANCE AND ACCIDENTS

**1604.1 Owner responsibility:** The owner or his legal agent of the building in which the equipment is located shall be responsible for the care, maintenance and safe operation of all equipment covered by this article after the installation thereof and its acceptance by him. He shall make or cause to be made all maintenance tests and service inspections and shall maintain all equipment in a safe operating condition.

**1604.2 Contractor responsibility:** The person, firm or corporation installing any device covered by this article shall make all acceptance tests and be responsible for the care and safe operation of such equipment during its construction and until temporarily or finally accepted by the building owner or his legal agent.

**1604.3 Maintenance items:** All operating and electrical parts and accessory equipment of devices subject to this article shall be maintained in safe operating condition. The maintenance of elevators, dumbwaiters and escalators shall conform to the standard listed in Appendix B.

**1604.4 Unsafe conditions:** If upon inspection, any equipment covered in this article is found in an unsafe condition, or not in accordance with the provisions of this code, the Commissioner shall thereupon serve a written notice of such finding upon the building owner or lessee, stating the time when recommended repairs or changes must be completed. After the service of such notice, it shall be the duty of the owner to proceed within the time allowed to make such repairs or changes as are necessary to place the equipment in safe condition; and it shall be unlawful to operate such equipment after the date stated in the notice unless such recommended repairs or changes have been made and the equipment has been approved by the Commissioner, or an extension of time secured from him in writing.

**1604.4.1 Power to seal equipment:** The Commissioner, in addition to any other penalties herein provided, shall have the power to seal out of service any device or equipment covered by this article for the following reasons: when in case of emergency in the opinion of the Commissioner, any such device is in a condition to render it totally unsafe for operation; or for willful failure to comply with recommendations and orders issued by the Commissioner.

**1604.4.2 Notice of sealing out of service:** Before sealing any device out of

service, the Commissioner, except in case of emergency, shall serve written notice upon the building owner or lessee stating intention to seal the equipment out of service and the reasons therefor.

**1604.4.3 Unlawful to remove seal:** Any device sealed out of service by the Commissioner shall be plainly marked with a sign or tag indicating the reason for such sealing, and any defacing or removal of the sign or tag, or any tampering with or removal of the seal without approval of the Commissioner shall constitute a violation of this article.

**1604.5 Accidents reported and recorded:** The owner of the building shall immediately notify the Commissioner of every accident involving personal injury or damage to apparatus on or about or in connection with any equipment covered by this article, and shall afford the Commissioner every facility for investigating such accident. When an accident involves the failure, breakage, damage or destruction of any part of the apparatus or mechanism, it shall be unlawful to use such device until after an examination by the Commissioner and approval of the equipment for continued use. It shall be the duty of the Commissioner to make a prompt examination into the cause of the accident and to enter a full and complete report thereof in the records of the appropriate State agency.

**1604.6 Removal of damaged parts:** It shall be unlawful to remove any part of the damaged construction or operating mechanism of elevators, or other equipment subject to the provisions of this article, from the premises until permission to do so has been granted by the Commissioner.

#### SECTION 1605.0 EXISTING INSTALLATIONS

**1605.1 Application of Department of Public Safety regulations:** Existing elevators, dumbwaiters and moving stairways which were in use on July 1, 1939, shall be subject to the regulations of the Department of Public Safety, Sections 19-410-A1 to Section 19-410-A58, inclusive. Existing elevators, dumbwaiters and moving stairways, which were placed in service after July 1, 1939, shall be subject to the regulations of the Department of Public Safety, Sections 19-410-B1 to 19-410-B87, inclusive.

#### SECTION 1606.0 ALTERATIONS

**1606.1 General:** Alterations to existing elevators shall conform to the standards listed in Appendix B. Alterations to all other devices subject to this article shall conform to the requirements of the Commissioner, and the requirements of the standard Safety Code.

**1606.2 Relocated equipment:** The relocation of an existing installation of any device covered by this article shall be deemed to be a new installation and shall conform to the requirements therefor.

## ELEVATOR, DUMBWAITER AND CONVEYOR EQUIPMENT, INSTALLATION AND MAINTENANCE

### SECTION 1607.0 POWER ELEVATOR OPERATION

**1607.1 Designated operator:** Every power elevator except automatic and continuous pressure operation types and sidewalk elevators shall be in charge of a competent designated operator. In every structure over one hundred and fifty (150) feet in height, a competent designated elevator operator shall be available at all times to assist the fire department in obtaining access to any floor in the building or structure served by elevators, except where an automatic or continuous pressure operation elevator is available.

**1607.2 Emergency use by fire department:** In all structures more than three (3) stories in height where elevators are to be installed, there shall be at least one (1) elevator provided for fire department emergency access to all floors which shall meet the following requirements:

1. The car inside shall be able to accommodate a standard ambulance type stretcher, which is seventy-six (76) inches long by twenty-four (24) inches wide, in its horizontal open position. The minimum clear distance between walls or between wall and door excluding return panels shall be not less than eighty (80) inches wide by fifty-four (54) inches deep. The minimum distance from wall to return panel shall be not less than fifty-one (51) inches. The minimum clear opening width shall be not less than forty-two (42) inches.

**1607.2.1 Use by physically handicapped people:** In all structures of any height where interior access for physically handicapped people is to be provided by means of elevators, all elevators shall meet the following requirements:

1. Each car inside shall permit the turning around of a standard wheelchair. The minimum clear distance between walls or between wall and door excluding return panels shall be not less than sixty-eight (68) inches wide by fifty-four (54) inches deep. The minimum distance from wall to return panel shall be not less than fifty-one (51) inches. The minimum clear opening width shall be not less than thirty-six (36) inches.
2. Controls shall be readily accessible from a wheelchair upon entering an elevator. Emergency controls shall be grouped together at the bottom of the control panel with their centerlines approximately thirty-five (35) inches above the floor; the highest floor buttons shall be no higher than fifty-four (54) inches above the floor. Controls not essential to automatic operation may be located as convenient.
3. Raised tactile numbers or signs shall be provided adjacent to all car control buttons and switches. Raised tactile numbers or letters shall be provided for floor designation on each floor on both side jambs of each hoistway entrance; numbers or letters shall be visible from within the car and from the elevator entering area and be mounted approximately sixty (60) inches from the floor.

4. A handrail shall be provided on one (1) wall of the car, preferably the rear wall. The rail shall be smooth and the inside surface shall be at least one and one-half (1½) inches clear of the wall approximately thirty-two (32) inches from the floor.
5. Elevator car doors and hoistway doors shall be automatically power operated and shall be equipped with reopening devices.
6. Each car shall be provided with a telephone located not more than forty-eight (48) inches above the floor, and connected to a central exchange system or a two-way communicating system between the elevator and a point outside the hoistway attended twenty-four (24) hours per day. Telephone shall be provided with a cord at least three (3) feet long.

#### **1607.3 Passenger restriction**

**1607.3.1 Freight operators:** Except as provided in Section 1607.3.2, it shall be unlawful for any person other than the operator or those individuals necessary to handle freight to ride on any elevator other than a passenger elevator; and it shall be unlawful for the owner or other responsible person to permit any individual other than above specified to ride on any elevator other than a passenger elevator.

**1607.3.2 Other employees:** Employees of the owner may ride on a freight elevator, subject to approval of the Commissioner and the requirements of the safety code.

### **SECTION 1608.0 ELEVATOR SPEED LIMITS**

**1608.1 Freight elevators:** The limits of speed for power freight elevators shall be in accordance with the regulations of the Department of Public Safety.

### **SECTION 1609.0 HOISTWAY ENCLOSURES AND VENTING**

#### **1609.1 Fireresistance rating of hoistway enclosures**

**1609.1.1 Elevator enclosures:** All elevator and other hoistway enclosures other than dumbwaiter shafts shall be constructed to afford at least the fireresistance rating specified in Table 214 with approved opening protectives conforming to Section 1613.0 and Article 9.

**1609.1.2 Dumbwaiter enclosures:** Shaft enclosures and dumbwaiters having a car area of more than three (3) square feet which travel through more than one (1) story and serve more than two (2) adjacent floors shall be of one (1) hour fireresistance rated construction with approved three-quarter (¾) hour opening protectives or the approved labeled equivalent complying with Article 9, except that when the load capacity exceeds one hundred (100) pounds per square foot (psi) the enclosure and opening protectives shall comply with the requirements of Section 1609.1.1 for fire-resistance rating.

## ELEVATOR, DUMBWAITER AND CONVEYOR EQUIPMENT, INSTALLATION AND MAINTENANCE

**1609.1.3 Special dumbwaiter enclosures:** The enclosure of dumbwaiters not more than three (3) square feet in area with a load capacity of not more than twenty-five (25) pounds and all dumbwaiters serving not more than two (2) adjacent levels shall be enclosed with approved noncombustible materials.

**1609.2 Limiting number of elevators in one hoistway enclosure:** The number of elevators permitted in one (1) hoistway shall conform to the standards listed in Appendix B.

**1609.3 Vents required:** Hoistways of elevators and dumbwaiters serving more than three (3) stories shall be provided with means for venting smoke and hot gases to the outer air in case of fire, except as listed below.

1. In buildings other than hotels, apartment houses, hospitals, and similar buildings with overnight sleeping quarters, hoistways not extending into the top story may be provided with approved fire suppression system connected to the building water supply system or to an approved automatic fire suppression system conforming to Section 1204.0 in lieu of the required vents.
2. Sidewalk elevator hoistways are not required to be vented.

**1609.4 Location of vents:** Vents shall be located in the side of the hoistway enclosure directly below the floor or floors at the top of the hoistway, and shall open either directly to the outer air or through noncombustible ducts to the outer air; or in the wall or roof of the penthouse or overhead machinery space above the roof, provided that vent openings of at least equivalent area are provided in the floor or floors at the top of the hoistway. Cable slots entering the machine room shall be sleeved beneath the machine room floor and extended to not less than twelve (12) inches below the shaft vent to inhibit the passage of smoke into the machine room.

**1609.5 Area of vents:** Except as herein provided, the area of the vents shall be not less than three and one-half (3½) per cent of the area of the hoistway nor less than three (3) square feet for each elevator car, and not less than three and one-half (3½) per cent nor less than one-half (½) square foot for each dumbwaiter car, in the hoistway, whichever is greater. Of the total required vent area, not less than one-third (⅓) shall be of the permanently-open type. Where mechanical ventilation conforming to the mechanical code listed in Appendix B and providing equivalent venting of the hoistway is provided in the overhead elevator machine room, the required vent area may be reduced, provided the following conditions are met.

1. The building is not a hotel, apartment house, hospital or similar building with overnight sleeping quarters.
2. The machine room is so located that it does not have outside exposure.

**CONNECTICUT BASIC BUILDING CODE/1978**

3. The hoistway does not extend to the top story of the building.
4. The machine room exhaust fan is automatically re-activated by thermostatic means.

**1609.6 Closed vents:** Closed portions of the required vent area shall consist of windows, skylights or duct openings glazed with plain glass not more than one-eighth ( $\frac{1}{8}$ ) inch thick.

**1609.6.1 Skylights:** Skylights used as required vents shall conform to Section 925.3.

**1609.6.2 Windows:** Windows used as required vents shall conform to Section 916.0, except that they shall be glazed with one-eighth ( $\frac{1}{8}$ ) inch plain glass.

**SECTION 1610.0 ELEVATOR-EXITWAY RESTRICTIONS**

**1610.1 General:** Elevators shall not be accepted as a required element of an exitway. Elevators shall not be installed in a common enclosure with a stairway, and the path of travel on any exitway stairway shall not pass directly in front of any elevator hoistway door.

**SECTION 1611.0 ELEVATOR AND DUMBWAITER MACHINERY AND EQUIPMENT**

**1611.1 General:** Elevator and dumbwaiter machinery and equipment shall conform to the standard listed in Appendix B.

**SECTION 1612.0  
HOISTWAYS AND RELATED CONSTRUCTION FOR PASSENGER AND FREIGHT  
ELEVATORS AND DUMBWAITERS**

**1612.1 General:** The construction of hoistways, machine rooms and related construction for passenger and freight elevators and dumbwaiters shall conform with the standards listed in Appendix B.

**SECTION 1613.0 ELEVATOR OPENING PROTECTIVES**

**1613.1 General:** All hoistway enclosure doors for elevators, dumbwaiters and other hoisting equipment shall be constructed in accordance with the provisions of Article 9 and as herein required.

**1613.2 Fire doors:** Door openings of elevator hoistway enclosures shall be equipped with protective assemblies having a fire-resistance rating of not less than one and one-half ( $1\frac{1}{2}$ ) hours or their approved labeled equivalent; except that when the shaft opens into a vestibule enclosed with not less than two (2) hour fire-resistance rated construction in which all vestibule openings are protected with assemblies having a fire-resistance rating of not less than one (1) hour, the fire-resistance rating of the



## ELEVATOR, DUMBWAITER AND CONVEYOR EQUIPMENT, INSTALLATION AND MAINTENANCE

shaftway doors may be reduced to three-quarter (¾) hour. Elevator hoistway fire doors shall not be required to be self-closing.

**1613.3 Hardware:** All hardware on opening protectives shall be of an approved type, installed as tested; except that interlocks, mechanical elevator door locks and electric contacts and door operating mechanisms of approved types shall be exempt from the fire test requirements.

**1613.4 Door operation on dangerous floors:** Each elevator lobby shall be provided with an approved smoke detector located on the lobby ceiling. When the detector is activated, elevator doors shall not open and all cars serving that lobby are to return to the main floor and be under the manual control only. If the main floor detector or a transfer floor detector is activated, all cars serving the main floor or transfer floor shall return to a location approved by the fire department and building official and be under manual control only. The smoke detector is to operate before the optical density exceeds three-hundredths (0.03) per foot. The detector may serve to close the lobby doors.

**Exception:** Freight elevators located in or at openings into industrial areas.

### SECTION 1614.0 ELEVATOR CAR EMERGENCY SIGNALS

**1614.1 General:** Elevator cars shall be provided with car emergency signals conforming to the standard listed in Appendix B.

### SECTION 1615.0 MANLIFTS

**1615.1 Restricted use:** Manlifts shall be accessible and their use shall be restricted to employees only. They shall comply with the applicable requirements of this article and shall be installed only when permitted by the Commissioner in feed, flour and cereal mills, grain elevators and in similar buildings of other use groups.

**1615.2 Enclosures:** When the clear vertical distance between mounting platform and ceiling guard is less than seven and one-half (7½) feet, the manlift shall be completely enclosed to comply with Section 1609.0 without access openings.

**1615.3 Accessibility:** An entrance to manlifts shall not be provided from any floor or level with a clear ceiling height of less than nine (9) feet, and the minimum clearance between the head pulley and the roof or other overhead obstruction shall be not less than four (4) feet.

**1615.4 Speed:** The speed of manlifts shall not exceed ninety (90) feet per minute.

**1615.5 Manlift safeties**

**1615.5.1 Manlift manual stops:** An approved manually operated stop-

**CONNECTICUT BASIC BUILDING CODE/1978**

ping device shall be provided to permit passengers riding on a manlift to control the operation of the lift at all floors and at any level in the travel of the device.

**1615.5.2 Manlift automatic stops:** An approved safety device shall be provided which will automatically stop the lift in the event that a rider fails to alight at the top landing; but such automatic device shall not be capable of restoring the operating circuit when it has been interrupted for any cause.

**1615.5.3 Secondary manlift stop:** All new installations shall be provided with a secondary safety stop to act immediately after and in the event of a failure of the automatic stop brake or other device required in Section 1615.5.2.

**1615.6 Manlift construction**

**1615.6.1 Floor openings:** Floor openings shall be circular and not less than twenty-four (24) inches in dimension from belt to perimeter. The floor openings shall be provided with bevel guards underneath the landing with a slope of not less than forty-five (45) degrees from the horizontal, extending not less than forty-two (42) inches back from the handhold.

**1615.6.2 Guards:** The floor opening shall be protected with a railing or guard of metal or other approved noncombustible material, forty-two (42) inches in height, located not less than twelve (12) inches from the edge of the opening.

**1615.6.3 Entrance and exit:** The entrance and egress to and from the manlift shall be equipped with a gate at all floors and landings, hung to swing away from the opening and located not less than two (2) feet from the floor openings. The landings shall be constructed to provide safe footing and shall be kept clear of obstructions and lighted to an intensity of not less than three (3) foot candles. The runs of the manlift shall be illuminated throughout the entire height to an intensity of not less than one (1) foot candle.

**1615.6.4 Steps:** Manlift steps shall be uniform in size and not less than twelve (12) inches deep from the plane of the belt to the edge of the tread and of adequate strength to support a load of four hundred (400) pounds. The vertical distance between step treads shall be not less than fifteen (15) feet.

**1615.6.5 Belts:** All manlift belts shall be of approved types, not less than twelve (12) inches wide and of adequate strength to support a load of two hundred (200) pounds on each step of one (1) run without loss of traction.

**1615.6.6 Handholds:** Manlift handholds shall be located not less than four (4) nor more than four and two-thirds (4<sup>2</sup>/<sub>3</sub>) feet above each step

## ELEVATOR, DUMBWAITER AND CONVEYOR EQUIPMENT, INSTALLATION AND MAINTENANCE

plied as a static center concentration within twelve (12) inches of the loading edge, the lift platform shall not deflect more than one-half ( $\frac{1}{2}$ ) inch at any edge point.

### 1616.6 Platform and hoist protection

**1616.6.1 Unprotected space not more than five feet:** When the lift rise is such that the unprotected vertical distance from the landing to the bottom edge of the vertical side of the platform is not more than five (5) feet, protection shall be provided as described below.

1. **Toe guards:** A toe guard plate not less than eight (8) inches in width shall be provided on all unprotected sides. It shall be made of steel, not less than No. 11 Manufacturers' Standard Gage (0.120 in.) in thickness, attached flush with the vertical edge of the platform, and slanted inwardly at an angle of approximately thirty (30) degrees from the vertical. Skirts may be used in lieu of toe guards.
2. **Skirts:** The unprotected sides of the platform shall be provided with metal or wood sheathing or skirts attached to the platform to protect the exposed vertical openings.
3. **Enclosures:** When skirt protection is not provided the unprotected sides may be provided with solid or mesh enclosures to the full height of the lift rise. Mesh enclosure shall, by test, reject a two (2) inch ball.

**1616.6.2 Unprotected space more than five feet:** When the unprotected space exceeds that set forth in Section 1616.6.1, protection shall be provided as described below.

1. Sides used for loading or unloading at the lower level shall be protected with skirts as described in Section 1616.6.1, or by a landing gate with electrical contact, or an automatic landing gate.
2. Sides not used for loading or unloading shall be protected with skirts or enclosures as described in Section 1616.6.1.

**1616.6.3 Lift rise more than five and one-half feet:** When the lift rise exceeds five and one-half ( $5\frac{1}{2}$ ) feet above the lowest level, additional protection shall be provided as described below.

1. The upper landing shall be provided with a landing gate equipped with mechanical lock and electrical contact.
2. The sides of the platform not used for loading or unloading shall be provided with railings, mesh, or solid enclosures not less than three and one-half ( $3\frac{1}{2}$ ) feet high.

**1616.6.4 Surface installations:** When the lift is surface mounted, toe clearance space shall be provided on all unprotected sides. Such toe clearance shall provide not less than three (3) inches vertical and four (4) inches horizontal clearance when the platform is at its lowest position.

**1616.7 Platform protection, loading ramps:** The sides or edges of the loading ramps which rise above the surrounding platform shall be provided with skirt or toe guards protecting the opening under the sides of the ramp.

**1616.8 Overload protection**

**1616.8.1 Electric-hydraulic operation:** Hydraulic overload protection shall be provided by means of a relief valve that will prevent raising of the elevating device when it is loaded to one hundred twenty-five (125) per cent of rated capacity. The relief valve shall be so located that its operation will not cause the platform to lower.

**1616.8.2 Electric operation:** Electric overload protection shall be provided by means of a thermal cutout or other suitable device.

**SECTION 1617.0 AUTOMOTIVE LIFTS**

**1617.1 General:** All electric, hydraulic and hydro-pneumatic automotive lifts shall comply with the requirements of Sections 1606.0 and 1606.1, and the applicable standards listed in Appendix B.

**1617.2 Types:** Lifts shall be classified as semi-hydraulic, full hydraulic or mechanical lifts according to their operation as described in the following Sections 1617.2.1 through 1617.2.3.

**1617.2.1 Semi-hydraulic hydro-pneumatic:** A semi-hydraulic lift is an automotive lift of the plunger type which employs compressed air as the primary lifting and load sustaining agent; such compressed air acts continuously against a column of liquid to provide the lifting and load sustaining effort.

**1617.2.2 Full hydraulic:** A full hydraulic lift is an automotive lift of the plunger type that employs a liquid under pressure as the direct lifting and load sustaining agent. Such a lift is so designed and constructed that the full weight of the load and lifting assembly rests on a continuous column of liquid which extends from the cylinder to the liquid control valve.

**1617.2.3 Mechanical lifts:** A mechanical lift is an automotive lift so designed that the motive power is transmitted to the lifting frame by mechanical means. There are three principal types: cable and drum; rack and pinion; and screw type.

**1617.3 Chassis and axle supports:** Only those chassis and axle supports complying with the requirements of Commercial Standard CS142 listed in Appendix B may be used.

**1617.4 Safeties:** All mechanical automotive lifts shall be equipped with approved safeties as specified in the following Sections 1617.4.1 through 1617.4.3.

## ELEVATOR, DUMBWAITER AND CONVEYOR EQUIPMENT, INSTALLATION AND MAINTENANCE

tread on both runs of the manlift with a two (2) inch clearance from the belt. Such handholds shall be not less than nine (9) inches in length in the clear.

**1615.7 Final acceptance:** All manlifts shall be subject to acceptance by the Commissioner and periodic tests and inspection as provided in Section 1602.0.

### 1615.8 Manlift instruction signs

**1615.8.1 Landing signs:** Approved signs shall be provided on each landing and stenciled on the belt at approximately eye level above each step giving the following instructions: *For employees only. Face the belt. Use the handhold. To stop, pull rope.*

**1615.8.2 Terminal sign:** The top landing shall be provided with an illuminated warning sign in block letters not less than two (2) inches high which shall be located within easy view of ascending passengers at a level of not more than two (2) feet above the top landing, reading: *Top floor, get off.*

## SECTION 1616.0 INDUSTRIAL LIFTS AND LOADING RAMPS

**1616.1 General:** Except as exempted by Section 1600.0 or as may be otherwise provided by statute, the provisions of this section and Section 1617.0 shall control the design, construction, installation, maintenance and operation of all automotive lifts, industrial lifts and loading dock ramps hereafter installed, relocated or altered in all buildings and structures. All such equipment shall be constructed, operated and maintained in compliance with accepted engineering practice. The purpose of this code is to provide reasonable safety for life and limb. In case of practical difficulty or unnecessary hardship, the Commissioner may grant exceptions from the literal requirements or permit the use of other methods, but only when it is clearly evident that reasonable safety is thereby secured.

### 1616.2 General requirements

**1616.2.1 Markings and labels:** All material lifts and loading ramps shall be marked with the name of manufacturer, model number, serial number, and rated capacity; and such markings shall be legibly stamped or etched on a metal plate which shall be permanently secured in a convenient place for inspection. Such nameplates shall not be obscured, obliterated or changed.

**1616.2.2 Controls:** The controls shall be so located that the operator has a full and unobstructed view of the lift area at all times. All control devices shall be accessible to the operator without exposing him to danger. Alterations or changes shall not be made in the control device, or its manner of use, which will render its normal functioning inoperative.

**1616.2.3 Lift control:** When the device used for controlling the travel of the lift in either direction is not continuous pressure or deadman type, an emergency stop button shall be provided and so located as to be readily accessible to the operator at all times.

### **1616.3 Maintenance**

**1616.3.1 Owner responsibility:** The owner or his agent shall be responsible for the care, maintenance, and safe operation of all equipment covered by this article after the installation thereof and its acceptance by him or its approval by the Commissioner. The owner, or his agent, shall not permit the equipment to be used unless it is, to the best of his knowledge, in safe operating condition.

**1616.3.2 Housekeeping:** The spaces around, or beneath the equipment shall be kept clean; rubbish or oil shall not be allowed to accumulate therein, nor shall any part of this space be used for storage of materials or equipment. All parts, except such parts as require freedom of movement, shall be kept tight at all times. All mechanical working parts shall be kept free of rust, and properly lubricated and adjusted. The owner, or his agent, shall be responsible for inspecting the oil level in all hydraulic systems to insure that it is at, or above, the manufacturer's prescribed minimum level.

**1616.3.3 Lighting:** The entire operating area shall be illuminated to provide a distributed intensity of not less than three (3) foot-candles over the area of operating floor and platform.

**1616.4 Pressure tanks:** All separate tanks for liquid storage under pressure, not an integral part of the cylinder assembly, shall conform to the provisions of ASME code for unfired pressure vessels listed in Appendix B and shall be marked with a securely attached metal label to indicate the approved operating pressure. For hydro-pneumatic systems, the storage capacity shall be such that with the lift in fully elevated position there shall remain not less than three (3) inches of usable oil in the storage tank. Adequate means shall be provided to determine that the oil level in reservoir, with lift in the lowest position, is at or above the safe minimum operating level as prescribed by the manufacturer.

**1616.5 Design and construction:** The construction and installation of all power industrial lifts and loading ramps shall comply with the provisions of this section and the accepted standards listed in Appendix B.

**1616.5.1 Rated load:** The lifting capacity of the lift shall be not less than fifty (50) pounds per square foot (psf) of gross platform area.

**1616.5.2 Platform construction:** The platform and its supports shall be designed for the loads to be transmitted within the strength and deflection limitations herein specified, when one-half ( $\frac{1}{2}$ ) the capacity load is ap-

## ELEVATOR, DUMBWAITER AND CONVEYOR EQUIPMENT, INSTALLATION AND MAINTENANCE

**1617.4.1 Limit stop:** Every mechanical automotive lift shall be equipped with an automatic overtravel device to stop the motor or drive machine before the lifting frame reaches safe limits of travel.

**1617.4.2 Holding brake:** When the friction of the gear train of the driving mechanism is insufficient to hold the load, the mechanical automotive lift shall be equipped with a brake or other locking device to automatically hold the lift at any level immediately on failure of the lifting power for any cause.

**1617.4.3 Stopping brake:** When the structural members of the lifting frame are so designed that they interfere with open doors or other projections from the vehicle, the automotive lift shall be provided with a quick acting automatic brake to stop the ascent of the lift in case of emergency.

### **1617.5 Controls**

**1617.5.1 Automatic release:** The direct control device shall be of a type that will automatically return itself to the neutral or off position upon release by the operator.

**1617.5.2 Speed control:** A speed control device shall be provided to control the descent of the lift at a speed of not more than twenty (20) feet per minute (fpm) under rated load.

## **SECTION 1618.0 CONVEYORS**

**1618.1 Enclosures:** All package elevators, boosters or lifts connecting successive floors or levels shall be enclosed in fireresistance rated construction in conformity to the requirements of Sections 1612.0 and 1609.0 and Article 9.

### **1618.2 Opening protectives**

**1618.2.1 Plans and specifications:** Whenever conveyor or other material-handling devices are designed to pass through floors, ceilings, partitions or walls, the plans and specifications shall give the necessary details of the opening protectives in respect to location, structural strength and fire-resistance rating.

**1618.2.2 Fire curtains:** Openings in partitions and walls through which conveyors pass shall have automatic fire dampers or curtains to prevent the spread of fire when, in the opinion of the Commissioner, such protection is necessary due to the hazard of operation of the conveyors.

**1618.2.3 Fire doors:** All opening protectives shall meet the fireresistance rating requirements of Article 9 for the location, type of construction and use of the building or structure.

## CONNECTICUT BASIC BUILDING CODE/1978

**1618.3 Machinery guards:** All conveying devices shall be manufactured, installed, and guarded in accordance with the American National Standards Institute's Safety Standards for Conveyors and Related Equipment (ANSI B20.1).

**1618.4 Chute enclosures:** All slides and chutes shall be enclosed with fire-resistance rated construction or protected with approved automatic shutters of noncombustible construction to insure a full firestop between floors of the building or structure.

**1618.5 Conveyor safeties:** All power-operated conveyors, belts and other material moving devices shall be equipped with automatic limit switches which will shut off the power in an emergency and automatically stop all operation of the conveyors.

### SECTION 1619.0 MOVING STAIRWAYS

**1619.1 General:** All moving stairways and their enclosures shall comply with the provisions of this section and the safety code. When serving as a required exitway element, moving stairways shall meet the additional requirements of Section 620.0.

#### 1619.2 Construction materials

**1619.2.1 Enclosures:** When not approved as a required exitway element, the stairwell may be open when protected with an exhaust system of ventilation and water curtains as provided in Section 520.0, or with a power-operated shutter conforming to Section 1619.3; except that the machine room shall be enclosed with one (1) hour fire-resistance rated construction and shall be properly lighted and ventilated. When such stairway serves as a required exitway element, the complete enclosure including the machine room shall be constructed with a fire-resistance rating of not less than two (2) hours complying with the requirements of Section 616.0 for interior stairways.

**1619.2.2 Noncombustible materials:** All parts of the moving stairway and equipment shall be constructed entirely of noncombustible and fire-retardant materials except electrical equipment, wiring, wheels, handrails and the use of one-twenty-eighth ( $\frac{1}{28}$ ) inch wood veneers on balustrades backed-up with noncombustible materials.

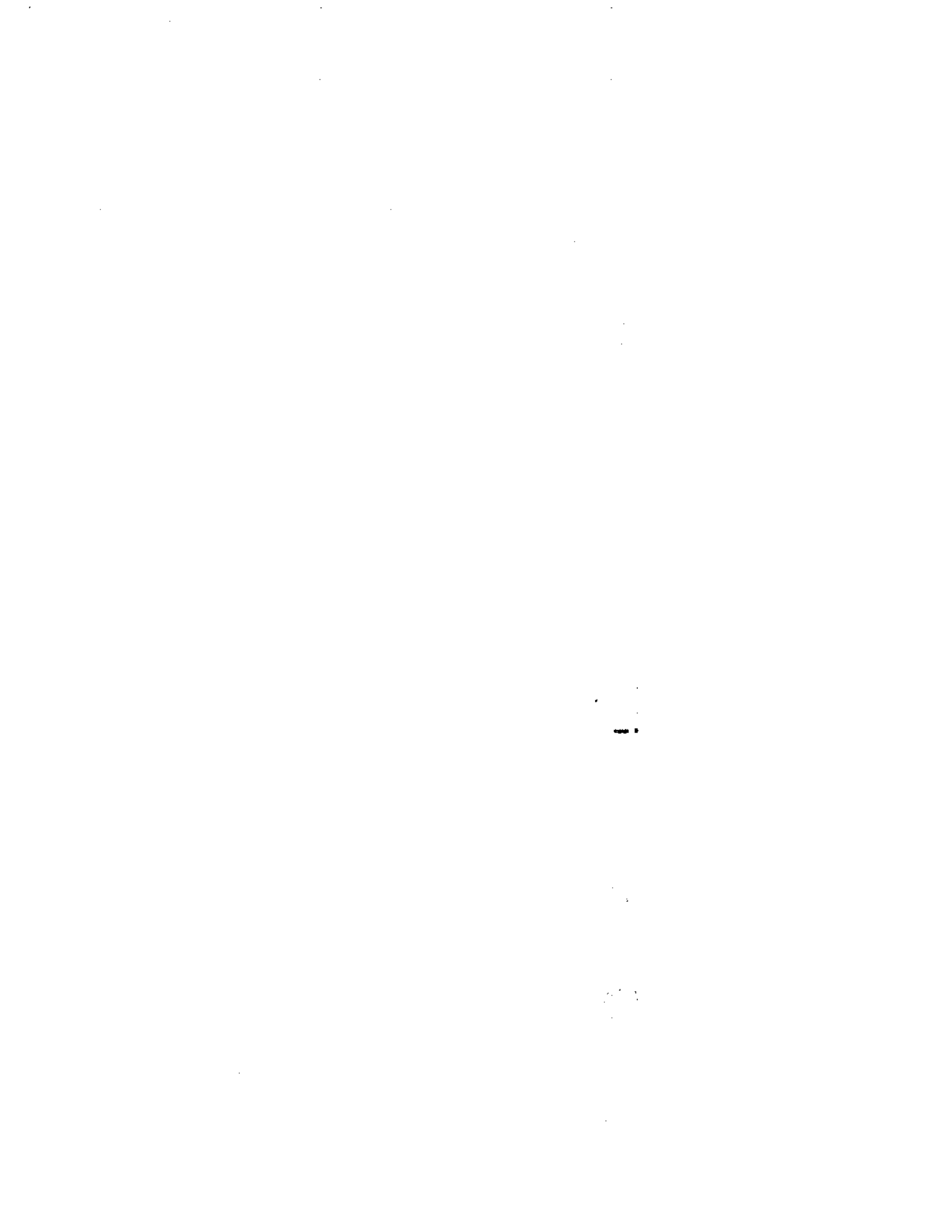
**1619.3 Automatic fire shutter:** Unenclosed moving stairways that do not meet the requirements of Article 6 for exitway stairways and which are not protected with an approved exhaust system and automatic water curtain specified in Section 520.0, shall be equipped with a power-operated automatic shutter at every floor pierced thereby, constructed of noncom-



**ELEVATOR, DUMBWAITER AND CONVEYOR EQUIPMENT, INSTALLATION AND MAINTENANCE**

bustible materials with a fireresistance rating of not less than one and one-half (1½) hours as provided in Section 520.5.

**1619.3.1 Construction:** The shutter shall be so constructed as to close immediately upon the automatic detection of fire or smoke by an approved device and shall completely shut off the well opening. The shutter shall operate at a speed of not more than thirty (30) fpm; and shall be equipped with a sensitive leading edge to arrest its progress when in contact with any obstacle, and to continue its progress on release therefrom.



# ARTICLE 17

## PLUMBING SYSTEMS

### SECTION 1700.0 GENERAL

**1700.1 Scope:** The design and installation of plumbing systems, including sanitary and storm drainage, sanitary facilities, water supplies and storm water and sewage disposal in buildings shall comply with the requirements of this article and accepted engineering practice as defined in the plumbing code listed in Appendix B.

#### **1700.2 Listed code**

**1700.2.1 General:** The plumbing code listed in Appendix B is the Basic Plumbing Code, BOCA-78; its provisions shall govern for accepted engineering practice. The plumbing official named therein shall be the building official named in this code.

**1700.2.2 Exceptions to listed code:** The following articles of the listed code shall not apply:

Article 1	Administration and Enforcement
Article 15	Individual Sewage Disposal System
Article 17	Individual Water Supply

**1700.2.3 Modifications to listed code:** The following subsections shall replace those of the same number and title contained in the listed code:

**P-303.2 Public systems available:** A public water supply system and/or public sewer system shall be deemed available to premises used for human occupancy if such premises are within two hundred (200) feet, measured along a street, alley or easement, of the public water supply or sewer system, and a connection conforming with the standards set forth in this code may be made thereto.

**P-308.3 Freezing:** Water service piping and sewers shall be installed below recorded frost penetration but not less than four (4) feet below grade for water piping and three (3) feet below grade for sewers. Plumbing piping in exterior building walls shall be adequately protected against freezing by insulation or heat or both.

**1700.2.4 Supplement to listed code:** The following subsection shall supplement the listed code:

**P-1209.1.1 Water temperature:** Each shower head and each bathtub inlet shall be served by an approved single handle automatic mixing valve designed to prevent sudden unanticipated changes in the temperature of the water delivered, and installed to prevent the temperature of the water delivered from exceeding one hundred fifteen (115) degrees Fahrenheit.

**1700.3 Exemptions to listed code**

**1700.3.1 Public storm sewer systems, public sanitary sewer systems, and public water main systems:** Where any such system is under the jurisdiction of a public authority, such authority may prescribe and enforce such design and installation requirements as it deems appropriate for that portion of the system lying within the physical area of its control as defined by applicable law or regulation. Requirements so prescribed need not be the same as those contained in this code. Beyond the physical area controlled by such public authority, or if there is no such public authority, the requirements of this code shall be met, and it shall be the responsibility of the building official to enforce them. This code shall not be construed as prescribing the identity and/or the qualifications of those persons who perform or are to perform this exempt work.

**1700.3.2 Definition of public authority:** A public authority, for the purpose of these exemptions, shall be the individual official, board, department, or other agency established by state, municipal, or other political subdivision created by law to administer any such system.

**SECTION 1701.0 PLANS AND SPECIFICATIONS**

**1701.1 When required:** Prior to the issuance of any permit, plumbing plans and specifications for the installation, alteration or addition to the plumbing systems of any building, structure or premises shall be submitted to the building official for approval. The plans and specifications shall show in sufficient detail the layout and spacing of fixtures; the size, material and location of all building sewers and drains, storm sewers and drains; and the soil, waste, vent, and water supply piping.

**1701.2 Plans:** Legible plans drawn to a scale of not less than one-eighth ( $\frac{1}{8}$ ) inch to the foot of each floor and of a typical floor shall be filed in triplicate and shall show the complete plumbing system, all plumbing fixtures and all water supply piping, together with building sections showing vertical and diagrammatic elevations of the soil, waste, vent and water supply lines with traps and valves, and the location and size of the public sewer or other disposal system.

**1701.3 Exemptions:** The filing of plans and specifications shall not be required for minor repairs as defined in the plumbing code listed in Ap-

pendix B, or for the installation or alteration of plumbing and drainage systems in buildings or structures herein specifically exempted, such as open sheds for storage purposes, isolated private garages without sanitary fixtures, temporary sanitary installations required under the provisions of Article 13 for construction operations, and temporary installations for exhibition purposes when not designed for sanitary use and not directly connected to a sewerage system.

**SECTION 1702.0 SEWER AND WATER SUPPLY DATA**

**1702.1 Public sewer:** Plans for new plumbing systems or alterations to existing plumbing systems shall be accompanied by a diagram showing the relative elevation of the lowest fixture and the top of the public sewer referred to the established datum of the town, region or district served by the public sewer, when such public sewer is available. The plans shall show the size, number and location of all new sewer connections.

**1702.2 Public water main:** When the installation of a water distribution system or the replacement or alteration of a water supply system is contemplated, the plumbing plans shall show the location and sizes of all the water lines and branches involved, the fixtures or other devices to be supplied, and the minimum water pressure in the main in front of the building or structure.

**1702.3 Identical structures:** The same set of plumbing or water supply piping plans and specifications may be used for two (2) or more buildings or structures when the buildings are exactly similar and are located on adjoining lots under the same ownership, provided the applications for permission to construct or alter are filed simultaneously.

**SECTION 1703.0 PERMITS AND CERTIFICATES OF APPROVAL**

**1703.1 Approved plans:** Before any work is commenced on plumbing installations which require the submission of plans, a permit shall be secured from the building official and such permit with a stamped and approved copy of the plans shall be available at the construction site at all times.

**1703.2 Amended plans:** All plumbing installations shall be installed in accordance with the plans as approved, and any changes made during construction which are not in conformity to the approved plans shall be resubmitted for approval on amended plans.

**1703.3 Certificate of approval:** After the prescribed tests and final inspection indicate the work complies in all respects with the provisions of the plumbing code listed in Appendix B, a certificate of approval and acceptance shall be issued by the building official.

**1703.4 Notice of commencement and completion:** The building official shall be notified of the commencement of any plumbing work, and

## CONNECTICUT BASIC BUILDING CODE/1978

when such work is completed or ready for inspection. All such notices shall be confirmed in writing and shall be part of the official record of the application and permit.

### SECTION 1704.0 WATER SUPPLY SYSTEMS

**1704.1 General:** Every building in which people live, work or congregate shall be provided with a supply of clean, cool and potable water in sufficient quantity to maintain all water supply and plumbing fixtures in a safe and sanitary manner; and such other water supplies as may be required for fire protection, air-conditioning and all other service equipment of the building or structure required by this code.

#### 1704.2 Public water supply

**1704.2.1 Required capacity:** Where the required capacity of potable water supply is available from public water mains at the site, every building and structure shall be supplied from such mains to provide for all its service equipment.

**1704.2.2 Power pumps:** When power pumps are required in the water supply system of a building or a structure, they shall not pump directly from a city main or from the building supply, but shall be fed through an open surge tank controlled by a balanced ball cock. The surge tank may be omitted when the power pump is designed and approved by its manufacturer for use without the surge tank.

**1704.3 Private water supply:** When public water mains are not available, a private source of water supply may be used provided samples are submitted periodically to the health official for analysis and approval and the use of such source of supply has been approved by him and the building official.

#### 1704.4 Cross-connected supplies

**1704.4.1 Building service supply:** It shall be unlawful to connect water piping supplied directly from city water mains or other approved sources with or to piping from underground storage tanks or other unapproved sources; and a cross-connection shall not be made between the potable water distribution system and any portion of waste or soil systems, or fixtures or devices that may contaminate, pollute or otherwise render the water unsafe.

**1704.4.2 Process water:** Water from unapproved sources for industrial processing or for fire protection shall be identified at each outlet with an approved sign stating that the water is unfit and that its use is prohibited for drinking purposes. Piping carrying potable waters shall be identified and distinguished from water piping from unapproved sources by distinctive painting and appropriate signs.

**SECTION 1705.0 EXISTING BUILDINGS AND INSTALLATIONS**

**1705.1 Compliance with code:** When alterations are made in an existing building or structure requiring the addition of any two (2) or more plumbing fixtures, or one (1) or more waterflush closets, or when a new bathroom is installed, or a building is remodeled for an extension in size or change in use, in which plumbing work is involved, the new work shall be made to conform to all the applicable sanitary requirements of the plumbing code listed in Appendix B.

**1705.2 Unsafe installations:** Any existing installation of plumbing systems deemed unsafe and dangerous to the public health, in whole or in part, shall be made to comply with all the provisions of this article or as the building official shall determine to be necessary, subject to review in accordance with the provisions of Section 125.0.

**1705.3 Drainage nuisance:** Any surface or roof drainage which creates a structural or health hazard, or any other nuisance to the owners or occupants of adjacent premises, or to the public by reason of discharge into, onto or across any adjacent building, premises or public thoroughfare, shall be abated by the owners of the improperly drained area; and the building official shall require the drainage to be disposed of in accordance with the provisions of the plumbing code listed in Appendix B.

**1705.4 Soil and vent stacks**

**1705.4.1 Extension above new building:** When a new building is erected higher than an existing building, windows or other wall openings shall not be located nearer than six (6) feet to an existing soil or vent stack on the lower building unless the owner of the new building makes the necessary provision to extend such soil or vent stacks to a height of not less than three (3) feet above the topmost opening at his own expense and with the approval of the adjoining owner.

**1705.4.2 Extension above existing building:** When the existing adjoining building is of greater height than the new building, the owner of the structure of greater height may, with the consent of the owner of the new structure, extend all new soil, waste or vent stacks which are located within twenty (20) feet of the common lot line to a level above the higher existing roof.

**1705.4.3 Exemption:** Approved fixed window assemblies of the required fireresistance rated construction which comply with the provisions of Article 9, when permitted in lot line walls, shall not be deemed wall openings within the meaning of this section.





## **ARTICLE 18**

### **PREFABRICATED CONSTRUCTION**

#### **SECTION 1800.0 GENERAL**

**1800.1 Scope:** The provisions of this article shall govern the materials and methods of construction of all prefabricated buildings, prefabricated subassemblies and prefabricated building units as herein defined.

**Note. Mass and industrialized production:** Prefabrication as herein used is not restricted to housing for one- and two-family dwellings, but applies to all prefabricated forms of building elements and assembled construction units, intended for both structural and service equipment purposes in all buildings of all use groups. The provisions of this article are supplemental to the structural, mechanical and fire-resistance rating requirements of this code. Prefabrication covers the pre-cutting and assembling of individual elements either in the shop or at the site before erection in the building structure. Prefabricated shop assemblies may be shipped in structurally complete units ready for installation in the building structure or in knock-down and packaged form for assembly at the site. There is not a distinction between the application of these code requirements for controlled or ordinary materials as defined in Sections 201.0, 719.0 and 800.0, and either prefabricated or at-site construction. However, the use of controlled materials procedure permits greater latitude for the development of industrialized shop production methods.

**1800.2 Approved materials and methods:** The use of all materials or methods of construction which meet the specified strength, durability, sanitary and fire-resistance rating requirements of this code and accepted engineering practice as listed in Appendix B shall be permitted.

**1800.3 New materials:** All new materials or assemblies not specifically provided for shall be tested and approved in accordance with the provisions of this code; or the building official may accept the reports of accredited testing authorities complying with the approved rules to assist him in his determination.

**1800.4 At-site construction:** The provisions of this article shall not be deemed to prohibit at-site construction and erection of buildings or structures when

designed in compliance with the provisions of this code and the minimum requirements prescribed in this article.

**1800.5 Conflicting laws:** Nothing herein contained shall be deemed to nullify any provisions of the zoning laws or any other statute or legally adopted rule pertaining to building construction of any municipality or the State of Connecticut in respect to the location, use, height or area of a building and type of construction, except as may be specifically exempted in these provisions; nor shall anything herein contained have the effect of increasing working stresses or reducing egress facilities and health provisions as prescribed in this code.

#### SECTION 1801.0 PLANS AND SPECIFICATIONS

**1801.1 Application:** Complete legible dimensioned drawings to a scale of not less than one-eighth ( $\frac{1}{8}$ ) inch per foot and specifications covering every type of prefabricated construction complying with the administrative provisions of Section 112.0 shall be submitted to the building official for approval. Such application shall describe all essential elements of the structure or assembly, identify such materials as the building official may designate with the name of manufacturer, trade name, commercial grade, manufacturing process or chemical composition when necessary, and shall include all required data of the physical properties of the component materials.

**1801.2 Plot diagram:** A plot plan complying with Section 112.6 shall be filed for each individual building or structure.

**1801.3 Mechanical plans:** Mechanical plans in sufficient detail for the installation of heating, cooking, electrical, ventilating, air-conditioning, sanitary and all other service equipment, piping and accessories shall be submitted to the building official with the application for general approval of the design; or, if not included in the general application for approval, such information shall be furnished for each specific installation.

**1801.4 Piping, electric wiring and accessories:** The design shall include provision for all installations of piping, wiring and accessories for service equipment to be installed either in the shop or at the site.

**1801.5 Integral accessories:** When unit service equipment is furnished with and forms an integral part of the prefabricated subassembly, the construction shall be preformed to accommodate accessory conduits, piping, ducts, outlet boxes and fittings; and material essential to the structural strength of the unit or assembly shall not thereafter be removed from structural elements during installation on the site.

**1801.6 Service equipment requirements:** All service equipment shall comply with the requirements of Article 10 for heating, Article 12 for fire protection, Article 15 for electrical, Article 17 for plumbing, and

the mechanical code listed in Appendix B for air-conditioning and ventilating systems and equipment.

**SECTION 1802.0 TESTS OF PREFABRICATED ASSEMBLIES**

**1802.1 General:** When not capable of design by accepted engineering analysis, all prefabricated assemblies or subassemblies constructed as in practice shall be subjected to the unit assembly tests prescribed in Articles 7 and 8 and the test standards listed in Appendixes C, D, E, F and G. All assembly tests shall meet the strength requirements of Section 803.0 within the limits of deflection therein provided.

**SECTION 1803.0 APPROVAL AND INSPECTION SERVICES**

**1803.1 Review and approval**

**1803.1.1 General:** Prior to the issuance of a building permit for a closed prefabricated assembly, the design of such assembly shall be reviewed in detail and approved as conforming to this code. The review and approval of a prefabricated building or unit may be accepted by the building official under any one of the following methods.

**1803.1.2 By building official:** The review and approval may be conducted by the building official in accordance with the applicable provisions of Sections 112.0 and 113.0 and be applicable to his municipality solely.

**1803.1.3 By independent agency or person:** The review and approval may be conducted by an authorized independent evaluation agency or person, duly accredited by the State Building Inspector and the State Building Code Standards Committee to perform such services. Such agency or person shall certify to the fact that all architectural, structural and mechanical plans conform to all provisions of this code and to the legal rules adopted under its provisions and to all statutory requirements. Said certification, with a copy of the approved plans, shall be accepted by the building official as meeting the requirements of this code.

**1803.1.4 By State Building Inspector and the State Building Code Standards Committee:** The review and approval may be conducted by the State Building Inspector and the State Building Code Standards Committee, who shall certify to the effect that all architectural, structural and mechanical plans conform to all provisions of this code and to the legal rules adopted under its provisions and to all statutory requirements. Said certification, with a copy of the approved plans, shall be accepted by the building official as meeting the requirements of this code.

**1803.2 Shop inspection**

**1803.2.1 General:** The shop inspection of a prefabricated building or unit may be performed by either of the following.

**1803.2.2** The building official or his authorized representative.

## CONNECTICUT BASIC BUILDING CODE/1978

**1803.2.3** An authorized independent inspection agency, such as Underwriters' Laboratories, Inc., or a registered architect or professional engineer or other qualified person, duly accredited by the State Building Inspector and the State Building Code Standards Committee to perform such services. Such agency or person shall certify to the effect that all shop construction conforms to the provisions of the plans approved in accordance with 1803.1 through 1803.1.4 inclusive. A seal of approval, issued or approved by the State Building Inspector and the State Building Code Standards Committee shall be affixed to each building or unit. Such certification shall be accepted by the local building official as meeting the inspection requirements of this code, but is not to be considered as relieving the building official of the inspection requirements for any at-site work.

### **1803.3 Inspection and certificate of supervision**

**1803.3.1 Verified report:** Except where all assemblies and subassemblies, service equipment and accessories are readily accessible for complete inspection at the site, the licensed professional architect or engineer who supervised the design, fabrication and erection of the prefabricated construction, shall furnish a verified report of inspection to the building official upon completion of the work certifying that the building has been erected in accordance with this code, and that the work has been constructed in conformity to the approved plans except as to specific legally authorized variations which are noted in the verified report.

**1803.4 Test and inspection records:** All required test and inspection records shall be accessible to the building official at all times during the fabrication of the unit or subassembly and the erection of the building; or such records as the building official may designate shall be filed with him.

**1803.5 Fees:** All fees associated with Approval and Inspection Services shall be borne by the applicant.

## **SECTION 1804.0 PREFABRICATED UNITS**

**1804.1 General:** Approved prefabricated individual units for use in floor, roof, ceiling or wall construction which are designed to meet all prescribed structural provisions of Articles 7 and 8, including connection and anchorage details, may be used in all at-site construction types and building use groups within the height, area and fire-resistance rating limitations of Tables 214 and 305.

## **SECTION 1805.0 EXISTING SYSTEMS AND APPROVALS**

**1805.1 Existing approvals:** Any material, appliance, form or system of construction heretofore legally approved may be used for the purposes and within the limitations for which it was approved, provided such use is not detrimental to the safety of the public or is not specifically prohibited by the provisions of this code.

**1805.2 Materials already fabricated:** The use of any material already fabricated or of any construction already erected under a heretofore legally issued permit of the building official shall be permitted; but the continuation of any construction erected in violation of any statute or legally adopted rule in force at the time of erection shall be prohibited.

**SECTION 1806.0 APPROVALS BASED ON DESIGN**

**1806.1 Engineering analysis:** When capable of design by accepted engineering analysis, any prefabricated structural element or combination of elements shall be approved by the building official when the design is based on the working loads and working stresses provided in Articles 7 and 8 and Appendix K.

**1806.2 Ordinary materials**

**1806.2.1 Average working stress:** When the character of construction permits site inspection by the building official, and all prefabricated assemblies and subassemblies are readily accessible for field inspection, the use of ordinary material with the average working stresses prescribed in Appendix K shall be permitted in prefabricated construction.

**1806.2.2 Field inspection:** When ordinary materials are used, field erection and installation of prefabricated units and service equipment at the site shall be inspected by the building official or he may accept the report of a qualified licensed engineer or architect in respect thereto. All prefabricated subassemblies shall be certified by the authorized representative of the manufacturer for compliance with this code.

**1806.3 Expert services:** When a system of construction involves unusually intricate design analysis, the building official may require the submitter to retain a competent expert to assist in his determination; or he may accept the recommendations of Building Officials and Code Administrators International, Inc., in respect thereto.

**1806.4 Check tests:** When there is reasonable doubt as to the adequacy of the construction or accessory details which are based on design, the building official may require check tests of assembled units as specified in Section 701.3, or he shall accept certified reports of such tests from accredited testing authorities.

**SECTION 1807.0 APPROVALS BASED ON TESTS**

**1807.1 Tests required:** When not capable of design by accepted engineering analysis, every system of prefabricated building, sub-assembly or unit and its connections shall be subjected to the tests and conditions of approval prescribed by Article 8, or to any other tests acceptable to the building official that simulate the actual loads and conditions of application that the completed structure will be required to resist in normal use;

## CONNECTICUT BASIC BUILDING CODE/1978

or certified reports of such tests conducted by an approved and recognized testing authority shall be accepted by the building official, provided such tests meet the requirements of this code. The costs of all investigations and tests shall be paid by the submitter.

**1807.2 Field connections:** All field splices and structural connections of floor, wall, ceiling and roof subassemblies shall be of sufficient strength to transmit two and one-half (2½) times the design live loads without failure, and shall be so constructed as to insure weather-tightness in exterior wall and roof panels.

**1807.3 Weather resistance:** In the absence of reliable experience records, the building official may require accelerated tests on the prefabricated assemblies as prescribed by Article 8 and Appendix F to determine durability, weather tightness and weather resistance; or he shall accept certified reports of approved and recognized testing authorities in respect thereto.

**1807.4 Comparative tests:** When not available from existing authoritative test data, the building official may require comparative tests of traditional standard construction of the dimensions and proportions required in this code for the proposed use.

### SECTION 1808.0 MATERIALS, DIMENSIONS AND METHODS OF FABRICATION

**1808.1 Accepted standards:** The provisions of Articles 7 and 8 and the approved standards listed in the appendices shall control the selection of materials, design and fabrication of all prefabricated structures; or in the absence of such standards of accepted engineering practice, the minimum requirements shall be regulated by the approved rules.

**1808.2 Below-grade construction:** The prefabricated construction covered by these provisions shall not be permitted in cellar, basement or part-story below grade unless specifically approved by the building official. All such subsurface structures shall be constructed of approved masonry, or reinforced concrete complying with Article 8; or the subgrade walls and floors shall be constructed of approved durable, water-resisting materials of adequate strength.

**1808.3 Exterior and interior finish:** When a fireresistance rating is specified, framed wall and partition assemblies shall be veneered, surfaced or constructed with approved materials to secure the specified fireresistance rating required by Article 2 for the construction type and use group of the building or structure within the limitations of Tables 214 and 305. When not required to meet fireresistance rating requirements, interior wall and partition surfaces shall be constructed to comply with Section 854.10.

**1808.4 Exterior protection:** All steel or other corrodible siding and weather boarding exposed to the weather shall be protected from cor-

## PREFABRICATED CONSTRUCTION

rosion or shall be manufactured from corrosion-resistive metal to comply with Section 854.0. In structures two (2) stories or more in height, the weather boarding shall be constructed of noncombustible or approved protected-combustible materials as regulated by Tables 214 and 305.

**1808.5 Condensation and weather resistance:** Exterior frame walls of buildings shall be constructed or ventilated to avoid condensation and leakage of moisture to comply with Sections 854.4 and 854.9.

**1808.6 Roofing:** All roof covering shall be of approved types meeting the requirements of Sections 903.3 and 926.0.

**1808.7 Connections:** All connections and accessories shall be proportioned to transmit the loads and stresses imposed in accordance with accepted engineering practice and as provided in Section 1807.2.

**1808.8 Waterproofing, ratproofing and termite protection:** All installations shall comply with the provisions of Sections 872.0 for waterproofing, 873.0 for ratproofing and 874.0 for termite protection.

### SECTION 1809.0 LIGHT GAGE STEEL FRAME CONSTRUCTION

**1809.1 General:** The fabrication of light gage steel frame structures shall comply with the requirements of Sections 827.0 governing formed steel and 828.0 governing steel joists.

### SECTION 1810.0 LIGHT WOOD FRAME CONSTRUCTION

**1810.1 General:** The fabrication of light wood frame structures shall comply with the requirements of Section 854.0.

### SECTION 1811.0 LIGHT REINFORCED CONCRETE FRAME CONSTRUCTION

**1811.1 General:** The fabrication of light reinforced concrete frame structures shall comply with the provisions of Sections 840.0 to 848.0 inclusive.

**1811.2 Shop procedure and test reports:** The design and manufacture of all precast concrete structural units and assemblies shall follow the procedures specified for ordinary or controlled materials. Tests shall be made at the place of manufacture to determine the water-cement ratio and the aggregate proportions required to maintain the design strength for every change in material and manufacturing conditions. The shop report shall cover the quality of concrete materials and the total amount of water used, the mixing and placing of concrete and the installation of reinforcement, together with a record of the temperatures and means of protection provided for the concrete while curing.

**CONNECTICUT BASIC BUILDING CODE/1978**

**1811.3 Test cylinders:** Not less than three (3) compression specimens shall be tested at the age of shipment of the prefabricated member for each one hundred (100) yards of concrete. The test cylinders shall develop an average compressive strength at the age of shipment of the prefabricated member of not less than twice the compressive stress used in the design.

**SECTION 1812.0 LIGHT REINFORCED GYPSUM FRAME CONSTRUCTION**

**1812.1 General:** The fabrication of light reinforced gypsum frame structures shall comply with the requirements of Section 849.0.

**1812.2 Test cylinders:** Not less than three (3) compression specimens for each one hundred (100) yards of gypsum concrete cured and stored under the same conditions as the prefabricated member shall be tested at the age of shipment. The test specimens shall develop an average compressive strength at the time of shipment not less than twice the stress used in the design.

**1812.3 Protection of units:** Continual protection from the weather and from contact with water shall be furnished for the prefabricated units or subassemblies during shipment, storage and after erection in the structure.

**1812.4 Handling and erection stresses:** All units shall be metal bound or otherwise reinforced for handling stresses, and precaution shall be observed to provide temporary anchorage to the structural frame during erection and to prevent damage or destruction from the weather and wind before final completion of the installation.

**1812.5 Grade construction:** The ventilated space underneath first floor construction shall be not less than two (2) feet high and the underside of first floor construction shall be dampproofed with an approved protective covering.

**SECTION 1813.0 FIRERESISTANCE RATING AND FIRESTOPPING**

**1813.1 General:** Provision shall be made to comply with all the requirements of Sections 875.0 and 919.0 for fire protection and firestopping, and the provisions for fireresistance rated construction of Article 9.

**SECTION 1814.0 LIGHT AND VENTILATION**

**1814.1 General:** Means of light and ventilation shall comply with the provisions of Article 5 governing habitable and occupiable rooms, bathrooms and toilet rooms, attic and crawl spaces.



**SECTION 1815.0 EGRESS FACILITIES**

**1815.1 General:** The requirements of Article 6 shall control the number, size, and construction of all means of egress as specified therein for the use and occupancy of the building.

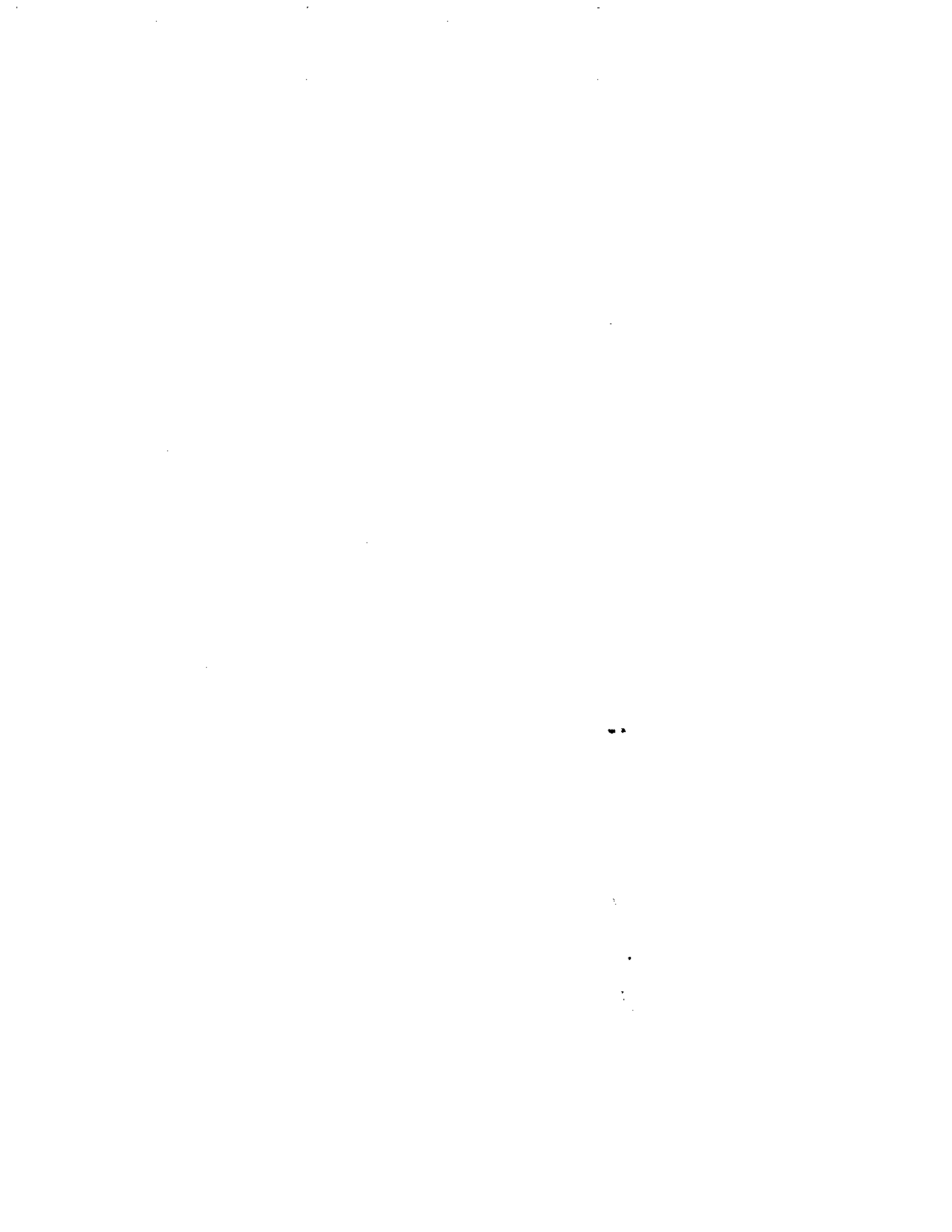
**1815.2 Fireresistance rating requirements:** Where fireresistance rated construction is required, the fireresistance ratings shall be regulated by Table 214 for the respective type of construction. Required exitways, public hallways, interior trim and finish shall be constructed to comply with Article 9.

**SECTION 1816.0 PLUMBING, PIPING AND SANITARY EQUIPMENT**

**1816.1 General:** All installations of plumbing, drainage and gas piping systems shall comply with the provisions of Article 17 and the plumbing code listed in Appendix B.

**SECTION 1817.0 HEATING AND AIR-CONDITIONING**

**1817.1 General:** The applicable provisions of Article 10 and the mechanical code listed in Appendix B shall control the construction and installation of chimneys, flues and heating appliances as therein provided for liquid and solid fuel and gas-fired heating equipment and service-water heaters; and the provisions of the mechanical code listed in Appendix B shall apply for air-conditioning installations.



## **ARTICLE 19**

### **LIGHT-TRANSMITTING PLASTIC CONSTRUCTION**

#### **SECTION 1900.0 GENERAL**

**1900.1 Scope:** The provisions of this article shall govern the quality and methods of application of plastics for use as light-transmitting materials in buildings and structures. When used as interior finish, plastic materials shall meet the requirements of Section 920.0.

**1900.2 Approved materials:** The use of all plastics which meet the strength, durability, sanitary and fire-resistant requirements of this code, ASTM D635 Standard Method of Test for Flammability of Self-Supporting Plastics, ASTM D374 Method of Test for Thickness, ASTM D1929 Method of Test for the Ignition Properties of Plastics, and ASTM D2843 Standard Method of Test for Measuring the Density of Smoke from the Burning or Decomposition of Plastics as listed in Appendix C, and ASTM E84 Method of Test for Surface Burning Characteristics of Building Materials in Appendix G, shall be permitted subject to the limitations of this article.

#### **1900.2.1 Definitions:**

**Approved plastic:** An approved plastic shall be any thermoplastic, thermosetting, or reinforced thermosetting plastic material which has a self-ignition temperature of six hundred fifty (650) degrees F. or greater when tested in accordance with ASTM D1929 Method of Test for Ignition Properties of Plastics listed in Appendix C, a smoke density rating no greater than four hundred fifty (450) when tested in the way intended for use by ASTM E84 listed in Appendix G or a smoke density rating no greater than seventy-five (75) when tested in the thickness intended for use according to ASTM D2843 Standard Method of Test for Measuring the Density of Smoke from the Burning or Decomposition of Plastics listed in Appendix C, products of combustion no more toxic than those of untreated wood when burned under similar conditions, and which meet one of the following combustibility classifications:

**Class C-1:** Plastic materials which have a burning extent of one

## CONNECTICUT BASIC BUILDING CODE/1978

(1) inch or less when tested in nominal point sixty thousandths (.060) inch thickness, or in the thickness intended for use, by ASTM D635 listed in Appendix C; or

**Class C-2:** Plastic materials which have a burning rate of two and one-half (2.5) inches per minute or less when tested in nominal point sixty thousandths (.060) inch thickness, or in the thickness intended for use, by ASTM D635.

**Light-diffusing system:** A suspended construction consisting in whole or in part of lenses, panels, grids, or baffles suspended below independently mounted electrical lighting sources.

**Plastic glazing:** Plastic materials which are glazed or set in frame or sash and not held by mechanical fasteners which pass through the glazing material.

**Plastic roof panels:** Plastic materials which are fastened to structural members or to structural panels or sheathing and which are used as light-transmitting media in roofs.

**Plastic wall panels:** Plastic materials which are fastened to structural members or to structural panels or sheathing and which are used as light-transmitting media in exterior walls.

**Glass fiber reinforced plastic:** Plastic reinforced with glass fiber having not less than twenty (20) per cent of glass fibers by weight.

**Thermosetting materials:** A plastic material which is capable of being changed into a substantially non-reformable product when cured.

**Thermoplastic material:** A plastic material which is capable of being repeatedly softened by increase of temperature and hardened by decrease of temperature.

**1900.2.2 Application for approval:** Applicants for approval of a plastic material shall furnish, in accordance with Section 804.0, all necessary technical data required by the building official. The data may include the chemical composition; pertinent physical, mechanical and thermal properties such as fireresistance, flammability, and flamespread; weather resistance; electrical properties; products of combustion and coefficients of expansion.

**1900.3 Identification:** All plastic materials approved for use under this code shall be identified by the trade formula number or name or other acceptable identification. Each unit or package shall bear the approval number or other identification mark of the approving authority.

### SECTION 1901.0 DESIGN AND INSTALLATION

**1901.1 Structural requirements:** All plastic materials and their assemblies shall be of adequate strength and durability to withstand the loads and forces specified in Article 7 for their approved use.

**1901.2 Connections and supports:** All fastenings, connections and supports shall be proportioned to safely transmit two and one-half (2½) times the design live load. Adequate allowance shall be made in the fastenings and supports for differential expansion and contraction of the connected materials.

#### **SECTION 1902.0 GLAZING OF UNPROTECTED OPENINGS**

**1902.1 Use in Type 4B construction:** Doors, sash and framed openings which are not required to be fire-resistance rated may be glazed with approved plastic materials in buildings of Type 4B (unprotected, frame) construction.

**1902.2 Use group F:** In all types of construction of use group F (factory and industrial), doors, sash and framed openings which are not required to be fire-resistance rated may be glazed with approved plastic materials.

**1902.3 Other classes of construction and use group:** In other classes of construction and use, such openings not required to be fire-resistance rated by Section 914.0 may be glazed or equipped with approved plastic materials subject to the requirements listed below.

1. The area of such glazing shall not exceed twenty-five (25) per cent of the wall face of the story in which it is installed (see Section 1902.4).
2. The area of a unit or pane of glazing installed above the first story shall not exceed sixteen (16) square feet and the vertical dimension of a unit or pane shall not exceed four (4) feet. There shall be a minimum three (3) feet vertical spandrel wall between stories.
3. Approved plastics shall not be installed more than seventy-five (75) feet above grade level.
4. Approved thermoplastic materials may be installed in areas up to fifty (50) per cent of the wall area of each story in structures less than one hundred fifty (150) feet in height which are provided on each floor above the first floor with continuous architectural projections constituting an effective fire canopy extending at least three (3) feet from the surface of the wall in which the glazing is installed. The size and the dimensions of individual units shall not be limited in such installations except as required to meet structural loading requirements.

**1902.4 Automatic fire suppression:** When a complete approved automatic fire suppression system is provided in the building, the permissible area of glazing permitted by Section 1902.3 (1) may be increased one hundred (100) per cent.

#### **SECTION 1903.0 EXTERIOR PANEL WALLS**

**1903.1 General:** Approved plastic materials may be used as wall

panels, in exterior walls not required to have a fireresistance rating (except in use groups A-1, A-2, H and I) subject to the requirements listed in the following Sections 1903.1.1 through 1903.3.

**1903.1.1 Installation:** Exterior wall panels installed as provided herein shall not alter the type-of-construction classification of the building.

**1903.1.2 Height limitation:** Approved plastics shall not be installed more than seventy-five (75) feet above grade level, except as allowed by Section 1903.2.

**1903.1.3 Area limitation and separation:** Area limitation and separation requirements of exterior wall panels shall be as provided in Table 1903.

**Table 1903**  
**AREA LIMITATION AND SEPARATION REQUIREMENTS FOR PLASTIC WALL PANELS<sup>1</sup>**

Fire separation (ft.)	Class of plastic	Max. % area of ext. wall in plastic panels	Max. sq. ft. single area	Minimum separation of panels (ft.)	
				Vertical	Horizontal
6 ft. or less	—	NP <sup>3</sup>	NP	—	—
6 ft. or more but less than 11 ft.	C1	10	50	8	4
	C2	NP	NP	—	—
11 ft. or more but less than 30 ft.	C1	25	90	6	4
	C2	15	70	8	4
Over 30	C1	50	Not limited	3 <sup>2</sup>	0
	C2	50	100	6 <sup>2</sup>	3

Note 1. See Section 1903.3 for combination of glazing and wall panel areas permitted.  
 Note 2. See Section 1903.1.5.  
 Note 3. Not permitted.

**1903.1.4 Spandrel separation:** Vertical spandrel wall separation between stories shall be as follows:

1. three (3) feet for Class C1 plastic wall panels, and
2. four (4) feet for Class C2 plastic wall panels.

**1903.1.5 Fire canopies:** In structures which are provided, on any floor above the first, with continuous architectural projections constituting an effective fire canopy extending at least thirty-six (36) inches from the surface of the wall in which plastic wall panels are installed, there need not be vertical separation at that floor except that provided by the vertical thickness of the projection.

**1903.2 Automatic fire suppression:** When a complete approved automatic fire suppression system is provided in the building, the maximum per cent area of exterior wall in plastic panels and the maximum square feet of single area given in Table 1903 may be increased one hundred (100) per cent but the area of plastic wall panels shall not exceed fifty

(50) per cent of the wall area. These uses shall be exempt from height limitations.

**1903.3 Combinations of glazing and wall panels:** Combinations of plastic glazing and plastic wall panels shall be subject to the area, height and percentage limitations, and separation requirements applicable to the class of plastics as prescribed for wall panel installations.

**SECTION 1904.0 ROOF PANELS**

**1904.1 General:** Approved plastic roof panels may be installed (except in use groups A-1, A-2, A-3, II and I) as follows:

1. in roofs of buildings protected by a complete approved automatic fire suppression system;
2. where the roof is not required to have a fire-resistance rating by Table 214; or
3. where the roof panels meet the requirements for roof coverings of the particular occupancy group.

**1904.2 Separations:** Individual roof panels shall be separated from each other by a distance of not less than four (4) feet measured in a horizontal plane.

**1904.3 Location:** Where exterior wall openings are required to be fire-resistance rated by Section 914.0, a roof panel or unit shall not be installed within six (6) feet of such exterior wall.

**1904.4 Area limitations:** Roof panels or units shall be limited in area, and the aggregate area of panels shall be limited by a percentage of the floor area of the room or space sheltered in accordance with Table 1904.

**Table 1904  
AREA LIMITATIONS FOR ROOF PANELS**

Class of plastic	Maximum area individual unit of panel (sq. ft.)	Maximum aggregate area (% of floor area)
C1	300	30
C2	100	25

**1904.5 Exceptions:** The uses listed below shall be exempt from the requirements of Section 1904.4.

1. One (1) story buildings not more than sixteen (16) feet in height and not exceeding twelve hundred (1200) square feet in area and not closer than eleven (11) feet to another building are exempt from the limitations of Section 1904.4.
2. Low hazard use buildings such as swimming pool shelters, greenhouses, etc., are exempt from the area limitations of Section 1904.4

**CONNECTICUT BASIC BUILDING CODE/1978**

provided the buildings do not exceed five thousand (5,000) square feet in area and are not closer than eleven (11) feet to the property line or adjacent buildings.

3. Roof coverings over terraces and patios of one- and two-family dwellings shall be permitted with approved plastics.

**SECTION 1905.0 SKYLIGHT ASSEMBLIES**

**1905.1 Skylight assemblies:** Skylight assemblies may be glazed with approved plastic materials (except in use group H) in accordance with the following provisions.

**1905.1.1 Mounting:** The plastic shall be mounted above the plane of the roof on a curb constructed consistent with the requirements for the type of construction classification, but at least four (4) inches above the plane of the roof. Edges of plastic skylights or domes shall be protected by metal or noncombustible material.

**1905.1.1.1 Dome-shape:** Dome-shape skylights shall rise above the mounting flange a minimum distance equal to ten (10) per cent of the maximum span of the dome, but not less than five (5) inches.

**1905.1.2 Maximum area of skylight units:** Each skylight unit shall have a maximum area within the curb of one hundred (100) square feet.

**1905.1.3 Aggregate area of skylights:** The aggregate area of skylights shall not exceed thirty-three (33) per cent when Class C-1 materials are used, and twenty-five (25) per cent when Class C-2 materials are used, of the floor area of the room or space sheltered by the roof in which they are installed.

**1905.1.4 Separation:** Skylights shall be separated from each other by a distance of not less than four (4) feet measured in a horizontal plane.

**1905.1.5 Location:** Where exterior wall openings are required to be fire-resistance rated by Section 914.0, a skylight shall not be installed within six (6) feet of such exterior wall.

**1905.1.6 Exceptions:** a) Except for use groups H and I, the aggregate area of approved plastic skylights may be increased one hundred (100) per cent beyond the limitations set forth in Section 1905.1.3 if the skylights are used as a fire venting system, or if the building is equipped with a complete approved automatic fire suppression system. b) The provisions of 1905.1 need not be applied if the building on which the skylights are located is not more than one (1) story in height, the building has an exterior separation from other buildings of at least thirty (30) feet and the room or space sheltered by the roof is not classified in a group of high hazard or institutional uses or as a means of egress, or the plastic material meets the fire-resistive requirements of the roof.



## LIGHT-TRANSMITTING PLASTIC CONSTRUCTION

**1905.1.7 Combinations of roof panels and skylights:** Combinations of plastic roof panels and skylights shall be subject to the area and percentage limitations and separation requirements applicable to roof panel installations.

### SECTION 1906.0 LIGHT-DIFFUSING SYSTEMS

**1906.1 General:** Light-diffusing systems shall not be installed in use groups H and I, nor in exitways, unless protected with a fire suppression system. Plastic diffusers shall be supported directly or indirectly from ceiling or roof construction by use of noncombustible hangers. Hangers shall be at least No. 12 Steel Wire Gage (0.106 inch) galvanized wire or equivalent.

**1906.2 Installation:** Approved plastic diffusers shall comply with Section 920.0 (interior finish) unless the plastic panels will fall from their mountings before igniting and at an ambient temperature of at least two hundred (200) degrees F. below their ignition temperature. The panels must, however, remain in place at an ambient room temperature of one hundred seventy-five (175) degrees F. for a period of not less than fifteen (15) minutes.

**1906.3 Size limitations:** Individual panels or units shall not exceed ten (10) feet in length nor thirty (30) square feet in area.

**1906.4 Fire suppression system:** In buildings having a complete approved automatic fire suppression system, plastic light-diffusing systems shall have sprinklers both above and below unless the system has been specifically approved for sprinkler installation only above the light-diffusing system. Areas of light-diffusing systems shall not be limited if properly protected by an approved fire suppression system.

**1906.5 Electrical lighting fixtures:** Plastic light-transmitting panels and light-diffuser panels installed in approved electrical lighting fixtures shall comply with Section 920.0 unless the plastic panels meet the requirements of Section 1906.2. The area of approved plastic materials when used in required fire exits or corridors shall not exceed thirty (30) per cent of the aggregate area of the ceiling in which they are installed, unless the occupancy is protected by an approved fire suppression system.

### SECTION 1907.0 PARTITIONS

**1907.1 General:** Approved light-transmitting plastics may be used in or as partitions provided the requirements of the occupancy class as given in Section 920.0 are met. Such partitions may be installed as provided in Section 909.3.

### SECTION 1908.0 BATHROOM ACCESSORIES

**1908.1 Use of plastics:** Approved plastics shall be permitted as glazing

**CONNECTICUT BASIC BUILDING CODE/1978**

in shower stalls, shower doors, bathtub enclosures, and similar accessory units (see Section 857.5.6).

**SECTION 1909.0 AWNINGS AND SIMILAR STRUCTURES**

**1909.1 General:** Approved light-transmitting plastics may be used on awnings and similar structures in conformity with general performance provisions of other sections of the code.

**SECTION 1910.0 GREENHOUSES**

**1910.1 General:** Approved light-transmitting plastics may be used in lieu of plain glass in greenhouses.

## **ARTICLE 20**

### **ENERGY CONSERVATION**

#### **SECTION 2000.0 PURPOSE**

The purpose of this article is to provide for energy conservation in buildings.

#### **SECTION 2001.0 GENERAL REQUIREMENTS**

**2001.1 Intent:** The provisions of this article shall regulate the design of building envelopes for adequate thermal resistance and low air leakage and the design and selection of mechanical, electrical, and illumination systems and equipment which will enable the effective use of energy in new building construction.

It is intended that these provisions provide flexibility to permit the use of innovative approaches and techniques to achieve effective utilization of energy. These provisions are structured to permit compliance with the intent of this article by either of the two paths of design:

- (a) a component performance approach for various building elements and mechanical systems and components, Sections 2004.0 through 2009.0; or
- (b) a systems approach for the entire building and its energy using sub-systems which may utilize non-depletable sources, Section 2010.0.

Compliance with either one of these paths meets the intent of this article. This article is not intended to abridge any safety or health requirements required under any other applicable codes or ordinances.

#### **2001.2 Plans and specifications**

**2001.2.1 General:** Plans, specifications and necessary computations shall be submitted to indicate conformance with this section and other applicable sections of this code, the mechanical code and the plumbing code listed in Appendix B.

**2001.2.2 Details:** The plans and specifications shall show in sufficient detail all pertinent data and features of the building and the equipment and systems as herein governed, including but not limited to exterior envelope component materials, U values of the respective elements including insulation, R values of insulating materials, size and type of apparatus and equipment, equipment and system controls and other pertinent data to indicate conformance with the requirements herein.

## SECTION 2002.0 SCOPE

This article sets forth minimum requirements for the design of new buildings and structures or portions thereof and additions to existing buildings that are to be heated and/or mechanically cooled by regulating their exterior envelopes and the selection of their HVAC, service water heating, electrical distribution and illuminating systems and equipment for effective use of energy.

Buildings shall be designed to comply with the requirements of either Sections 2004.0 through 2009.0 or Section 2010.0 of this article.

### 2002.1 Exempt buildings

**2002.1.1** Buildings and structures or portions thereof whose peak design rate of energy usage is less than three and four tenths (3.4) Btu/h per square foot (one point zero (1.0) watt per square foot) of floor area for all purposes.

**2002.1.2** Buildings and structures or portions thereof which are neither heated nor cooled by fuel.

**2002.1.3** Greenhouses sustaining life for living things on a constant twenty-four (24) hours per day basis.

### 2002.2 Application to existing buildings

**2002.2.1 Additions or alterations to existing buildings:** Additions or alterations to existing buildings or structures made to such buildings or structures shall conform to the provisions of this article, except as provided in this section:

- (1) **Additions:** If the height or area of an existing building or structure is increased, and the new construction is designed in compliance with this article, only the new construction need comply.
- (2) **Alterations or repairs:** Alterations or repairs made within any period of twelve (12) months, costing less than fifty (50) percent of the physical value of the building or structure are not required to comply. Physical value shall be determined by the building official and be based on current replacement costs.

**2002.2.2 Historic buildings:** Historic buildings are exempt from this article. This exemption shall apply to those buildings which have been specifically designated as historic buildings in accordance with the provisions of Article 22 of this code.

**2002.2.3 Change of occupancy:** Any change in the occupancy or use of any existing building or structure constructed under this article which would require an increase in demand for either fossil fuel or electrical energy supply shall not be permitted unless such building or structure is made to comply with the requirements of this article.

### 2002.3 Materials and equipment

**2002.3.1 Identification:** All materials and equipment shall be identified in order to show compliance with this article.

**2002.3.2 Maintenance information:** Required regular maintenance actions shall be clearly stated and incorporated on a readily accessible label. Such label may be limited to identifying, by title or publication number, the operation and maintenance manual for that particular model and type of product. Maintenance instructions shall be furnished for any equipment which requires preventive maintenance for efficient operation.

#### SECTION 2003.0 GENERAL DEFINITIONS

**Application of terms:** For the purposes of this article, certain abbreviations, terms, phrases, words, and their derivatives, shall be as set forth in this section.

**Accessible** (as applied to equipment): Admitting close approach because not guarded by locked doors, elevation or other effective means (see "Readily accessible").

**Air transport factor:** The ratio of the rate of useful sensible heat removal from the conditioned space to the energy input to the supply and return fan motor(s), expressed in consistent units and under the designated operating conditions.

**Boiler capacity:** The rate of heat output in Btu/h measured at the boiler outlet, at the design pressure and/or temperature, and rated fuel input.

**Building envelope:** The elements of a building which enclose conditioned spaces through which thermal energy may be transferred to or from the exterior.

**Building project:** A building or group of buildings, including on-site energy conversion or electric generating facilities which utilize a single submittal for a construction permit or are within the boundary of a contiguous area under new ownership.

**Coefficient of beam utilization (CBU):** The ratio of the luminous flux (lumens) reaching a specified area directly from a floodlight or projector to the total beam luminous flux.

**Coefficient of performance (COP):** See the following paragraphs in Section 2006.0 for the definitions of COP as appropriate: 2006.4 Electrically Operated HVAC Equipment - Cooling; 2006.5 Applied HVAC System Components - Cooling; 2006.6 Heat Operated HVAC System Equipment - Cooling and 2006.2 Heat Pump - Heating.

**Coefficient of utilization (CU):** The ratio of the luminous flux (lumens) from a luminaire received on the work plane to the lumens emitted by the luminaire's lamps alone.

**Color rendition:** General expression for the effect of a light source on the color. Appearance of objects in conscious or subconscious comparison with their color appearance under a reference light source.

**Comfort envelope:** The area of a psychrometric chart enclosing all those conditions described in Std RS-4, Figure 1, as being comfortable.

**Conditioned floor area:** The horizontal projection of that portion of interior space which is contained within exterior walls and which is conditioned directly or indirectly by an energy using system.

**Efficiency, overall system:** The ratio of useful energy (at the point of use) to the thermal energy input for a designated time period, expressed in percent.

**Energy:** The capacity for doing work; taking a number of forms which may be transformed from one into another, such as thermal (heat), mechanical (work), electrical, and chemical; in customary units, measured in kilowatt-hours (kwh) or British thermal units (Btu).

**Energy efficiency ratio (EER):** The ratio of net cooling capacity in Btu/h to total rate of electric input in watts under designated operating conditions.

**Energy, recovered:** See "Recovered energy".

**Equivalent sphere illumination (ESI):** The level of sphere illumination which would produce task visibility equivalent to that produced by a specific lighting environment.

**Exterior envelope:** See "Building envelope".

**Floodlighting:** A lighting system designated to light an area using projector type luminaires usually capable of being pointed in any direction.

**Fuel:** A substance which may be burned to give heat or generate electricity; a nuclear substance used to generate electricity.

**Gross wall area:** The vertical projection of the exterior wall area bounding interior space which is conditioned by an energy using system; includes opaque wall, window and door areas.

The gross area of exterior walls consists of all opaque wall areas, including foundation walls, between floor spandrels, peripheral edges of floors, window areas including sash and door areas, where such surfaces are exposed to outdoor air and enclose a heated or mechanically cooled space, including interstitial areas between two such spaces.

**Heat:** The form of energy that is transferred by virtue of a temperature difference.

**Heated space:** Space, within a building, which is provided with a positive heat supply to maintain air temperature of 50° F or higher.

**Heated building or structure:** Any building or structure in which a heating device is installed which is capable of raising the interior temperature above the exterior ambient temperature.

**Humidistat:** An instrument which measures changes in humidity and controls a device(s) for maintaining a desired humidity.

**HVAC:** Heating, ventilating and air conditioning.

**HVAC system:** A system that provides either collectively or individually the processes of comfort heating, ventilating, and/or air conditioning within or associated with a building.

**Illumination:** The density of the luminous flux incident on a surface; it is the quotient of the luminous flux by the area of the surface when the latter is uniformly illuminated.

**Infiltration:** The uncontrolled inward air leakage through cracks and interstices in any building element and around windows and doors of a building, caused by the pressure effects of wind and/or the effect of differences in the indoor and outdoor air density.

**Light loss factor (LLF):** A factor used in calculating the level of illumination after a given period of time and under given conditions. It takes into account temperature and voltage variations, dirt accumulation on luminaire and roof surfaces, lamp depreciation, maintenance procedures, and atmospheric conditions.

**Luminaire:** A complete lighting unit consisting of a lamp or lamps together with the parts designed to distribute the light, to position and protect the lamps, and to connect the lamps to the power supply.

**Manual:** Capable of being operated by personal intervention (See "Automatic").

**New energy:** Energy, other than recovered energy, utilized for the purpose of heating or cooling.

**Non-depletable energy sources:** Sources of energy (excluding minerals) derived from incoming solar radiation including photosynthetic processes; from phenomena resulting therefrom including wind, waves, and tides, lake or pond thermal differences; and energy derived from the internal heat of the earth, including nocturnal thermal exchanges.

**Opaque areas:** All exposed areas of a building envelope which enclose conditioned space, except openings for windows, skylights, doors and building service systems.

**Overall thermal transfer value (OTTV):** An overall coefficient of heat gain expressed in units of Btu per hour per square foot.

**Outside air:** Air taken from the outdoors and, therefore, not previously circulated through the system.

**Packaged terminal air conditioner:** A factory selected combination of heating and cooling components, assemblies or sections, intended to serve a room or zone. (For the complete technical definition, see Std RS-10.)

**Positive heat supply:** Heat supplied to a space by design or by heat losses occurring from energy consuming systems or components associated with that space.

**Power:** In connection with machines, power is the time rate of doing work. In connection with the transmission of energy of all types, power refers to the rate at which energy is transmitted; in customary units, it is measured in watts (W) or British thermal units per hour (Btu/h).

**Readily accessible:** Capable of being reached quickly for operation, renewal,

or inspections, without requiring those to whom ready access is requisite to climb over or remove obstacles or to resort to portable ladders, chairs, etc. (see "Accessible").

**Recovered energy:** Energy utilized which would otherwise be wasted from an energy utilization system.

**Reflectance:** The ratio of the light reflected by a surface to the light falling upon it.

**Reheat:** The application of sensible heat to supply air that has been previously cooled below the temperature of the conditioned space by either mechanical refrigeration or the introduction of outdoor air to provide cooling.

**Reset:** Adjustment of the set point of a control instrument to a higher or lower value automatically or manually to conserve energy.

**Roof assembly:** A roof assembly shall be considered as all components of the roof/ceiling envelope through which heat flows, thereby creating a building transmission heat loss or gain, where such assembly is exposed to outdoor air and encloses a heated or mechanically cooled space. The gross area of a roof assembly consists of the total interior surface of such assembly, including skylights exposed to the heated or mechanically cooled space.

**Room air conditioner:** An encased assembly designed as a unit primarily for mounting in a window or through a wall, or as a console. It is designed primarily to provide free delivery of conditioned air to an enclosed space, room or zone. It includes a prime source of refrigeration for cooling and dehumidification and means for circulating and cleaning air, and may also include means for ventilating and heating.

**Room cavity ratio (RCR):** A number related to room dimensions used in average illumination calculations.

**Sequence:** A consecutive series of operations.

**Service systems:** All energy using systems in a building that are operated to provide services for the occupants or processes housed therein, including HVAC, service water heating, illumination, transportation, cooking or food preparation, laundering or similar functions.

**Service water heating:** Supply of hot water for domestic or commercial purposes other than comfort heating.

**Service water heating demand:** The maximum design rate of energy withdrawal from a service water heating system in a designated period of time (usually an hour or a day).



**Shading coefficient (SC):**

$$SC = \frac{\text{Solar heat gain of fenestration} \\ \text{(West elevation at 4PM/sun time, 9/21)}}{\text{Solar heat gain unshaded DSB} \\ \text{(West elevation at 4PM/sun time, 9/21)}}$$

where:

DS means double strength

D means grade class

**Solar energy source:** Source of thermal, chemical or electrical energy from conversion of incident solar radiation.

**System:** A combination of central or terminal equipment or components and/or controls, accessories, interconnecting means, and terminal devices by which energy is transformed so as to perform a specific function, such as HVAC, service water heating or illumination.

**Terminal element:** The means by which the transformed energy from a system is finally delivered; i.e., registers, diffusers, lighting fixtures, faucets and similar elements.

**Thermostat:** An instrument which measures changes in temperatures and controls device(s) for maintaining a desired temperature.

**Unitary cooling and heating equipment:** One or more factory made assemblies which include an evaporator or cooling coil, a compressor and condenser combination, and may include a heating function as well. Where such equipment is provided in more than one assembly, the separate assemblies shall be designed to be used together.

**Unitary heat pump:** One or more factory made assemblies which include an indoor conditioning coil, compressor(s) and outdoor coil or refrigerant-to-water heat exchanger, including means to provide both heating and cooling functions. It is designed to provide the functions of air circulating, air cleaning, cooling and heating with controlled temperature, and dehumidifying, and may optionally include the function of humidifying. When such equipment is provided in more than one assembly the separate assemblies shall be designed to be used together.

**Veiling reflections:** Regular reflections superimposed upon diffuse reflections from an object that partially or totally obscure, the details to be seen by reducing the contrast. This sometimes is called reflected glare.

**Ventilation air:** That portion of supply air which comes from outside (outdoors) plus any recirculated air that has been treated to maintain the desired quality of air within a designated space.

**Work plane:** The plane at which work usually is done and at which the illumination is specified and measured. Unless otherwise indicated, this is assumed to be a horizontal plane 30 inches above the floor.

**Zone:** A space or group of spaces within a building with heating and/or cooling requirements sufficiently similar so that comfort conditions can be maintained throughout by a single controlling device.

**SECTION 2004.0 ENERGY CONSERVATION AND SYSTEM REQUIREMENTS**

**2004.1 General:** The criteria of this section establish the minimum requirements for thermal design of the exterior envelope of buildings and establish criteria for design of the HVAC system and its parts.

**Exception:** Special applications, such as but not limited to hospitals, laboratories, thermally sensitive equipment, computer rooms and supermarkets, may be exempted from the requirements of this section when approved by the building official.

**2004.2 Heating and cooling:** A building that is designed to be both heated and cooled shall meet the more stringent of the heating or cooling requirements as provided in this article when requirements of the exterior envelope differ.

**2004.2.1** The design shall not create conditions of accelerated deterioration from moisture condensation.

**2004.3 Mixed occupancy:** When a building houses more than one occupancy, each portion of the building shall conform to the requirements for the occupancy housed therein. Where minor accessory uses do not occupy more than 10 percent of the area of any floor of a building, the major use shall be considered the building occupancy.

**2004.4 Thermal design parameters:** The following design parameters shall be used for calculations required under this code.

**2004.4.1 Exterior design conditions:** Exterior design conditions shall be in accordance with Table 1.

Table 1

Exterior design conditions		
Winter	Design dry-bulb	0° F
Summer	Design dry-bulb	90° F
	Design wet-bulb	77° F

<sup>1</sup>Degree days and degrees north latitude to be as shown in STD RS-1 and RS-11.

**2004.4.2 Interior design conditions:**

(1) **Indoor Design Temperature:**

(a) Indoor design temperature for heating shall be in accordance with Table 2:

Table 2<sup>a</sup>

Use of room or space	Minimum temperature (° F)
Habitable and occupiable rooms in all buildings, except as noted below	68
Occupiable rooms where occupants engage in sedentary activities, such as offices, waiting rooms, classrooms, museums, libraries, auditoriums and restaurants	68
Occupiable rooms where occupants engage in moderate physical activities, such as stores, show rooms, laboratories, light manufacturing and assembly	68
Occupiable rooms where occupants engage in vigorous physical activity such as gymnasias, skating rinks, foundries and heavy industries	60 <sup>b</sup>
Bath and toilet rooms, (except in hospital and nursing homes) swimming pools, locker and dressing rooms	75
Hospital operating and recovery rooms and nurseries; hospitals and nursing home bedrooms, bath and toilet rooms	80
Hospital and nursing home stairs, corridors and sitting rooms	75
Building equipment and machinery rooms, motor vehicle repair shops	50
Storage areas, garages, space where work or process requires a low temperature	None <sup>b</sup>

Note a. Where the occupancy of a space does not conform exactly with any of the spaces listed, the temperature shall be determined by the requirements of the listed space to which it most nearly conforms.

Note b. Note that certain special uses and occupancies are controlled by regulations of the Department of Public Safety.

(b) Indoor design temperature for cooling shall be 78 ° F.

- (2) **Humidification:** If humidification is provided during heating, it shall be designed for a maximum relative humidity of 30 percent. When comfort air conditioning is provided, the actual design relative humidity within the comfort envelope as defined in Std RS-4 shall be selected for minimum total HVAC system energy use.

#### 2004.5 Mechanical ventilation criteria

##### 2004.5.1 Ventilation

- (1) **Areas requiring mechanical ventilation:** Mechanical ventilation shall be provided in all habitable or occupiable rooms or spaces where the requirements for natural ventilation are not met; in all rooms or spaces, which because of the nature of their use or occupancy, involve the presence of dust, fumes, gases, vapors, or other noxious or injurious impurities, or substances which create a fire hazard. Ventilating systems shall be kept in operation at all times during normal occupancy of the building or space.
- (2) **Index for ventilation:** The index for ventilation for any room or space shall be computed by adding the following:
- The volume per occupant, in cubic feet.
  - The floor area per occupant, times ten (10), in square feet.
  - The clear, unobstructed openable area of windows, skylights, and

other sources of natural ventilation per occupant, times two hundred (200), in square feet.

In all cases, the number of occupants used in computing the index for ventilation shall be the maximum number who will occupy the room or space simultaneously during any two (2) hour period. For periods less than two (2) hours, the ventilation requirements in Table 3 may be reduced by fifty (50) percent except that in no case shall the quantities be less than those listed in the last two columns.

- (3) **Minimum quantity of outside air for mechanical ventilation:** The minimum quantity of outside air required for mechanical ventilation in any occupiable room, where not otherwise prescribed, shall be determined according to Table 3. In non-mechanically cooled spaces which have required automatically controlled ventilation systems, the air quantities required may be proportionally reduced to those quantities required for mechanically cooled spaces as the outdoor temperature falls from 50° F. to 0° F. The remainder of the required supply air shall be recirculated except as prohibited in Section 2004.5.1(5). In all cases, the heating equipment shall be designed with sufficient capacity to heat at least those quantities listed in the next to last column at 0° F. outdoor temperature.
- (4) Where the number of occupants of the space is not definitely controlled, the equivalent number of occupants shall be determined from Table 606, Article 6 of this code.
- (5) **Prohibited use of recirculated air:** Air drawn from any of the following spaces may not be recirculated: mortuary rooms; hospital operating rooms; bathrooms or toilet rooms; rooms that must be isolated to prevent the spread of infection; or any space where an objectionably quantity of flammable vapors, dust, odors, or noxious gases is present.

**Exception:** Hospital operating rooms and delivery rooms may be ventilated by means of an approved recirculated filtered air ventilating system, in accordance with the standards listed in Appendix B for energy conservation.

**Table 3  
REQUIRED MINIMUM OUTDOOR AIR SUPPLY AND EXHAUST (CFM PER SQ. FT.)**

Index for ventilation	Ventilated rooms with natural vent. openings		Ventilated rooms without natural vent. openings		Mechanically <sup>c</sup> cooled spaces	
	Supply	Exhaust	Supply	Exhaust	Supply	Exhaust
0-300	2.5	2.0	2.5	2.0	0.50	0.45
301-520	2.0	1.5	2.0	1.5	0.30	0.27
521-850	1.5	1.25	1.5	1.20	0.20	0.18
851-1250	—	1.0	1.0	0.80	0.10	0.09
1251-1650	—	0.67	0.67	0.55	0.07	0.06
over 1650	—	—	0.33	0.26	0.05	0.04

**Note a.** Plans shall indicate areas of probable heavy smoking in rooms or spaces. In these areas, the total outside air supply quantities may be increased to 25 cfm per person.

**Note b.** The quantity of air removed by the building exhaust system shall not be less than the minimum exhaust required in Table 3. Either additional exhaust or relief systems may be used to satisfy the remaining exhaust requirements.

**Note c.** The minimum outdoor air supply and exhaust shall be in accordance with Table 3 but shall not be less than that required by Std RS-3. The minimum column or value of Std RS-3 for each type of occupancy shall be used for design. The ventilation quantities specified in Section 6 of Std RS-3 are for 100 percent outdoor air ventilating systems. Reduction of up to 33 percent of the specified minimum outdoor air requirement in Section 5 of Std RS-3 for recirculating HVAC systems is permitted.

**Exceptions:** If outdoor air quantities other than those specified are used or required because of special occupancy or process requirements, source control of air contamination, health and safety or other standards, the required outdoor air quantities shall be used as the basis for calculating the heating and cooling design loads.

#### **2004.6 Mechanical ventilation parameters for special spaces**

##### **2004.6.1 Kitchens:** Kitchens shall be vented as follows:

- (1) Kitchens located within dwelling units shall be ventilated by either of the following:
  - (a) Natural means complying with Article 5 of this code.
  - (b) Mechanical means exhausting at least two (2) cfm of air per square foot of floor area.
- (2) Kitchens, except those located within dwelling units, and side spaces, where cooking of any kind is done, shall be ventilated by either of the following, provided that in no instance may there be any violation of the nuisance provisions of the health code:
  - (a) Natural means complying with Article 5 of this code and supplemented with auxiliary mechanical supply and exhaust ventilation adequate to remove the fumes and smoke from the cooking equipment when operating.
  - (b) Mechanical means exhausting at least three (3) cfm of air per square foot of floor area, but in no case less than one hundred fifty (150) cfm. Such air shall be exhausted through ducts or chimneys constructed in accordance with the provisions of Article 10 of this code and the mechanical code listed in Appendix B.
- (3) Kitchens, snack bars, or pantries, where the operation consists of heating or warming previously prepared food that was cooked elsewhere, or preparation of food in vending machines, may be ventilated by either of the following:
  - (a) Natural ventilation complying with Article 5 of this code.
  - (b) Mechanical ventilation complying with Section 2004.6.1(1)(b).

**2004.6.2 Bathrooms and toilets:** When a bathroom or toilet room is not ventilated by natural ventilation as required by this article, it shall be mechanically ventilated as follows:

- (1) Rooms containing only one water closet or urinal shall be mechanically ventilated by an exhaust system capable of exhausting at least fifty (50) cubic feet of air per minute. Means shall be provided for air ingress by louvres in the door, by undercutting the door or by transfer ducts, grilles, or other openings.
- (2) Rooms containing more than one water closet or urinal, and any

**CONNECTICUT BASIC BUILDING CODE/1978**

auxiliary spaces such as those used in hand basins, slop sinks, and locker rooms, shall be mechanically ventilated by an independent exhaust system capable of exhausting at least forty (40) cubic feet of air per minute per water closet or urinal. The outdoor air supply shall conform to the requirements of Section 2004.5.

**2004.6.3 Corridors:** Unless natural sources complying with Article 5 of the Basic Code provide ventilating openings equivalent to at least two and one-half (2½) percent of the floor area, corridors in buildings of occupancy groups I-1, I-2, R-1, and R-2, more than three (3) stories in height, shall be mechanically ventilated by a system supplying at least one-half (½) cubic foot of outdoor air per minute per square foot of floor area. When air conditioned, a part of the required supply may be recirculated as equivalent outdoor air, but at least thirty-three and one-third (33⅓) percent of the required air supply shall be actual outdoor air. (See Section 519.0 of this code for fire emergency ventilating system.)

**2004.6.4 Ventilation of boiler rooms:** Boiler rooms shall be ventilated in a manner that will provide air for combustion in accordance with the provisions of this code and the mechanical code listed in Appendix B and also prevent the accumulation of hot air over or near the equipment within the room.

**2004.6.5 Enclosed parking garages:** All enclosed parking, storage, basement and underground garages shall be mechanically ventilated at a rate of not less than seventy-five one hundredths (0.75) cubic foot per minute per square foot of floor area of supply air and the same amount of exhaust air. Particular attention shall be paid to the ventilation of ramp areas and to proper distribution of air throughout the garage to prevent pockets of contamination.

**SECTION 2005.0 BUILDING DESIGN BY COMPONENT PERFORMANCE APPROACH**

**2005.1 General:** All buildings that are heated or mechanically cooled shall be constructed so as to provide the required thermal performance of the various components.

A building that is designed to be both heated and cooled shall meet the more stringent of the heating or cooling requirements as provided in this article when requirements of the exterior envelope differ.

**2005.2 Building envelope requirements**

**2005.2.1 General:**

- (1) The stated Uo value of any assembly such as floor/ceiling, wall or floor may be increased and the Uo value for other components decreased provided that the total heat gain or loss for the entire building envelope does not exceed the total resulting from conformance to the Uo values specified in Tables 4 and 5.
- (2) In addition to the criteria set forth in this section, the proposed design may take into consideration the thermal mass of buildings components in considering energy conservation when approved by the build-

ing official.

- (3) When return air ceiling plenums are employed, the roof/ceiling assembly shall:
- for thermal transmittance purposes, not include the ceiling proper nor the plenum space as part of the assembly; and,
  - for gross area purposes, be based upon the interior face of the upper plenum surface.

**2005.2.2 Criteria for group "R"—residential buildings:** For the purposes of this code, group R-residential buildings shall include:

Type A-1—detached one- and two-family dwellings;

Type A-2—all other residential buildings, three stories or less in height.

(1) Heating and cooling criteria

Table 4

Element	Mode	Type A-1 buildings	Type A-2 buildings
		$U_o$	$U_o$
Walls	Heating or cooling	.21	.27
Roof/ceiling <sup>1</sup>	Heating or cooling	.05	.05
Floors over unheated spaces	Heating or cooling	.08	.08
Heated slab on grade	Heating	R value	R value
		7.00	7.00
Unheated slab on grade	Heating	R value	R value
		5.00	5.00

<sup>1</sup> Exception: Roof/ceiling assemblies in which the finished interior surface is the underside of the roof deck, may have a maximum  $U_o$  value of 0.08 Btu/h t°F.

Equation 1 shall be used to determine acceptable combinations to meet the required  $U_o$  values.

- Any residential building as herein defined that is heated or mechanically cooled shall have a combined thermal transmittance value ( $U_o$ ) of the gross area of the elements of the exterior building envelope not exceeding the value given in Table 4. Equation 1 shall be used to determine acceptable combinations of building components and thermal properties to meet this requirement.
- Floors over unheated spaces:** For floors of heated or mechanically cooled spaces over unheated spaces, the  $U_o$  value shall not exceed the value given in Table 4.
- Slab on grade floors:** For slab on grade floors the thermal resistance of the insulation around the perimeter of the floor shall not be less than the value given in Table 4. The insulation shall extend downward from the top of the slab for a minimum distance of 24 inches or downward to the bottom of the slab then horizontally

beneath the slab for a minimum total distance of 24 inches and shall be an approved type.

**2005.2.3 Criteria for all other buildings:**

**(1) Heating criteria:**

- (a) Buildings, other than group R buildings regulated by Section 2005.2.2, that are heated shall have a combined thermal transmittance value ( $U_o$ ) of the gross area of the elements of the exterior building envelope not exceeding the values given in Table 5. Equation 1 shall be used to determine acceptable combinations of building components and thermal properties to meet this requirement.
- (b) **Floors over unheated spaces:** For floors of heated spaces over unheated spaces, the  $U_o$  value shall not exceed the value given in Table 5.
- (c) **Slab on grade floors:** For slab on grade floors the thermal resistance of the insulation around the perimeter of the floor shall not be less than the value given in Table 5. The insulation shall extend downward from the top of the slab for a minimum distance of 24 inches or downward to the bottom of the slab then horizontally beneath the slab for a minimum total distance of 24 inches and shall be an approved type.

**Table 5**

Element	Mode	Value
Walls	Heating	$U_o$
		.30
	Cooling	OTTV
		34
		*SF
	127	
Roof/ceiling	Heating or cooling	$U_o$
		.08
Floors over unheated spaces	Heating or cooling	$U_o$
		.08
Heated slab on grade	Heating or cooling	R Value
		7.00
Unheated slab on grade	Heating or cooling	R Value
		5.00

\*SF = Solar factor

**(2) Cooling criteria:**

- (a) **Walls:** Any building that is mechanically cooled shall have an overall thermal transfer value, OTTV, for the gross area of exterior walls, not exceeding the values given in Table 5. Equation 2



shall be used to determine acceptable combinations of building components and thermal properties to meet these requirements.

- (b) **Roof/ceiling:** Any building that is mechanically cooled shall have a combined thermal transmittance value ( $U_o$ ) for the roof/ceiling not exceeding that specified in Table 5.

**2005.3 Air leakage for all buildings**

**2005.3.1** The requirements of this section shall apply to all buildings and structures, or portions thereof, and apply to those locations separating outdoor ambient conditions from interior spaces that are heated or mechanically cooled and are not applicable to the separation of interior conditioned spaces from each other.

**2005.3.2** All exterior doors and windows shall be designed to limit air leakage into or from the building envelope, and shall have air infiltration rates not exceeding those shown in Table 6.

**Table 6  
ALLOWABLE AIR INFILTRATION RATES<sup>1,2</sup>**

Windows  (Cfm per foot of operable sash crack)	Residential doors (Cfm per square foot of door area)		Non-residential doors (Cfm per lin. foot of crack)
	Sliding (patio type)	Swinging	Swinging, sliding revolving
0.5	0.5	1.25	11.0

<sup>1</sup>When tested at a pressure differential of 1.567 lb/ft.<sup>2</sup> which is equivalent to the impact pressure of a 25 mph wind.

<sup>2</sup>Compliance with the criteria for air leakage of all types of doors shall be determined by Std RS-2, Standard Method of Test for Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors.

**2005.3.3** Exterior joints around windows and door frames; openings between walls and foundations, between walls and roof/ceilings and between wall panels; openings at penetrations of utility services through walls, floors and roofs; and all other such openings in the building envelope shall be caulked, gasketed, weatherstripped or otherwise sealed in an approved manner.

**2005.4 Formulae for use with Tables 4 and 5**

**EQUATION 1**

$$U_o = \frac{U_w A_w + U_g A_g + U_d A_d, \dots}{A}$$

where:

- $U_o$  = the average or combined transmittance of the gross exterior wall, floor or roof/ceiling assembly area, Btu/hft<sup>2</sup>F., except slab on grade.
- $A$  = the gross exterior wall, floor or roof/ceiling assembly area, ft<sup>2</sup>
- $U_w$  = the thermal transmittance of the components of the opaque wall,

CONNECTICUT BASIC BUILDING CODE/1978

- floor or roof/ceiling assembly, Btu/hft<sup>2</sup>F.
- $A_w$  = opaque wall, floor or roof/ceiling assembly area, ft<sup>2</sup>
- $U_g$  = the thermal transmittance of the glazing (window or skylight) area, Btu/hft<sup>2</sup>F.
- $A_g$  = glazing area, ft<sup>2</sup>
- $U_d$  = the thermal transmittance of the door, or similar opening, Btu/hft<sup>2</sup>F.
- $A_d$  = door area, ft<sup>2</sup>

**Note:** Where more than one type of wall, window, roof/ceiling, door and skylight is used, the U and A terms for those items shall be expanded into subelements as:

$$U_{w1}A_{w1} + U_{w2}A_{w2} + U_{w3}A_{w3} + \text{etc.}$$

**EQUATION 2**

$$OTTV = \frac{(U_w A_w TD_{EQ}) + (A_f SF SC) + (U_f A_f \Delta t) \dots}{A}$$

where

- OTTV = average or combined thermal transfer value
- A = the gross exterior wall area, ft<sup>2</sup>
- $U_w$  = U value of opaque wall, (all elements) Btu/hft<sup>2</sup>F.
- $A_w$  = opaque wall area, ft<sup>2</sup>
- $U_f$  = U value of the fenestration area, Btu/hft<sup>2</sup>F.
- $A_f$  = fenestration area, ft<sup>2</sup>
- $TD_{EQ}$  = temperature difference value, (from table below) F.
- SC = shading coefficient of the fenestration. (see definitions)
- $\Delta t$  = temperature difference between exterior and interior design condition, F.
- SF = solar factor value, (see Table 5) Btu/hft<sup>2</sup>

**Note:** Where more than one type of wall is used, the respective terms for those elements shall be expanded into subelements, as:

$$(U_{w1}A_{w1}TD_{EQ1}) + (U_{w2}A_{w2}TD_{EQ2}) + \text{etc.}$$

TEMPERATURE DIFFERENCES FOR USE WITH EQUATION 2

WALLS

WEIGHT OF CONSTRUCTION Lbs/Ft <sup>2</sup>	$TD_{EQ}$ FACTOR
0-25	44
26-40	37
41-70	30
71 and above	23

**2005.5 Building mechanical systems**

**2005.5.1 General:** This section covers the determination of heating and cool-

ing loads, design requirements, system and component performance, control requirements, insulation of HVAC systems and duct construction.

**Exception:** Special applications, including, but not limited to, hospitals, laboratories, thermally sensitive equipment rooms, computer rooms, and facilities with open refrigerated display cases may be exempted from the requirements of this section when approved by the building official.

**2005.5.2 Calculations of heating and cooling loads:** The design requirements specified in Section 2004.0 shall apply for all computations.

- (1) Calculation procedures. Heating and cooling design loads for the purpose of sizing HVAC systems shall be determined in accordance with one of the procedures described in Chapters 24 or 25 of Std RS-1 or an equivalent computation procedure.
- (2) Infiltration. Infiltration for heating and cooling design loads shall be calculated for all buildings except one- and two-family dwellings by the procedures in Chapters 21, 24 and 25 of Std RS-1. Calculations for one- and two-family dwellings may use the methods identified above or other accepted engineering practice.

**2005.5.3 Controls:**

- (1) **Temperature control:** Each HVAC system shall be provided with at least one (1) adjustable thermostat for the regulation of temperature. Each thermostat shall be capable of being set as follows:
  - (a) Where used to control heating only, a maximum temperature setting of 75° F.
  - (b) Where used to control cooling only, a minimum temperature setting of 75° F.
  - (c) Where used to control both heating and cooling, it shall have a maximum heating mode temperature setting of 75° F, and a minimum cooling mode temperature setting of 70° F, and shall be capable of operating the system heating and cooling in sequence. It shall be adjustable to provide a temperature range of up to 10° F between full heating and full cooling, except as allowed in MCA-2005.5.4(3) (e)2.
- (2) **Humidity control:** If an HVAC system is equipped with a means for adding moisture to maintain specific selected relative humidities in space or zones, a humidistat shall be provided. This device shall be capable of being set to prevent new energy from being used to produce space relative humidity above 30 percent relative humidity. Where a humidistat is used in a HVAC system for controlling moisture removal to maintain specific selected relative humidities in spaces or zones, it shall be capable of being set to prevent new energy from being used to produce a space relative humidity below 60 percent relative humidity.
 

**Exception:** Special occupancies requiring different relative humidities may be permitted by the building official.
- (3) **Zoning for temperature control:**
  - (a) **One- and two-family dwellings:** At least one thermostat for regu-

lation of space temperature shall be provided for each separate HVAC system. In addition, a readily accessible manual or automatic means shall be provided to partially restrict or shut off the heating and/or cooling input to each zone or floor.

- (b) **Multi-family dwellings:** For multi-family dwellings, each individual dwelling unit shall be considered separately and shall meet the above requirements. Spaces other than living units shall meet the requirements of Section 2005.5.3(3)(c).
- (c) **All other types of buildings or occupancies:** At least one thermostat for regulation of space temperature shall be provided for:
  - 1. Each separate HVAC system.
  - 2. Each separate zone as defined in Section 2003.0.

As a minimum, each floor of a building shall be considered as a separate zone. In a multi-story building, where the perimeter system offsets only the transmission losses of the exterior wall, an entire side of uniform exposure may be zoned separately. A readily accessible manual or automatic means shall be provided to partially restrict or shut off the heating and/or cooling input to each floor.

- (d) **Control setback and shut-off:**
  - 1. **Residential occupancy groups:** One and two-family and multi-family dwellings. The thermostat required in Section 2005.5.3(3)(a) and (b) or an alternate means including, but not limited to, a switch or clock, shall provide readily accessible manual or automatic means for reducing the energy required for heating and cooling during periods of non-use or reduced need including, but not limited to, unoccupied periods and sleeping hours. Lowering thermostat set points to reduce energy consumption of heating systems shall not cause energy to be expended to reach the reduced setting.
  - 2. **Other buildings and occupancies:** Each HVAC system shall be equipped with a readily accessible means of shutting off or reducing the energy used for HVAC during periods of non-use or alternate uses of the buildings spaces or zones served by the system. Acceptable means include, but are not limited to:
    - Manually adjustable automatic timing devices,
    - Manual devices for use by operating personnel, and
    - Automatic control systems.

**2005.5.4 Simultaneous heating and cooling:** Use of simultaneous heating and cooling by reheating or recooling supply air or by concurrent operation of independent heating and cooling systems serving a common zone shall be restricted as delineated below:

- (1) **Recovered energy:** Recovered energy, provided the new energy expended in the recovery process is less than the amount recovered, may be used for control of temperature and humidity.

- (2) **New energy for humidity control:** New energy may be used to prevent relative humidity from rising above 60 percent for comfort control or to prevent condensation on terminal units or outlets or functioning of special equipment.
- (3) **New energy for temperature control:** New energy may be used for temperature control if minimized in accordance with paragraphs (a) through (e).
  - (a) **Reheat systems:** Systems employing reheat and serving multiple zones, other than those employing variable air volume for temperature control, shall be provided with control that will automatically reset the system cold air supply to the highest temperature level that will satisfy the zone requiring the coolest air. Single zone reheat systems shall be controlled to sequence reheat and cooling.
  - (b) **Dual duct and multi-zone systems:** These systems shall be provided with controls that will automatically reset:
    - 1. The cold deck air supply to the highest temperature that will satisfy the zone requiring the coolest air, and
    - 2. The hot deck air supply to the lowest temperature that will satisfy the zone requiring the warmest air.
  - (c) **Recooling systems:** Systems in which heated air is recooled, directly or indirectly, to maintain space temperature shall be provided with controls that will automatically reset the temperature to which the supply air is heated to the lowest level that will satisfy the zone requiring the warmest air.
  - (d) **Multiple zones:** For systems with multiple zones, one or more zones may be chosen to represent a number of zones with similar heating/cooling characteristics. A multiple zone HVAC system that employs reheating or recooling for control of not more than 5,000 cubic feet/min., or 20 percent of the total supply air of the system, whichever is less, shall be exempt from the supply air temperature reset requirements of Section 2005.5.4(3)(a) through (c).
  - (e) **Concurrent operation:** Concurrent operation of independent heating and cooling systems serving common spaces and requiring the use of new energy for heating or cooling shall be minimized by one or both of the following:
    - 1. By providing sequential temperature control of both heating and cooling capacity in each zone.
    - 2. By limiting the heat energy input through automatic reset control of the heating medium temperature (or energy input rate) to only that necessary to offset heat loss due to transmission and infiltration and, where applicable, to heat the ventilation air supply to the space.

**2005.5.5 Cooling with outdoor air (economizer cycle):** Each fan system shall be designed to use up to and including one-hundred (100) percent of the fan

system capacity for cooling with outdoor air automatically whenever its use will result in lower usage of new energy. Activation of economizer cycle shall be controlled by sensing outdoor air enthalpy and dry-bulb temperature jointly or outdoor air dry-bulb temperature alone or alternate means approved by the building official.

**Exceptions:** Cooling with outdoor air is not required under any one or more of the following conditions:

1. Fan system capacity less than 5,000 cubic feet/min. or 134,000 Btu/h total cooling capacity.
2. The quality of the outdoor air is so poor as to require extensive treatment of the air, upon approval by the building official.
3. The need for humidification or dehumidification requires the use of more energy than it conserves by the outdoor air cooling.
4. The use of outdoor air cooling may affect the operation of other systems so as to increase the overall energy consumption of the building.
5. Internal/external zone heat recovery or other energy recovery is used.
6. When all space cooling is accomplished by a circulating liquid which transfers space heat directly or indirectly to a heat rejection device such as a cooling tower without the use of a refrigeration system.

**2005.5.6 Mechanical ventilation:** Each mechanical supply and exhaust ventilation system shall be equipped with a readily accessible means for either shut-off or volume reduction and shut-off when ventilation is not required.

**2005.5.7 Energy for air delivery:** The air transport factor for each all-air HVAC system shall not be less than 4.0. The factor shall be based on design system air flow for constant volume systems. The factor for variable air volume systems may be based on average conditions of operation. Energy for transfer of air through heat recovery devices shall not be included in determining the factor; however, such energy shall be included in the evaluation of the effectiveness of the heat recovery system.

$$\text{Air transport factor} = \frac{\text{Space sensible heat removal}^*}{\text{Supply} + \text{return fan(s) power input}^*}$$

\*Expressed in Btu/h

**2005.5.8 Energy recovery:** Consideration shall be given to the use of recovery systems which will conserve energy (provided the amount expended is less than the amount recovered) when the energy transfer potential and the operating hours are considered.

**2005.5.9 Balancing:** The HVAC system design shall provide means for balancing the air and water systems including, but not limited to dampers, temperature and pressure test connections and balancing valves.

**2005.6 Piping insulation:** All piping installed to service buildings and within buildings shall be thermally insulated in accordance with Table 7, except as stated herein. (For service water heating systems, see Section 2007.0.)

Table 7  
MINIMUM PIPE INSULATION

Piping systems types	Fluid temperature range, F.	Insulation thickness in inches for pipe sizes					
		Run-outs up to 2" <sup>1</sup>	1" and less	1½ to 2"	2¼ to 4"	5" to 6"	8" and larger
Heating systems							
Steam and hot water							
High pressure/temp	306-450	1½	1½	2	2½	3½	3½
Med. pressure/temp	251-305	1½	1½	2	2½	3	3
Low pressure/temp	201-250	1	1	1½	1½	2	2
Low temperature	120-200	½	¾	1	1	1½	
Steam condensate (for feed water)	Any	1	1	1	1½	1½	2
Cooling systems							
Chilled water							
Refrigerant, or	40-55	½	½	¾	1	1	1
Brine	Below 40	1	1	1½	1½	1½	1½

<sup>1</sup>Runouts not exceeding 12' in length to individual terminal units.

- (1) **Other insulation thickness:** Insulation thickness in Table 7 is based on insulation having thermal resistance in the range of 4.0 h F ft<sup>2</sup>/Btu to 4.6 h F ft<sup>2</sup>/Btu per inch of thickness on a flat surface at a mean temperature of 75° F. Minimum insulation thickness shall be increased for materials having R values less than 4.0, or may be reduced for materials having R values greater than 4.6 as follows:

- (a) For materials with thermal resistance greater than R = 4.6, the minimum insulation thickness may be reduced as follows:

$$\frac{4.6 \times \text{Table 7 thickness}}{\text{Actual R}} = \text{New minimum thickness}$$

- (b) For materials with thermal resistance less than R = 4.0, the minimum insulation thickness shall be increased as follows:

$$\frac{4.0 \times \text{Table 7 thickness}}{\text{Actual R}} = \text{New minimum thickness}$$

**Exceptions:** Piping insulation is not required in any of the following cases:

1. Piping installed within HVAC equipment.
2. Piping at temperatures between 55° F. and 120° F. when not required for energy conservation purposes.
3. When the heat loss and/or heat gain of the piping, without insulation, does not increase the energy requirements of the building.
4. Piping, installed in unventilated crawl spaces with insulated

walls and basements or cellars in one- and two-family dwellings.

- (2) Additional insulation with vapor barriers shall be provided to prevent condensation.

**Exception:** May be omitted when it can be shown that condensation is not a problem.

**2005.6.1 Air handling duct system insulation:** All ducts, plenums and enclosures installed in or on buildings shall be thermally insulated as follows:

- (1) All duct systems, or portions thereof, shall be insulated to provide a thermal resistance, excluding film resistances, of:

$$R = \frac{\Delta t}{15} (h) (F) (ft^2) / \text{Btu}$$

where  $\Delta t$  = the design temperature differential between the air in the duct and the surrounding air in degrees F.

**Exceptions:** Duct insulation (except where required to prevent condensation) is not required in any of the following cases:

1. Where  $\Delta t$  is 25° or less.
  2. Supply or return air ducts installed in unventilated crawl spaces with insulated walls, basements or cellars in one- and two-family dwellings.
  3. When the heat gain or loss of the ducts, without insulation, will not increase the energy requirements of the building.
  4. Within HVAC equipment.
  5. Exhaust air ducts.
- (2) Additional insulation with vapor barriers shall be provided to prevent condensation.

**Exception:** May be omitted when it can be shown that condensation is not a problem.

**2005.6.2 Duct construction:** All duct work shall be constructed and erected in accordance with standards RS-15, RS-16, RS-17, RS-18 or RS-19, as applicable.

- (1) High pressure and medium pressure ducts shall be leak tested in accordance with the applicable reference standards in this article with the rate of air leakage not to exceed the maximum rate specified in that standard.
- (2) When low pressure supply air ducts are located outside of the conditioned space, except those located within return air plenums, all transverse joints shall be sealed using mastic or mastic plus tape. For fibrous glass duct work, pressure sensitive tape may be used.
- (3) Automatic or manual dampers installed for the purpose of shutting off outside air intakes for ventilation air shall be designed with tight shut-off characteristics to minimize air leakage.



**SECTION 2006.0 HVAC EQUIPMENT  
PERFORMANCE REQUIREMENTS****2006.1 Equipment and components**

**2006.1.1** The requirements of this section apply to equipment and mechanical component performance for heating, ventilating and air conditioning systems. Equipment efficiency levels are specified. Data furnished by the equipment supplier or certified under a nationally recognized certification program or rating procedure shall be used to satisfy these requirements. Equipment efficiencies shall be based on the standard rating conditions shown in Table 9.

**2006.1.2** Where components from more than one manufacturer are assembled into systems regulated under this section, compliance shall be shown as specified in Sections 2006.2 through 2006.6.

**2006.1.3 Responsibility of equipment suppliers:** See Section 6 of Std RS-21.

**2006.2 HVAC system heating equipment heat pump—heating mode:** Heat pumps whose energy input is entirely electric shall show a coefficient of performance (COP) heating not less than the values shown in Table 8A.

**2006.2.1** These requirements apply to, but are not limited to, unitary heat pumps (air source and water source) in the heating mode and to heat pumps in the packaged terminal air conditioner and room air conditioner forms in the heating mode.

**2006.2.2 Coefficient of performance (COP) heating:** The ratio of the rate of net heat output to the rate of total energy input, expressed in consistent units and under designated rating conditions.

The rate of net heat output shall be defined as the change in the total heat content of the air entering and leaving the equipment, not including supplementary heat.

Total energy input shall be determined by combining the energy inputs to all elements, except supplementary heaters, of the heat pump, including, but not limited to, compressor(s), pump(s), supply air fan(s), return air fan(s), outdoor air fan(s), cooling tower fan(s), and the HVAC system equipment control circuit.

**2006.2.3 Supplementary heater:** The heat pump shall be installed with a control to prevent supplementary heater operation when the heating load can be met by the heat pump alone.

Supplementary heater operation is permitted during transient periods, such as start-ups, following room thermostat set-point advance and during defrost.

A two-stage thermostat, which controls the supplementary heat on its second stage, shall be accepted as meeting this requirement. The cut-on temperature for the compression heating shall be higher than the cut-on temperature for the supplementary heat, and the cut-off temperature for the compression heating shall be higher than the cut-off temperature for the supplementary heat. Supplementary heat may be derived from any source of electric resistance heating or combustion heating.

**2006.3 HVAC System combustion heating equipment:** All gas and oil fired comfort heating equipment shall show a minimum combustion efficiency of 75 percent at maximum rated output. Combustion efficiency is defined as 100 percent minus stack losses in percent of heat input. Stack losses are:

- (a) loss due to sensible heat in dry fuel gas,
- (b) loss due to incomplete combustion, and
- (c) loss due to sensible and latent heat in moisture formed by combustion of hydrogen in the flue.

**2006.4 HVAC system equipment, electrically operated, cooling mode:** HVAC system equipment as listed below, whose energy input in the cooling mode is entirely electric, shall show a coefficient of performance (COP) cooling not less than values shown in Table 8B.

**2006.4.1** These requirements apply to, but are not limited to, unitary cooling equipment (air-cooled, water-cooled and evaporatively-cooled); the cooling mode of unitary heat pumps (air source and water source); packaged terminal air conditioners.

**Exception:** These requirements do not apply to equipment used in areas having open refrigerated food display cases.

**2006.4.2 Coefficient of performance (COP) cooling:** The ratio of the rate of net heat removal to the rate of total energy input, expressed in consistent units and under designated rating conditions.

The rate of net heat removal shall be defined as the change in the total heat content of the air entering and leaving the equipment (without reheat).

Total energy input shall be determined by combining the energy inputs to all elements of the equipment, including, but not limited to, compressor(s), pump(s), supply air fan(s), cooling tower fan(s), and pump(s), and the HVAC system equipment control circuit.

**2006.5 Applied HVAC system components, electrically operated, cooling mode:** HVAC system components, as listed in Table 8C, whose energy input is entirely electric, shall show a coefficient of performance (COP) cooling not less than the values shown in Table 8C.

**2006.5.1 Coefficient of performance (COP) cooling:** The ratio of the rate of net heat removal to the rate of total energy input, expressed in consistent units and under designated rating conditions.

The rate of net heat removal is defined as the difference in total heat contents of the water or refrigerant entering and leaving the component.

Total energy input shall be determined by combining the energy inputs to all elements and accessories of the component, including, but not limited to, compressor(s), internal circulating pump(s); condenser air fan(s), evaporative condenser cooling water pump(s), purge, and the HVAC system component control circuit.

**2006.6 HVAC system equipment—heat operated, cooling mode:** Efficiency limitation, equipment: Heat operated cooling equipment shall show a (COP) cooling not less than the values shown in Table 8D. These requirements apply

to, but are not limited to, absorption equipment, engine driven equipment and turbine driven equipment.

**2006.6.1 Coefficient of performance (COP):** The ratio of the total net cooling output to the total heating input, electrical auxiliary inputs excluded.

**Table 8A**  
**MINIMUM COP FOR HEATING PUMPS, HEATING MODE<sup>1</sup>**

Source and outdoor temperature (F)	Minimum COP
Air source - 47 dB/43WB	2.2
Air source - 17 dB/15WB	1.2
Water source - 60 entering	2.2

<sup>1</sup>When tested at the standard rating specified in Table 9A.

**Table 8B**  
**MINIMUM EER AND COP**  
**FOR ELECTRICALLY DRIVEN HEATING, VENTILATING AND**  
**AIR CONDITIONING SYSTEM EQUIPMENT — COOLING<sup>1</sup>**

Standard rating capacity	EER	COP
Under 65,000 Btu/h (19,050 watts)	6.1	1.8
65,000 Btu/h (19,050 watts and over)	6.8	2.0

<sup>1</sup>When tested at the standard rating conditions specified in Table 9B.

**Table 8C**  
**MINIMUM EER AND COP**  
**FOR ELECTRICALLY DRIVEN HEATING, VENTILATING AND**  
**AIR CONDITIONING SYSTEM COMPONENTS<sup>1</sup>**

Component	Condensing	Air		Water		Evaporator	
	Means	EER	COP	EER	COP	EER	COP
Self-contained water chillers	Centrifugal	7.5	2.2	12.9	3.8	—	—
	Positive displacement	7.2	2.1	10.9	3.2	—	—
Condenserless water chillers	Positive displacement	8.9	2.6	10.9	3.2	—	—
Compressor and Condensor Units 65,000 Btu/h (19,050 watts) and over <sup>2</sup>	Positive displacement	7.8	2.3	11.3	3.3	11.3	11.3

<sup>1</sup>When tested at the standard rating conditions specified in Table 9C.

<sup>2</sup>Ratings in accordance with Std RS-14 as applicable, COP based on condensing unit standard rating capacity and energy input to the unit, at all sea level.

**Table 8B**  
**MINIMUM COP**  
**FOR HEATING, VENTILATING AND**  
**AIR CONDITIONING SYSTEM HEAT OPERATED COOLING EQUIPMENT**

Heat source	Minimum COP
Direct fired (gas, oil)	0.40
Indirect fired (steam, hot water)	0.65

**Table 9A**  
**HVAC SYSTEM HEATING EQUIPMENT (HEAT PUMPS)**  
**STANDARD RATING CONDITIONS**

Conditions	Type	Air source		Water source
Air entering equipment	F	70 db	70 db	70 db
Outdoor unit ambient	F	47 db/43 wb	17 db/15 wb	—
Entering water temperature	F	—	—	60
Water flow rate	—	—	—	as used in cooling mode

**Table 9B**  
**HVAC SYSTEM EQUIPMENT**  
**STANDARD RATING CONDITIONS — COOLING**

	Type	Temperatures			
		DB	WB	Inlet	Outlet
Air entering equipment	F	80	67	—	—
Condenser ambient (air cooled)	F	95	75	—	—
Condenser water (water cooled)	F	—	—	85	95

Standard ratings are at sea level.

**Table 9C**  
**APPLIED HVAC SYSTEM COMPONENTS**  
**STANDARD RATING CONDITIONS — COOLING**

Item	Type	Centrifugal or self-contained reciprocating water-chiller	Condenserless reciprocating water-chiller
Leaving chilled water temp	F	44	44
Entering chilled water temp	F	54	54
Leaving condenser water temp	F	95	—
Entering water temp	F	85	—
non-ferrous tubes	*	0.0005	0.0005
Fouling factor, water	*	—	—
Steel tubes	*	0.0010	0.0010
Fouling factor, refrigerant	*	0.0000	0.0000
Condenser ambient (air or evap. cooled)	F	95 db/75 wb	—
Compressor			
saturated	F	—	105
Water cooled (or evap. cooled)			
Discharge temp	F	—	120
Air cooled			

Standard ratings are at sea level.

\*h (l<sup>2</sup> F/Btu)

## SECTION 2007.D SERVICE WATER HEATING

**2007.1 Scope:** The purpose of this section is to provide criteria for design and equipment selection that will produce energy savings when applied to service water heating.

**2007.2 Intention:** It is not the intent of this section to develop either a procedure or method for designing a hot water distributing system, but to set forth requirements that will reduce unnecessary uses of energy. For a systems design guide, see Chapter 37 of Std RS-11.

**2007.3 Water heaters, storage tanks, boilers, and piping****2007.3.1 Performance efficiency:**

- (1) **Electric storage water heaters:** All automatic electric storage water heater(s) shall have a standby loss not exceeding  $4W/ft^2$  of tank surface area when tested in accordance with Std RS-6.
- (2) **Gas and oil fired storage water heaters:** All gas and oil fired, automatic storage water heaters shall have a recovery efficiency ( $E_r$ ) not less than 75 percent and standby loss percentage (S) not exceeding:

$$S = 2.3 + 67/V$$

where:

$$V = \text{rated volume in gallons}$$

when tested in accordance with Std RS-7.

**Exception:** In utilizing Std RS-7 to test oil fired units  $CF \approx 1.0$ ; Q equals total gallons of oil consumed; and H equals total heating value of oil in Btu/gal.

**2007.3.2 Insulation:** Heat loss from unfired hot water storage tanks shall be limited to a maximum of  $15 \text{ Btu/h ft}^2$  of external tank surface area. The design ambient temperature shall be no higher than  $65^\circ \text{ F}$ .

**2007.3.3 Combination service water heating/space heating boilers:** Service water heating equipment shall not be dependent on year round operation of space heating boilers; that is, boilers that have as another function winter space heating.

**Exception:** Exempt from these requirements are systems with service/space heating boilers having a standby loss Btu/h less than:

$$\frac{13.3 \text{ pmd} + 400}{n}$$

pmd = probable maximum demand in gallons/hour as determined in accordance with Chapter 37 of Std RS-11.

n = fraction of year when outdoor daily mean temperature exceeds  $64.9^\circ \text{ F}$ .

The standby loss is to be determined for a test period of 24 hour duration while maintaining a boiler water temperature of  $90^\circ \text{ F}$ , above ambient.

**2007.4 Temperature controls**

**2007.4.1 Automatic controls:** Service water heating systems shall be equipped

with automatic temperature controls capable of adjustment from the lowest to the highest acceptable temperature settings for the intended use. Temperature setting range shall be in accordance with Chapter 37, Table I of Std RS-11.

**2007.4.2 Shut down:** A separate switch shall be provided to permit turning off the energy supplied to electric service water heating systems. A separate valve shall be provided to permit turning off the energy supplied to the main burner(s) of all other types of service water heating systems.

**2007.4.3 Swimming pools:**

- (1) Heated swimming pools shall be equipped with controls to limit heating water temperatures to no more than 80° F.  
**Exception:** Pools used for therapeutic purposes are exempt from this requirement when approved by the building official.
- (2) Uncovered or unenclosed heated pools shall be controlled so that the electric or fossil fueled pool water heating systems are inoperative whenever the outdoor air temperature is below 60° F.

**2007.5 Pump operation:** Circulating hot water systems shall be arranged so that the circulation pump(s) can be conveniently turned off, automatically or manually, when the hot water system is not in operation.

**2007.6 Pipe insulation:** For recirculation systems, piping heat loss shall be limited to a maximum of 25 Btu/h ft<sup>2</sup> of external pipe surface for above ground piping and a maximum of 35 Btu/h ft<sup>2</sup> of external pipe surface for underground piping. Maximum heat loss shall be determined at a  $\Delta t$  equal to the maximum water temperature minus a design ambient temperature no higher than 65° F.

**2007.7 Conservation of hot water**

**2007.7.1 Showers:** Showers used for other than safety reasons shall be equipped with flow devices to limit total flow to a maximum of 3 gpm per shower head.

**2007.7.2 Lavatories in restrooms of public facilities shall:**

- (1) Be equipped with outlet devices which limit the flow of hot water to a maximum of 0.5 gpm.
- (2) Be equipped with devices which limit the outlet temperature to a maximum of 110° F.
- (3) Be equipped with self closing valves that limit delivery to a maximum of 0.25 gallons of hot water.

**SECTION 2008.0 ELECTRICAL DISTRIBUTION SYSTEMS**

**2008.1 General:** Electrical distribution and lighting systems shall be designed for efficient distribution and use of electrical energy from the service entrance to and at the points of use as provided herein.

**2008.2 Power factor:** Utilization equipment, rated greater than 1000W and lighting equipment greater than 15W, with an inductive reactance load com-

ponent, shall have a power factor of not less than eighty-five (85) percent under rated load conditions. Power factor of less than eighty-five (85) percent shall be corrected to at least ninety (90) percent under rated load conditions. Power factor corrective devices, installed to comply with this article, shall be switched with the utilization equipment, except where this results in an unsafe condition or interferes with the intended operation of the equipment.

**2008.3 Service voltage:** Where a choice of service voltages is available, a computation shall be made to determine which service voltage would produce the least energy loss, and that voltage shall be selected.

**2008.4 Voltage drop:** In any building, the maximum total voltage drop shall not exceed three (3) percent in branch circuits or feeders, for a total of five (5) percent to the farthest outlet based on steady state design load conditions.

**2008.5 Lighting switching:** Switching shall be provided for each lighting circuit or for portions of each circuit, so that the partial lighting required for custodial or for effective complementary use with natural lighting may be operated selectively.

**2008.6 Electrical energy determination:** In all multi-family dwellings, provision shall be made to determine the energy consumed by each tenant by separately metering individual dwelling units.

**Exception:** Motels, hotels, and dormitories are exempt from these requirements.

**2008.7 Exterior lighting control:** All exterior lighting shall be arranged so that fixtures will be automatically switched off when daylight is sufficient.

**Exception:** Detached one- or two-family dwellings.

#### SECTION 2009.0 LIGHTING POWER BUDGET

A lighting power budget is the upper limit of the power to be available to provide the lighting needs in accordance with the criteria and calculation procedure specified herein.

The lighting power budget for the building shall be the sum of the power limits computed for all lighted interior and exterior spaces and shall be determined in accordance with the procedures specified in this section.

A copy of the lighting power budget and a description of the method chosen must be furnished to the building official when an application for permit is made. The limits set forth in the budget are not to be exceeded in the actual design of the building.

**Exception:** One- and two-family detached dwellings and the dwelling portion of multi-family buildings are exempt from the requirements of Section 2009.0.

##### 2009.1 Calculation methods

**2009.1.1** The criteria specified below shall be utilized for computation of the lighting power budget. All calculations shall be in accordance with Section 2009.4, calculation procedure.

**2009.1.2** When insufficient information is known about the specific use of the building space (e.g., number of occupants, space function, location of partitions), the budget shall be based on the apparent intended use of the building space.

**2009.2 Building interiors:** The allowable electric power for lighting shall be established by using the criteria and the calculation procedures specified in Section 2009.4. The value shall be based on the use for which the space within the building is intended.

**2009.2.1 Illumination level criteria:** For the purpose of establishing a budget, levels of illumination shall be those listed in Standard RS-8. Those levels shall be used as follows:

- (1) **Task Lighting:** In most cases, the levels of illumination listed are for specific tasks. These levels are for the task areas defined in Standard RS-8, or, where not defined, at all usable portions of task surfaces. In some cases, the levels of illumination are listed for locations. These levels are to be considered as average levels.
- (2) **General lighting:** In areas surrounding task locations the average level of general lighting, for budget purposes only, shall be one-third ( $1/3$ ) the level for the tasks performed in the area but in no case less than twenty (20) footcandles. Where more than one (1) task occurs in a space, the general level shall be one-third ( $1/3$ ) the weighted average of the specific task levels.
- (3) **Non-critical lighting:** In circulation and seating areas where no specific visual tasks occur, the average level of illumination shall be one-third ( $1/3$ ) of the average general lighting in the adjacent task spaces but in no case less than ten (10) footcandles.
- (4) **Lighting system criteria:** For the purposes of establishing a power budget, only lamp efficacies and coefficients of utilization (CU) specified in Table 10 shall be assumed.

**2009.2.2 Exceptions to building interior criteria:**

- (1) The criteria of Section 2009.2.1 shall not apply to the following areas when calculating the load.
  - (a) Residential type spaces in institutions, such as hospitals, hotels, funeral homes, churches, museums, etc., other than kitchens, bathrooms, laundry areas and public spaces, including lobbies, halls, stairways, basement areas and utility rooms.
  - (b) Theatre auditoriums, entertainment, audio-visual presentations and motion picture and television studios where the lighting is an essential technical element for the function performed.
- (2) The criteria of Section 2009.2.1(4) shall not apply to the following lamps and luminaries; however, their use shall be accounted for in the calculation of task lighting loads for specific tasks. The allowable load shall be based on the luminaire wattage to achieve the levels of illumination as covered in Section 2009.2.1 using a point calculation method given in Standard RS-8.



- (a) Luminaries for medical and dental purposes.
- (b) Luminaries for highlighting applications, such as sculpture exhibits, art exhibits, and individual items of display merchandise.
- (c) Luminaries for specialized lighting applications (color matching, where electrical interference cannot be tolerated, etc.).
- (3) The criteria of Table 10C shall not apply in spaces where it is impractical to control reflectances and where a dirty atmosphere cannot be avoided. Where this condition exists, the values for reflectances and light loss factors shall be those expected to be found and shall be approved by the building official. The calculation shall make note of this deviation.

**2009.3 Building exteriors:** In exterior spaces, the lighting power budget shall be based on the use for which the space is intended.

**2009.3.1 Criteria:** The same criteria as those for interior spaces apply for illumination levels and lighting systems with the addition of luminaries for floodlighting. For power budget purposes luminaries shall have a greater percentage of their beam lumens restricted to the area to be lighted and have minimum efficiencies at least as great as those listed in Standard RS-8.

**2009.3.2 Facade lighting:** Facade lighting for budget purposes shall be no greater than two (2) percent of the total interior lighting load of the building.

**2009.3.3 Calculation procedure:** In establishing a lighting power budget the following procedures shall be used:

- (1) Overhead lighting: The procedure specified in Section 2009.4 shall be followed for overhead lighting, but using reflectances as found.
- (2) Floodlighting: The beam lumen method, as shown in Standard RS-8 and a coefficient of beam utilization (CBU) of 0.75 shall be used for floodlighting calculations.

**2009.4 Calculation procedure:** To establish a lighting power budget, the following procedure shall be used:

- (1) Determining illumination levels and areas:
  - (a) Determine the visual tasks that are expected to be performed in each space (the commonly found tasks at each work station) and the number of planned work locations where tasks will be performed. If assumptions are made, their bases shall be indicated.
  - (b) Select the illumination level, in footcandles for the expected tasks in accordance with Section 2009.2.1(1).
  - (c) Calculate total task areas to be illuminated to the level by multiplying the number of work locations by 50 ft<sup>2</sup> per work location. Total task area shall not exceed actual total space area. If actual task area is greater than 50 ft<sup>2</sup> actual area shall be used. If special task lighting or localized lighting is to be employed, use the actual task areas and point calculation procedures.
  - (d) Calculate the level of general lighting by multiplying the task lighting level by one-third ( $1/3$ ), where there is only one (1) task level, or by taking one-third ( $1/3$ ) of the sum of the products of the

task levels (b) and their areas (c) divided by the total task areas in accordance with Section 2009.2.1(2).

- (e) Calculate the level of non-critical lighting in accordance with Section 2009.2.1(3).
- (f) For area determinations of general and non-critical lighting, calculations shall be based on Standard RS-21, B-3.b, Attachment B.
- (2) Determining lighting system data:
  - (a) Determine light source and luminaire types to use.
  - (b) Determine lamp lumens per watt and luminaire coefficients of utilization for room luminaire mounting height dimensions. Luminaire CUs for lighting power budget shall be selected from Table 10D. In all cases, no luminaire shall have a CU for RCR = 1 of less than that given in Table 10B, except as permitted by Section 2009.2.2(2). Lamp efficacies shall be those listed in Table 10A.
- (3) Determining allowable wattage:
  - (a) Using data from (2) above, the illumination levels and areas determined in (1) and the criteria of Table 10C, calculate the allowable wattages for interior spaces using the lumen method.
  - (b) Calculate the total space wattage by adding the task, general and non-critical lighting loads.
  - (c) Add the wattage of luminaires allowed in Section 2009.2.2(2). This total will be the allowable wattage for the building interior.
  - (d) Using data from (2) above, the illumination levels and areas determined in (1) and the reflectances and light loss factors as found, calculate the allowance wattages for exterior spaces using the calculation procedures of Section 2009.3.3.
  - (e) Calculate the total exterior space wattage by adding the task, general and non-critical lighting loads.
  - (f) Add two (2) percent of total allowable building interior wattage for facade allowance. This total will be the allowable wattage for the building exterior.
  - (g) Calculate the lighting power budget by adding the allowable wattages for the building interior and exterior.

**Table 10A  
LAMP EFFICACIES**

Application	Lumens per Watt
Where moderate color rendition is appropriate	55
Where good color rendition is appropriate	40
Where high color rendition is appropriate, spaces are less than 50 ft <sup>2</sup> or where use of low wattage high intensity discharge (HID) lamps under 250 W or fluorescent lamps under 40 W is appropriate	25

<sup>1</sup>The initial lumen output per watt input, including ballast losses.

**Table 10B  
LUMINAIRE COEFFICIENTS OF UTILIZATION (CU)<sup>1</sup>**

Space use	Minimum CU (at RCR = 1)
For spaces with tasks subjected to veiling reflections (where design levels of illumination are listed in terms of equivalent sphere illumination (ESI) and where visual comfort is important.	0.55
For spaces without tasks, or with tasks not subjected to veiling reflections, but where visual comfort is important.	0.63
For spaces without tasks and where visual comfort is not a criterion.	0.70

<sup>1</sup>Coefficients of utilization (CU's) are to be for luminaires for use in the types of spaces listed, and those luminaires shall have a CU of no less than that listed for each type space for a room cavity ratio (RCR) of 1 and reflectances in Table 10C.

**Table 10C  
REFLECTANCES AND LIGHT LOSS FACTORS**

Interior spaces <sup>1</sup>	Reflectance	Light loss factor
Ceiling cavity	80 percent	0.70
Wall	50 percent	
Floor cavity	20 percent	

<sup>1</sup>For interior spaces, initial cavity and surface reflectances shall be shown.

**Table 10D**

pcc = percent effective ceiling cavity reflectance; pw = percent wall reflectance

pcc	80			50			10		
	50	30	10	50	30	10	50	30	10
pc	Coefficients of utilization (X.01) for 20% effective floor cavity reflectance								
RCR									
1	55	53	51	51	50	49	48	47	46
2	49	47	45	47	45	43	44	42	41
3	45	42	39	43	40	38	40	38	37
4	41	37	34	39	36	34	37	35	33
5	37	33	30	35	32	30	33	31	29
6	33	29	27	32	29	26	31	28	26
7	30	26	23	29	26	23	28	25	23
8	27	23	21	26	23	21	25	22	20
9	25	21	18	24	20	18	23	20	18
10	22	19	16	22	18	16	21	18	16

CONNECTICUT BASIC BUILDING CODE/1978

II

pcc	80			50			10		
	50	30	10	50	30	10	50	30	10
pw									
RCR	Coefficients of utilization (X.01) for 20% effective floor cavity reflectance								
1	63	61	59	59	58	57	55	54	53
2	57	54	51	54	52	50	50	49	47
3	52	48	45	49	46	44	46	44	42
4	47	43	39	45	41	39	42	40	38
5	42	38	34	40	37	34	38	35	33
6	38	34	31	37	33	30	35	32	30
7	35	30	27	33	29	27	32	29	26
8	31	27	24	30	26	23	29	26	23
9	28	24	21	27	23	20	26	23	20
10	26	21	18	25	21	18	24	20	18

III

pcc	80			50			10		
	50	30	10	50	30	10	50	30	10
pw									
RCR	Coefficients of utilization (X.01) for 20% effective floor cavity reflectance								
1	70	68	66	65	64	63	61	60	59
2	63	60	57	60	57	55	56	54	53
3	57	53	50	55	51	49	51	49	47
4	52	47	44	50	46	43	47	44	42
5	47	42	38	45	41	38	43	39	37
6	42	37	34	41	37	33	39	36	33
7	38	33	30	37	33	29	35	32	29
8	34	29	26	33	29	26	32	28	25
9	31	26	23	30	25	22	28	25	22
10	28	23	20	27	23	20	26	22	20

**SECTION 2010.0 BUILDING DESIGN BY SYSTEMS ANALYSIS**

**2010.1 General:** This section establishes design criteria in terms of total energy use by a building including all of its systems.

**2010.2 Energy analysis:** Compliance with this section will require an analysis of the annual energy usage, hereinafter called an annual energy analysis.

**Exception:** Sections 2004.0 through 2009.0 of this article establish criteria for different energy consuming and enclosure elements of the building which, if followed, will eliminate the requirement for an annual energy analysis while meeting the intent of this article.

A building designed in accordance with this section will be deemed as complying with this article if the calculated annual energy consumption is not greater than a similar building (defined as a "standard design") whose enclosure elements and energy consuming systems are designed in accordance with

Sections 2004.0 through 2009.0.

For an alternate building design to be considered similar to a "standard design," it shall utilize the same energy source(s) for the same functions and have equal floor area and the same ratio of envelope area to floor area, environmental requirements, occupancy, climate data and usage operational schedule.

**2010.3 Design:** The standard design, conforming to the criteria of Sections 2004.0 through 2009.0 and the proposed alternative design shall be designed on a common basis as specified herein.

**2010.3.1** The comparison shall be expressed as Btu input per square foot of gross floor area per year.

**2010.3.2** If the proposed alternative design results in an increase in consumption of one energy source and a decrease in another energy source, even though similar sources are used for similar purposes, the difference in each energy source shall be converted to equivalent energy units for purposes of comparing the total energy used.

**2010.4 Analysis procedure:** The analysis of the annual energy usage of the standard and the proposed alternative building and system design shall meet the following criteria.

**2010.4.1** The building heating/cooling load calculation procedure used for annual energy consumption analysis shall be detailed to permit the evaluation of effect of factors specified in Sections 2010.5.1 through 2010.5.6.

**2010.4.2** The calculation procedure used to simulate the operation of the building and its service systems through a full year operating period shall be detailed to permit the evaluation of the effect of system design, climatic factors, operational characteristics, and mechanical equipment on annual energy usage. Manufacturer's data or comparable field test data shall be used when available in the simulation of all systems and equipment. The calculation procedure shall be based upon 8760 hours of operation of the building and its service systems and shall utilize the design methods specified in Standards RS-1, 11, 12 and 13.

**2010.5 Calculation procedure:** The calculation procedure shall cover the following items.

**2010.5.1 Design requirements:** Environmental requirements as required in Section 2004.0.

**2010.5.2 Climatic data:** Coincident hourly data for temperatures, solar radiation, wind and humidity of typical days in the year representing seasonal variation.

**2010.5.3 Building data:** Orientation, size, shape, mass, air, moisture and heat transfer characteristics.

**2010.5.4 Operational characteristics:** Temperature, humidity, ventilation, illumination, control mode for occupied and unoccupied hours.

**2010.5.5 Mechanical equipment:** Design capacity, part load profile.

**2010.5.6 Building loads:** Internal heat generation, lighting, equipment, number of people during occupied and unoccupied periods.

**2010.6 Documentation:** Proposed alternative designs, submitted as requests for exception to the standard design criteria, shall be accompanied by an energy analysis comparison report. Both the design and report are to be prepared by a registered architect or engineer. The report shall provide technical detail on the two building and system designs and on the data used in and resulting from the comparative analysis to verify that both the analysis and the designs meet the criteria of Sections 2010.1 through 2010.5.

**Exception:** Proposed alternative designs for one- and two-family dwellings, multi-family buildings, and for commercial and industrial structures having an area of five thousand (5,000) square feet or less having the indoor temperature controlled from a single point are exempted from the full-year energy analysis described in Section 2010.4.2. However, comparison of energy consumption between the alternative design and the standard design shall be provided.

#### SECTION 2011.0 BUILDING DESIGN BY NON-DEPLETABLE SOURCE ANALYSIS

**2011.1 General:** Any proposed building utilizing solar, geothermal, wind or other non-depletable energy sources for all or part of its energy source shall meet the requirements of Section 2010.0 of this article, except such non-depletable energy may be excluded from the total annual energy consumption allowed for the building by that section.

**2011.1.1** To qualify for this exclusion, such energy must be derived from a specific collection, storage and distribution system. The solar energy passing through windows shall also be considered as qualifying if such windows are provided with:

- (1) Operable insulating shutters or other devices which, when drawn or closed, shall cause the window area to reduce maximum outward heat flows to those in accordance with Sections 2005.2.2 and 2005.2.3, and,
- (2) The window areas are shaded or otherwise protected from direct rays of the sun during periods when cooling is required.

**2011.1.2** Exclusion shall also be granted when nocturnal cooling processes are used in lieu of energy consuming mechanical cooling equipment.

**2011.1.3** All other criteria covered in Section 2010.0 shall apply to the proposed alternative designs utilizing nondepletable sources of energy.

**2011.2 Documentation:** Proposed alternative designs, submitted as requests for exception to the standard design criteria, shall be accompanied by an energy analysis, as specified in Section 2010.2. Both the design and the report are to be prepared by a registered architect or engineer. The report shall provide technical detail on the alternative building and system designs and on the data employed in and resulting from the comparative analysis as to verify

that both the analyses and the designs meet the criteria of Sections 2010.2 through 2010.5.

The energy derived from non-depletable sources and the reduction in conventional energy requirements derived from nocturnal cooling shall be separately identified from the overall building energy use. Supporting documentation, on the basis of the performance estimates for the aforementioned non-depletable energy sources or nocturnal cooling means, must be submitted.

Energy usage must be calculated in accordance with the design conditions and methods specified in this article.

**Exceptions:** Proposed alternative designs for residential and commercial structures of less than twenty thousand (20,000) square feet that derive a minimum of thirty (30) percent of their total annual energy usage from non-depletable sources or from nocturnal cooling shall be exempt from the requirement of a full year energy system analysis, providing that the annual input of such non-depletable sources or the extent of such nocturnal cooling can be expected to meet the demands imposed by the proposed alternative design.

Other commercial, institutional and industrial structures that derive over fifty (50) percent of their annual thermal requirements (heating, cooling, service water heating) and over thirty (30) percent of their annual total energy requirements from non-depletable sources shall be exempted from comparing the proposed design to a standard design which follows the provisions of Sections 2005.0 through 2009.0. Documentation verifying the percentage of annual energy use derived from such non-depletable sources shall be required as provided in Section 2011.2.

#### STANDARDS

The Standards (Std), and portions thereof, which are referred to in various parts of this article are hereby declared to be a part of this article.

#### CODE STANDARD

NO.	TITLE AND SOURCE
RS-1	1977 ASHRAE Handbook of Fundamentals
RS-2	Standard Method of Test for Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors, Specification E283-73 of the ASTM Specifications for Aluminum Windows, ANSI A134.1, 1972 Specifications for Aluminum Sliding Glass Doors, ANSI A134.2, 1972 Industry Standard for Wood Window Units, NWMA IS-2, Industry Standard for Wood Sliding Patio Doors, NWMA IS-3
RS-3	ASHRAE Standard 62-73 Natural and Mechanical Ventilation

CONNECTICUT BASIC BUILDING CODE/1978

- RS-4 ASHRAE Standard 55-74  
Thermal Environmental Conditions for Human  
Occupancy
- RS-5 (Reserved)
- RS-6 Household Automatic Electric Storage Type Water  
Heaters, ANSI C72.1-72
- RS-7 Gas Water Heaters, Volume III, Circulating Tank,  
Instantaneous and Large Automatic Storage Type  
Water Heaters, ANSI Z21.10.3-74
- RS-8 IES Lighting Handbook, 5th Edition, 1972 Illumi-  
nating Engineering Society
- RS-9 Charts and graphs modified to conform to the ter-  
minology of this code from ASHRAE Standard  
90-75, Energy Conservation in New Building  
Design
- RS-10 Standard for Packaged Terminal Air Conditioners,  
ARI Standard 310-70
- RS-11 1976 ASHRAE Handbook and Product Directory,  
Systems Volume
- RS-12 Energy Calculations I: Procedures for Determining  
Heating and Cooling Loads for Computerizing  
Energy Calculations—Algorithms for Building Heat  
Transfer Subsystems, ASHRAE 1975
- RS-13 Energy Calculations II: Procedures for Simulating  
the Performance of Components and Systems for  
Energy Calculations, 3rd Edition, ASHRAE 1975
- RS-14 Standard for Positive Displacement Refrigerant  
Compressor and Condensing Units, ARI Standard  
520-74
- RS-15 1975 ASHRAE Handbook and Product Directory,  
Equipment Volume
- RS-16 Residential Heating and Air Conditioning Systems—  
Minimum Installation Standards, NESCA/  
SMACNA, August 1973
- RS-17 Low Velocity and Duct Construction Standards,  
4th Edition, SMACNA, 1976
- RS-18 High Velocity Duct Construction Standards, 2nd  
Edition, SMACNA, 1976
- RS-19 Fibrous Glass Duct Construction Standards, 3rd  
Edition, SMACNA, 1975



RS-20 (Reserved)  
RS-21 Energy Conservation in New Building Design,  
ASHRAE 90-75

**ACCREDITED AUTHORITATIVE AGENCIES**

ANSI refers to the American National Standards Institute, Inc., 1430  
Broadway, N.Y., N.Y. 10018  
ARI refers to the Air Conditioning and Refrigeration Institute, 1815  
North Fort Myer Drive, Arlington, VA 22209  
ASHRAE refers to the American Society of Heating, Refrigerating, and  
Air-Conditioning Engineers, Inc., 345 East 47th Street, N.Y., NY 10017  
ASTM refers to American Society for Testing and Materials, 1916 Race  
Street, Philadelphia, PA 19103  
IES refers to Illuminating Engineering Society, 345 East 47th Street, N.Y.,  
NY 10017  
NESCA refers to the National Environmental System Contractors Asso-  
ciation, 1501 Wilson Blvd., Arlington, VA 22209  
NWMA refers to the National Woodwork Manufacturers Association,  
Inc., 400 Madison Avenue, Chicago, IL 60606  
SMACNA refers to the Sheet Metal and Air Conditioning Contractors  
National Association, Inc., 8224 Old Courthouse Road, Vienna, Virgi-  
nia 22180



# ARTICLE 21

## INDEX TO PROVISIONS FOR MAKING BUILDINGS ACCESSIBLE TO, AND USABLE BY THE PHYSICALLY HANDICAPPED

*(Note: This Article 21 indexes the provisions of ANSI A117.1-1961, as revised, to the corresponding provisions of the CBBC-1978. Conformance with this referenced standard is required by the General Statutes of Connecticut, Chapter 354.)*

Provisions of referenced standard ANSI A117.1-1961 (R1971)	Provisions of this code meeting those of the standard
<b>1. SCOPE AND PURPOSE</b>	
1.1 Scope	Section 100.0 Scope Section 106.0 Existing Structures 300.2 Further 315.1 Applicability
1.2 Purposes	315.0.1 Standards
<b>2. DEFINITIONS</b>	Section 201.0 Definitions (All definitions listed here are under Physically Handicapped, unless other- wise noted.)
2.1 Non-ambulatory disabilities	Section 201.0 Definitions
2.2 Semi-ambulatory disabilities	Section 201.0 Definitions
2.3 Sight disabilities	Section 201.0 Definitions
2.4 Hearing disabilities	Section 201.0 Definitions
2.5 Disabilities of incoordination	Section 201.0 Definitions
2.6 Aging	Section 201.0 Definitions
2.7 Standard	201.3 Terms not defined
2.8 Fixed turning radius, wheel to wheel	Not applicable

**CONNECTICUT BASIC BUILDING CODE/1978**

2.9 Fixed turning radius, front structure to rear structure	Not applicable
2.10 Involved (involvement)	Not applicable
2.11 Ramps, ramps with gradients	Section 201.0 Definitions (under "Ramp")
2.12 Walk, walks	Section 201.0 Definitions (under "Walk")
2.13 Appropriate number	Quantities required are specified in code
<b>3. GENERAL PRINCIPLES AND CONSIDERATIONS</b>	No requirement
3.1 Wheelchair specifications	Not applicable
3.2 The functioning of a wheelchair	Not applicable
3.3 The adult individual functioning in a wheelchair	Not applicable
3.2.3 Minimum width	315.5 610.3
3.4 The individual functioning on crutches	Not applicable
<b>4. SITE DEVELOPMENT</b>	No requirements
4.1 Grading	612.7 Doorway grading
4.2 Walks	No requirement
4.2.1 Public walks	315.4.3 Walks
4.2.2 Such walks	315.4.2 Curbs
4.2.3 Wherever	315.4.2 Curbs
4.2.4 Level platform	612.8 Door arrangements
4.2.5 Level platform	612.8 Door arrangements
4.3 Parking lots	315.4 Parking lots and building approaches
4.3.1 Accessible spaces	315.4 Parking lots and building approaches
4.3.2 Space open on one side	No provision
4.3.3 Space between spaces	315.4 Parking lots and building approaches
4.3.4 Care in planning	315.4.1 Parking spaces
4.3.5 Distribution of spaces	Table 315.4 315.4.1 Parking spaces

**INDEX TO PROVISIONS FOR MAKING BUILDINGS ACCESSIBLE TO,  
AND USABLE BY THE PHYSICALLY HANDICAPPED**

4.3.6 Walks - conform to 4.2., 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5	No further provision required
<b>5. BUILDINGS</b>	No requirement
5.1 Ramps with gradients	Section 615.0 Egress Ramps
5.1.1 Slope	615.3 Maximum slope
5.1.2 Handrails	615.5 Handrails
5.1.3 Nonslip surface	615.4.1 Surface 625.4 Floor surfaces
5.1.4 Level platform	612.8 Door arrangements
5.1.5 Level platform	612.8 Door arrangements
5.1.6 Clearance at bottom	615.4 Landings
5.1.7 Platforms at intervals	615.4 Landings
5.2 Entrances	315.3 Building entrances and other doors
5.2.1 One primary entrance	315.3.1 New buildings 315.3.2 Existing buildings
5.2.2 Elevators accessible	315.1 Applicability 315.5 Interior access
5.3 Doors and doorways	315.3 Building entrances and other doors 612.8 Door arrangements
5.3.1 Clear opening, single effort	612.3 Size of doors 612.5 Door hardware
5.3.2 Level floor	315.3.3 Doors in new buildings 612.8 Door arrangements
5.3.3 Doorsills, thresholds	612.7 Doorway grading
5.4 Stairs	Section 616.0 Interior Exitway Stairways Section 619.0 Exterior Exitway Stairways
5.4.1 Nosings	Table 616, Note 3
5.4.2 Handrails	616.5.1 Handrail details 619.2 Guards and handrails
5.4.3 Handrail extension	616.5.1 Handrail details
5.4.4 Maximum riser height	Table 616
5.5 Floors	No requirement
5.5.1 Nonslip surface	625.4 Floor surfaces

CONNECTICUT BASIC BUILDING CODE/1978

5.5.2 Common level or connected by ramp	315.1 Applicability 315.5 Interior access
5.6 Toilet rooms	315.8.1 Toilet rooms
5.6.1 Wheelchair traffic	315.8.1 Toilet rooms 315.8.1.1 Special toilet rooms
5.6.2 One toilet stall	315.8.1 Toilet rooms 315.8.2 Water closet stall 315.8.3.1 Handrails
5.6.3 Lavatories	315.8.4 Lavatory
5.6.4 Mirrors and shelves	315.8.6 Toilet and bathroom accessories
5.6.5 Urinals	315.8.7 Urinal
5.6.6 Accessories	315.8.6 Toilet and bathroom accessories
5.7 Water fountains	315.8.5 Drinking fountain
5.7.1 Front spouts and controls	315.8.5 Drinking fountain
5.7.2 Hand or foot operated	315.8.5 Drinking fountain
5.8 Public telephones	316.6.1 Telephones
5.8.1 Reach from wheelchair	315.6.1 Telephones
5.8.2 Hearing disabilities	315.6.1 Telephones
5.9 Elevators	Article 16, Elevator, Dumbwaiter, and Conveyor Equipment, Installation and Maintenance
5.9.1 Accessible	315.1 Applicability 315.5 Interior access 1607.2.1 Use by physically handicapped people
5.9.2 Wheelchair traffic	1607.2.1 Use by physically handicapped people
5.10 Controls	315.6 Electrical switches, controls, and fire alarms
5.11 Identification	315.12 Identification of accessibility
5.11.1 Raised letters	315.12.2 Special identification for the blind
5.11.2 Mounting height	315.12.2 Special identification for the blind

**INDEX TO PROVISIONS FOR MAKING BUILDINGS ACCESSIBLE TO,  
AND USABLE BY THE PHYSICALLY HANDICAPPED**

5.11.3 Knurled hardware	625.3 Identification of hazardous exits
	315.12.2 Special identification for the blind
5.12 Warning signals	315.13 Warning signals
5.12.1 Audible	315.13 Warning signals
5.12.2 Visual	315.13 Warning signals
5.13 Hazards	315.0 General
	Section 625.0 Hazards to Means of Egress
5.13.1 Panels, manholes, etc.	315.0 General
	625.1 Floor openings
5.13.2 Barricades	625.6 Hazards to means of egress
5.13.3 Protruding door closers	612.5 Door hardware
	625.2 Protrusions
5.13.3 Low-hanging or protruding signs, lights, etc.	610.3.1 Headroom
	612.5 Door hardware
	625.2 Protrusions
5.13.5 Lighting of ramps	Section 624.0 Means of Egress Lighting
5.13.6 Exit signs	Section 623.0 Exit Signs and Lights
	<b>OTHER PROVISIONS</b>
No requirement	315.8.8 Showers
No requirement	315.8.9 Bathtubs
No requirement	315.8.12 Residential bathrooms
No requirement	315.8.13 Residential kitchens
No requirement	315.9 Assembly seating accommodations
No requirement	315.10 Checkout lanes
No requirement	315.11 Turnstiles
No requirement	1700.2.4 Supplement
	P-1209.1.1 Water temperature
No requirement	2007.7.2 Lavatories in restrooms of public facilities
	Water temperature





## **ARTICLE 22**

### **HISTORIC STRUCTURES**

Article 22 will be issued separately at a later date. For further information, contact the State Building Inspector's Office, 294 Colony Street, Meriden, CT 06450.



## **ARTICLE 23**

### **SOLAR SPACE HEATING, SPACE COOLING, AND DOMESTIC HOT WATER EQUIPMENT**

#### **SECTION 2300.0 DEFINITIONS**

**Active solar space heating system:** A solar heat collector is added to a building and some positive means such as a motor driven fan or pump is provided to move the energy from the collector to the place where it is to be stored or used. A positive means is also employed to remove the heat from storage and distribute the heat as needed. The collector can be an integral part of the structure or it can be a separate entity either attached to or separate from the structure.

**Active solar space cooling system:** A solar heat collector is added to a building and some positive means such as a motor driven fan or pump is provided to move the energy from the collector to the place where it is to be stored or used. In either case a positive means is also generally employed to remove the heat (or cold) from storage and to distribute the cooling effect produced by using that heat as needed. The collector can be an integral part of the structure or it can be a separate entity either attached or entirely separate from the structure.

**Passive solar space heating system:** The building itself is designed as a solar heat collector and no conventional energy such as oil, gas or electricity is utilized to aid the collection or to distribute the heat that is collected. Instead the building is heated by direct solar radiation entering the windows and by re-radiation from building surfaces to the occupants. In general such buildings have a substantial amount of glass facing south. The glass is generally set in the building so as to maximize the solar heat gain to the inside of the building in the wintertime and minimize solar gain during the summertime.

**Passive solar space cooling systems:** The building is designed to aid the loss of heat from the inside of the building to the outside without the use of conventional energy sources. Heat loss from the interior is generally achieved by natural ventilation, evaporative cooling and radiation loss.

**Hybrid system:** The building contains a combination of both passive and active solar systems.

**Solar domestic hot water system:** An active or passive solar energy system is employed to heat water to be used for domestic purposes. An active system includes such elements as a solar energy collector and some positive means such as a motor driven fan or pump employed to move the energy from the collector to the place where it will be stored and/or utilized. A passive system includes such elements as a solar energy collector or other collection mechanism and a method of moving the energy from the collector to the place where it will be stored and/or utilized, without the use of conventional energy sources. Solar domestic hot water system may have elements, such as solar energy collectors, pipes or ducts, pumps, and heat storage facilities, in common with solar space heating and/or space cooling systems in which case requirements applicable to each category of system involved must be met.

#### **SECTION 2301.0 REQUIREMENTS APPLICABLE TO ACTIVE SOLAR ENERGY SYSTEMS**

**2301.1** Solar energy gathering devices (solar collectors) shall be provided with a name plate identifying the manufacturer's name and address and the model and serial number. Manufacturers of the solar energy gathering devices shall have each model tested by an independent accredited testing laboratory. The laboratory shall meet the standards of ASTM, ANSI and ASHRAE. The test results shall be published as part of the manufacturer's literature. Solar energy gathering devices shall be tested in accordance with ASHRAE 93-77 and NBSIR 77-1226. The requirements in this subsection shall not apply to solar energy gathering devices constructed by an individual for installation on a single family residential dwelling which is or will be occupied by the individual.

**2301.2** All solar energy gathering devices (solar collectors), accessories and controls, shall be installed in accordance with manufacturer's instructions. All components of active solar energy systems shall be securely installed and shall be subject to all other applicable sections of the state building codes. Where applicable, work shall be performed by licensed mechanics, such as plumbers, steamfitters, electricians, or other persons licensed to perform the activities involved, except that individuals who own and occupy or will occupy, single family residential dwellings, including such dwellings under construction, may install solar energy gathering devices, accessories, controls and other components of active solar energy systems without regard to such licensing requirement, pursuant to this section and to Section 20-340 of the General Statutes.

**2301.3** All active solar energy systems shall be trimmed with automatic safety controls to prevent the equipment and systems from operating in an unsafe manner.

**2301.4** The installation of all solar energy heating, cooling or domestic hot water systems shall require a building permit prior to construction and a certificate of occupancy upon completion.

## SOLAR SPACE HEATING, SPACE COOLING, AND DOMESTIC HOT WATER EQUIPMENT

### SECTION 2302.0 REQUIREMENTS APPLICABLE ONLY TO SOLAR ENERGY GATHERING DEVICES (SOLAR COLLECTORS) ASSEMBLED ON SITE

**2302.1** Solar energy gathering devices (solar collectors) which are assembled on site and constitute part of an active solar energy system shall require complete design documents including plans, specifications and a calculation of the estimated amount of energy to be provided by the solar collectors, all bearing the stamp of a licensed professional engineer registered in Connecticut and to be made available to the building official. The site assembled solar collector or an equivalent collector or mock-up shall be tested on site or be, or have been, tested in an independent accredited testing laboratory to verify the above calculation.

**2302.2 Exemption to above requirements:** The requirements in this section shall not apply to solar collectors assembled on site by an individual for installation on a single family residential dwelling which is or will be occupied by the individual.

### SECTION 2303.0 REQUIREMENTS APPLICABLE TO ALL SOLAR SPACE HEATING SYSTEMS

**2303.1** All active, passive, and hybrid solar space heating systems shall require either (1) a supplemental space heating system which in itself is capable of producing heat in sufficient quantity to supply the full load requirement of the system, exclusive of the availability of solar energy or stored energy derived from solar energy, from the solar space heating system or (2) performance of the following calculations, to be certified by a licensed professional engineer registered in Connecticut and to be made available to the building official.

Building design heat loss and heat gain calculations, to be performed in accordance with the methodology set forth in the ASHRAE Handbook of Fundamentals; a month-by-month estimate of the heating requirement accomplished using the degree day method or other ASHRAE approved methodology; a month-by-month estimate of the energy to be contributed by the solar space heating system; a month-by-month estimate of the amount of auxiliary energy which will be required to supplement the solar space heating system; and a supplemental space heating system shall be provided which a licensed professional engineer registered in Connecticut certifies as having sufficient capacity that the solar space heating system and supplemental system together will produce heat in sufficient quantity to supply the full load heating requirement of the system.

**2303.2 Exemption to above requirements:** The supplemental space heating system and the certified performance calculations required by this section shall not be required for any solar space heating system constructed by a individual for installation on or in a single family residential dwelling which is or will be occupied by the individual.

**SECTION 2304.0 REQUIREMENTS APPLICABLE TO ALL SOLAR  
DOMESTIC HOT WATER HEATING SYSTEMS**

**2304.1** All solar domestic hot water heating systems shall require either (1) a supplemental domestic hot water heating system which in itself is capable of meeting the entire hot water heating requirement of the system, calculated in accordance with an ASHRAE approved methodology, exclusive of the availability of solar energy, or stored energy derived from solar energy, from the solar domestic hot water heating system or (2) performance of the following calculation to be certified by a licensed professional engineer registered in Connecticut and to be made available to the building official.

A month-by-month estimate of the energy to be contributed by the solar domestic hot water heating system; a month-by-month estimate of the amount of auxiliary energy which will be required to supplement the solar domestic hot water heating system; and a supplemental domestic hot water heating system shall be provided which a licensed professional engineer registered in Connecticut certifies as having sufficient capacity that the solar domestic hot water heating system and supplemental system together will produce hot water in sufficient quantity to supply the entire domestic hot water requirement as calculated in accordance with an ASHRAE approved methodology.

**2304.2 Exemption to above requirements:** The requirements in this section shall not apply to any solar domestic hot water heating system constructed or installed by an individual on or in a single family residential dwelling which is or will be occupied by the individual.

## GENERAL NOTES CONCERNING STANDARDS CITED IN THE BASIC BUILDING CODE

The standards issued by the accredited authoritative agencies listed herein are intended to serve as criteria for accepted safe practice for various materials, products, systems of construction, or specific uses as required or used under the provisions of this code. The text of the code referring to any standard indicates whether conformance with that standard is mandatory or permissive.

In the following appendices, an effort has been made to group the standards according to the principal subjects to which they apply. Some standards cover both accepted engineering practice and material specifications, or other combinations of subject matter, so that it is sometimes necessary for convenience to list them in more than one of the appendices.

Wherever possible, the standards have been listed under the designation of the principal authoring agency. Many of these standards are reissued by one or more agencies, in addition to the authoring agency, under their own designations. While there may be some variation in details in the various versions of the same standard issued by several agencies, these differences are generally of such minor nature that any of the versions is acceptable even though not specifically listed herein.

For example, the standard fire test procedure for building construction and materials originating in a committee of the American Society for Testing Materials and issued as *ASTM E119 Methods of Fire Tests of Building Construction and Materials*, is also published by the National Fire Protection Association and issued as *NFPA 251 Standard Methods of Fire Tests of Building Construction and Materials*, and by Underwriters' Laboratories, Incorporated, which issues it as *UL 263 Standards for Fire Tests of Building Construction and Materials*.

In addition to the standards listed, there are a number of listings of materials, devices, products and assemblies that are accepted for specified performances. Among such listings, which are generally recognized in the *Basic Building Code*, are those listed below.

1. Test reports; inspection service; lists of building materials, fire protection and extinguishing equipment and devices; and electrical equipment, issued by Underwriters' Laboratories, Inc.

2. Test investigations; reports and lists of fire protection equipment; special hazards; electrical equipment; building construction and mill fire prevention organizations, issued by Factory Mutual Laboratories.

3. *Building Materials and Structures Report on Fire-Resistance Classifications of Building Constructions* (BMS92) issued by National Bureau of Standards.

**CONNECTICUT BASIC BUILDING CODE/1978**

4. *Fire-Resistance Ratings of Construction Assemblies* issued by American Insurance Association.

5. *Approved Fire-Resistance Ratings of Assemblies of Construction Materials* (columns; beams, girders and trusses; walls and partitions; floor and roof assemblies) recognized in the *Basic Building Code*, issued by Building Officials and Code Administrators International, Inc.

6. *Evaluation Service Research Reports* of specific performance of trade-name products issued to the building official; and *Follow-up Inspection Service* by Building Officials and Code Administrators International, Inc.



## APPENDIX A

### REFERENCE STANDARDS AND AUTHORITATIVE AGENCIES

#### A.1 REFERENCE STANDARDS AGENCIES

*The following agencies promulgate standards referenced in this code and the following appendices. The abbreviations preceding agency names are used to identify the standards that an agency promulgates.*

#### **AA**

Aluminum Association  
818 Connecticut Avenue, N.W.  
Washington, D.C. 20006

#### **AAMA**

Architectural Aluminum  
Manufacturers Association  
35 East Wacker Drive  
Room 3200  
Chicago, Illinois 60601

#### **ACI**

American Concrete Institute  
P.O. Box 19150  
Redford Station  
Detroit, Michigan 48219

#### **AISC**

American Institute of Steel  
Construction, Inc.  
Wrigley Building  
460 N. Michigan Avenue  
8th Floor  
Chicago, Illinois 60611

#### **AISI**

American Iron and Steel Institute  
1000 Sixteenth Street, N.W.  
Washington, D.C. 20036

#### **AITC**

American Institute of Timber  
Construction  
333 W. Hampden Avenue  
Englewood, Colorado 80110

#### **AInsA**

American Insurance Association  
85 John Street  
New York, New York 10038

#### **ANSI**

American National Standards  
Institute, Inc.  
1430 Broadway  
New York, New York 10018

#### **APA**

American Plywood Association  
1119 A Street  
Tacoma, Washington 98401

#### **ASHRAE**

American Society of Heating,  
Refrigerating and Air-Conditioning  
Engineers  
United Engineering Center  
345 East 47th Street  
New York, New York 10017

#### **ASME**

American Society of Mechanical  
Engineers  
United Engineering Center  
345 East 47th Street  
New York, New York 10017

#### **ASTM**

American Society for Testing and  
Materials  
1916 Race Street  
Philadelphia, Pennsylvania 19103

#### **AWS**

American Welding Society  
2501 N.W. Seventh Street  
Miami, Florida 33125

#### **AWPA**

American Wood Preservers'  
Association  
7735 Old Georgetown Road  
Bethesda, Maryland 20014

#### **AWPB**

American Wood Preservers Bureau  
P.O. Box 6085  
Arlington, Virginia 22206

#### **AWPI**

American Wood Preservers Institute  
1651 Old Meadow Road  
McLean, Virginia 22101

**CONNECTICUT BASIC BUILDING CODE/1978**

**BIA**

Brick Institute of America  
1750 Old Meadow Road  
McLean, Virginia 22102

**BOCA**

Building Officials and Code  
Administrators International  
17926 South Halsted Street  
Homewood, Illinois 60430

**CPSC**

Consumer Product Safety  
Commission  
Office of the Secretary  
Washington, D.C. 20207

**DOC**

United States Department of  
Commerce  
National Bureau of Standards  
Washington, D.C. 20234

**DOD**

Department of Defense  
Office of the Secretary of the Army  
Washington, D.C. 20390

**OCD**

Office of Civil Defense  
1725 I St. S.W.  
Washington, D.C. 20472

**FM**

Factory Mutual Engineering  
Corporation  
Standards-Laboratories Department  
1151 Boston-Providence Turnpike  
Norwood, Massachusetts 02062

**FS**

Federal Specifications  
Superintendent of Documents  
Government Printing Office  
Washington, D.C. 20402

**GA**

Gypsum Association  
1603 Orrington Avenue  
Suite 1210  
Evanston, Illinois 60201

**HPMA**

Hardwood Plywood Manufacturers  
Association  
P.O. Box 2780  
Reston, Virginia 22090

**HUD**

United States Department of  
Housing and Urban Development  
Division of Mobile Home Standards  
451 Seventh Street, S.W.  
Washington, D.C. 20110

**IES**

Illuminating Engineers Society  
345 East 47th Street  
New York, New York 10017

**ICBO**

International Conference of  
Building Officials  
5360 South Workman Mill Road  
Whittier, California 90601

**IMIAWC**

International Masonry Industry  
All-Weather Council  
International Masonry Institute  
823 15th St., N.W.  
Washington, D.C. 20005

**MBMA**

Metal Building Manufacturers  
Association  
1230 Keith Building  
Cleveland, Ohio 44115

**NCMA**

National Concrete Masonry  
Association  
2302 Horse Pen Road  
Herndon, Virginia 22070

**NFPA**

National Fire Protection Association  
470 Atlantic Avenue  
Boston, Massachusetts 02210

**NFoPA**

National Forest Products Association  
1619 Massachusetts Avenue, N.W.  
Washington, D.C. 20036

**RCSHSB**

Red Cedar Shingle and  
Handsplit Shake Bureau  
Suite 275  
515 116th Avenue, N.E.  
Bellevue, Washington 98001

**SJI**

Steel Joist Institute  
Suite 204  
1703 Parham Road  
Richmond, VA 23229

**SMACNA**

Sheet Metal and Air-Conditioning  
Contractors National Association,  
Inc.  
8224 Old Courthouse Road  
Vienna, Virginia 22180

**SPIB**

Southern Pine Inspection Bureau  
4709 Scenic Highway  
Pensacola, Florida 32504

**SBCC**

Southern Building Code Congress  
International  
900 Montclair Road  
Birmingham, Alabama 35213

**SSSI**

Steel Scaffolding & Shoring Institute  
1230 Keith Building  
Cleveland, Ohio 44115

**TCA**

Tile Council of America  
4801 Montgomery Lane  
Washington, D.C. 20014

**TPI**

Truss Plate Institute, Inc.  
2400 East Devon  
Des Plaines, Illinois 60018

**UL**

Underwriters Laboratories, Inc.  
333 Pfingsten Road  
Northbrook, Illinois 60062

**USDA**

United States Department of  
Agriculture  
14th and Independence Avenue, S.W.  
Washington, D.C. 20225

**U.S. ARMY**

Office of the Chief of Engineers  
U.S. Army  
Publications Department  
890 South Pickett Street  
Alexandria, Virginia 22304

**A.2 AUTHORITATIVE AGENCIES**

**A.2.1 MATERIALS APPROVALS**

State of Connecticut  
Board of Materials Review  
care of: Office of State Building Inspector  
Department of Public Safety  
294 Colony Street  
Meriden, Connecticut 06450

**A.2.2 ACCREDITED EVALUATION AND INSPECTION AGENCIES  
FOR PREFABRICATED CONSTRUCTION**

Arthur N. Vendola Associates  
43 Cedar Street  
New Britain, Connecticut 06052

Glendon R. Mayo Associates  
One Van Dyke Avenue  
Hartford, Connecticut 06106

## CONNECTICUT BASIC BUILDING CODE/1978

Hilborn, Werner, Carter & Associates, Inc.  
1627 South Myrtle Avenue  
Clearwater, Florida 33516

Pittsburgh Testing Laboratory  
850 Poplar Street  
Pittsburgh, Pennsylvania 15220

Product Fabrication Service Inc.  
2402 Daniels Street  
Rural Route No. 5  
Madison, Wisconsin 53704

T.R. Arnold & Associates, Inc.  
Industrialized Housing Advisors  
700 East Beardsley Street  
Elkhart, Indiana 46314

Underwriters Laboratories, Inc.  
333 Pfingsten Road  
Northbrook, Illinois 60062

United States Testing Company, Inc.  
d/b/a Nationwide Consumer Testing Institute  
1414 Park Avenue  
Hoboken, New Jersey 07030

### A.2.3 ACCREDITED TESTING LABORATORIES FOR WOOD AND COAL BURNING STOVES

Underwriters Laboratories Inc.  
333 Pfingsten Road  
Northbrook, Illinois 60062

Product Fabrication Service Inc.  
2402 Daniels Street  
Rural Route No. 5  
Madison, Wisconsin 53704

Arnold Greene Testing Laboratories, Inc.  
East Nadick Industrial Park  
6 Huron Drive  
Nadick, Massachusetts 01760

Energy Testing Laboratory of Maine  
South Maine Vocational Technical Institute  
South Portland, Maine 04106

R.F. Geisser and Associates, Inc.  
P.O. Box 4145  
East Providence, Rhode Island 02914

Gas and Mechanical Laboratories, Inc.  
3230 Mines Avenue  
Los Angeles, California 90023

APPENDIX A

Energy Systems, Inc.  
1705 Pumphrey Avenue  
Auburn Industrial Park  
Auburn, Alabama 36830

Energy Testing Laboratories, Inc.  
Cortland Industrial Park  
Cortland, New York 13045

Underwriters' Laboratories of Canada  
7 Crouse Road  
Scarborough, Ontario MIR 3A9

Warnock Hersey International Inc.  
Fire Laboratories Division  
539 Benfield Road  
Severna Park, Maryland 21146

Pacific Inspection and Research Laboratory, Inc.  
4076-148th Avenue, N.E.  
Redmond, Washington 98052



## APPENDIX B

### ACCEPTED ENGINEERING PRACTICE STANDARDS

*See also Appendices C, D, E, F and G for standards on specific materials or test of units or assemblies some of which include engineering practice standards for specific applications.*

#### Concrete

- Concrete formwork—Recommended Practice for ..... ACI 347—78
- Inspection and Testing Agencies for  
Concrete, Steel and Bituminous  
Materials as Used in Construction ..... ASTM E329—72
- Reinforced Concrete—Building Code Requirements for ..... ACI 318—77
- Reinforced Concrete Structures—Manual of Standard  
Practice for Detailing ..... ACI 315—74
- Reinforced Steel Welding Code ..... AWS D1.4—79
- Structural Plain Concrete—Building Code Requirements for ..... ACI 322—72

#### Electrical Illumination

- Daylighting—Recommended Practices of ..... IES RP5—79
- Design Criteria for Lighting Interior Living Spaces ..... IES RP11—79
- Electrical Code, National ..... NFPA 70—78
- IEEE Standard Dictionary of Electrical and  
Electronic Terms ..... ANSI C42.100—79
- Industrial Lighting ..... ANSI A11.1—79
- Lighting Handbook ..... IES—72
- Office Lighting—Recommended Practice ..... IES RP1—73
- School Lighting—Recommended Practice ..... IES RP3—77

#### Energy Conservation

- ASHRAE 1977 Handbook of Fundamentals ..... ASHRAE—77
- ASHRAE 1976 Systems Volume ..... ASHRAE—76
- Basic Energy Conservation Code ..... BOCA—78
- Energy Conservation in New Building Design ..... ASHRAE 90—75
- Minimum Requirements of Construction and Equipment  
for Hospitals & Medical Facilities ..... U.S. Dept. H.E.W., 1979

#### Equipment

##### Conveyors, Elevators, Hoists and Lifts

- Construction, Care and Use of Automotive Lifts  
—Safety Requirements for ..... ANSI B153.1—74
- Conveyors and Related Equipment—Safety Standards for ..... ANSI B20.1—76
- Elevators, Dumbwaiters, Escalators and Moving Walks  
—Safety Code for ..... ANSI A17.1—78
- Elevators, Escalators and Moving Walks—Practice for the  
Inspection of ..... ANSI A17.2—78
- Manlifts—Safety Standard for ..... ANSI A90.1—76
- 1972 Supplement ..... ANSI A90.1a—72
- Material Hoists, Safety Requirements for ..... ANSI A10.5—76
- Personnel Hoists, Safety Requirements for ..... ANSI A10.4—75

##### Heating

- Boiler Code and Unfired Pressure Vessel Code ..... ASME—77
- Heaters, Room Solid Fuel Type ..... UL 1482—79

##### Mechanical Equipment and Piping

- Basic Mechanical Code ..... BOCA—78
- Basic Plumbing Code ..... BOCA—78

## CONNECTICUT BASIC BUILDING CODE/1978

### Fire and Sound Tested Assemblies

Approved Guide, Equipment, Materials, Services for Conservation of Property .....	FM—FMED—79
Fire Resistance, BIA Technical Notes on Brick Construction .....	BIA-TN16 Rev.—74
Fire Resistance Design Manual .....	GA-600—78
Fire Resistance Directory .....	IJL—79
Fire Resistance Ratings .....	AInsA—64
—1968 Supplement .....	AInsA—68
—1970 Supplement .....	AInsA—70
—1972 Supplement .....	AInsA—72
Sound Insulation-Clay Masonry Walls, BIA Technical Notes on Brick Construction .....	BIA-TN5A—70
Sound Reduction Data for Concrete Masonry Walls .....	NCMA TEK 69a—78

### Fire Protection and Safety Practices

Life Safety Code .....	NFiPA 101—76
Note: NFiPA 101—76 is acceptable for matters of design of units not provided for by the BOCA Codes. Finish and construction requirements incorporated therein are not applicable.	
Aircraft Hangars—Standard on .....	NFiPA 409—79
Basic Fire Prevention Code .....	BOCA—78
Cellulose Nitrate Motion Picture Film —Standard for the Storage and Handling of .....	NFiPA 40—74
Dip Tanks Containing Flammable or Combustible Liquids —Standard for .....	NFiPA 34—74
Dry Cleaning Plants—Standard for .....	NFiPA 32—79
Dust Explosion and Fire —Standard for the Prevention of —in Feed Mills .....	NFiPA 61C—73
—in Grain Elevators, Bulk Handling Facilities .....	NFiPA 61B—73
—in Industrial Plants .....	NFiPA 63—75
—in Starch Factories .....	NFiPA 61A—73
Fire Tests for Flame Resistant Textiles and Films—Standard Methods of .....	NFiPA 701—77
Garages —Parking Structures—Standard for .....	NFiPA 88A—79
—Repair Garages—Standard for .....	NFiPA 88B—79
Gas Shielded Arc Welding—Recommended Safe Practice for .....	AWS D10.7—60
Household Fire Warning Equipment—Standard for .....	NFiPA 74—78
Incinerators, Waste and Linen Handling Systems and Equipment —Standard on .....	NFiPA 82—77
Liquefied Petroleum Gases—Standard for the Storage and Handling of .....	NFiPA 58—79
Liquefied Petroleum Gases at Utility Gas Plants—Standard for the Storage and Handling of .....	NFiPA 59—79
Liquids, Flammable and Combustible—Code for .....	NFiPA 30—77
Oxygen-Fuel Gas Systems for Welding and Cutting —Standard for the Installation and Operation of .....	NFiPA 51—77
Piers and Wharves—Standard for the Construction and Protection of .....	NFiPA 87—75
Pulverized Fuel Systems—Standard for the Installation and Operation of .....	NFiPA 85F—78
Pyroxylin Plastics—Code for Storage of .....	NFiPA 40E—75
Safe Practices for Welding and Cutting Containers that have held Combustibles .....	AWS A6.0—65



**Fire Protection and Safety Practices—continued**

Safety in Welding and Cutting .....	ANSI Z49.1—73
Smoke and Heat Venting—Guide for .....	NFPA 204—68
Spray Application Using Flammable and Combustible Materials —Standard for .....	NFPA 33—77
Tents, and Air-Supported Structures Used for Places of Assembly—Standard for .....	NFPA 102—78

**Glass**

Architectural Glazing Materials —Safety Standards for .....	CPSC 16-CFR Part 1201; 42FR 1428
Safety Glazing Material Used in Buildings—Performance Specifications and Methods of Test for .....	ANSI Z97.1—75

**Interior Finishes**

Application and Finishing of Gypsum Board—Specifications for (See Appendix M) .....	GA 216—78
Gypsum Base for Veneer Plasters—Standard Specification for .....	ASTM C588—78
Gypsum Board Products, Gypsum Lath, Gypsum Partition Tile or Block, and Precast Reinforced Gypsum Slabs—Method of Physical Testing of .....	ASTM C473—76a
Gypsum Lath—Standard Specification for .....	ASTM C37—76
Gypsum Plasters—Specification for .....	ASTM C28—76
Gypsum Plasters and Gypsum Concrete—Standard Methods for Physical Testing of .....	ASTM C472—79
Gypsum Veneer Plaster—Specifications for .....	ASTM C842—76
Gypsum Wallboard—Specification for .....	ASTM C36—78
Interior Lathing and Furring—Specifications for .....	ANSI/ASTM C842
Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels—Standard Recommended Practice for the Installation of .....	ASTM C636—76
Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings—Standard Specifications for .....	ASTM C635—78
Steel Framing Members to Receive Screw-Attached Gypsum Wallboard Backing Board, or Water-Resistant Backing Board—Specifications for .....	ASTM C754—79
Tile, Ceramic, Installed with —Chemical Resistant, Water Cleanable Tile-Setting and Grouting Epoxy .....	ANSI A108.6—76
—Dry-Set Portland Cement Mortar .....	ANSI A108.5—76
—Water Resistant Organic Adhesives .....	ANSI A108.4—76
Tile, Electrically Conductive Ceramic, Installed with Conductive Dry Set Portland Cement Mortar .....	ANSI A108.7—76
Tile, Installation of Glazed Wall Tile, Ceramic Mosaic Tile, Quarry and Paver Tile with Portland Cement Mortar .....	ANSI A108.1—76

**Masonry**

Basement and Foundation Walls .....	NCMA—75
Design and Construction of Loadbearing Concrete Masonry—Specifications for .....	NCMA—70
Design Tables for Reinforced Concrete Masonry Lintels .....	NCMA—77
Engineered Brick Masonry—Requirements for .....	BIA—69
NOTE: This standard (BIA-69) is only applicable to brick masonry of solid masonry units made from clay or shale	
Masonry—Building Code Requirements for .....	ANSI A41.1—70
Recommended Practices and Guide Specifications for Cold Weather Masonry .....	IMTAWC—75
Reinforced Masonry—Building Code Requirements for .....	ANSI A41.2—70

## CONNECTICUT BASIC BUILDING CODE/1978

### Metal

#### Aluminum

- Aluminum Construction Manual, Aluminum Formed Sheet Building Sheathing Design Guide ..... AA ABS32—69
- Aluminum Construction Manual, Specifications for Aluminum Structures ..... AA SAS30—76
- Aluminum Construction Manual, Aluminum Sheet Metal Work in Building Construction ..... AA ASM35—71
- Aluminum Siding—Specification for ..... AAMA 1402.3—75

#### Steel

- Architecturally Exposed Structural Steel—Specification for ..... AISC S307—60
- Design of Cold-Formed Steel Structural Members—Specification for ..... AISI—77
- Design, Fabrication and Erection of Structural Steel for Buildings—Specification for ..... AISC S326—78
- Design of Cold-Formed Stainless Steel Structural Members—Specification for ..... AISI—74
- Gas Systems for Welding and Cutting ..... (see Fire Protection and Safety Practices)
- Non-Load (Axial) Bearing Steel Studs, Runners (Track), and Rigid Furring Channels for Screw Application of Gypsum Board—Specification for ..... ASTM C645—76
- Longspan Steel Joists LH Series, and Deep Longspan Steel Joists, DLH Series—Standard Specifications for ..... SJI/AISC—78
- Metal Building Systems Manual ..... MBMA—74
- Open Web Steel Joists, H-Series—Standard Specification for ..... SJI/AISC—78
- Steel Drill Screw Application of Gypsum Sheet Material to Light Gage Steel Studs—Specification for ..... ASTM C646—78
- Structural Applications of Steel Cables for Buildings—Criteria for ..... AISI—73
- Structural Joints Using ASTM A325 or A490 Bolts—Specification for ..... AISC S314—76
- Welding Code, Structural ..... AWS D1.1—79

### Wood and Wood Products

- Adhesives for Field Gluing Plywood to Wood Framing—Performance Specifications for ..... APA AFG01—74
- All-Weather Wood Foundation System—Basic Requirements ..... NFoPA TR7—79
- Code of Suggested Practices—Timber Construction Standard ..... AITC 106—77
- Construction Details—Typical Timber Construction Standard ..... AITC 104—79
- Heavy Timber Construction—Standard for Joists and Rafters ..... AITC 108—69
  - Span Tables for ..... NFoPA—77
  - Design Values ..... NFoPA—77
- National Design Specification for Wood Construction ..... NFoPA—77
  - 1977 Supplement (Design Values) ..... NFoPA—77
- Pile Foundations Know How ..... AWPI—70
- Pole Building Design ..... AWPI—72
- Plywood Construction Guide ..... APA C300—78
- Plywood Design Specifications ..... APA Y510—78
- Plywood-Lumber Components, Design and Fabrication—Specifications for ..... APA—D860—79
- Protection of Structural, Glued Laminated Timber During Transit, Storage and Erection—Recommended Practice for ..... AITC 111—79

**Wood and Wood Products—continued**

Structural Design Data—Wood .....	NFoPA—70
Structural Design Guide for Hardwood Plywood .....	HPMA—HP—SG—72
Structural Glued Laminated Timber— Inspection Manual for .....	AITC 200—73
Structural Timber Framing—Standard for the Design of .....	AITC 102—78
Timber Construction Manual .....	AITC—74
Trusses—Design Specifications for Light Metal Plate Connected Wood .....	TPI—78
Wood Handbook .....	USDA Handbook No. 72—74

**Unclassified Miscellaneous**

Basic Property Maintenance Code .....	BOCA—78
Demolition—Safety Requirements for .....	ANSI A10.6—69
Dimensional Coordination of Rectilinear Building Parts and Systems—Standard for .....	ASTM S77—76
Fallout Shelters—Suggested Building Code Provisions for .....	DOD—OCD—TR—87—79
Flood Proofing Regulations .....	U.S. Army—72
Floor and Wall Openings, Railings, and Toe Boards—Safety Requirements for .....	ANSI A12.1—73
Installing Vitrified Clay Sewer Pipe —Recommended Practice for .....	ASTM C12—77
Loads, Minimum Design in Buildings and Other Structures —Building Code Requirements for .....	ANSI A58.1—72
Mobile Home Construction and Safety Standards .....	IIUD—75
One- and Two-Family Dwelling Code .....	BOCA, AInA, SBCC, ICBO—79
Rigid Poly Vinyl Chloride (PVC) Plastic Siding .....	DOC PS55—72
Safety Requirements for Shoring Concrete Formwork—Recommended .....	SSSI—79
Signs and Outdoor Display Structures —Building Code Requirements for .....	ANSI A60.1—49
Waterproofing and Drainage of Floors —Manual on .....	NFiPA 92M—72



## APPENDIX C

### MATERIAL STANDARDS

See also Appendix D for standards for tests of specific materials.

#### Concrete

Aggregates, Concrete—Specifications for	ASTM C33—79
Aggregates, Lightweight, for Structural Concrete—Specifications for	ASTM C330—77
Aggregates, Lightweight, for Concrete Masonry Units	(See Masonry)
Aggregates, Lightweight, for Insulating Concrete—Specifications for	ASTM C332—77a
Gypsum Concrete—Specifications for	ASTM C317—76
Joist Construction, One Way Concrete—Types and Sizes of Forms for	ANSI A48.1—78
Masonry Units—Concrete	(See Masonry)
Natural Cement—Specifications for	ASTM C10—76
Portland Cement—Specifications for	ASTM C150—78a
Ready Mix Concrete—Specifications for	ASTM C94—78a
Reinforcing	(See Metals)
Sheet Materials for Curing Concrete—Specifications for	ASTM C171—75
Vermiculite Concrete Roofs and Slabs on Grade—Specifications for	ANSI A122.1—65

#### Interior Finishes

Adhesives, Organic, for Installation of Ceramic Tile Types I and II—Standard for	ANSI A136.1—72
Aggregates, Inorganic, for use in Gypsum Plaster—Specifications for	ASTM C35—76
Conductive Dry-Set Portland Cement Mortar, Standard Specification for (for Ceramic Tile)	ANSI A118.2—76
Dry-Set Portland Cement Mortar—(for Ceramic Tile)	ANSI A118.1—76
Epoxy, Chemical Resistant, Water Cleanable Tile-Setting and Grouting—Standard Specifications for	ANSI A118.3—76
Gypsum and Gypsum Products, Chemical Analysis of—Standard Methods for	ASTM C471—76
Gypsum Base for Veneer Plaster—Specifications for	ASTM C588—78
Gypsum Board Products, Gypsum Lath, Gypsum Partition Tile or Block, and Precast Reinforced Gypsum Slabs—Method of Physical Testing of	ASTM C473—76a
Gypsum Lath—Specifications for	ASTM C37—76
Gypsum Plasters—Specifications for	ASTM C28—76a
Gypsum Plasters and Gypsum Concrete, Physical Testing of—Standard Methods for	ASTM C472—79
Gypsum Veneer Plaster—Specifications for	ASTM C587—78
Gypsum Wallboard—Specifications for	ASTM C36—78
Latex-Portland Cement Mortar—Standard Specification for (for Ceramic Tile)	ANSI A118.4—76
Lime, Hydrated, Normal Finishing—Specifications for	ASTM C6—74
Lime, Hydrated, Special Finishing—Specifications for	ASTM C206—79

**CONNECTICUT BASIC BUILDING CODE/1978**

**Interior Finishes—continued**

Quicklime and Hydrated Lime—Methods of Physical Testing of .....ASTM C110—76a  
 Quicklime for Structural Purposes—Specifications for .....ASTM C5—74  
 Tile, Ceramic—Standard Specifications for .....TCA 137.1—76  
 Water-Resistant Gypsum Backing Board—Specification for .....ASTM C630—78

**Masonry**

Aggregate, Fine—Effect of Organic Impurities in, on Strength of Mortar .....ASTM C87—75  
 Aggregates, Lightweight, for Concrete Masonry Units— Specifications for .....ASTM C331—77  
 Aggregate for Masonry Grout—Specifications for .....ASTM C404—76  
 Aggregate for Masonry Mortar—Specifications for .....ASTM C144—76  
 Brick, Building (Solid Masonry Units Made from Clay or Shale)—Specifications for .....ASTM C62—75a  
 Brick, Concrete Building—Specifications for .....ASTM C55—75  
 Brick, Face, Calcium Silicate (Sand Lime Brick)— Specification for .....ASTM C73—75  
 Brick, Facing (Solid Masonry Units Made from Clay or Shale)—Specifications for .....ASTM C216—77  
 Brick, Hollow (Hollow Masonry Units Made from Clay or Shale) .....ASTM C652—77  
 Brick and Structural Clay Tile, Sampling and Testing .....ASTM C67—73  
 Cement, Masonry—Specifications for .....ASTM C91—78  
 Ceramic Tile (Veneers) .....(See Interior Finishes)  
 Clay Facing Tile, Structural—Specification for .....ASTM C212—75  
 Clay Load-Bearing Wall Tile, Structural—Specifications for .....ASTM C34—75  
 Clay Non-Load Bearing Screen Tile, Structural Specification for .....ASTM C530—75  
 Clay Non-Load-Bearing Wall Tile, Structural—Specification for .....ASTM C56—76  
 Concrete Masonry Units, Hollow Load Bearing— Specifications for .....ASTM C90—75  
 Concrete Masonry Units, Hollow Non-Load Bearing— Specifications for .....ASTM C129—75  
 Concrete Masonry Units, Solid Load Bearing— Specifications for .....ASTM C145—75  
 Glazed Units: Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units—Specifications for .....ASTM C126—76  
 Gypsum Partition Tile and Block— Specifications for .....ASTM C52—77  
 Lime, Hydrated for Masonry Purposes— Specifications for .....ASTM C207—79  
 Limes .....(See Interior Finishes)  
 Mortar and Grout for Reinforced Masonry— Specification for .....ASTM C176—76  
 Mortar for Unit Masonry—Specification for .....ASTM C270—79  
 Portland Cement-Lime Mortar for Brick Masonry— Standard Specification for .....BIA M1—72  
 Portland Cement—Specifications for .....(See Concrete)  
 Structural Clay Products— Standard Definitions of Terms .....ASTM C13—70 (R 1975)

**Metal**

Alloy Steel Bolts, Quenched and Tempered, for Structural Steel Joints—Standard Specifications for .....ASTM A490—79  
 Alloy Steel Sheets and Strip, Regular Quality Hot-Rolled and Cold-Rolled—Specification for .....ASTM A506—73

## Metal—continued

Aluminum Alloy Bars, Rods and Wire— Standard Specifications for .....	ASTM B211—79
Aluminum Alloy Extruded Bars, Rods, Shapes and Tubes—Standard Specifications for .....	ASTM B221—79
Aluminum Alloy Die and Hand Forgings— Standard Specifications for .....	ASTM B247—78
Aluminum Alloy Seamless Pipe and Seamless Extruded Tubing— Standard Specifications for .....	ASTM B241—79
Aluminum Alloy Sheet and Plate— Standard Specifications for .....	ASTM B209—79
Aluminum Alloy Standard Structural Shapes, Rolled or Extruded—Standard Specifications for .....	ASTM B308—78
Aluminum Alloy Drawn Seamless Tubes— Standard Specifications for .....	ASTM B210—78
Aluminum Alloy Extruded Structural Pipe and Tube— Standard Specifications for .....	ASTM B429—79
Aluminum Alloy Round Welded Tubes— Standard Specifications for .....	ASTM B313—79
Aluminum Alloy Rivet and Cold Heading Wire and Rods—Standard Specifications for .....	ASTM B316—75
Aluminum Alloy Die Castings—Standard Specifications for .....	ASTM B85—76
Aluminum Alloy Permanent Mold Castings— Standard Specification for .....	ASTM B108—76
Aluminum Alloy Sand Castings—Standard Specifications for .....	ASTM B26—78
Aluminum Sliding Glass Doors—Specifications for .....	AAMA 402.9—77
Aluminum Windows—Specifications for .....	AAMA 302.9—77
Bare Mild Steel Electrodes and Fluxes for Submerged Arc Welding—Specifications for .....	AWS A5.17—76
Bolts, High Strength, for Structural Steel Joints Including Suitable Nuts and Plain Hardened Washers—Specifications for .....	ASTM A325—79
Bolts and Studs, Quenched and Tempered Steel— Specifications for .....	ASTM A449—78a
Carbon and Alloy Steel Nuts for Bolts for High-Pressure and High Temperature Service— Specifications for .....	ASTM A194—79
Carbon Steel Castings Suitable for Fusion Welding for High Temperature Service— Specifications for .....	ASTM A216—77
Carbon Steel Nuts—Specifications for .....	ASTM A563—78a
Carbon Steel Plates of Structural Quality, Low and Intermediate Tensile Strength—Specifications for .....	ASTM A283—79
Carbon Steel Strip, Cold Rolled— Specifications for .....	ASTM A109—79
Castings, Mild-to-Medium Strength Carbon Steel for General Application—Specifications for .....	ASTM A27—79
Castings, Gray Iron—Specifications for .....	ASTM A48—76
Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Squares—Specifications for .....	ASTM A500—78
Steel Castings for Structural Purposes, High Strength—Specifications for .....	ASTM A148—79
Electrodes, Low Alloy Steel Covered Arc Welding—Specifications for .....	AWS A5.5—69
Electrodes, Mild Steel Arc Welding— Specifications for .....	AWS A5.1—78
High Strength, Low Alloy Structural Steel with 50,000 psi Minimum Yield Point to 4 Inches Thick—Specifications for .....	ASTM A588—79

**CONNECTICUT BASIC BUILDING CODE/1978**

**Metal—continued**

High-Strength Steel Bar, Uncoated, for Prestressing Concrete— Specification for .....	ASTM A722—75
Hot-Formed Welded and Seamless Carbon Steel Structural Tubing—Specifications for .....	ASTM A501—76
Hot-Formed Welded and Seamless High-Strength Low-Alloy Structural Tubing— Specifications for .....	ASTM A618—74
Hot Rolled Carbon Steel Sheets and Strip, Structural Quality—Specifications for .....	ASTM A570—79
Steel Sheet, Zinc Coated (Galvanized) by the Hot-Dip Process for Roofing—Specifications for .....	ASTM A361—76
Steel, Sheet, Cold Rolled, Long Terne Coated— Specification for .....	ASTM A308—78
Low Carbon Steel, External and Internal Threaded, Standard Fasteners—Specifications for .....	ASTM A307—78
Mild Steel Electrodes for Flux-Cored Arc Welding—Specifications for .....	AWS A5.20—79
Mild Steel Electrodes for Gas Metal-Arc Welding—Specifications for .....	AWS A5.18—79
Piles, Welded and Seamless Steel Pipe— Specifications for .....	ASTM A252—77a
Pipe, Metal .....	(See Plumbing and Piping)
Reinforcement, Axle-Steel Deformed and Plain Bars for Concrete— Specifications for .....	ASTM A617—79
Reinforcement, Deformed and Plain Billet-Steel Bars for Concrete— Specifications for .....	ASTM A615—78
Reinforcement, Deformed Steel Wire for Concrete—Specifications for .....	ASTM A496—78
Reinforcement, Low-Alloy Steel Deformed Bars for Concrete— Specifications for .....	ASTM A706—76
Reinforcement, Rail-Steel Deformed and Plain Bars for Concrete— Specifications for .....	ASTM A616—79
Reinforcement, Steel Wire, Cold-Drawn, for Concrete—Specifications for .....	ASTM A82—79
Reinforcement, Steel Wire, Welded Fabric for Concrete—Specifications for .....	ASTM A185—79
Reinforcement, Welded Deformed Steel Wire Fabric for Concrete—Specifications for .....	ASTM A497—79
Rolled Steel Plates, Shapes, Sheet Piling, and Bars for Structural Use— General Requirements for .....	ASTM A6—79a
Seven-Wire Stress-Relieved Strand, Uncoated, for Prestressed Concrete—Specifications for .....	ASTM A416—74
Steel Drill Screw Application of Gypsum Sheet Material to Light Gauge Steel Stud .....	ASTM C646—78
Sheet Piling Steel—Specifications for .....	ASTM A328—75a
Steel, Carbon and High-Strength, Low-Alloy Hot-Rolled Sheet, Hot-Rolled Strip and Cold-Rolled Sheet, General Requirements— Standards for .....	ASTM A568—74
Steel, Cold-Rolled Sheet, Carbon Structural— Specifications for .....	ASTM A611—79a
Steel Forgings, Carbon and Alloy for General Industrial Use—Specifications for .....	ASTM A668—79
Steel, Hot-Rolled and Cold-Rolled Sheet and Strip, High Strength, Low-Alloy Columbium and/or Vanadium—Specifications for .....	ASTM A607—75
Steel, Hot-Rolled and Cold-Rolled Sheet and Strip, High-Strength, Low-Alloy with Improved Corrosion Resistance—Specifications for .....	ASTM A606—75



**Metal—continued**

Steel Sheet, Zinc-Coated (Galvanized) by the Hot Dip Process.	
General Requirements—Specifications for	ASTM A525—79
Stainless and Heat-Resisting Chromium Steel Plate.	
Sheet and Strip—Standard for	ASTM A176—79
Stainless and Heat-Resisting Chromium-Nickel Steel	
Plate, Sheet, and Strip—Standard for	ASTM A167—77
Steel Structural Rivets—Specifications for	ASTM A502—76
Non-Load (Axial) Bearing Steel Studs, Runners (Track), and Rigid Furring Channels for Screw Application of	
Gypsum Board—Specification for	ASTM C645—76
Structural Steel—Specifications for	ASTM A36—77a
Structural Steel, High Strength—	
Specifications for	ASTM A440—77
Structural Steel, High Strength Low Alloy—	
Specifications for	ASTM A242—79
Structural Steel, High Strength Low Alloy	
Columbium Vanadium—Specifications for	ASTM A572—78
Structural Steel, High Strength Low Alloy	
Manganese Vanadium—Specifications for	ASTM A441—77
Structural Steel, High Yield Strength, Quenched and Tempered Alloy Steel Plate, Suitable for Welding—Specifications for	ASTM A514—77
Structural Steel with 42,000 psi Minimum Yield Point ( $\frac{3}{8}$ in. Maximum Thickness)—Specification for	ASTM A529—75
Uncoated Stress-Relieved Wire for Prestressed Concrete—	
Specifications for	ASTM A421—77

**Plumbing and Piping**

Asbestos-Cement Non-Pressure Sewer Pipe—	
Specifications for	ASTM C428—78
Asbestos-Cement Pressure Pipe—Specifications for	ASTM C296—78
Brass Pipe, Seamless Red Brass—Specification for	ASTM B43—79
Cast Iron and Ductile Iron Pressure Pipe—Specifications for	ASTM A377—79
Cast Iron Soil Pipe and Fittings—Specifications for	ASTM A74—75
Clay Pipe	
—Compression Joints for Vitrified Clay	
Bell and Spigot Pipe	ASTM C425—77
—Drain Tile—Specifications for	ASTM C1—75
—Extra Strength and Standard Strength Clay Pipe and Perforated Clay Pipe—	
Specifications for	ASTM C700—78a
Concrete Pipe	
—Culvert Storm Drain and Sewer, Reinforced—	
Specifications for	ASTM C76—78
—Sewer—Specifications for	ASTM C14—78
Copper Drainage Tube (DWV)—Specification for	ASTM B306—78
Copper Pipe, Seamless, Standard Size—	
Specifications for	ASTM B42—78
Steel Pipe	
—Black and Hot Dipped Zinc Coated (Galvanized) Welded and Seamless, for Ordinary Uses—Specifications for	ASTM A120—79
—Steel or Iron, Spiral-Welded—Specifications for	ASTM A211—75
—Welded and Seamless—Specifications for	ASTM A53—79
Tile, Clay Drain	(See Clay Pipe)
Tube and Tubing	
—Brass, Seamless—Specifications for	ASTM B135—74
—Copper, Seamless—Specifications for	ASTM B75—79
—Copper, Seamless, Water—Specifications for	ASTM B88—78
—Copper Braze Steel Tubing—	
Specifications for	ASTM A254—79
Welded and Seamless Wrought Steel Pipe	ANSI B36.10—75
Valves, Flanges and Pipe Fittings, Gray Iron Castings—Specifications for	ASTM A126—79

## CONNECTICUT BASIC BUILDING CODE/1978

### Roofing and Siding

Asphalt for Dampproofing and Waterproofing— Specifications for .....	ASTM D449—79
Asphalt for Use in Constructing Built-Up Roof Covering—Specifications for .....	ASTM D312—78
Asphalt Roll Roofing Surfaced with Mineral Granules—Specifications for .....	ASTM D249—73
Asphalt Roll Roofing Surfaced with Powdered Talc or Mica—Specifications for .....	ASTM D224—75
Asphalt shingles Surfaced with Mineral Granules—Specifications for .....	ASTM D225—78
Fiberboard Nail-Base Sheathing— Standard Specification for .....	ASTM D2277—75
Fiber Insulation Board, Structural and Decorative —Cellulosic Fiber Insulating Board .....	DOC PS57—73
—Method of Testing (Made from Cellulosic fiber) .....	ASTM C209—72
—Specifications for (Made from Cellulosic fiber) .....	ASTM C208—72
Formboard, Structural Insulating (Made from Cellulosic Fibers)—Specifications for .....	ASTM C532—79
Grading Rules for CertiGrade Red Cedar Shingles .....	RCSHSB—75
Gypsum Sheathing Board—Specifications for .....	ASTM C79—78

### Wood and Wood Products

American Softwood Lumber Standard .....	DOC PS20—70
Fire Retardant Pressure Treatment, Plywood .....	AWPA C27—74
Fire Retardant Pressure Treatment, Structural Lumber .....	AWPA C20—74
Glued Laminated Structural Lumber Standards —Appearance Grades .....	AITC 110—78
—Dimensions of .....	AITC 113—75
—“E” rated and Visually Graded Lumber of Douglas Fir, Southern Pine, Hem-Fir, Lodgepole Pine .....	AITC 120—74
—Electric Utility Framing and Crossarms .....	AITC 114—74
—Structural Glued Laminated Members and Laminations Before Gluing of Southern Pine, Pacific Coast Douglas Fir and Western Hemlock by Pressure Process .....	AWPA C28—79
—Structural Glued Laminated Southern Pine .....	SPIB—74
—Structural Glued Laminated Timber .....	DOC PS 56—73
—Structural Glued Laminated Timber of Douglas Fir, Western Larch, Southern Pine and California Redwood .....	AITC 117—76
—Supplement No. 2—Hem Fir .....	AITC—71
—Supplement No. 3—Douglas Fir and Western Larch Outer Laminations and Western Woods Core Laminations .....	AITC—76
—Supplement No. 5—Douglas Fir, Western Larch, and Western Woods, for Small Beams of 20 Inches Depth or Less .....	AITC—74
Hardboard—Commercial Standard for .....	DOC PS 58—73
Hardboard Siding, Voluntary Product Standard for .....	DOC PS 60—73
Hardwood Glued Laminated Timber—Standard Specifications for .....	AITC 119—76
Laminated Hardwood Block Flooring—Standard for .....	ANSI O10.2—75
Methods for Establishing Structural Grades and Related Allowable Properties for Visually Graded Lumber .....	ASTM D245—74
Methods of Test for Durability of Fire Retardant Treatment of Wood .....	ASTM D-2898—77
Particleboard—Commercial Standard for .....	DOC CS 236—66
Piles, Timber, Round— Establishing Design Stresses for .....	ASTM D2899—74

**Wood and Wood Products—continued**

Piles, Timber, Round—	
Specifications for .....	ASTM D25—73
Plywood	
—Construction and Industrial—	
Product Standard for .....	DOC PS 1—74
—Hardwood and Decorative—	
Product Standard for .....	DOC PS51—71
—Preservative Treatment for	
Pressure Process .....	AWPA C9—77
Preservative Treatment	
—of Lumber, Timber, Bridge Ties, and	
Mine Ties (All Species)—Standards for .....	AWPA C2—77
—of Piles by Pressure Process—Standards for .....	AWPA C3—79
—of Poles by Pressure Process—Standards for .....	AWPA C4—79
—by Pressure Process—All Timber Products—	
Standards for .....	AWPA C1—79
Preservatives for Wood	
—Creosote—Standards for .....	AWPA P1—78
—Creosote and Creosote Solutions .....	AWPA P2—68
—Oil-Borne Preservatives—Standards for .....	AWPA P8—77
—Oil-Borne Solvents—Standards for .....	AWPA P9—77
—Water-Borne Preservatives—Standards for .....	AWPA P5—78
Quality Control Standards for Pressure-	
Treated Lumber and Plywood	
—With Creosote or Creosote Coal Tar	
Solution (For Above Ground Use) .....	AWPB LP5—78
—With Creosote or Creosote Coal Tar	
Solution (For Ground Contact) .....	AWPB LP55—78
—With Heavy Petroleum Solvent-Penta	
Solution (For Above Ground Use) .....	AWPB LP7—78
—With Heavy Petroleum Solvent-Penta Solution	
(For Ground Contact) .....	AWPB LP77—78
—With Light Petroleum Solvent-Penta Solution	
(For Above Ground Use) .....	AWPB LP3—78
—With Light Petroleum Solvent-Penta Solution	
(For Ground Contact) .....	AWPB LP33—78
—With Volatile Petroleum Solvent (LPG)-Penta	
Solution (For Above Ground Use) .....	AWPB LP4—78
—With Volatile Petroleum Solvent (LPG)-Penta	
Solution (For Ground Contact) .....	AWPB LP44—78
—With Water-Borne Preservatives (For Above	
Ground Use) .....	AWPB LP2—78
—With Water-Borne Preservatives (For Ground	
Contact) .....	AWPB LP22—78
Shingles .....	(See Roofing and Siding)
Structural Timber Framing—Treating Standard for	AITC 109—79
Tongue-and-Groove Heavy Timber Roof Decking—	
Standard for .....	AITC 112—77

**Unclassified Miscellaneous**

Cellulose Insulation—Standard for .....	FS HH—1—515C: 43FR 35240, Aug. 8, 1979
Felt—Methods of Testing .....	ASTM D461—77
Flammability of Flexible Plastic—	
Method of Test for .....	ASTM D568—77

CONNECTICUT BASIC BUILDING CODE/1978

Unclassified Miscellaneous—continued

Flammability of Self-supporting Plastics—	
Method Test for .....	ASTM D635—77
Formboard, Gypsum—Specification for .....	ASTM C318—78
Insulated Metal Roof Deck Standard .....	FM-FMRC 4450—77
Laboratory Measurement of Airborne Sound Transmission	
Loss of Building Partitions—Standard Recommended	
Practice for .....	ASTM E90—75
Laboratory Measurement of Impact Sound Transmission	
Through Floor-Ceiling Assemblies Using the Tapping	
Machine, Tentative Method of .....	ASTM E492—77
Nails, Brads, Staples and Spikes.	
Wire, Cut and Wrought—Federal Specifications	
For, with Amendment 3-1974 .....	FS FF—N—105B—71
Nails for the Application of	
Gypsum Wallboard—Standard	
Specifications for .....	ASTM C514—77
Perlite Loose Fill Insulation—	
Standard Specifications for .....	ASTM C549—79
Plastics—Definitions of Terms Relating to .....	ASTM D883—78a
Plastics, Deformation of, Under Load—	
Method of Test for .....	ASTM D621—76
Plastics, Density of Smoke from Burning or Decomposition	
—Method of Test for .....	ASTM D2843—77
Plastics, Ignition Properties of,	
—Method of Test for .....	ASTM D1929—77
Thickness of Solid Electrical Insulation—	
Method of Test for .....	ASTM D374—79
Vermiculite Loose Fill Insulation—	
Standard Specifications for .....	ASTM C516—75

## APPENDIX D

### STRUCTURAL UNIT TEST STANDARDS

*See also Appendices B and C for engineering practice standards and material standards which contain unit test methods.*

#### Concrete

- Coarse Aggregates, Resistance to Abrasion of Small Size,  
by Use of the Los Angeles Abrasion Machine—Test for . . . . . ASTM C131—76
- Fine and Coarse Aggregates, Sieve or Screen Analysis of—  
Test for . . . . . ASTM C136—76
- Concrete, Obtaining and Testing Drilled Cores  
and Sawed Beams of . . . . . ASTM C42—77
- Concrete Test Specimens in the Laboratory—Making and Curing . . . . . ASTM C192—76
- Concrete, Molded Cylinders—Test for  
Compressive Strength of . . . . . ASTM C39—79
- Lightweight Insulating Concrete,  
Compressive Strength—Test for . . . . . ASTM C495—77a
- Concrete Masonry Units—Sampling and Testing . . . . . ASTM C140—75
- Concrete Masonry Units, Hollow Load Bearing—  
Specifications for . . . . . ASTM C90—75
- Concrete Masonry Units, Solid Load Bearing—  
Specifications for . . . . . ASTM C145—75
- Concrete, Hardened Portland Cement—Test for Cement  
Content of . . . . . ASTM C85—73
- Concrete, Ready Mixed—Specifications for . . . . . ASTM C94—78a
- Sands for Concrete—Tests for Organic Impurities in . . . . . ASTM C10—79

#### Interior Finishes

- Gypsum and Gypsum Products, Chemical Analysis of—  
Standard Methods for . . . . . ASTM C371—76
- Gypsum Board Products, Gypsum Lath, Gypsum  
Partition Tile or Block, and Precast Reinforced  
Gypsum Slabs—Method of Physical Testing of . . . . . ASTM C173—76a
- Gypsum Concrete—Specifications for . . . . . ASTM C317—76
- Gypsum Formboard—Specifications for . . . . . ASTM C318—78
- Gypsum Lath—Specifications for . . . . . ASTM C37—76
- Gypsum Plasters—Specifications for . . . . . ASTM C28—76a
- Gypsum Plasters and Gypsum Concrete, Physical Testing of—  
Standard Methods for . . . . . ASTM C172—79
- Gypsum Sheathing Board—Specifications for . . . . . ASTM C79—78
- Gypsum Wallboard—Specifications for . . . . . ASTM C36—78
- Insulating Board (Made from Cellulosic Fiber),  
Structural and Decorative  
—Methods of Testing . . . . . ASTM C209—72  
—Specifications for . . . . . ASTM C208—72
- Lime . . . . . (See Masonry)

#### Masonry

- Aggregate for Masonry Mortar—Specifications for . . . . . ASTM C111—76
- Brick, Concrete Building—Specifications for . . . . . ASTM C55—75
- Brick and Structural Clay Tile—Sampling and Testing . . . . . ASTM C67—78
- Cement, Masonry—Specifications for . . . . . ASTM C91—78
- Ceramic Tile (Veneers) . . . . . (See Interior Finishes)

**CONNECTICUT BASIC BUILDING CODE/1978**

**Masonry—continued**

Chemical Analysis of Limestone, Quicklime and Hydrated Lime ..... ASTM C25—79  
Concrete Masonry Units ..... (See Concrete)  
Glazed Units—Ceramic Glazed Structural Clay Facing Tile, Facing Bricks, and Solid Masonry Units—Specifications for ..... ASTM C126—76  
Lime and Limestone Products—Methods of Sampling Inspection, Packing and Marking of ..... ASTM C50—78  
Lime, Hydrated and Quick—Methods of Physical Testing of ..... ASTM C110—76a  
Lime, Hydraulic Hydrated for Structural Purposes—Specifications for ..... ASTM C141—78  
Mortars, Hydraulic Cement—Method of Test for Compressive Strength of (Using 2 in. Cube Specimens). ..... ASTM C109—77  
Mortars, Hydraulic Cement—Method of Test for Tensile Strength of ..... ASTM C190—77  
Stone, Natural Building—Methods of Test for Absorption and Bulk Specific Gravity of ..... ASTM C97—77  
Stone, Natural Building—Method of Test for Compressive Strength of ..... ASTM C170—76  
Stone, Natural Building—Methods of Test for Modulus of Ruptures of ..... ASTM C99—76  
Water Permeance of Masonry —Method of Test for ..... ASTM E511—74

**Metals**

Cast Iron—Method of Testing Compression of ..... ASTM A256—76  
Metallic Materials—Methods of Tension Testing of ..... ASTM E8—79a

**Unclassified Miscellaneous**

Cement, Hydraulic—Methods of Sampling ..... ASTM C183—78  
Cement, Natural—Specifications for ..... ASTM C10—76  
Cement, Portland—Specifications for ..... ASTM C150—78a  
Clay Pipe, Testing ..... ASTM C301—78a  
Plastics Under Load—Method of Test for Deformation of ..... ASTM D261—75  
Tile, Clay Drain—Specification for ..... ASTM C4—75

**Wood and Wood Products**

Evaluating the Properties of Wood-Base Fiber and Particle Panel Materials ..... ASTM D1037—78  
Timber, Small Clear Specimens—Method of Testing ..... ASTM D143—78  
Timbers in Structural Sizes—Methods of Static Tests of ..... ASTM D198—76  
Veneer, Plywood and Other Glued Veneer Construction—Methods of Testing ..... ASTM D3499, P3500, D3501, D3502 and D3503—76

## APPENDIX E

### STRUCTURAL ASSEMBLY TEST STANDARDS

*See also Appendix D for standards for tests of unit materials.*

Compressive Strength of Masonry Prisms— Methods of Test for .....	ASTM E447—74
Diagonal Tension (Shear) in Masonry Assemblages— Method of Test for .....	ASTM E5190—74
Flexural Bond Strength of Masonry— Method of Test for .....	ASTM E518—76
Heavy Truss Assemblies, Testing .....	ASTM E73—74
Mechanical Fasteners in Wood, Testing of .....	ASTM D1761—77
Panels for Building Construction—Methods of Conducting Strength Test of .....	ASTM E72—77
Rate of Leakage Through Exterior Windows, Curtain Walls and Doors— Standard Method of Test for .....	ASTM E289—79





## APPENDIX F

### DURABILITY TEST STANDARDS

*See also Appendices C, D and E for test of individual materials or unit assemblies.*

#### Concrete and Concrete Aggregate

- Concrete, Aggregate—Method of Tests for Voids in ..... ASTM C29—78
- Concrete, Air Content of Freshly Mixed, by the  
Pressure Method—Method of Test for ..... ASTM C231—78
- Unit Weight, Yield and Air Content (Gravimetric)  
of Concrete—Test for ..... ASTM C138—77
- Organic Impurities in Sand for Concrete—Method of Test for ..... ASTM C40—79

#### Masonry and Masonry Products

- Ceramic Glazed Structural Clay Facing Tile,  
Facing Brick and Solid Masonry Units—  
Specifications for ..... ASTM C126—76
- Freezing and Thawing Tests (see specifications for material)  
—Brick and Structural Clay tile—Sampling and Testing ..... ASTM C67—78
- Clay Drain Tile—Specifications for ..... ASTM C4—75

#### Plastics

- Water Absorption of Plastics—Methods of Test for ..... ASTM D570—77

#### Roofing and Siding

- Asphalt Roll Roofing, Cap Sheets, and Shingles—  
Methods of Testing ..... ASTM D228—79
- Bituminous Materials, Accelerated Test of Weathering—  
Recommended Practice for ..... ASTM D529—76
- Felted and Woven Fabrics Saturated with Bituminous Substance  
for Use in Waterproofing and Roofing—  
Methods of Sampling and Testing ..... ASTM D146—78a

#### Unclassified Miscellaneous

- Evaluating the Properties of Wood-Base Fiber and Particle  
Panel Materials—Specifications for ..... ASTM D1037—78
- Gypsum and Gypsum Products, Chemical Analysis of—  
Standard Methods for ..... ASTM C171—76
- Gypsum Board Products, Gypsum Lath, Gypsum  
Partition Tile or Block, and Precast Reinforced  
Gypsum Slabs—Method of Physical Testing of ..... ASTM C473—76a
- Gypsum Plasters and Gypsum Concrete, Physical Testing of—  
Standard Methods for ..... ASTM C472—79



## APPENDIX G

### FIRE TEST AND FLAME SPREAD TEST STANDARDS

#### Combustible or Noncombustible Properties

- Noncombustibility of Elementary Materials—  
Method of Test for Determining ..... ASTM E136—79

#### Fireresistance Properties

- Building Construction and Materials—  
Methods of Fire Test of ..... ASTM E119—79  
Ceiling Construction ..... (See Building  
Construction)  
Door Assemblies—Methods of  
Fire Tests of ..... ASTM E152—78  
Fire Dampers ..... UL 555—79  
Fire Test for Flame-Resistant Textiles and Films—  
Standard Methods of ..... NFPA 701—76  
Flammability Studies of Cellular Plastics and  
Other Building Materials Used for Interior Finishes ..... UL Subject 723—75  
Roof Coverings—Methods of  
Fire Test of ..... ASTM E108—78  
Assembly Seating, Tents, and Air-Supported  
Structures—Standard for ..... NFPA 102—78

#### Flame Spread Properties

- Sound Controlling Blocks and Boards (Acoustical Tiles and Panels,  
Prefabricated) with Amendment No. 4-1976 ..... FS SS-S118a—67  
Surface Burning Characteristics of Building Materials—  
Method of Test for ..... ASTM E84—79b

#### Flash Point

- Flash Point by Pensky-Masters Closed Tester—Method  
of Test for ..... ASTM D93—79  
Flash Point by Tag Closed Tester—Method of Test for ..... ASTM D56—79  
Flash and Fire Points by Cleveland Open Cup—  
Method of Test for ..... ASTM D92—78

#### Unclassified Miscellaneous

- Critical Radiant Flux of Floor Covering Systems  
Using a Radiant Heat Energy Source—Standard  
Method of Test for ..... NFPA 253—78  
Surface Flammability of Carpets and Rugs—  
Standard for the ..... DOC FF-1—70



## APPENDIX H

### STANDARD TIME-TEMPERATURE FIRE TEST CONTROLS

Time h:min	Temperature, deg F	Curve area above 58 F base		Temperature, deg C	Curve area above 20 C base	
		Deg. F. x min.	Deg. F. x hr.		Deg. C. x min.	Deg. C. x hr.
0:00	68	00	00	20	00	0
0:05	1,000	2,330	39	538	1,290	22
0:10	1,300	7,740	129	704	4,300	72
0:15	1,399	14,150	236	760	7,860	131
0:20	1,462	20,970	350	795	11,650	194
0:25	1,510	28,050	468	821	15,590	260
0:30	1,550	35,360	589	843	19,650	328
0:35	1,584	42,860	714	862	23,810	397
0:40	1,613	50,510	842	878	28,060	468
0:45	1,638	58,300	971	892	32,390	540
0:50	1,661	66,200	1,103	905	36,780	613
0:55	1,681	74,220	1,237	916	41,230	687
1:00	1,700	82,330	1,372	927	45,740	762
1:05	1,718	90,540	1,509	937	50,300	838
1:10	1,735	98,830	1,647	946	54,910	915
1:15	1,750	107,200	1,787	955	59,560	993
1:20	1,765	115,650	1,928	963	64,250	1,071
1:25	1,779	124,180	2,070	971	68,990	1,150
1:30	1,792	132,760	2,213	978	73,760	1,229
1:35	1,804	141,420	2,357	985	78,560	1,309
1:40	1,815	150,120	2,502	991	83,400	1,390
1:45	1,826	158,890	2,648	996	88,280	1,471
1:50	1,835	167,700	2,795	1,001	93,170	1,553
1:55	1,843	176,550	2,942	1,006	98,080	1,635
2:00	1,850	185,440	3,091	1,010	103,020	1,717
2:10	1,862	203,330	3,389	1,017	112,960	1,882
2:20	1,875	221,330	3,689	1,024	122,960	2,049
2:30	1,888	239,470	3,991	1,031	133,040	2,217
2:40	1,900	257,720	4,295	1,038	143,180	2,386
2:50	1,912	276,110	4,602	1,045	153,390	2,556
3:00	1,925	294,610	4,910	1,052	163,670	2,728
3:10	1,938	313,250	5,221	1,059	174,030	2,900
3:20	1,950	332,000	5,533	1,066	184,450	3,074
3:30	1,962	350,890	5,848	1,072	194,940	3,249
3:40	1,975	369,890	6,165	1,079	205,500	3,425
3:50	1,988	389,030	6,484	1,086	216,130	3,602
4:00	2,000	408,280	6,805	1,093	226,820	3,780



# APPENDIX I

## FIRE PROTECTION STANDARDS

### Alarm and Detecting Systems

Installation, Maintenance and Use of Public Fire Service Communications .....	NFiPA 1221—78
Automatic Fire Detectors—Standards for .....	NFiPA 72E—78
Signaling Systems—Standard for the Installation, Maintenance and Use of	
—Auxiliary Protective—for Fire Alarm Service .....	NFiPA 72B—79
—Central Station—for Guard, Fire Alarm and Supervisory Service .....	NFiPA 71—77
—Household Fire Warning Equipment .....	NFiPA 74—78
—Local Protective—for Watchman, Fire Alarm and Supervisory Service .....	NFiPA 72A—79
—Proprietary Protective—for Watchman, Fire Alarm and Supervisory Service .....	NFiPA 72D—79
—Remote Station Protective .....	NFiPA 72C—75
Smoke Detectors, Single and Multiple Stations .....	UL 217—78

### Prevention of Spread of Fire

Air Conditioning and Ventilating Systems	
—Other than Residence Type .....	NFiPA 90A—78
—Residence Type .....	NFiPA 90B—76
Aircraft Hangars—Standard on .....	NFiPA 409—79
Doors, Tin-Clad Fire .....	UL 10A—73
Dust Explosion Prevention .....	(See Appendix B)
Fire Doors and Windows—Standard for .....	NFiPA 80—79
Hardware, Sliding, for Standard Horizontally Mounted Tin-Clad Fire Doors .....	UL 14B—79
Hardware, Swinging, for Standard Tin-Clad Fire Doors .....	UL 14C—79

### Protection Systems

Carbon Dioxide Extinguishing Systems—Standard on .....	NFiPA 12—77
Dry Chemical Extinguishing System—Standard for .....	NFiPA 17—75
Extinguishers, Portable Fire—Standard for the Installation and Maintenance of .....	NFiPA 10—78
Fire Suppression System for Life Safety—Standard for the Design and Installation of .....	BOCA 100—75
Foam Extinguishing Systems—Standard for .....	NFiPA 11—78
Foam-Water Sprinkler Systems and Foam-Water Spray Systems—Standard for the Installation of .....	NFiPA 16—74
Foam Systems—Standard for High Expansion .....	NFiPA 11A—76
Halogenated Fire Extinguishing Agent Systems—Standard for	
—Halon 1211 .....	NFiPA 12B—77
—Halon 1301 .....	NFiPA 12A—77
Hose Systems .....	(See Standpipe and Hose Systems)

**CONNECTICUT BASIC BUILDING CODE/1978**

**Protection Systems—continued**

Outside Protection (Yard Piping)—Standard for.....	NFiPA 24—77
Pumps, Centrifugal Fire—Standard for the Installation of.....	NFiPA 20—78
Sprinkler Systems—Standard for the Installation of.....	NFiPA 13—78
Sprinkler Systems—Recommended Practice for the Care and Maintenance of.....	NFiPA 13A—78
Standpipe and Hose Systems—Standard for the Installation of.....	NFiPA 14—78
Synthetic Foam and Combined Agent Systems—Standard on.....	NFiPA 11B—77
Valves Controlling Water Supplied for Fire Protection—Recommended Practice for the Supervision of.....	NFiPA 26—76
Water Spray Fixed Systems for Fire Protection—Standard for.....	NFiPA 15—79
Water Tanks for Private Fire Protection—Standard for.....	NFiPA 22—78
Wetting Agents—Standard for.....	NFiPA 18—79



## APPENDIX J

### UNIT DEAD LOADS FOR DESIGN PURPOSES

The intent of this appendix is to assist the designer and building official in establishing the minimum weights for materials commonly used in building construction. Some material assemblies have a range in weight. A typical figure is indicated, but when there is reason to suspect a considerable deviation, the actual weight should be determined.

#### Note on use of Appendix J tables

When making calculations based on the tables in Appendix J, the weights of masonry include mortar but not plaster. For plaster, add 5 pounds per square foot (psf) for each face plastered. Values given represent averages. In some cases there is a considerable range of weight for the same construction.

Table 1-1  
UNIT DESIGN DEAD LOADS FOR CONCRETE SLABS

Concrete slabs	Pounds per square foot
Concrete, reinforced-stone, per inch of thickness	12½
Concrete, reinforced-lightweight sand, per inch of thickness	9½
Concrete, reinforced, lightweight, per inch of thickness	9
Concrete, plain stone, per inch of thickness	12
Concrete, plain, lightweight, per inch of thickness	8½

Table 1-2  
UNIT DESIGN DEAD LOADS FOR RIBBED SLABS

Ribbed slabs Depth, in inches (rib depth plus slab thickness)*	Pounds per square foot					
	Width of rib, in inches					
	4	5	6	7	8	9
12 inch clay-tile fillers (normal weight concrete):						
4 plus 2	49	51	52	54	—	—
6 plus 2	60	63	65	67	—	—
8 plus 2½	79	82	85	87	—	—
10 plus 3	96	100	103	106	—	—
12 plus 3	108	112	116	120	—	—

\*Make appropriate allowances for tapered ends.

CONNECTICUT BASIC BUILDING CODE/1978

Table J-2 (cont'd.)  
UNIT DESIGN DEAD LOADS FOR RIBBED SLABS

Ribbed slabs Depth, in inches (rib depth plus slab thickness)*	Pounds per square foot					
	Width of rib, in inches					
	4	5	6	7	8	9
20 inch wide forms:						
6 plus 2½	45	48	50	50	—	—
8 plus 2½	51	54	57	60	—	—
10 plus 2½	57	60	64	68	—	—
12 plus 2½	63	67	72	76	—	—
14 plus 2½	—	74	79	84	—	—
16 plus 2½	—	—	88	93	98	—
20 plus 2½	—	—	—	111	118	—
30 inch wide forms:						
6 plus 2½	41	43	45	47	—	—
8 plus 2½	45	47	50	53	—	—
10 plus 2½	49	52	55	58	—	—
12 plus 2½	53	57	60	64	—	—
14 plus 2½	—	62	66	70	—	—
16 plus 2½	—	—	72	76	80	—
20 plus 2½	—	—	—	90	95	101
2-way clay-tile fillers (12 × 12):						
4 plus 2	61	62	64	—	—	—
6 plus 2	87	89	90	—	—	—
8 plus 2½	100	103	107	—	—	—
10 plus 3	121	126	131	—	—	—
12 plus 3	136	141	146	—	—	—

\*Make appropriate allowances for tapered ends.

Table J-3  
UNIT DESIGN DEAD LOADS FOR WAFFLE SLABS

Waffle slabs Depth, in inches (Rib depth plus slab thickness)	Pounds per square foot
19 × 19, 5 @ 24	
6 plus 2½	.66
8 plus 2½	.78
10 plus 2½	.85
12 plus 2½	1.01
30 × 30, 6 @ 36	
8 plus 3	.73
10 plus 3	.83
12 plus 3	.95
14 plus 3	1.06
16 plus 3	1.14
20 plus 3	1.35

Table J-4  
UNIT DESIGN DEAD LOADS FOR FLOOR FINISH

Floor finish	Pounds per square foot
Double 7/8 inch wood on sleepers, light-concrete fill	19
Double 7/8 inch wood on sleepers, stone-concrete fill	28
Single 7/8 inch wood on sleepers, light-concrete fill	16
Single 7/8 inch wood on sleepers, stone-concrete fill	25
3 inch wood block on mastic, no fill	10
1 inch cement finish on stone-concrete fill	32
1 inch terrazzo on stone-concrete fill	32
Marble and mortar on stone-concrete fill	33
Linoleum on stone-concrete fill	32
Linoleum on light-concrete fill	22
1 1/2 inch asphalt mastic flooring	18
3 inch wood block on 1/2 inch mortar base	16
Solid flat tile on 1 inch mortar base	23
2 inch asphalt block, 1/2 inch mortar	30
1 inch terrazzo, 2 inch stone concrete	32
Floor finish tile per inch depth	12
Cement finish per inch depth	12
Gypsum slabs per inch depth	4
Precast concrete plank per inch depth	(as determined by test)
Hardwood flooring per inch depth	4
Underflooring per inch depth	3
Linoleum	2
Asphalt tile	2

Table J-5  
UNIT DESIGN DEAD LOADS FOR WATERPROOFING

Waterproofing	Pounds per square foot
Five-ply membrane	5

Table J-6  
UNIT DESIGN DEAD LOADS FOR FLOOR FILL

Floor fill	Pounds per square foot
Cinder fill, per inch	5
Cinder concrete, per inch	9
Lightweight concrete, per inch	7
Sand, per inch	8
Stone concrete, per inch	12

Table J-7  
UNIT DESIGN DEAD LOADS FOR WOOD-JOIST FLOORS

Wood-joint floors (no plaster)—double wood floor joist sizes in inches:	Pounds per square foot	
	12-in spacing	16-in spacing
2 × 6	6	5
2 × 8	6	6
2 × 10	7	6
2 × 12	8	7
3 × 6	7	6
3 × 8	8	7
3 × 10	9	8
3 × 12	11	9
3 × 14	12	10

Table J-8  
UNIT DESIGN DEAD LOADS FOR MATERIALS

Materials	Pounds per cubic foot
Cast-stone masonry (cement, stone, sand)	144
Cinder fill	57
Concrete, plain:	
Cinder	108
Expanded-slag aggregate	100
Haydite (burned-clay aggregate)	90
Slag	132
Stone (including gravel)	144
Vermiculite and perlite aggregate, nonload-bearing	25-50
Other light aggregate, load-bearing	70-105
Concrete, reinforced:	
Cinder	111
Slag	138
Stone (including gravel)	150
Earth (dry)	96
Earth (damp)	108
Earth (wet)	120
Cork	15
Masonry, ashlar:	
Granite	168
Limestone, crystalline	168
Limestone, oolitic	135
Marble	173
Sandstone	144
Masonry, rubble mortar:	
Granite	153
Limestone, crystalline	147
Limestone, oolitic	138
Marble	156
Sandstone	137
Rubber stone masonry	156
Terra cotta, architectural:	
Voids filled	120
Voids unfilled	72

Table J-6 (cont'd.)  
UNIT DESIGN DEAD LOADS FOR MATERIALS

Materials	Pounds per cubic foot
Timber, seasoned:	
Ash, commercial white	41
Cypress, southern	32
Fir, Douglas, coast region	34
Oak, commercial reds and whites	45
Redwood	28
Spruce, red, white, and Sitka	28
Southern pine, short leaf	39
Southern pine, long leaf	48
Timber, hemlock	30

Table J-8  
UNIT DESIGN DEAD LOADS FOR ROOF AND WALL COVERINGS

Roof and wall coverings	Pounds per square foot
Asphalt shingles	2
Cement asbestos shingles	4
Cement tile	16
Clay tile (for mortar add 10 lb):	
2 inch book tile	12
3 inch book tile	20
Roman	12
Spanish	19
Ludowici	10
Composition:	
Three-ply ready roofing	1
Four-ply felt and gravel	5½
Five-ply felt and gravel	6
Copper or tin	1
Corrugated asbestos-cement roofing	4
Fiberboard, ½ inch	¾
Formed sheet steel	1-3
Formed steel decking	(see manufacturer)
Gypsum sheathing, ½ inch	2
Rigid insulation, ½ inch	¾
Sheet lead	3
Skylight, metal frame, ¾ inch wire glass	8
Slate, 3/16 inch	7
Slate, ¼ inch	10
Spanish tile	20
Wood sheathing, per inch thickness	3
Wood shingles	3

CONNECTICUT BASIC BUILDING CODE/1978

Table J-10  
UNIT DESIGN DEAD LOADS FOR SUSPENDED CEILINGS

Suspended ceilings	Pounds per square foot
Cement on wood lath	12
Cement on metal lath	15
Gypsum on wood or metal lath	10
Plaster on tile or concrete	5
Suspended metal lath and gypsum plaster	10
Suspended metal lath and cement plaster	15
Plaster on wood lath	8

Table J-11  
UNIT DESIGN DEAD LOADS FOR UNPLASTERED WALLS AND PARTITIONS

Walls and partitions (unplastered)	Pounds per square foot
4 inch clay brick, high absorption	34
4 inch clay brick, medium absorption	39
4 inch clay brick, low absorption	46
4 inch sand-lime brick	38
4 inch concrete brick, heavy aggregate	46
4 inch concrete brick, light aggregate	33
8 inch clay brick, high absorption	69
8 inch clay brick, medium absorption	79
8 inch clay brick, low absorption	89
8 inch sand-lime brick	74
8 inch concrete brick, heavy aggregate	89
8 inch concrete brick, light aggregate	68
12 inch common brick	120
12 inch pressed brick	130
12 inch sand-lime brick	105
12½ inch concrete brick, heavy aggregate	130
12½ inch concrete brick, light aggregate	98
17 inch clay brick, high absorption	134
17 inch clay brick, medium absorption	155
17 inch clay brick, low absorption	173
17 inch sand-lime brick	138
17 inch concrete brick, heavy aggregate	174
17 inch concrete brick, light aggregate	130
22 inch clay brick, high absorption	168
22 inch clay brick, medium absorption	194
22 inch clay brick, low absorption	216
22 inch sand-lime brick	173
22 inch concrete brick, heavy aggregate	216
22 inch concrete brick, light aggregate	160
4 inch brick, 4 inch load-bearing structural clay tile backing	60
4 inch brick, 8 inch load-bearing structural clay tile backing	75
8 inch brick, 4 inch load-bearing structural clay tile backing	102
8 inch combination brick and concrete block	72
12 inch combination brick and concrete block	90
8 inch load-bearing structural clay tile	42
12 inch load-bearing structural clay tile	58
8 inch concrete block, heavy aggregate	55

Table J-11 (cont'd.)  
UNIT DESIGN DEAD LOADS FOR UNPLASTERED WALLS AND PARTITIONS

Walls and partitions (unplastered)	Pounds per square foot
12 inch concrete block, heavy aggregate	85
8 inch concrete block, light aggregate	38
12 inch concrete block, light aggregate	55
2 inch furring tile, one side of masonry wall, add to above figures	12
4 inch hollow concrete block—stone aggregate	30
lightweight	20
6 inch hollow concrete block—stone aggregate	42
lightweight	30
8 inch hollow concrete block—stone aggregate	55
lightweight	38
10 inch hollow concrete block—stone aggregate	62
lightweight	46
12 inch hollow concrete block—stone aggregate	85
lightweight	55
4 inch solid concrete block—stone aggregate	45
lightweight	34
6 inch solid concrete block—stone aggregate	50
lightweight	37
8 inch solid concrete block—stone aggregate	67
lightweight	48
10 inch solid concrete block—stone aggregate	84
lightweight	62
12 inch solid concrete block—stone aggregate	108
lightweight	72
4 inch load-bearing clay tile	24
6 inch load-bearing clay tile	36
2 inch non-load-bearing clay tile	11
3 inch non-load-bearing clay tile	18
4 inch non-load-bearing clay tile	20
6 inch non-load-bearing clay tile	30
8 inch non-load-bearing clay tile	36
10 inch non-load-bearing clay tile	40
4 inch non-load-bearing hollow concrete block	20
6 inch non-load-bearing hollow concrete block	30
8 inch non-load-bearing hollow concrete block	40
T.C. 1½ inch split terra cotta furring	8
2 inch split terra cotta furring	10
3 inch split terra cotta furring	12
2 inch hollow gypsum block	9½
3 inch hollow gypsum block	10
4 inch hollow gypsum block	15
5 inch hollow gypsum block	18
6 inch hollow gypsum block	24
2 inch solid gypsum block	12
3 inch solid gypsum block	18
4 inch solid gypsum block	24
2 inch facing tile	15
4 inch facing tile	25
6 inch facing tile	38
2 inch solid plaster	20
4 inch solid plaster	32
4 inch hollow plaster	22
Wood studs 2 × 4, unplastered	4
Wood studs 2 × 4, plastered one side	12
Wood studs 2 × 4, plastered two sides	20
4 inch glass block	18

CONNECTICUT BASIC BUILDING CODE/1978

Table J-12  
UNIT DESIGN DEAD LOADS FOR LATH AND PLASTER PARTITIONS

Lath and plaster partitions	Pounds per square foot
2 inch solid cement on metal lath	25
2 inch solid gypsum on metal lath	18
2 inch solid gypsum on gypsum lath	18
2 inch metal studs gypsum and metal lath both sides	18
3 inch metal studs gypsum and metal lath both sides	19
4 inch metal studs gypsum and metal lath both sides	20
6 inch wood studs plaster and wood lath, both sides	18
6 inch wood studs plaster and metal lath, both sides	18
6 inch wood studs plaster and plaster boards, both sides	18
6 inch wood studs unplastered gypsum board, both sides (dry wall)	10

Table J-13  
UNIT DESIGN DEAD LOADS FOR PLASTER WORK

Plaster work	Pounds per square foot
Gypsum (one side)	5
Cement (one side)	10
Gypsum on wood lath	8
Gypsum on metal lath	8
Gypsum on plaster board or fiber board	8
Cement on wood lath	10
Cement on metal lath	10



## APPENDIX K

### UNIT WORKING STRESSES FOR ORDINARY MATERIALS

#### K-100.0 General

**K-100.1 Scope:** Unless otherwise specified herein, the allowable working stresses and design capacities for ordinary materials, as defined in Sections 201.0 and 719.0, shall be reduced ten per cent below the recommended values of the accepted engineering standards listed in Appendix B. When the structural material is identified in regard to manufacture and grade, and the identification is accompanied by satisfactory mill tests or the strength and stress grade of the materials are otherwise confirmed to the satisfaction of the building official, the allowable working stresses and design capacities may be increased to comply with the accepted engineering standards.

#### K-101.0 Masonry stresses

**K-101.1 Mortar for unit masonry:** Mortar for unit masonry shall comply with either the proportion specifications as set out in Section 815.2, or shall meet the property specifications of the accepted material standard listed in Appendix C. Unless laboratory data are presented to show that the mortar meets the requirements of the property specifications, the proportion specifications shall govern.

**K-101.2 Compressive stresses:** Except as permitted in other sections of this code, the compressive stresses in masonry shall not exceed the values as shown in Table K-101.

**K-101.3 Shear and tensile stresses:** Except as permitted in other sections of this code, the allowable shear or tensile stresses in masonry shall not exceed the values permitted in the accepted engineering practice standards listed in Appendix B.

#### K-102.0 Concrete

**K-102.1 Concrete proportions:** Concrete shall comply with either the maximum permissible water-cement ratios and minimum cement contents of Table K-102; or shall comply with the standard Building Code Requirements for Reinforced Concrete listed in Appendix B for proportions based on strength tests of trial batches; or of concrete from the production facility representing similar materials and conditions.

**K-102.2 Capacities and stresses:** The allowable design capacities or working stresses for ordinary materials shall not exceed those in Section 840.0 for plain concrete and in the standard Building Code Requirements for Reinforced Concrete listed in Appendix B, subject to the ten per cent reduction specified for ordinary materials.

#### K-103.0 Reinforced gypsum concrete

**K-103.1 Stresses:** When ordinary materials are used, the allowable working stresses shall be based on the following proportions, measured dry by weight with sufficient water to make a plastic mix that will fill the forms: 100 per cent neat calcined gypsum; 97 per cent gypsum and 3 per cent wood chips, shavings or

**CONNECTICUT BASIC BUILDING CODE/1978**

**Table K-101**  
**ALLOWABLE COMPRESSIVE STRESSES GROSS CROSS-SECTIONAL AREA**  
 (Except as noted)

Type of masonry and grade of masonry unit (psi gross area)	Type of mortar			
	M	S	N	O
	psi	psi	psi	psi
Solid masonry of brick and other solid units of clay or shale; sand lime or concrete:				
8000 plus psi	400	350	300	200
from 4500 or 8000 psi	250	225	200	150
from 2500 to 4500 psi	175	160	140	100
from 1500 to 2500 psi	125	115	100	75
Grouted masonry of solid masonry units:				
from 4500 to 8000 psi	350	275	200	—
from 2500 to 4500 psi	275	215	155	—
from 1500 to 2500 psi	225	175	125	—
Solid masonry of solid concrete masonry units:				
1800 plus psi	175	160	140	100
from 1200 to 1800 psi	125	115	100	75
Masonry of hollow units	85	75	70	—
Hollow walls (cavity or masonry bonded)*				
Solid masonry units				
2500 plus psi	140	130	110	—
from 1500 to 2500 psi	100	90	80	—
Hollow masonry units	70	60	55	—
Stone ashlar masonry				
Granite	800	720	640	500
Limestone or marble	500	450	400	325
Sandstone or cast stone	400	360	320	250
Rubble stone, coursed, rough or random	140	120	100	80

Note a. On gross cross-sectional area of wall minus area of cavity between wythes. The allowable compressive stresses for cavity walls are based upon the assumption that the floor loads bear upon but one (1) of the two (2) wythes. Where hollow walls are loaded concentrically, the allowable stresses may be increased by twenty-five (25) per cent.

**Table K-102**  
**MAXIMUM WATER-CEMENT RATIOS AND MINIMUM CEMENT CONTENTS**

Specified compressive strength*(psi)	Minimum sacks of cement per cubic yard of concrete	Maximum permissible water-cement ratios			
		Non-air-entrained concrete		Air-entrained concrete	
		Absolute ratio by weight	U.S. gal. per 94 lb. bag of cement	Absolute ratio by weight	U.S. gal. per 94 lb. bag of cement
2500	5	0.65	7.3	0.54	6.1
3000	5½	0.58	6.6	0.46	5.2
3500	6	0.51	5.8	0.40	4.5

\*28 day strengths for cements meeting strength limits of ASTM C150, Type 1, 1A, II or III and 7 day strengths for type III and IIIA.

fibers; and 87.5 per cent gypsum and 12.5 per cent wood chips, shavings or fibers; with ultimate compressive strengths of 1,800, 1,000 and 500 pounds per square inch respectively.

The working stresses shall not exceed the values prescribed in the standard for Reinforced Gypsum Concrete listed in Appendix B subject to the ten per cent reduction prescribed for ordinary materials.

**K-104.0 Steel reinforcement**

**K-104.1 Stresses:** The allowable working stresses for reinforcement specified in the standard Building Code Requirements for Reinforced Concrete listed in Appendix B shall be used in all reinforced construction, including reinforced concrete, reinforced gypsum concrete and all forms of reinforced masonry, subject to the ten per cent reduction specified for ordinary, unidentified materials.

**K-105.0 Structural steel and cast steel**

**K-105.1 Stresses:** The allowable working stresses for structural steel and cast steel contained in the Specification for Design, Fabrication and the Erection of Structural Steel for Buildings listed in Appendix B shall be used on all structural building construction, subject to the ten per cent reduction specified for ordinary, unidentified materials.

**K-106.0 Cast iron**

**K-106.1 Stresses:** The maximum stress for cast iron shall be as indicated in Table K-106.

Table K-106  
CAST IRON STRESS

	Maximum stress in pounds per square inch
Tension .....	3,000
Extreme tension (fiber stress in bending) .....	3,000
Extreme compression (fiber stress in bending) .....	16,000
Shear .....	3,000
Column compression .....	9,000 minus $40 \frac{1}{r}$

Ratio  $\frac{1}{r}$  not to exceed seventy (70)

**K-107.0 Open-web steel joist**

**K-107.1 Stresses:** The allowable working stresses specified for open-web steel joists shall be in accordance with the Standard Specifications for Steel Joist Construction listed in Appendix B. For all other steel joists, unless otherwise specifically approved and identified, the allowable working stresses specified by the standard shall be reduced ten per cent.

**CONNECTICUT BASIC BUILDING CODE/1978**

**K-108.0 Cold formed steel construction**

**K-108.1 Stresses:** When ordinary materials which are not identified as to manufacture and grade are used, the allowable working stresses in the Specification for the Design of Cold-formed Steel Structural Members listed in Appendix B shall be reduced ten per cent.

**K-109.0 Lumber**

**K-109.1 Stresses:** When the grade of lumber is not identified as provided in Section 719.0 for controlled materials, the maximum allowable working stresses for the species of lumber used shall be determined in accordance with the principles for stress grade lumber as set forth in National Design Specifications for Wood Construction listed in Appendix B.

## APPENDIX L

### LOAD DESIGN CRITERIA

#### L-100.0 General

**L-100.1 Scope:** The load design criteria provided in this appendix shall be used to calculate, and effectively provide for, the loads and stresses acting upon a structure. The provisions of this appendix shall be used in conjunction with applicable sections of Article 7 in which they are referenced.

#### L-101.0 Earthquake load design

**L-101.1 General:** When required to withstand lateral forces under Section 716.0, buildings and structures shall be designed in accordance with the following sections according to the zone in which they are located on the seismic probability map in Figure L-101.1.

**L-101.1.1 Application of provisions:** These lateral force requirements are intended to make buildings earthquake-resistive. The provisions apply to the building as a unit and also to all parts thereof, including the structural frame or walls, floor and roof systems, and other structural features. In specific cases, they may be interpreted or added to as to detail by rulings of the building official in order that the intent shall be fulfilled.

**L-101.1.2 Additions:** Where applicable, every addition to an existing building or structure shall be designed and constructed to resist and withstand the forces provided for herein, and in any case where an existing building or structure is increased in height all portions thereof affected by such increased height shall be reconstructed to resist and withstand the forces provided for herein.

**L-101.1.3 Alterations:** Where applicable, an existing building or structure shall not be altered or reconstructed in such a manner that the resistance to the forces provided for herein will be less than that before such alteration or reconstruction was made; provided, however, that this provision shall not apply to non-bearing partitions, and shall not apply to other minor alterations which are made in compliance with all requirements of this code.

**L-101.2 Plans and design data:** Where earthquake loads are applicable, a brief statement of the following items shall be included with each set of plans filed.

1. A summation of the dead and live load of the building, floor by floor, which was used in figuring the shear for which the building is designed.
2. A brief description of the bracing system used, the manner in which the designer expects such system to act and a clear statement of any assumptions used. Assumption as to location of all points of counterflexure in members must be stated.
3. Sample calculation of a typical bent or equivalent. For combined stresses due to the lateral forces and other loads, the allowable unit stresses and the allowable load in connections may be increased as provided in Section 717.0.

**L-101.3 Lateral force requirements:** Where earthquake loads are applicable, every building or structure and every portion thereof, and minor accessory building, except

## CONNECTICUT BASIC BUILDING CODE/1978

as exempted in Section 716.0, shall be designed and constructed to resist stresses produced by internal forces as provided in this appendix. Stresses shall be calculated as the effect of a force applied horizontally at each floor or roof level above the foundation. The force shall be assumed to come from any horizontal direction.

In those zones where wind, snow, or other loads impose a greater load than those provided herein, such other loads shall be provided for. It may be assumed that wind and earthquake loads will not occur simultaneously.

**L-101.4 Definitions:** The definitions listed below apply only to the provisions of this appendix.

**Space frame:** A three-dimensional structural system composed of interconnected members, other than shear or bearing walls, laterally supported so as to function as a complete self-contained unit with or without the aid of horizontal diaphragms or floor bracing systems.

**Space frame, vertical load-carrying:** A space frame designed to carry all vertical loads.

**Space frame, moment resisting:** A vertical load-carrying space frame in which the members and joints are capable of resisting design lateral forces by bending moments and column shears.

**Space frame, ductile moment resisting:** A space frame which complies with the requirements for a ductile moment-resisting space frame as given in Section L-101.11.

**Box system:** A structural system without a complete vertical load-carrying space frame. In this system, the required lateral forces are resisted by shear walls as hereinafter defined.

**Shear wall:** A wall designed to resist lateral forces parallel to the wall. Braced frames subjected primarily to axial stresses shall be considered as shear walls for the purpose of this definition.

**Lateral force resisting system:** That part of the structural system to which the lateral forces prescribed in Section L-101.5.1 are assigned.

**L-101.4.1 Symbols and notations:** The following symbols and notations apply only to the provisions of this appendix.

- C = Numerical coefficient for base shear as defined in Section L-101.5.2.
- $C_p$  = Numerical coefficient as defined in Section L-101.5.2 and set forth in Table L-101.5.2.
- D = The dimension of the building in feet in a direction parallel to the applied forces (also see Section L-101.10).
- $D_x$  = The plan dimension in feet of the vertical lateral force resisting system in the direction of the applied force.
- $F_i, F_n, F_x$  = Lateral force applied to level "i", "n", or "x" respectively.
- $F_p$  = Lateral forces on the part of the structure, and in the direction, under consideration.
- $F_t$  = That portion of "V" considered concentrated at the top of the structure, at the level "n". The remaining portion of the total base shear (V) shall be distributed over the height of the structure including level "n" according to equation L-1-5.
- $h_i, h_n, h_x$  = The height in feet above the base to level "i", "n", or "x" respectively.
- J = Numerical coefficient for base overturning moment as defined in Section L-101.9.

- $J_i$  = Numerical coefficient for overturning moment at level "x".  
 $K$  = Numerical coefficient as set forth in Table L-101.5.1.  
 Level  $i$  = Level of the structure referred to by the subscript "i".  
 Level  $n$  = That level which is uppermost in the main portion of the structure.  
 Level  $x$  = That level which is under design consideration.  
 $M$  = The overturning moment at the base of the building or structure.  
 $M_x$  = The overturning moment at level "x".  
 $N$  = The total number of stories above exterior grade to level "n".  
 $T$  = Fundamental period of vibration of the building or structure in seconds in the direction under consideration.  
 $V$  = The total lateral force or shear at the base.  

$$V = F_i + \sum_{i=1}^n F_i$$
 where  $i = 1$  designates first level above the base

- $W$  = The total dead load  $W = \sum_{i=1}^n W_i$

Exception:  $W$  shall be equal to the total dead load plus 25 per cent of the floor live load in storage and warehouse occupancies.

- $W_i, W_x$  = That portion of  $W$  which is located at or is assigned to level "i" or "x" respectively  
 $W_p$  = The weight of a portion of a structure  
 $Z$  = Numerical coefficient dependent upon the zone as determined by the maps in Figure L-101.1. For locations in Zone 1, "Z" shall be equal to 0.25. For locations in Zone 2, "Z" shall be equal to 0.50. For locations in Zone 3, "Z" shall be equal to 1.0.

#### L-101.5 Minimum earthquake forces for structures

**L-101.5.1 Total lateral force and distribution of lateral force:** Every structure shall be designed and constructed to withstand minimum total lateral seismic forces assumed to act non-concurrently in the direction of each of the main axes of the structure in accordance with the following formula:

$$V = ZKCW \quad (\text{Equation L-1-1})$$

The value of  $K$  shall be not less than that in Table L-101.5.1. The value of  $C$  shall be determined in accordance with the following formula:

$$C = 0.05 + \sqrt[3]{T} \quad (\text{Equation L-1-2})$$

Exception:  $C$  shall be 0.10 for all one- and two-story buildings.

$T$  is the fundamental period of vibration of the structure in seconds in the direction under consideration. Properly substantiated technical data for establishing the period  $T$  for the contemplated structure may be submitted. In the absence of such data, the value  $T$  for buildings shall be determined by the following formula:

$$T = 0.05 h_n + \sqrt{D} \quad (\text{Equation L-1-3})$$

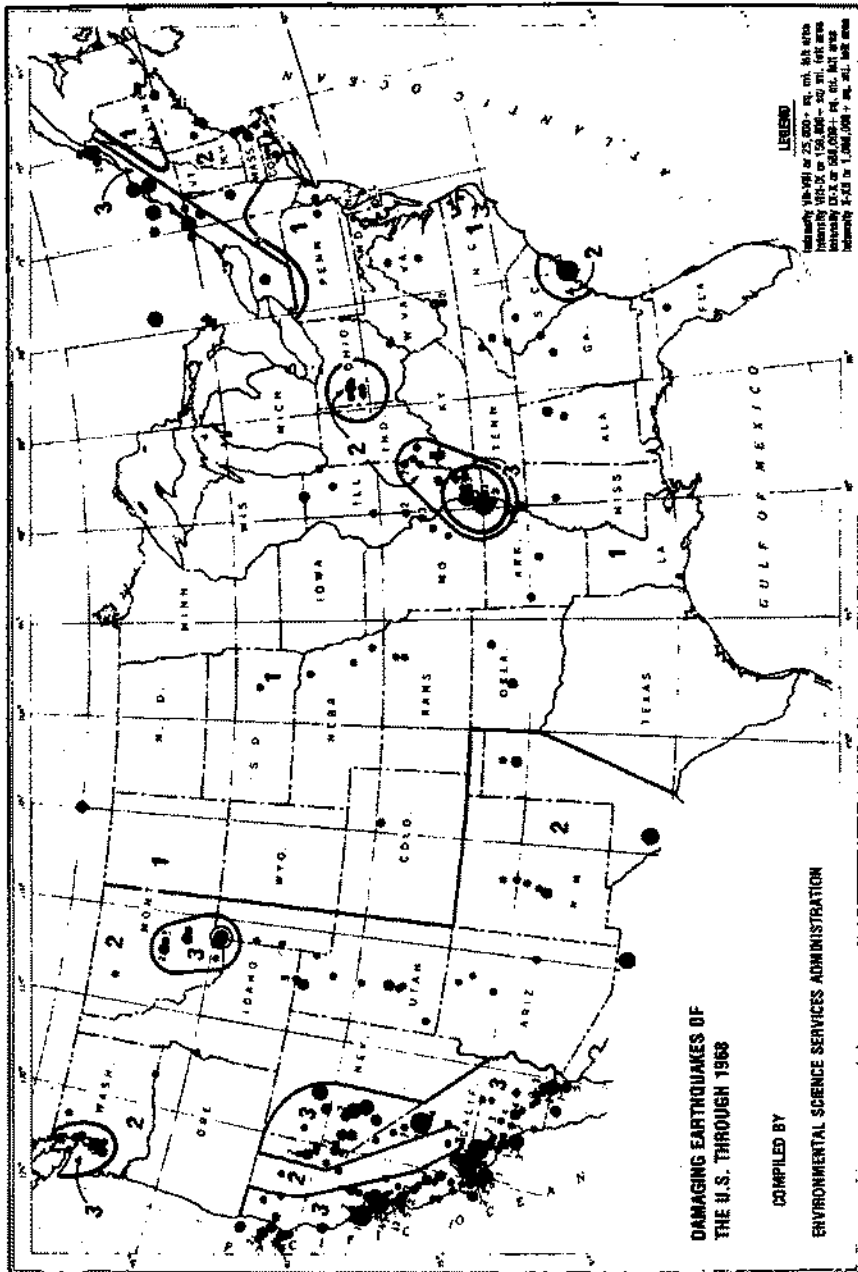
Exception: In all buildings in which the lateral force resisting system consists of a moment-resisting space frame which resists 100 per cent of the required lateral forces and which frame is not enclosed by or adjoined by more rigid elements which would tend to prevent the frame from resisting lateral forces:

$$T = 0.10 N \quad (\text{Equation L-1-3A})$$

The total lateral force "V" shall be distributed in the height of the structure in the following manner:

$$F_i = .004V (h_n + D_i)^2 \quad (\text{Equation L-1-4})$$

$F_i$  need not exceed 0.15 "V" and may be considered as 0 for values  $(h_n + D_i)$  of 3 or less, and





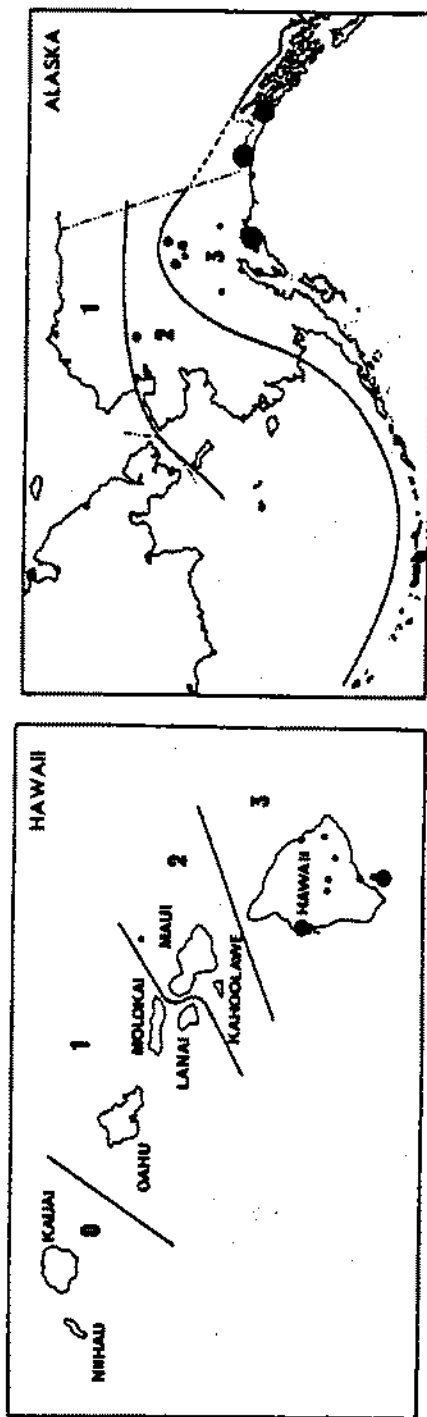


Figure L-101.1

DAMAGING EARTHQUAKES IN THE UNITED STATES THROUGH 1968

Note a. Maps of the three separate areas of the United States which indicated earthquake risk zones to supplement coefficient 2. This zoning was superimposed on maps showing the damaging earthquakes of the United States through 1968 that were compiled and supplied by the National Ocean Survey. The earthquake risk zones were determined by the ANSI Committee A58.

Note b. Large number represents zone classification; Zone 0, no damage; Zone 1, minor damage; Zone 2, moderate damage; Zone 3, major damage. Small number next to dots represents approximate number of recorded earthquakes in area of the intensity shown by size of dot.

**CONNECTICUT BASIC BUILDING CODE/1978**

$$F_x = (V-F_c)w_x h_x + \sum_{i=1}^n w_i h_i \quad \text{(Equation L-1-5)}$$

Exception: One- and two-story buildings shall have uniform distribution. At each level designated as "X", the force  $F_x$  shall be applied over the area of the building in accordance with the mass distribution on that level.

**L-101.5.2 Lateral force on parts or portions of buildings and other structures:** Parts or portions of buildings or structures and their anchorage shall be designed for lateral forces in accordance with the following formula:

$$F_p = ZC_p W_p \quad \text{(Equation L-1-6)}$$

The values of  $C_p$  are in Table L-101.5.2. The distribution of these forces shall be according to the gravity loads pertaining thereto.

**L-101.5.3 File foundations and caisson footings:** Individual pile and caisson footings of every building or structure shall be interconnected by ties, each of which can carry by tension and compression a horizontal force equal to 10 per cent of the larger pile cap loading, unless it can be demonstrated that equivalent restraint can be provided by other means.

**L-101.6 Distribution of horizontal shear:** Total shear in any horizontal plane shall be distributed to the various elements of the lateral force resisting system in proportion to their rigidities, considering the rigidity of the horizontal bracing system or diaphragm. Rigid elements that are assumed not to be part of the lateral force-resisting system may be incorporated into buildings provided that their effect on the action of the system is considered and provided for in the design.

**L-101.7 Drift:** Lateral deflections or drift of a story relative to its adjacent stories shall be considered in accordance with accepted engineering practice.

**Table L-101.5.1  
HORIZONTAL FORCE FACTOR "K" FOR BUILDINGS  
OR OTHER STRUCTURES<sup>1</sup>**

Type or arrangement of resisting elements	Value of $K^2$
All building framing systems except as hereinafter classified	1.00
Buildings with a box system as defined in Section L-101.4	1.33
Buildings with a dual bracing system consisting of a ductile moment resisting space frame and shear walls designed in accordance with the following criteria: 1. The frames and shear walls shall resist the total lateral force in accordance with their relative rigidities considering the interaction of the shear walls and frames. 2. The shear walls acting independently of the ductile moment resisting space frame shall resist the total required lateral force. 3. The ductile moment resisting space frame shall have the capacity to resist not less than 25 per cent of the required lateral force.	0.80
Buildings with a ductile moment resisting space frame designed in accordance with the following criteria: the ductile moment resisting space frame shall have the capacity to resist the total required lateral force.	0.67
Elevated tanks plus full contents, on four or more crossbraced legs and not supported by a building <sup>3-4,5</sup>	3.00
Structures other than buildings and other than those set forth in Table L-101.5.2	2.00

Note 1. Where wind load would produce higher stresses, these loads shall be used in lieu of the loads resulting from earthquake forces.

Note 2. See maps in Figure L-101.1 for seismic probability zones and definition of "Z" as specified in Section L-101.4.1.

Note 3. The minimum value of "KC" shall be 0.12 and the maximum value of "KC" need not exceed 0.25.

Note 4. For overturning, the factor "J" as specified in Section L-101.9 shall be 1.00.

Note 5. The torsional requirements of Section L-101.8 shall apply.

**L-101.8 Horizontal torsional moments:** Provisions shall be made for the increase in shear resulting from the horizontal torsion due to an eccentricity between the center of mass and the center of rigidity. Negative torsional shears shall be neglected. Where the vertical resisting elements depend on diaphragm action for shear distribution at any level, the shear resisting elements shall be capable of resisting a torsional moment assumed to be equivalent to the story shear acting with an eccentricity of not less than five percent of the maximum building dimension at that level.

**L-101.9 Overturning:** Every building or structure shall be designed to resist the overturning effects caused by the wind forces and related requirements, or the earthquake forces specified in this appendix, whichever governs.

Table L-101.5.2

**HORIZONTAL FORCE FACTOR "C<sub>p</sub>" FOR PARTS  
OR PORTIONS OF BUILDINGS OR OTHER STRUCTURES**

Part or portion of buildings	Direction of force	Value of C <sub>p</sub>
Exterior bearing and nonbearing walls, interior bearing walls and partitions, interior nonbearing walls and partitions over 10 feet in height, masonry fences over 6 feet in height.	Normal to flat surface	0.20
Cantilever parapet and other cantilever walls, except retaining walls.	Normal to flat surface	1.00
Exterior and interior ornamentations and appendages	Any direction	1.00
When connected to or a part of a building: towers, tanks, towers and tanks plus contents, chimneys, smokestacks, and penthouses	Any direction	0.20 <sup>1</sup>
When resting on the ground, tank plus effective mass of its contents	Any direction	0.10
Floors and roofs acting as diaphragms <sup>2</sup>	Any direction	0.10
Connections for exterior panels or for elements complying with Section L-101.12.5	Any direction	2.00

Note 1. When  $\frac{h_u}{D}$  of any building is equal to or greater than five to one, increase value by 50 percent.

Note 2. Floors and roofs acting as diaphragms shall be designed for a minimum value of C<sub>p</sub> of 10 per cent applied to loads tributary from that story unless a greater value of C<sub>p</sub> is required by the basic seismic formula  $V = 2KCW$ .

**Exception:** The axial loads from earthquake force on vertical elements and footings in every building or structure may be modified in accordance with the following provisions.

1. The overturning moment (M) at the base of the building or structure

shall be determined in accordance with the following formula:

$$M = J(F_1 h_n + \sum_{i=1}^n F_i h_i) \quad (\text{Equation L-1-7})$$

$$\text{where } J = 0.6 \div \sqrt[3]{T^2} \quad (\text{Equation L-1-8})$$

The value of "J" need not be more than 1.00.

- For structures other than buildings, the value of "J" shall not be less than 0.45, and the overturning moment ( $M_x$ ) at any level designated as "x" shall be determined in accordance with the following formula:

$$M_x = J_x [F_1 (h_n - h_x) + \sum_{i=x}^n F_i (h_i - h_x)] \quad (\text{Equation L-1-9})$$

$$\text{where } J_x = J + (1 - J)(h_x \div h_n)^3 \quad (\text{Equation L-1-10})$$

At any level, the incremental changes of the design overturning moment, in the story under consideration, shall be distributed to the various resisting elements in the same proportion as the distribution of the shears in the resisting system. Where either vertical members are provided which are capable of partially resisting the overturning moments, a redistribution may be made to these members if framing members of sufficient strength and stiffness to transmit the required loads are provided.

Where a vertical resisting element is discontinuous, the overturning moment carried by the lowest story of that element shall be carried down as loads to the foundation.

**L-101.10 Setbacks:** Buildings having setbacks wherein the plan dimension of the tower in each direction is at least 75 per cent of the corresponding plan dimension of the lower part may be considered as a uniform building without setbacks for the purpose of determining seismic forces.

For other conditions of setbacks, the tower shall be designed as a separate building using the larger of the seismic coefficients at the base of the tower determined by considering the tower as either a separate building for its own height or as part of the overall structure. The resulting total shear from the tower shall be applied at the top of the lower part of the building which shall be otherwise considered separately for its own height.

**L-101.11 Structural systems:** Buildings more than 160 feet in height shall have ductile moment-resisting space frames which (including connections) are capable of resisting not less than 25 per cent of the required seismic force for the structure as a whole. All buildings designed with a horizontal force factor "K" of 0.67 or 0.80 shall be ductile moment-resisting space frames.

#### Exceptions

- Buildings more than 160 feet in height in Zone 1 may have shear walls or braced frames in lieu of a ductile moment-resisting space frame provided a K value of 1.00 or 1.33 is utilized in the design.
- Other structural systems may be approved by the building official when evidence is submitted showing that adequate energy absorption and ductility are provided to withstand the anticipated earthquakes based on a seismicological evaluation for the location.

Moment-resisting space frames and ductile moment-resisting space frames may be enclosed by or adjoined by more rigid elements which would tend to prevent the space frame from resisting lateral forces where it can be shown that the action or failure of the more rigid elements will not impair the vertical and lateral load resisting ability of the space frame.

The necessary ductility for a ductile moment-resisting space frame shall be provided by a frame which will incorporate established criteria<sup>a</sup> for achieving ductility in the elastic and inelastic range. Shear walls in buildings where "K" = 0.80 shall be constructed to achieve ductile systems in accordance with established criteria.<sup>a</sup>

#### L-101.12 Design requirements

**L-101.12.1 Building separations:** All portions of structures shall be designed and constructed to act as an integral unit in resisting horizontal forces unless separated structurally by a distance sufficient to avoid contact under deflection from seismic action or wind forces.

**L-101.12.2 Minor alterations:** Minor structural alterations may be made in existing buildings and other structures; but the resistance to lateral forces shall be not less than that before such alterations were made, unless the building as altered meets the requirements of this appendix.

**L-101.12.3 Structural elements:** All elements within the structure which are considered to resist seismic forces or movement and/or are connected so as to participate with the structural system shall be designed in accordance with accepted structural practice.

**L-101.12.4 Combined vertical and horizontal forces:** In computing the effect of seismic force in combination with vertical loads, gravity load stresses induced in members by dead load plus design live load, except roof live load and snow load, shall be considered.

**L-101.12.5 Exterior elements:** Non-bearing non-shear wall panels or other elements which are attached to, or enclose the exterior, shall accommodate movements of the structure resulting from lateral forces or temperature changes. These panels or other elements shall be supported by approved means or by mechanical fasteners in accordance with the provisions described below.

1. Connections and panel joints shall allow for a relative movement between stories of not less than two times story drift caused by wind or seismic forces, or  $\frac{1}{4}$  inch, whichever is greater.
2. Connections shall have sufficient ductility and rotation capacity so as to preclude fracture or brittle failures at or near connections.
3. Connections to permit movement in the plane of the panel for story drift may be properly designed sliding connections using slotted or oversize holes or may be connections which permit movement by bending of ductile material.

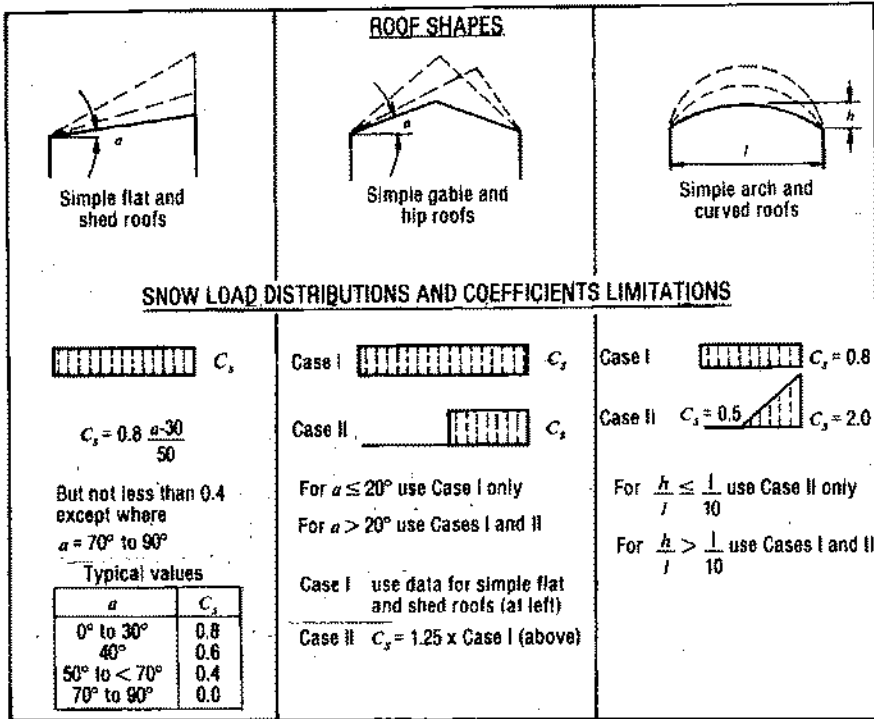
#### L-102.0 Snow load design criteria

**L-102.1 General:** Where buildings and structures or parts thereof are required by this code to withstand snow load, the following criteria shall be used.

**L-102.1.1 Design snow load:** Design snow load shall be as specified in Section 711.2.

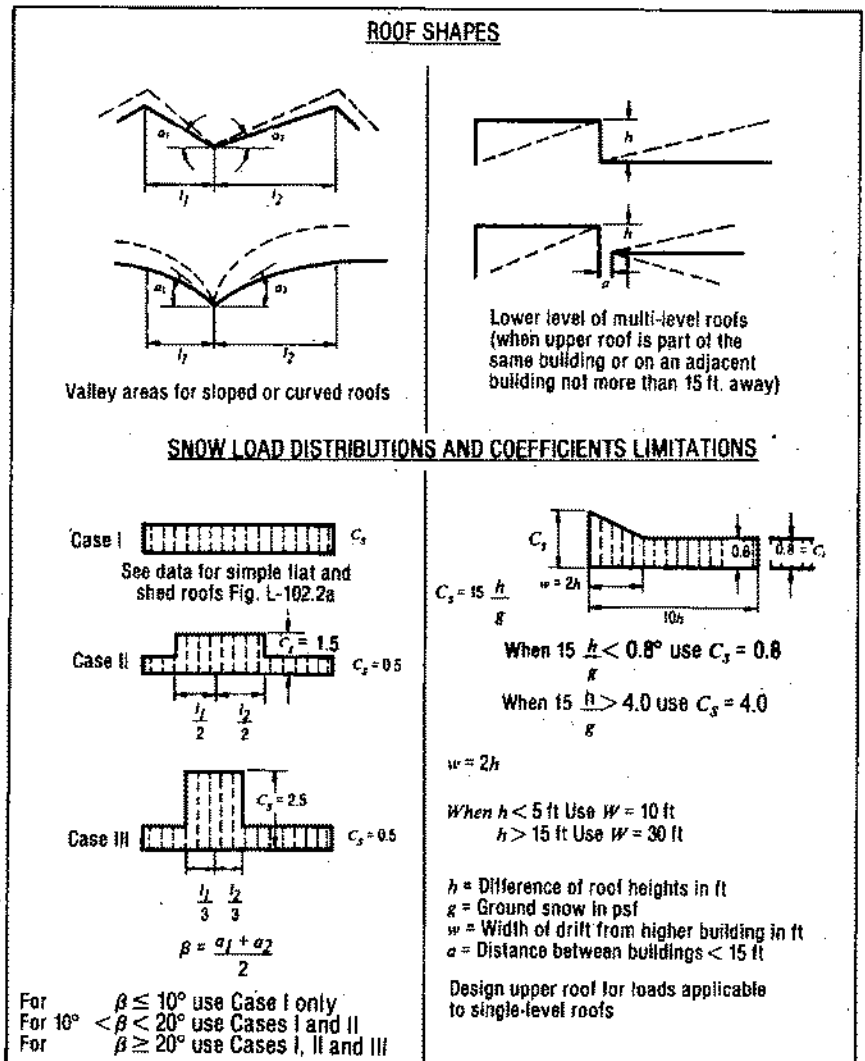
**L-102.1.2 Distribution:** For purposes of snow load design, the snow load distribution and related snow load coefficients shall be determined from Figures L-102.2a, L-102.2b or L-102.2c, whichever is applicable depending upon the slope of the roof.

Figure L-102.2a  
SNOW LOAD DISTRIBUTIONS AND COEFFICIENTS



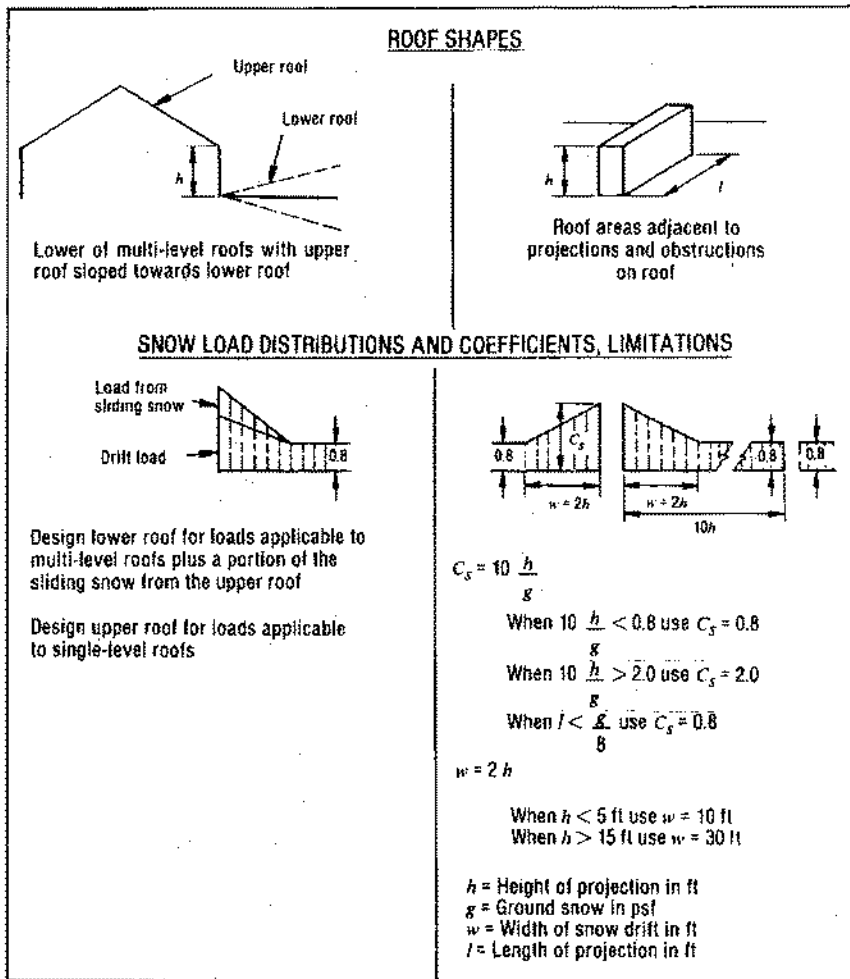
The term  $\frac{a-30}{50}$  is valid only for  $a > 30$  degrees.

Figure L-102.2b  
SNOW LOAD DISTRIBUTIONS AND COEFFICIENTS



The term  $\frac{a-30}{50}$  is valid only for a > 30 degrees.

Figure L-102.2c  
SNOW LOAD DISTRIBUTIONS AND COEFFICIENTS





## APPENDIX M

### RECOMMENDED NAILING SCHEDULE

Building element	Nail size and type	Number and location
Stud to sole plate	8d common 16d common	4 toe-nail or 2 direct nail
Stud to cap plate	16d common	2 toe-nail or 2 direct nail
Double studs	10d common	12" o.c. direct
Corner studs	16d common	24" o.c. direct
Sole plate to joist or blocking	16d common	16" o.c.
Double cap plate	10d common	16" o.c. direct nail
Cap plate laps	10d common	2 direct-nail
Ribbon strip, 6" or less	10d common	2 each direct bearing
Ribbon strip, 8" or more	10d common	3 each direct bearing
Roof rafter to plate	8d common	3 toe-nail
Roof rafter to ridge	16d common	2 toe-nail or direct nail
Jack rafter to hip	10d common 16d common	3 toe-nail or 2 direct nail
Floor joists to studs (No ceiling joists)	10d common 10d common	5 direct or 3 direct
Floor joists to studs (With ceiling joists)	10d common	2 direct
Floor joists to sill or girder	8d common	3 toe-nail
Ledger strip	16d common	3 each direct joist
Ceiling joists to plate	16d common	3 toe-nail
Ceiling joists (laps over partition)	10d common	3 direct nail
Ceiling joists (parallel to rafter)	10d common	3 direct nail
Collar beam	10d common	3 direct
Bridging to joists	8d common	2 each direct end
Diagonal brace (to stud and plate)	8d common	2 each direct bearing
Tail beams to headers (when nailing permitted)	20d common	1 each end 4 sq. ft. floor area
Header beams to trimmers (when nailing permitted)	20d common	1 each end 8 sq. ft. floor area
1" roof decking (6" or less in width)	8d common	2 each direct rafter
1" roof decking (over 6" in width)	8d common	3 each direct rafter

CONNECTICUT BASIC BUILDING CODE/1978

Building element	Nail size and type	Number and location
1" sub-flooring (6" or less)	8d common	2 each direct joist
1" sub-flooring (8" or more)	8d common	3 each direct joist
2" sub-flooring	16d common	2 each direct joist
1" wall sheathing (8" or less in width)	8d common	2 each direct stud
1" wall sheathing (over 8" in width)	8d common	3 each direct stud
Plywood roof and wall sheathing (1/2" or less)	6d common	6" o.c. direct edges and 12" o.c. intermediate
(3/4" or greater)	8d common	6" o.c. direct edges and 12" o.c. intermediate
(5/16", 3/8", or 1/2")	16 ga. galvanized wire staples, 3/8" minimum crown; length of 1" plus plywood thickness	4" o.c. edges and 8" o.c. intermediate
(5/8")	Same as immediately above	2 1/2" o.c. edges and 5" o.c. intermediate
Plywood subflooring:		
(1/2")	6d common or 6d annular or spiral thread	6" o.c. direct edges and 10" o.c. intermediate
(3/4", 5/8")	8d common or 6d annular or spiral thread	6" o.c. direct edges and 10" o.c. intermediate
(1", 1 1/8")	10d common or 8d ring shank or 8d annular or spiral thread	6" o.c. direct edges and 6" o.c. intermediate
(3/8")	16 ga. galvanized wire staples	4" o.c. edges and 7" o.c. intermediate
(5/8")	3/8" minimum crown, 1 1/8" length	2 1/2" o.c. edges and 4" o.c. intermediate
Built up girders and beams	20d common	32" o.c. direct
Continuous header to stud	8d common	4 toenail
Continuous header, two pieces	16d common	16" o.c. direct

APPENDIX M

Building element	Nail size and type	Number and location
1/2" fiberboard sheathing	1 1/2" galvanized roofing nail or 6d common nail or 16 gage staple, 1 1/2" long with minimum crown of 1/16"	3" o.c. exterior edge, 6" o.c. intermediate
5/8" fiberboard sheathing	1 1/2" galvanized roofing nail or 8d common nail or 16 gage staple, 1 1/2" long with minimum crown of 1/16"	3" o.c. exterior edge, 6" o.c. intermediate
Gypsum sheathing	12 gage 1 1/2" large head corrosion-resistive	4" o.c. on edge, 8" o.c. intermediate
Particleboard (1/2"-3/4")	6d common	6" o.c. direct edges and 8" o.c. intermediate
(3/4"-1")	8d common	6" o.c. direct edges and 8" o.c. intermediate
Particleboard sheathing (1/2"-3/4")	6d common	6" o.c. direct edges and 12" o.c. intermediate
(3/4"-1")	8d common	6" o.c. direct edges and 12" o.c. intermediate
Shingles, wood*	No. 14 B&S corrosion-resistive	2 each bearing
Weather boarding	8d corrosion-resistive	2 each bearing

\* Shingle nails shall penetrate not less than 1/4 inch into nailing strips, sheathing or supporting construction except as otherwise provided in Section 854.4.4.

**Table M-1**  
**MAXIMUM SPACING OF GYPSUM WALLBOARD FASTENERS**  
 (For non-fire rated construction assemblies)<sup>5</sup>

Thickness of gypsum wallboard (inch)	Plane of framing surface	Long dimension of gypsum wallboard sheets in relation to direction of framing members	Maximum spacing of framing members (center-to-center) (in inches)	Maximum spacing of fasteners (center-to-center) (in inches)		Nails <sup>1</sup> to wood <sup>4</sup>
				Nails <sup>1,2</sup>	Screws <sup>3</sup>	
1/2	Horizontal	Either direction	16	7	12	No. 13 gauge, 1-3/8" long, 19/64" head No. 098 gauge, 1-1/4" long, Annular ringed 5d, cooler nail
	Horizontal	Perpendicular	24	7	12	
	Vertical	Either direction	24	8	12	
5/8	Horizontal	Either direction	16	7	12	No. 13 gauge, 1-5/8" long, 19/64" head No. 098 gauge, 1-3/8" long, Annular ringed 6d, cooler nail
	Horizontal	Perpendicular	24	7	12	
	Vertical	Either direction	24	8	12	
Fastening required with adhesive application						
1/2 or 5/8	Horizontal	Either direction	16	16	16	As required for 1/2" and 5/8" gypsum wallboard, see above
		Perpendicular	24	12	16	
	Vertical	Either direction	24	16	24	
2-3/8 (3/4 total)	Horizontal	Perpendicular	24	16	16	Base ply nailed as required for 1/2" gypsum wallboard and face ply placed with adhesive
	Vertical	Either direction	24	24	24	

**Note 1.** Where the metal framing has a clinching design formed to receive the nails by two edges of metal, the nails shall be not less than 3/8 inch longer than the wallboard thickness, and shall have ringed shanks. Where the metal framing has a nailing groove formed to receive the nails, the nails shall have barbed shanks or be 5d cooler nail (No. 13 1/2 gauge, 1 3/8 inches long, 15/64-inch head) for 1/2 inch gypsum wallboard; 6d cooler nail (No. 13 gauge, 1 7/8 inches long, 15/64-inch head) for 5/8 inch gypsum wallboard.

**Note 2.** Two nails spaced not less than 2 inches apart, nor more than 2 1/2 inches apart and pairs of nails spaced not more than 12 inches center-to-center may be used.

**Note 3.** Screws shall be No. 6 with tapered head and long enough to penetrate into wood framing not less than 5/8 inch and metal framing not less than 1/4 inch.

**Note 4.** All nails shall meet ASTM C514 or Federal Specification FF-N-105C.

**Note 5.** For fire-resistance rated construction see the pertinent fire test information.

## APPENDIX N

### METRIC EQUIVALENTS

1 inch equals 25.4 millimeters	1 horsepower equals 0.746 kilowatts
1 inch equals 2.54 centimeters	1 millimeter equals 0.039 inch
1 foot equals 0.305 meter or 30.48 centimeters	1 centimeter equals 0.394 inch
1 yard equals 0.914 meter	1 meter equals 3.281 feet
1 mile equals 1.609 kilometers	1 meter equals 100 centimeters or 1000 millimeters
1 square inch equals 6.452 square centimeters	1 kilometer equals 0.621 mile
1 square foot equals 0.093 square meter	1 kilometer equals 1000 meters
1 square yard equals 0.836 square meter	1 square centimeter equals 0.155 square inch
1 acre equals 0.405 hectare	1 square meter equals 10.764 square feet
1 cubic inch equals 16.387 cubic centimeters	1 hectare equals 2.471 acres
1 cubic foot equals 0.028 cubic meter	1 cubic centimeter equals 0.061 cubic inch
1 cubic yard equals 0.765 cubic meter	1 cubic meter equals 35.315 cubic feet
1 quart (liquid) equals 0.946 liter	1 cubic meter equals 1.308 cubic yards
1 gallon equals 0.004 cubic meter	1 liter equals 1.057 quarts (liq.)
1 ounce (avoirdupois) equals 28.349 grams	1 gram equals 0.035 ounces (avdp.)
1 pound (avdp.) equals 0.454 kilogram	1 kilogram equals 2.205 pounds (avdp.)
1 ton (2000 pounds) equals 0.9072 metric ton or 907.2 kilograms	1 metric ton equals 1.102 tons or 2204.6 pounds (avdp.)
	1 metric ton equals 1000 kilograms
	1 kilowatt equals 1.34 horsepower



## APPENDIX O

### LOCATION OF SPECIAL FLOOD HAZARD AREAS

**O-100.1** The following documents published by the Federal Insurance and Hazard Mitigation Office of the Federal Emergency Management Agency and presented by them to the chief executive officer of the municipality pursuant to Public Law 93-234 of the Federal Statutes (Flood Disaster Protection Act of 1973) shall be used to determine the location of work within special flood hazard areas in each municipality:

1. Flood Insurance Rate Maps
2. Flood Boundary and Floodway Maps
3. Flood Insurance Rate Study





## \*APPENDIX OF RELATED REGULATIONS IN CONNECTICUT

Although the Connecticut Basic Building Code represents a significant advance in bringing uniform rules and procedures to this area of Connecticut practice, there remains a number of other sources to which it may be necessary to refer in order to find all laws and regulations applicable to a given situation. This appendix is intended as an aid in finding the sources involved.

The office of the State Building Inspector recognizes the desirability of further efforts to unify all laws and regulations relating to building construction and maintenance. This office would be assisted in its work by anyone who would care to write to it, (care of Department of Public Safety, 294 Colony Street, Meriden, Connecticut 06450) pointing out specific instances of conflict among the various provisions involved.

It is especially noted that the Connecticut Basic Building Code and the State Fire Safety Code overlap substantially in their jurisdiction. In any given situation when and where both codes apply, the code requirements may be identical, may differ slightly, or may differ substantially. Those who are responsible for building design and construction should be aware that when and where both codes are applicable, the more stringent requirement must be met in each situation.

Among the major agencies of Connecticut which may or do regulate building design and construction are the following, listed with certain specific references to the General Statutes of Connecticut (GSC):

### 1. DEPARTMENT OF ADMINISTRATIVE SERVICES

Office of the Commissioner  
State Office Building  
165 Capitol Avenue  
Hartford, Connecticut 06115

### 2. DEPARTMENT OF CONSUMER PROTECTION

Office of the Commissioner  
State Office Building  
165 Capitol Avenue  
Hartford, Connecticut 06115

Department of Consumer Protection, General (GSC Chapter 341)

19-171e	Boards within department of consumer protection (vocational licensing)
19-206	Refrigerated lockers. Definitions (Promulgated regulations)
19-207	Storage . . . quick-frozen foods (Promulgated regulations)

Bakeries (GSC Chapter 346)

19-283	Definition
19-284	Sanitary conditions . . .
19-285	Use of underground rooms restricted
19-288	Regulations (Promulgated regulations)

**CONNECTICUT BASIC BUILDING CODE/1978**

**3. DEPARTMENT OF ENVIRONMENTAL PROTECTION**

Office of the Commissioner  
State Office Building  
Hartford, Connecticut 06115

**Air Pollution Control (GSC Chapter 360)**

- 19-505 Definitions
- 19-507 Duties of Commissioner . . .  
(Promulgated regulations)

**Solid Waste Management (GSC Chapter 361a)**

- 19-524a Definitions
- 19-524c Regulations  
(Promulgated regulations)

**Water Resources (GSC Chapter 473)**

- 25-4a Establishment of stream channel encroachment lines
- 25-4f Regulations and procedures  
(Promulgated regulations)
- 25-7b Regulations of erection of structures and placement of fill in tidal . . . waters
- 25-7c Establishment of boundaries
- 25-7d Permit for erection of structures or placement of fill
- 25-7e Structure or fill as nuisance
- 25-10 Removal of sand and gravel from lands under tidal and coastal waters
- 25-14 Layout of channels

**Pollution (GSC Chapter 474)**

- 25-26 Pollution of waterways

**Water Pollution Control (GSC Chapter 474a)**

- 25-54b Definitions
- 25-54c Standards of water quality  
(Promulgated regulations)

**4. DEPARTMENT OF HEALTH SERVICES**

Office of the Commissioner  
79 Elm Street  
Hartford, Connecticut 06115

**Health Care Institutions (GSC Chapter 367)**

- 19-576 Licensing of institutions, Definitions
- 19-580 Regulations  
(Promulgated regulations)
- 19-601 Changes in regulations to meet federal requirements
- 19-602 Nursing home facilities, Definitions
- 19-603 Regulations concerning nursing home facilities  
(Promulgated regulations)

**APPENDIX OF RELATED REGULATIONS IN CONNECTICUT**

**Pollution, Water and Ice Supplies (GSC Chapter 474, Part III)**

25-32 Department of health services jurisdiction  
(Promulgated regulations)

**5. DEPARTMENT OF HOUSING**

Office of the Commissioner  
1179 Main Street  
Hartford, Connecticut 06103

**6. STATE LABOR DEPARTMENT**

Office of the Commissioner  
200 Folly Brook Boulevard  
Wethersfield, Connecticut 06109

**Protection of Employees (GSC Chapter 557, Part II)**

**Pertinent sections of General Statutes:**

31-13b Visible clock required . . . time card system  
31-34 Stained glass windows  
31-36 Toilet rooms required in foundries  
31-38 Toilet rooms on tobacco plantations  
31-38a Sanitary, lighting and heating facilities for railroad employees  
31-43 Public laundries; sanitation

**Occupational Safety and Health Act (GSC Chapter 571)**

31-367 Definitions  
31-369 Application of chapter  
31-371 Regulations  
(Promulgated regulations)  
31-372 Adoption of federal and state standards;  
Variances

**Public and Other Buildings (GSC Chapter 353)**

19-387a Egress from workshops and manufactories

**Fire Marshals and Fire Hazards (GSC Chapter 530)**

29-60 Regulation of installation of oil burners  
(Promulgated regulations)  
29-62 Regulations concerning flammable liquids  
(Promulgated regulations)  
29-67 Fire hazards in dry cleaning; regulations  
(Promulgated regulations)  
29-71 Liquid petroleum gas defined  
29-72 Regulation of storage, use and transportation  
(Promulgated regulations)  
29-89 Storage, transportation and use of explosives  
(Promulgated regulations)

**7. DEPARTMENT OF MOTOR VEHICLES**

Office of the Commissioner  
60 State Street  
Wethersfield, Connecticut 06109

**CONNECTICUT BASIC BUILDING CODE/1978**

**Motor Vehicles (GSC Chapter 246)**

- 14-63 Regulations  
(Promulgated regulations -  
dealers and repairers)
- 14-320 Approval of gasoline station location  
by Commissioner
- 14-321 Approval of gasoline station location by local  
authorities
- 14-325 Curb pumps

**8. DEPARTMENT OF PUBLIC SAFETY**

Office of the Commissioner  
200 Washington Street  
Hartford, Connecticut 06106

**State Building Code (GSC Chapter 354)**

Office of the State Building Inspector  
Department of Public Safety  
294 Colony Street  
Meriden, Connecticut 06450

Pertinent sections of General Statutes:

- 19-395 . . . Preparation of code

**Board of Materials Review**

care of

Office of the State Building Inspector

- 19-399 Board of materials review. Regulations concerning  
materials and modes of construction  
(Promulgated regulations)

**State Demolition Code (GSC Chapter 354a)**

Office of the State Demolition Inspector  
Department of Public Safety  
294 Colony Street  
Meriden, Connecticut 06450

Pertinent sections of General Statutes:

- 19-403b Regulations  
(Promulgated regulations)
- 19-403c License . . . Exemptions
- 19-403e Municipal administrative officer
- 19-403f Appeal . . .
- 19-403g Permit for demolition . . .
- 19-403h Notice to adjoining property owners
- 19-403i Safety measures to be provided
- 19-403j Sidewalk shed requirements
- 19-403k Excavation of sidewalk area
- 19-403l Restrictions . . .
- 19-403m Accumulated materials
- 19-403n Basements and cellars

**APPENDIX OF RELATED REGULATIONS IN CONNECTICUT**

**Elevators and Escalators (GSC Chapter 356)**

Office of Elevator Inspection  
Department of Public Safety  
294 Colony Street  
Meriden, Connecticut 06450

**Pertinent sections of General Statutes:**

19-410	Definitions
19-411	General requirements (Promulgated regulations)
19-412	Approval of plans
19-413	Registration of elevators and escalators
19-414	Inspection by department
19-415	Issuance of operating certificates

**Passenger Tramways (GSC Chapter 356a)**

Office of Tramway Inspection  
Department of Public Safety  
294 Colony Street  
Meriden, Connecticut 06450

**Pertinent sections of General Statutes:**

19-418a	Definitions
19-418c	Regulations, standards (Promulgated regulations)

**Fire Marshals and Fire Hazards (GSC Chapter 530)**  
**Moving Pictures (GSC Chapter 531)**  
**Amusements and Exhibitions (GSC Chapter 532)**

Office of State Fire Marshal  
Department of Public Safety  
Division of State Police  
294 Colony Street  
Meriden, Connecticut 06450

**Pertinent sections of General Statutes:**

29-39	Commissioner . . . state fire marshal
29-40	Fire safety code (Promulgation of code)
29-44	Variations or exemptions from code
29-60a	Space heaters prohibited
29-62	Regulations concerning flammable liquids (Promulgated regulations)
29-67	Fire hazards in dry cleaning; regulations (Promulgated regulations)
29-70a	Regulation of gas appliance and pipe installation (Promulgated regulations)
29-71	Liquid petroleum gas defined
29-72	Regulation of storage, use and transportation (Promulgated regulations)

**CONNECTICUT BASIC BUILDING CODE/1978**

29-77	Hazardous chemicals. Defined
29-78	Regulations (Promulgated regulations)
29-83	Explosives. Definitions
29-84	Reports to Commissioner of Public Safety
29-89	Storage, transportation and use of explosives ... Labor Commissioner (Promulgated regulations)
29-91	Manufacture or storage of explosive material near property of another
29-109	Regulations as to moving picture projectors and films. Fireproof Booths (as specified by Commissioner)
29-110	When films may be shown without fireproof booths
29-121	Storing of moving picture films
29-124	Special room for handling films
29-129	Commissioner to license amusement parks
29-140	Regulations (Promulgated regulations)

**9. MISCELLANEOUS STATUTES**

Tenement and Lodging Houses (GSC Chapter 352, Part I)

19-432	Definitions
19-346	Overcrowding; water; toilets; ventilation; paint

The Tenement House Act (GSC Chapter 352, Part II)

19-348	Application of act
19-351	Location of building. Elevator
19-362	Size of rooms
19-363	Bathrooms and water closets
19-364	Arrangement of rooms
19-365	Basement living rooms

Public and Other Buildings (GSC Chapter 353)

19-382	Fire alarms in schoolhouses
19-386	Stairways and fire escapes on certain buildings

# INDEX

## By section number

### A

- A, use groups, assembly, 203.0
- Accepted engineering practice, 109.6, 600.2
- Access
  - Panels, for fire department, 659.0
  - To roofs, 617.0
- Accessory buildings
  - Use group T, temporary and miscellaneous, 211.0
- Adhesives
  - Glued construction, 818.0
- Adjoining property
  - Existing buildings, 1305.0
  - Fences, 1309.0
  - Grade control, 1308.1
  - Notice to owners, 1307.1.3
  - Protection of, 1312.0
  - Support during excavations, permanent, 1307.2
  - Support during excavations, temporary, 1307.1
- Administrative
  - Administration, Article 1
  - Alternate materials and methods, 109.0
  - Application for permits, 112.0
  - Board of appeals, 126.0
  - Board of survey, 125.0
  - Building classified by building official, 212.0
  - Building official approves plans, 113.6
  - Building official, definition, 201.0
  - Building official qualifications, 107.5
  - Certificate of occupancy, 119.0
  - Conditions of permit, 114.0
  - Drawings and specifications required, 112.5, 112.6, 112.7
  - Existing structures, 106.0
  - Foundation permits, 113.7
  - Inspections required, 110.0
  - Inspectors appointed, 107.6, 108.4
  - Liability, 107.8
  - Maintenance of buildings, 104.0
  - Organization of building department, 107.3
  - Permit fees, 117.0
  - Permits required, 112.1
  - Posting of floor loads, 120.1
  - Powers and duties of building official, 106.0
  - Records of department, 107.9
  - Restrictions on employees, 107.7
  - Revocation of permits, 113.8, 309.5
  - Right of entry on premises, 111.0
  - Scope of code, 100.2
  - Stop work orders, 122.0
  - Tests and test reports, 802.0
  - Unsafe structures, 123.0, 124.0
  - Validity of code, 128.0
  - Violations and penalties, 121.0
- Aged, homes for,
  - Use group I-2, institutional, 207.3, 207.4
- Aggregates
  - Concrete, 818.0
  - For fire resistance purposes, 816.2
  - Masonry, mortar and grout, 815.0
- Air-conditioned buildings, 603.0
- Air-conditioning, refrigeration and mechanical ventilation (see Mechanical Code listed in Appendix B)
- Aircraft hangers
  - Height and areas allowed, Table 305
  - Roof storage, 414.2.4
  - Use group S-1, moderate hazard, 210.2, 210.4
- Air ducts (see Ducts)
- Air intakes
  - Fresh air, 514.0
  - To court, 518.5
- Air space
  - Around timber in masonry, 853.5.1
- Air supported structures
  - Additional requirements, 422.0
  - Use group T, temporary and miscellaneous, 211.0
- Aisles, 626.0
  - Assembly use groups, 417.5, 610.3
  - Churches, 610.3
  - Illumination, 417.9, 624.0
  - Other use groups, 610.3
- Alarm systems (see Fire protection systems)
- Alcoves, for light and ventilation, 507.0
- Alley
  - Definition, 201.0
  - Projection into, 312.1
- Allowable areas and heights of buildings
  - Area, allowable for buildings (see also Area, allowable), Table 305
  - Use group A, assembly, 203.7
  - Use group B, business, 204.2
  - Use group F, factory and industrial, 205.4
  - Use group H, high hazardous, 206.3
  - Use group I, institutional, 207.4
  - Use group M, mercantile, 208.2
  - Use group R, residential, 209.5
  - Use group S, storage, 210.4
  - Use group T, temporary and miscellaneous, 2, 1.2
- Alloys and special steels, 832.0, 833.0
- Alterations
  - Appeal to board of appeals, 126.0
  - Area and height limitations, 304.2
  - Certificate of occupancy, 119.2
  - Definition, 201.0
  - Existing buildings, 106.0, 304.0, 405.0
  - Increase in size, 105.6
  - Inspections, 110.1
  - Non-structural alterations and repairs, 102.1
  - Permit fees, 117.1, 117.3
  - Permit required, 112.1
  - Signs, 1401.3
  - Structural alterations and repairs, 106.0
  - To existing projections, 304.1.3
  - To light and ventilation in existing buildings, 505.2
- Alternate materials and construction
  - Approved by building official, 109.1
  - Board of appeals, 126.1
  - Suitability of, 800.4
  - Tests required, 800.6
- Aluminum alloys, 833.0

## CONNECTICUT BASIC BUILDING CODE/1978

- Amendments to plans, 112.8
  - Amusement parks
    - Additional requirements, 418.0
    - Use group A-5, assembly, 203.8
  - Anchorage, anchors
    - Adhesive materials, 815.7, 816.8
    - Framing anchors, wood, 852.3.1, 852.5
    - Intersecting masonry walls, 835.4
    - Masonry, general, 835.1, 835.4
    - Masonry, veneer, 854.4.1
    - Panel wall, 867.4
    - Projecting stone, 838.3
    - Wood headers, 852.4
    - Wood, sill, 854.5
  - Antennae, radio and television, 427.0
  - Apartment house
    - Definition (see Dwelling), 201.0
    - Use group R-2, residential, 209.3, 209.6
  - Appeals, board of, 126.0
  - Appendices, Table of Contents
  - Appliances
    - Chimneys, 1000.2, 1003.0
    - High heat, 1100.0
    - Low heat, 1100.0
    - Medium heat, 1100.0
  - Application for permit
    - Action by building official on application, 113.1
    - Application form, 112.2
    - Conditions of permit, 114.0
    - Drawings required, 112.5, 112.6
    - For demolition of buildings, 115.0
    - Foundation permits, 113.7
    - Moving buildings, 118.1
    - Permit fees, 117.0
    - Plot diagram required, 112.6
    - Records to be kept, 108.7
    - Registered architect or engineer, 112.3
    - Signs, 1401.0, 1402.0
    - What required, 112.3, 112.5, 112.6, 112.7
    - When required, 112.1
  - Appointment of building official, 107.1
  - Approval
    - Alternate materials and methods of construction, 804.0
    - Certificate of occupancy, 119.0
    - For use of plastic material, 1900.2.2
    - Inspections, 110.0
    - Moving buildings, 116.0
    - Of plans for permit, 113.5
    - Prefabricated construction, 1808.0, 1807.0
  - Approved, definition, 201.0
  - Architect
    - Affidavit, permits issued, 112.3
    - Drawings and specifications by, 112.5, 112.7
  - Area
    - Court, 516.3
    - Method of figuring for exits, 608.0
  - Areas, allowable
    - Allowable areas for buildings (see also Allowable areas and heights of buildings), 305.0, Table 305
    - Definition, 201.0
    - Exception, 308.0
    - Existing buildings, 304.2, Table 305
    - Floor definition, 201.0
    - For plastics, 1902.0, 1903.0
    - General area and height limitations, 305.0
    - Increase for area separation, 306.2
    - Increase for sprinklers, 306.3
    - Increase not permitted, 304.2
    - Separate building within fire walls, 305.1
    - School area increase, 306.4
    - Unlimited areas, 307.0
  - Armories
    - Use group A-3 assembly, 203.4, 203.7
  - Asbestos
    - For proscenium curtains, 417.7.7
  - Asphalt
    - In roof coverings, 927.0
    - Paper in exterior walls, 820.5
  - Assembly buildings
    - Aisles with fixed seats, 418.3
    - Aisles without fixed seats, 418.4
    - Areas allowed, 203.7, 305.0, Table 305
    - Classification of, 203.2, 203.3, 203.4, 203.5, 203.6
    - Determining capacity of exits, 608.0
    - Exits, special requirements, 418.2
    - Fire suppression requirements, 203.7, 1202.0, 1211.0
    - Occupancy load requirements, 608.0
    - Prohibited, with high hazard use, 417.2.1
    - Special requirements for, 417.0, 418.0
    - Theatre requirements (see Theatres)
    - Use group A, 203.0
  - Attic
    - Definition, 201.0
    - Firestopping, 875.6, 875.6.1
    - Habitable, definition, 201.0
    - Ventilation of, 507.2
  - Auditoriums
    - Use group A-3, assembly, 203.4, 203.7
  - Authority to enter buildings, 111.0
  - Automatic fire alarm systems, 1216.0
  - Automatic sprinklers (see Fire protection systems)
  - Automobile parking
    - Open parking structures, 429.0
    - Parking lots, 423.0
    - Roofs over, 302.7
  - Automotive service station
    - Definitions, 201.0
    - General requirements, 415.0
    - Storage of flammables, 415.2
    - Use group B, business, 204.0
  - Awnings
    - Clearance, 313.0
    - Fixed, regulations, 313.2.2
    - Movable, regulations, 313.2.1
    - Permit for, 313.1
- ## B
- B, use groups, business, 204.0
  - Balcony
    - Emergency exits from, 417.3.4
    - Exits, 417.3.2, 417.3.4
    - Exterior balconies, 310.7
    - Exterior construction of, 924.4
    - Live loads, 706.0
    - Over public property, 310.7
    - Railings, 417.5.5, 709.4
    - Steps, 417.5.4
  - Balustrades, 816.5.2
  - Banner and cloth signs, 1413.1
  - Barricades
    - Construction, where required, maintenance, 1306.2, 1307.1



- Bars**
  - Clear cover in concrete footings, 729.3.2
  - Reinforcing steel, 829.0
- Basement**
  - Assembly uses, 905.7.3
  - Definition, 201.0
  - Enclosure of stairways, 616.9.2
  - Floors above, protection of, 905.7
  - Garages in basements, 414.2.2
  - Light and ventilation, 509.1
  - Motor fuel service stations, 415.1.3
  - Waterproofing, 873.0
  - Required exitways, 809.2
  - Stairway construction, 616.9, 616.9.3
  - Ventilation of garages, 414.3.1
  - Waterproofing, 872.0
- Bathrooms**
  - Light and ventilation, 512.0
  - Mechanical ventilation allowed, 512.5
  - Window area required for, 512.2, 512.3
- Bay window**
  - Construction of, 924.5
  - Definition, 201.0
  - Over public property, projection, 310.6
- Beams**
  - Fireproofing of, 913.0
  - Fire-resistance, protected steel, Table 214.0
  - Fire-resistance, reinforced concrete, Table 214.0
  - Reinforced concrete, 842.0
  - Steel, formed, 827.0
  - Steel, structural, 828.0
  - Structural, glued laminated, 856.0
  - Wood, 855.0
  - Wood in heavy timber construction, 853.5.1
- Boaring**
  - On hollow masonry units, 839.0, 869.2.3
  - For wood beams and girders, 852.5, 853.5.1
- Bearing partitions (see Walls)**
- Bearing, soil capacity, 720.0**
- Bearing walls (see Walls)**
- Bleachers, 420.0**
- Blocks, concrete masonry units (see also Masonry)**
  - Fire-resistance ratings required, Table 214.0
  - Tests, 802.0
- Board of appeals, 129.0**
- Board of survey, 125.0**
- Boiler (see also Boiler room)**
  - Construction of rooms, 1109.1, 400.6
  - Definition of, 201.0
  - General requirements, 1100.0
  - Required mounting and clearance, 1105.1
- Boiler room**
  - Hazardous locations, 400.6
  - In public garages, 414.6
  - Location of, 1105.2
  - Special requirements, 1105.1
- Bond, masonry**
  - Foundation walls, 869.2.5
  - General, 835.1
  - Masonry walls, 835.0
  - Veneered walls, 854.4.1, 854.4.2, 863.0, 864.0
- Borings and tests of soils, 720.0, 721.0, 722.0**
- Bowling alleys**
  - Use group A-3, assembly 203.4, 203.7
- Bracing**
  - Adjoining existing buildings, 1305.3
  - During erection, 1307.1
  - Exterior stud walls, 854.2.3
  - For stud walls and partitions, bearing, 854.2.1
  - Masonry walls, lateral, 836.0
- Brick (see Masonry)**
- Bridges**
  - Over sidewalks (wrecking), 1306.3
- Bridging, 854.7.1**
- Buildings**
  - Allowable areas and heights, 305.0, Table 305
  - Alterations of existing buildings, 106.0, 304.0
  - Certificate of use and occupancy, 119.0
  - Change in use, 105.2, 119.4
  - Classified by type of construction, 214.1
  - Classified by use or occupancy, 202.1
  - Condemnation of, 124.0
  - Definition, 201.0
  - Height, definition, 201.0
  - Height, exceptions, 308.0
  - Height, allowable, 305.0, Table 305, 307.1, 307.1.1
  - High rise, 431.0
  - Historic, Article 22
  - Maintenance, 104.0
  - Moving, 116.0
  - Over public way, 309.0, 310.0, 311.0, 312.0
  - Regulated by fire limits, 302.0, 303.0
  - Temporary, 314.0
  - Unlimited area, 307.0
  - Unsafe, 123.0, 124.0
  - Unsafe appendages to, 124.0
- Building code**
  - Administration, Article 1
  - Adopted, 100.1
  - Application, 100.3
  - Enforced, 108.1
  - Matters covered, 101.0
  - Modifications, 109.2
  - Remedial, 100.4
  - Scope, 100.2
  - Validity, 126.0
  - Violation or penalties, 121.0, 121.3
- Building materials**
  - Weights of, Appendix J
- Building official**
  - Appoints inspectors, 107.6
  - Charge of building department, 107.1
  - Classified building, 212.0
  - Definition, 201.0
  - Deputies, 107.4, 107.6
  - Inspections by, 108.4, 110.0
  - Issues permits, 108.2, 113.0
  - Liability, 107.6
  - May order occupancy of building discontinued, 124.1
  - May require plans to be sealed by licensed engineer or architect, 112.7
  - May require tests, 802.0
  - Powers and duties of, 106.0
  - Records, official, 107.9, 108.7
  - Record of permits required, 108.7
  - Reports, 108.8

**CONNECTICUT BASIC BUILDING CODE/1978**

Retention of plans, 113.5  
 Right of entry, 111.0  
 Rule making authority, 108.6  
 Shall issue certificate of occupancy, 119.0  
 Stop work orders, 122.0  
 Building official's authorization required  
 Before changing plans, 112.8  
 For changes of use or occupancy, 105.0  
 For structural alterations, 106.0  
 Building paper, 820.5  
 Building permits (see Permits)  
 Bus and passenger terminals, fire limits, 302.7

**C**

Caissons, special, 742.0  
 Canopies  
 Construction, 313.3, 313.5  
 On exterior walls, 313.3  
 Over public property, 313.1  
 Service stations, 415.1  
 Cast stone  
 Bonding, 835.0, 841.0  
 General requirements, 814.0  
 Cavity walls  
 Definition, 201.0  
 Ceilings  
 Definition (see Story), 201.0  
 Fireresistive rated assemblies, 912.0  
 Fireresistive required, basement or cellars, 905.7.2, 905.7.3  
 Panels, 912.2  
 Cellar  
 Definition, 201.0  
 Fire protection required (see Fire protection system, where required)  
 Cement  
 Concrete, materials, mixes, 818.0  
 Gypsum cement mortar, 815.5  
 Mortar types and materials, 815.0  
 Plastering, 821.0  
 Ceramic tile  
 Mortar, types and mix, 815.6, 815.6.1, 815.7, 815.8  
 Certificate of occupancy  
 Existing buildings, 119.3  
 General, 119.0  
 Poeling of, 120.0  
 Temporary occupancy, 119.5  
 Change of occupancy, 105.2, 119.5  
 Change of use, 105.0, 119.4  
 Changes in plans, 112.6  
 Changes to buildings  
 Alterations, 106.2, 106.4, 108.5  
 Existing, 106.0  
 Chases (see Masonry and Walls)  
 Chemicals  
 Hazardous use groups, 206.2  
 Chimneys  
 Appliances requiring, 1004.1  
 Classification of, 1003.1  
 Construction of, 1007.2  
 Definition, 201.0  
 Factory-built, 1002.2.1  
 Firestopping around, 1007.11  
 For fireplaces, 1007.1  
 Foundations, 1007.12  
 Flue lining required, 1007.3  
 General requirements, 1000.0, 1004.1

On existing buildings, 1005.0  
 Wood frame, spaced from, 1007.4  
 Churches  
 Use group A-4, assembly, 203.5, 203.7  
 Chutes  
 Refuse, 1107.0  
 Cinder concrete, structural, 844.0  
 City (see Jurisdiction)  
 Classification  
 Of buildings, by building official, 212.0  
 Of buildings, by occupancy, 202.0  
 Of buildings, by types of construction, 214.0  
 Of types of construction, 216.0, 216.0, 217.0, 218.0  
 Clay tile  
 Allowable stresses, 807.0  
 Bonding, 835.0  
 Fireresistance ratings, 807.3  
 in foundation walls, 869.2.2  
 Mortar, types and mix, 815.0  
 Vaneer, 854.4, 854.4.1, 861.0  
 Clearances  
 Around fireplaces, 1007.4  
 Around reinforcing in concrete, 728.3.2  
 Around timber in masonry, 853.5.1  
 Awnings, movable, 310.8, 310.9, 313.2  
 Ducts, 1009.0  
 Heating appliances, 1105.1  
 Marquee awnings, 310.10  
 Of balconies above grade, 310.7  
 Of wood above grade 854.6.1  
 Projection over sidewalks, 310.0  
 Under first floor joists, 507.3  
 Coal pockets, 410.5  
 Code, scope, 100.0  
 Columns  
 Cast iron construction, 831.4.1  
 Concrete filled pipe, 846.0  
 Fireresistance and protection of, 911.0  
 Fireresistance tests, 903.0  
 Heavy timber construction, 855.3  
 Live load reduction, 718.0  
 Reinforcement, 829.4  
 Working stresses, cast iron and steel, 828.0  
 Combustible  
 Dusts, grain processing and storage, 410.0  
 Fibers, use and storage, 409.0  
 Combustibility tests, 903.5  
 Combustible materials  
 Decorative material restrictions, 923.0  
 Definition, 201.0  
 Fireresistance tests, 904.0  
 Insulation, 907.6, 876.0  
 Interior finish, wood frame construction, 854.10  
 Interior trim, 920.0, 922.0  
 Prohibited in fire limits, 400.10  
 Prohibited in Type 1 buildings, 215.0  
 Prohibited in Type 2 buildings, 216.0  
 Compliance with permit, 114.3  
 Computations, may be required, 112.7  
 Concentrated loads, 707.0  
 Concrete (see also Reinforced concrete)  
 Aggregates, 816.0  
 Caissons, 739.0  
 Columns, concrete filled pipe, 846.0  
 Controlled, 842.0  
 Definition, 201.0  
 Footings, 728.0  
 Gypsum reinforced concrete, 849.0

- Minimum dimensions, 846.0
  - Ordinary, 843.0
  - Piles, 732.0, 734.0, 736.0, 737.0
  - Pipes in, 841.5
  - Plain concrete, 840.0
  - Pneumatic, 847.0
  - Ready-mix, 817.0
  - Reinforced (see also Reinforced concrete), 841.0
  - Shefts in caissons, 841.3
  - Short span floor filling, 845.0
  - Structural cinder, 844.0
  - Units (see also Masonry), 809.0
  - Concrete, masonry blocks (see Blocks, concrete masonry units)
  - Condensation and weather resistance, 854.9
  - Condition of permits, 114.0
  - Connections
    - In wood framing, 852.3.1
    - Mechanical and welded, 826.5
  - Construction
    - Approval of materials, etc., 108.0, 109.0, 804.0
    - Classification of construction materials, 801.0
    - Controls, 127.0
    - Covered by code, 101.0
    - Fences, 1308.2
    - General requirements, 214.0, 800.0
    - Masonry, 834.0
    - Permitted outside fire limits, 303.0
    - Permitted within fire limits, 302.0
    - Prefabricated, Article 18
    - Protection during, 1306.0
    - Safeguards, 1300.0
    - Stage, 417.7
    - Steel, 828.0, 827.0, 828.0, 830.0
    - Types of construction, 215.0, 218.0, 217.0, 218.0
    - Wood, 852.0, 853.0, 854.0
  - Controlled concrete, 842.0
  - Controlled materials procedure, 719.1
  - Convalescent homes
    - Use group I-2, Institutional, 207.3, 207.4
  - Conveyor systems
    - For dust, stock and refuse, 1109.0, 1618.0
  - Cooling towers, 925.9
  - Caping
    - On parapet walls, 868.3
    - On retaining walls, 870.4
  - Corbelling
    - Foundation walls, 869.4
    - Masonry, 838.0
  - Cornices
    - Projection over public property, 310.0
    - Type of construction, 924.2
  - Corridors
    - Arrangements, 607.1, 610.1
    - Capacity of egress width, 608.0
    - Fire-resistive ratings, Table 214
    - Light and ventilation, 513.1.3
    - Obstructions, 610.1
    - Passageways and corridors, 610.0
    - Widths, 610.3
  - Corrosion protection, 733.0
  - Court
    - Definition, 201.0
    - Permissible encroachments, 311.0
  - Covered malls, 432.0
  - Coverings
    - Ducts, 1009.0
    - Exterior, plywood, 824.2
    - For exterior stairs, 619.1
    - For exteriors, weather protection, 654.4
    - Interior floors, 624.3.2
    - Roofs, 925.0
  - Crawl space, ventilation, 507.3
  - Cupolas, type of construction, 925.10
  - Curtain, proscenium, 417.7.7
  - Curtain wall
    - Definition, 201.0
    - Retroofing, 873.0
- ## D
- Dampers
    - Fire, approved type, 903.4.5
    - Stage ventilation, 417.7.9
    - Where required, 905.11
  - Dance halls
    - Use group A-2, assembly, 203.3, 203.7
  - Dangerous structures, 123.0, 124.0
  - Dead loads
    - Definition, 201.0
    - Design, 704.0
  - Decisions of board of appeals, 126.5
  - Decorative features
    - Projections, 310.0
  - Decorative material restrictions, 923.0
  - Decorative trim restrictions, 920.0, 924.0
  - Definitions, 201.0
  - Deflection criteria, 702.2, 803.0
  - Demolition
    - Permit, when required, 115.1
    - Unsafe buildings, 123.0
  - Depth of foundations
    - Governed by frost line, 724.0
    - Governed by soil conditions, 723.0
  - Design
    - Approved by building official, 804.1
    - Cast-in-place concrete piles, 737.2
    - Composite piles, 741.1
    - Dead load, 704.0
    - Fire protective requirements (see Fire protection systems)
    - Formed steel construction, 827.1
    - Foundation walls, 869.1
    - General, 700.0
    - Glass, glazing, 802.2, 857.5
    - Live loads, 703.0, 706.0
    - Lumber and timber construction, 852.1
    - Masonry wall construction, 834.1
    - Plain concrete, 840.2
    - Plastics, 876.5, 1901.0
    - Precast concrete piles, 736.2
    - Prefabricated construction, Article 18
    - Proscenium curtains, 417.7.7
    - Reinforced brickwork, 850.2
    - Reinforced concrete, 841.1
    - Reinforced hollow block construction, 851.1
    - Retaining walls, 870.2
    - Safe load, 701.0
    - Seismic (earthquake), 718.0
    - Signs, general requirements, 1407.0
    - Special steels, 832.1
    - Steel joist construction, 828.2
    - Steel pipe and tapered tubular piles, 738.3
    - Wind loads, 712.0, 713.0, 714.0, 715.0
  - Detector, smoke (see Automatic fire alarm systems)

## CONNECTICUT BASIC BUILDING CODE/1978

### Deviations

From code, 109.4

From plans, 114.5

Devices for window cleaning, 521.0

### Dilapidated buildings

Condemnation of, 123.1

Display of permit, 113.8

Display sign, definition, 201.0

### Doors

Approved type, fire, 915.1, 915.2  
903.4.2

Automatic closing devices for, 915.5

Egress, means of, 812.0

Existing buildings, 604.0

Fire (see Fire doors)

Fire separation walls, 808.0

For fire separation, 917.2

In horizontal exits 814.2, 814.3

Location of, 812.4, 807.0

Openings in mixed occupancy  
separation, 909.0

Openings in stairways or shaftways,  
909.0

Panic hardware, 812.6.2

Power operated, 812.5.4

Rated fire door assemblies, 815.1

Required to open out, 812.2

Revolving, 613.0

Width of, 812.3

Dormers, 925.7

### Dormitories

Definition (see Dwellings), 201.0

Use group R-1, residential, 209.2,

209.5

### Downspout

For roofs, 924.1

Dressing rooms (see Theatres)

### Drive-in theatres

Use group A-5, assembly, 203.6, 203.7,  
421.0

### Ducts

Construction of air-conditioning,  
heating and ventilating, 1009.0

Fire dampers required in, 905.11

Shafts, vertical, 910.5

### Dumbwaiter

Enclosures, 1609.1.2, 1609.1.3

Opening protectives, 1613.0

Vent requirements, 1609.3, 1609.4,  
1609.5

Dusts, combustible, 410.0

### Duties

Of board of appeals, 125.0

Of board of survey, 125.0

Of building official, 108.0

Of employees, 107.7

### Dwellings

Area and height limitations, general,  
305.0, Table 305

Ceiling height (see definition of

Habitable space), 201.0

Definition, 201.0

Exits, existing, 604.0

Fire separation walls in, 909.1.2

Foundations, 899.0

Number of exitways, 608.0

Occupancy load, 606.0

Use group R, residential, 209.0

## E

Earthquake (seismic) design, 716.0

### Eaves

Projection, 310.0

Construction, 924.0

Egress (see Means of egress)

Electrical equipment and wiring, Article 15

### Elevators

Certificate of compliance, 1603.0

Construction, 1600.2

Enclosures, 1609.1.1

Existing, 1605.0

Exitway restrictions, 1610.0

For high rise buildings, 431.8

Fire department use, 1607.2

General, 1600.0

Identification of, 1601.3

Maintenance, 1604.0

Opening protectives, 1613.0

Passenger restrictions, 1607.3

Permits, 1601.2

Plans and specifications, 1601.1

Safety devices, 1613.4

Speed limits, 1608.0

Tests and inspections for, 1602.0,  
1603.3.1

Vent requirements, 1609.3, 1609.4,  
1609.5

### Emergency

Controls, proscenium curtains, 417.7.7

Exits from theatres, 417.3.3

Lighting, 417.9.5, 624.0

Signs for exits, 623.0

### Emergency measures

Cost of emergency repairs, 124.5

Emergency repairs, 124.4

Vacating structures, 124.1

Employees, restrictions on, 107.7

### Enclosure

Combustible construction allowed,  
616.9.3, 909.3

For elevators, 1609.1.1

For interior stairs, 616.9.2

Of exterior stairways, 619.1

Of moving stairways, 620.7.2

Ramps, 615.0

Vertical shafts and hoistways, 810.0

Enclosure walls (see Walls)

### Encroachments

Awnings and canopies, 310.8

Existing, 309.6

Special and temporary, 312.0

Street, 309.0

Yard and court, 311.0

Energy conservation, Article 20

Enforcement of code, 108.0

Engineering practice, 108.2, 600.2

Entry, right of, 111.0

Escalators, 620.0, 1620.0

### Excavations

Protection of, 1307.0

Protection of adjoining property, 1312.0

Walkways over, 1306.3

Exhaust ventilation (see Ventilation)

### Existing buildings

Additions, alterations, repairs, 102.1,  
106.0, 304.0

Areas, allowable, 304.2, Table 305

Certificate of occupancy, 119.3

Change in existing use, 105.0, 105.7

Change of occupancy, 119.4

Condemnation of, 123.1

Definition, 201.0

Demolition, 115.0

Entry, right of, 111.0

- Exits, 604.0
    - Fire limits, 304.2
    - General requirements, 106.0
    - Inspection of, 108.4, 110.0, 120.4
    - Maintenance, 104.0
    - Moving, 118.0
    - Non-structural alterations and repairs, 102.1
    - Unsafe, 123.0
  - Existing electrical installation, 1505.0
  - Existing signs, 1404.0
  - Exit lights, 623.0, 624.0
  - Exit signs, 623.0
  - Exits, exitways (see Means of egress)
  - Expiration of permit, 113.2
  - Exterior hoists, 1315.0
  - Exterior opening, protection required because of location on property, 914.0
  - Exterior stairways, 618.0
  - Exterior trim restrictions, 924.0
- F**
- F, use group, factory and industrial, 205.0
  - Faced (veneered) walls (see Walls)
  - Factories
    - Use group F, occupancy, 205.0
    - Use group H, high hazard, 206.0
  - Fallout shelters, 430.0
  - Fees
    - For demolition, 117.5
    - For moving of buildings, 117.4
    - For new construction and alterations, 117.3
    - For signs, 117.6
    - General, 117.0
    - Special, 117.2
  - Fences
    - Excavations, 1307.0
    - For construction purposes, 1306.2
    - General requirements, 1308.0
  - Fiberboard, 623.0
  - Fibers, combustible, 409.0
  - Filling stations (see Automotive service stations)
  - Film
    - Storage and use of flammable film, 408.0
  - Finish, interior (see Interior finish)
  - Fire
    - Access panels, 859.0
    - Alarm system (see Fire protection system)
    - Dampers, 903.4.5, 905.11
    - Emergency ventilating system, 519.0
    - Firestopping, 112.7, 875.0
    - Sprinklers and standpipes (see Fire protection systems)
    - Ventilation of open walls, 520.0
  - Fire alarms (see also Fire protection systems and High rise buildings)
  - Fire appliances during construction, 1318.0
  - Fire dampers, 903.4.5, 905.11
  - Fire detection systems (see Automatic fire alarm system, 1216.0)
  - Fire department
    - Central control station for, 1218.0
    - Connections, 1213.0
  - Fire doors
    - Closures, 915.5
    - Dressing rooms, 417.8.2
    - General, 915.0, 903.4.2, 903.4.3
    - On openings in exterior walls, 914.0
    - On openings in fire walls, 908.3, 908.3.1
    - On openings in proscenium walls, 417.7.6
    - On openings in stage enclosures, 417.7.5
  - Fire escapes
    - As exits, 621.1
    - Existing buildings, 621.0
    - Maintenance of, 605.0
  - Fire limits
    - Establishment of, 301.0
    - Restrictions on cooling towers in, 925.9
    - Restrictions outside, 303.0
    - Restrictions within, 302.0
    - Roof coverings in, 302.2, 926.0
    - Roof coverings, outside, 303.0, 926.0
  - Fireplaces, construction of, 1007.0
  - Fire protection
    - For buildings under construction, 1318.7, 1318.6
    - For spray booths, 1202.14
    - Requirements, detailed, Article 12
  - Fire protection systems, Article 12
    - Areas increased by, 305.3
    - Automatic fire alarm systems, 1216.0
    - Carbon dioxide extinguishing system, 1208.0
    - Dry chemical extinguishing system, 1210.0
    - Fire department connection, 1213.0
    - Foam extinguishing system, 1207.0
    - General requirements, 1200.0
    - Halogenated fire extinguishing system, 1209.0
    - Height increased by, 308.1
    - Limited area sprinkler system, 1206.0
    - Manual fire alarm system, 1217.0
    - Plans and specifications, 1201.0
    - Standpipes, where required, 1211.2
    - Supply media, 1214.0
    - Suppression system selection, 1203.0
    - Temporary standpipe requirements, 1212.0
    - Water spray fixed systems, 1206.0
    - Water sprinkler system, 1204.0
    - Where required, 1202.0
    - Yard hydrants, 1215.0
  - Fire-resistance rated construction
    - Assemblies, 903.1, 912.0
    - Ceilings and floors, 912.0
    - Construction requirements, general, 900.0
    - Definition, 201.0
    - Fire hazard classification, 902.0
    - Plans and specifications, 901.1
    - Protection of structural members, 911.0
    - Roof coverings, 903.3, 926.0
    - Special requirements, 905.0
    - Tests, 903.0
  - Fire-resistance ratings of structural elements, Table 214
  - Fire retardant treated wood
    - Tests, 903.6.1
    - Use limitations, 903.6.2
  - Fire separation
    - Required for occupancy, 909.0
  - Fire shutters, 916.0
  - Firestopping
    - Architectural trim, 924.2.3, 875.7

## CONNECTICUT BASIC BUILDING CODE/1978

Between chimneys and wooden construction, 1007.11  
Between wood sleepers, 922.2  
Floor/roof ceilings assemblies, 812.3, 912.4  
General requirements, 919.0, 112.7  
Of attic spaces, 875.6, 875.6.1, 912.0, 919.0  
Fire towers (Smokeproof enclosure), 618.0  
Fire ventilation  
Emergency ventilation system, 519.0  
Of open wells, 520.8  
Fire walls, 907.0  
Fire windows, 918.0  
Flag poles, 926.1  
Flammable  
Combustible dusts, grain processing and storage, 410.0  
Combustible fibers, use and storage of, 409.0  
Flm, storage and use of, 408.0  
Flameresistance tests  
General, 904.1  
Interior finish materials, 904.2  
Interior hangings and decorations, 904.3  
Flashing  
Wood construction, 854.9  
Floodproofing, 872.6  
Floor  
Area, 305.0, Table 305, 306.0, 307.0  
Combustible materials permitted in Type I and Type II buildings, 922.0  
Floor area, definition, 201.0  
Plywood sheathing, 824.0  
Public garages, 414.2.5  
Reroofing, 873.0  
Theatre stages, 417.7.2  
Floor loads  
Dead, 704.0  
Design live, 703.0, 706.0  
Existing buildings, 705.0  
Reductions allowed, 718.0  
Required to be posted, 120.0  
Flues  
Area for fireplaces, 1007.8  
Lining for chimneys, 1007.3  
Foam plastics, 876.5, 920.4.1  
Footings  
Concrete, design, 728.0  
Depth, 724.0  
Design, general, 725.0, 726.0, 728.0  
Loads, 723.0  
Of masonry, 728.0  
Of reinforced concrete, 728.3.2  
On public property, 309.2  
Protection of steel and grillage footings, 727.0  
Steel grillage, 727.0  
Timber, 728.0  
Formed steel construction, 827.0  
Foundations  
Allowable loads, 723.0  
Caissons, 739.0  
Design, 969.1  
Footing design, 724.0, 725.0  
For neighboring building, 1307.2  
May project beyond property line, 309.2  
Minimum depth, 724.0  
Minimum thickness, 869.2  
Piers, 731.0  
Piles, 732.0, 735.0, 736.0, 737.0, 738.0, 740.0, 741.0, 742.0

Reroofing, 873.0  
Steel grillage, 727.0  
Walls, 869.0  
Wood and timber, 728.0  
Frame buildings in fire limits, 302.2  
Frame construction, wood  
General requirements, 854.0  
Restrictions within fire limits, 302.0, 400.10  
Frost  
Depth of foundation, 724.1

## G

Garages  
Beneath a dwelling, 413.1.1  
Construction of public garages, 414.2  
Definitions, 201.0  
Fire doors, 413.1.1  
Heating equipment, 414.5, 414.6  
On lot line (private), 303.2, 305.1  
Open parking structures, 429.0  
Private, 413.0  
Public, 414.0, 905.2  
Repair shops, motor vehicles, 416.0, 905.2  
Separations, 413.1.1, 413.1.2, 413.1.3, 414.2.3  
Service stations, motor fuel (see also Automotive service stations), 415.0, 905.2  
Storage of flammables, 414.4  
Ventilation, 414.3  
Garage, private  
Connected to dwelling, 413.1.1, 413.3  
Definition, 201.0  
Use group T, temporary and miscellaneous, 211.0  
Garage, public  
Classified, 201.0  
Construction limited, 414.2  
Definition, 201.0  
Fire suppression system required, 1202.9, 1211.2.4  
Special fire-resistance requirements, 905.2  
Use group S-1, storage, 210.2, 210.4  
Ventilation required, 414.3  
Gas  
Appliances, flues and vents for, 1006.0  
Gas-fired equipment, (see Mechanical Code listed in Appendix B)  
Gasoline service station (see also Automotive service station)  
Defined as motor fuel service station, 201.0  
General requirements, 415.0  
Glass  
Area required, 506.2  
Block walls, 812.0, 860.0  
Dimensional tolerances, 857.5.3  
Impact loads, 857.5.6  
In fire doors, 917.1  
Jalousies, 857.5.6  
Labeling and identify, 857.5.1  
Specific hazardous locations, 857.5.6.1  
Strength tests for, 802.2.1  
Supports, 857.5.2  
Veneer, structural, 862.0  
Wind loads, 857.5.4  
Wired glass, 917.0  
Glazed masonry units, 808.0  
Glazing, plastics

- Approved, 1900.2, 1900.2.1
- Bathroom accessories, 1908.0
- Exterior wall panels, 1903.0
- Greenhouses, 1910.0
- Of unprotected openings, 1902.0
- Roof panels, 1904.0
- Skylight assemblies, 1905.0
- Glued laminated lumber construction, 856.0
- Glues for wood, 818.0
- Grade
  - Definition, 201.0
  - Depth of footings and foundations below, 726.0, 869.0
  - Marked lumber, 852.1
  - Marked plywood, 824.0
  - Passageways and lobbies, 611.0
- Grading a lot, 1308.1
- Grain processing and storage, 410.0
- Grandstands, 420.0
- Ground
  - At grade protection, wood construction, 854.6
  - Clearance of wood framework above, in crawl spaces, 507.3
  - Signs, 1408.0
- Grounding
  - Metal roofs, 926.5, 926.5.1
  - Metal veneer, 864.4
  - Mobile homes, travel trailers, 424.4.8
  - Radio and television antennae, 427.3
  - Radio and television towers, 426.5
- Gutters
  - Minerats for roof drainage, 924.1
- Gypsum
  - Concrete reinforced, 840.0
  - Mortar, 816.5
  - Units, 811.0
- H**
- H, use groups, high hazard, 205.0
- Habitable space
  - Definition, 201.0
- Handicapped and aged, requirements for, 315.0
- Handrails
  - For ramps, 615.2
  - For retaining walls, 670.5
  - For stairways, 618.5, 616.5.1, 616.5.2
- Hardware on exit doors, 612.5
- Hazardous
  - Equipment rooms, 400.7
  - Existing buildings, 405.1, 405.2
  - General, 400.0
  - High hazard (see Use group H), 206.2
  - Low hazard (see Use group S-2), 210.3
  - Moderately hazardous (see Use group S-1), 210.2
  - Prohibited with assembly use, 417.2.1
  - Restrictions in fire limits, 400.10
  - Storage segregation, 400.9
- Headroom
  - In dwellings (see definition of Habitable space), 201.0
  - In stairways, 616.2.2
- Hearth for fireplaces, 1007.10
- Heating
  - Chimneys, 1007.1
  - Fireplaces, 1007.0
  - Furnace and boiler rooms, 400.7, 414.6, 1105.1
  - Gas fired equipment, 1100.2
  - General requirements, 1100.0
  - Heating, air-conditioning and ventilating ducts, 1009.0
  - Heating and ventilating equipment in hazardous occupancies, 1100.2
  - Incinerators, 1008.0
  - Temporary during construction, 1318.2, 1318.3
- Heating appliances and systems
  - Industrial classification of, 1100.2
  - In existing buildings, 1103.1
  - Oil burning installations, 1100.0
  - Oil, fuel tanks and equipment, 1100.0
  - Public garages, 414.5, 414.6
  - Temporary during construction, 1318.2
- Heavy timber construction (see Type 3A construction), 853.0
- Height
  - Affect of wind loads, 712.0, 713.0, 714.0
  - Alterations for existing buildings, 304.2
  - Awnings, 310.8, 310.9
  - Definitions, 201.0
  - Exceptions, 309.0
  - For unlimited area building, 307.1
  - Handrails or railings, 616.5.1, 870.5
  - Limitations, 305.3, 307.0
  - Marquees, 310.10.1
  - Masonry walls, 834.1
  - Of buildings, 305.0, Table 305
  - Parapet walls, 868.1
  - Permissible street projections, 310.0
  - Raising adjoining chimneys and vents, 1005.1
  - Restrictions, 305.3, 305.4, 307.1
  - Stairway, maximum vertical rise, 616.3.2
  - Towers, spires, cupolas, aerial supports, poles, etc., 925.0
  - Types of construction, 1, 2, 3 and 4, 305.0, Table 305
  - Use groups, 305.0, Table 305
  - Veneered walls, 854.4.3
- High hazard structures
  - Use group H, 206.0
- High rise buildings
  - Alarm and communications system, 431.5
  - Applicability, 431.1
  - Automatic fire suppression system, 431.3.1
  - Central control station, 431.6
  - Elevators, 431.8
  - Emergency power, 431.9
  - Exits in, 431.10
  - Smoke control, 431.7
  - Smoke detection systems, 431.4
- Historic buildings, Article 22
- Homes for aged
  - Use group I-2, institutional, 207.3, 207.4
- Horizontal exits
  - Definition, 201.0
  - General requirements, 614.0
- Hospitals
  - Use group I-2 institutional, 207.3, 207.4
- Hotels
  - Use group R-1, residential, 209.2, 209.6
  - Definition (see Dwelling), 201.0

**CONNECTICUT BASIC BUILDING CODE/1978**

House, lodging  
 Use group R, residential, 209.0

**I**

I, use groups, institutional, 207.0  
 Identification of employees, 111.2  
 Identification for plastics, 1900.2  
 Identification for signs, 1401.3  
 Illuminated signs, 1414.0  
 Incinerators, 1008.1  
 Industrial heating appliances, classification, 1100.0  
 Industrial lifts and loading ramps, 1616.0  
 Industrial  
     Use group F, factory and industrial buildings, 205.0

Infirmaries  
     Use group I-2, institutional buildings, 207.0

Inner court  
     Definition (see Court), 201.0

Insane asylums  
     Use group I-1, institutional buildings, 207.2, 207.4

Inspection  
     By building official, 108.4, 110.0  
     Final, 110.3  
     Of amusement devices, 419.4  
     Of electrical wiring, 1502.0  
     Of existing buildings, 108.4  
     Of heating systems, 1102.0  
     Of prefabricated construction, 110.3  
     Of signs, 1405.4  
     Of unsafe buildings, 123.0  
     Preliminary, 110.1

Insulation  
     Fiber boards for roof, 823.4  
     Fiber boards for wall, 823.5  
     Foam plastics, 876.5, 920.4.1  
     Thermal insulating material requirements, 876.0

Interior finish and trim  
     Application of, 821.0  
     Classification of materials, 904.2, 920.6  
     Decorative material restrictions, 923.0  
     Flame resistance tests, 904.0  
     Flame spread of, 904.2, 904.3  
     Foam plastics, 876.5, 920.4.1  
     General requirements, 920.0  
     Restrictions in Types 1 and 2 buildings, 922.0  
     Use group requirements, Table 920, 920.5

Interior lot lines, definition, 201.0

**J**

Jails  
     Use group I-1, institutional buildings, 207.2, 207.4

Jalousies  
     Windows and doors, 857.5.5

Jurisdiction  
     Adopting this code, 100.1

**L**

Landing of stairs, 615.3  
 Landings of ramps, 615.3

Leaders and gutters, 924.1  
 Licenses

    Fees for, 117.0

Lifts  
     Automotive, 1617.0  
     Industrial, 1618.0

Light, illumination  
     Alcoves, 507.1  
     Artificial, 504.0  
     Assembly, rooms, 510.1  
     Basement and cellars, 508.0  
     Bath and toilet rooms, 512.0  
     Court requirements for, 518.0  
     For exit signs, 823.0  
     For existing buildings, 505.0  
     For stairways and exitways, 513.0, 824.0  
     General, 500.0  
     Institutional buildings, 511.0  
     Natural, 502.1, 506.0  
     Theatre lighting, 417.3.8, 417.9  
     Window requirements, 506.2

Lintel  
     Definition, 201.0  
     Fire protection, 911.2, 911.7, 911.7.1  
     Over openings, frame construction, 854.2.6

Loads, design, 701.0, 702.0, 703.0, 704.0  
 Loads, impact

    Assembly structures, 708.5  
     Craneways, 708.4  
     Elevators, 708.2  
     General, 708.1  
     Machinery, 708.3  
 Loads (live, dead, floor)  
     Combination of, 719.0  
     Concentrated, 707.0  
     Craneways, 708.4  
     Definition, 201.0  
     Deflections allowable, 803.3  
     Earthquake, 716.0  
     Floor loads, occupancy, 708.1, Table 706  
     For concrete footings, 725.0, 728.0  
     For retaining wall design, 709.2  
     Footings and foundations, 723.0, 725.0  
     Glass (see Loads, glass)  
     Impact, 708.0  
     Piles, allowable, 734.0  
     Posting of live loads, 706.2  
     Railings, 709.4  
     Reductions allowed, 718.0  
     Required to be posted, 706.2  
     Roof, 710.0, 714.0  
     Snow, 711.0  
     Soil, bearing capacity, 720.0  
     Special, 709.0  
     Tests, 701.3  
     Uniform, 708.0  
     Wind (see Loads, wind)

Loads, glass  
     Impact loads, 857.5.6  
     Jalousies, 857.5.5  
     Wind loads, 857.5.4

Loads, wind  
     Chimneys, 712.0, 715.0  
     Exterior walls, 713.0  
     General requirements, 712.0  
     Glass, 857.5.4  
     Overturning, 712.5  
     Roofs, 710.0, 714.0  
     Signs, 715.0  
     Special conditions, 712.2



Loading and shipping rooms, 905.4, 905.5  
 Loading ramps, industrial, 1618.0  
 Lobbies, grade passageways and, 611.0  
 Lodging houses  
   Definition (see Dwelling), 201.0  
   Use group R, residential, 209.0

Lot  
   Definition, 201.0  
   Interior lot line, definition, 201.0  
   Line fences, 1309.1  
   Plot plan required, 112.6  
   Regulations for, 1308.0  
 Lumber (see also Wood construction)  
   Grade of, 852.1

## M

M, use groups, mercantile, 208.0

Maintenance  
   Of buildings and structures, 104.0  
   Of exit facilities, 605.2  
   Of fire protection systems, 1200.3  
   Of signs, 1405.2  
 Malls, covered, 432.0

Manlifts  
   General requirements, 1615.0

Mansard roofs, 925.6

Manual fire alarm systems, 1217.0

Maps  
   Seismic risk, Figure L-101.1  
   Snow load, Appendix L, Figures L-102.1a, b and c, Figures L-102.2a, b and c  
   Wind velocity, Figure 712.1

Marquees and canopies  
   Construction requirements, 310.10.5, 313.3, 313.5  
   Definition (see Signs), 201.0  
   Drainage of water, 310.10.3  
   Signs, 310.10, 1412.0

Masonry  
   Bonding, 835.0  
   Brick, 805.0  
   Cast stone, 814.0  
   Chases and recesses, 837.0  
   Chimneys, 1003.1  
   Concrete units, 809.0  
   Construction requirements, 834.0  
   Corbeled and protected, 836.0  
   Cornices, 838.3  
   Definition, 201.0  
   Design, 834.1  
   Footings, 729.0  
   Foundations, 869.2.2  
   Freezing protection, 834.3  
   Glass block, 811.0  
   Glazed units, 808.0  
   Gypsum units, 810.0  
   Hollow, definition of, 201.0  
   Hollow units, 809.2, 809.3  
   Lateral bracing, 836.0  
   Mortar, 815.0  
   Reinforced, 850.0  
   Reinforced hollow, 815.0  
   Re-use of, 805.2  
   Solid, definition of, 201.0  
   Solid units, 809.4  
   Stone, natural, 813.0  
   Terra cotta, 812.0  
   Tests, general, 800.0  
   Thickness of walls, 868.0  
   Tie, structural, 807.0

Veneers, 861.0

Matches  
   Use group H, high hazard, 206.0

Materials  
   Alternate, 800.4  
   Approvals, 804.0  
   Brick units, 806.0  
   Cast stone, 814.0  
   Concrete aggregates, 816.0  
   Concrete units, 809.0  
   Glazed masonry units, 808.0  
   Gypsum units, 810.0  
   Mortar, 815.0  
   Natural stone, 813.0  
   Plastics, approved, 1900.2, 1900.2.1  
   Plywood, 824.0  
   Structural clay tile units, 807.0  
   Structural glass block units, 811.0  
   Structural wood glues, 818.0  
   Used, 800.5

Means of egress  
   Air conditioned buildings, 603.0  
   Aisles, corridors and passageways, required width for, 610.3  
   Arrangement of exits, 610.1, 602.3  
   Buildings with one stairway, 609.3  
   Capacity of exits, 608.0  
   Definition, 201.0  
   Doorways, 612.0, 616.6  
   Doors revolving, 613.0  
   Exit hallways, 610.0  
   Exit openings in exterior walls, 614.0  
   Exit signs, 623.0  
   Exterior exitway stairways, 619.0  
   Fire escapes, 621.0  
   From places of assembly, 417.3  
   General provisions, 600.0  
   Grade passageway and lobbies, 611.0  
   Hardware, 612.5  
   Hazards to, 625.0  
   Horizontal exits, 614.0  
   In existing buildings, 604.0  
   Interior exitway stairways, 616.0  
   Length of travel, 607.4, Table 607  
   Lighting, 624.0  
   Location and type of, 607.0  
   Maintenance of exitways, 605.0  
   Moving exitway stairways, 620.0  
   Number of exitways required, 609.0, 609.2, 612.2  
   Occupancy load, 606.0  
   Opening protectives, 610.4  
   Passageways and corridors, 610.0  
   Ramps, 615.0  
   Staircases, 622.0  
   Smokeproof enclosure, 618.0  
   Spiral stairways, 616.7  
   Stairway, construction, 616.9  
   Supplemental stairways, 618.8  
   To roof, 617.0  
   Units of egress widths, 608.1  
   Unlimited one-story buildings, 307.0

Measurement of heights  
   Definition of height, 201.0

Mechanical ventilation (see Ventilation)

Metal roofs  
   Grounding of, 926.5

Metal siding  
   Corrosion protection, 854.6.2  
   Thickness, 854.4

Metal smokestacks, 1003.0

Meters, gas, 1109.4

Mezzanine or mezzanine floor,

## CONNECTICUT BASIC BUILDING CODE/1978

Definition, 201.0  
Mini construction, 217.2  
Miscellaneous buildings  
  Use group T, temporary and miscellaneous, 211.0  
Miscellaneous signs, 1413.0  
Mixed occupancies, 213.0  
Mobile dwelling units, requirements, 424.0  
Modification of code provisions  
  By board of appeals, 126.0  
  Of area, 308.0  
  Of height, 308.0  
  Variations, 108.6, 109.2, 109.4  
  Written, 109.2.1  
Mortar  
  Cement, 815.6  
  For glass blocks, 860.2  
  For masonry, 815.0  
  Gypsum, 815.5  
  Special, 815.4  
Motel  
  Use group R, residential, 209.0, 425.0  
Motion picture theatres (see Assembly buildings and Theatres)  
Motion picture theatre, drive-in type, 421.0  
Motion picture studios, 408.6  
Motor fuel service stations (see Automotive service stations)  
Motor, auto garages  
  Definition, 201.0  
  Private garages, 413.0  
  Public garages, 414.0  
Motor vehicle repair  
  Shops, 416.0  
  Roof storage of, 415.0  
Moving stairways, 1619.0  
Multiple dwelling  
  Definition (see Dwelling), 201.0  
  Use group R-2, residential, 209.3, 209.6  
**N**  
Nails  
  Nailing schedule, Appendix M  
New materials or methods of construction  
  Alternate materials and alternate methods of construction, 800.0  
  Board of appeals, 126.1  
Nitro-cellulose products, 407.0  
Noncombustible construction  
  Definition, 201.0  
  General, 216.0  
Noncombustible material (see Definition), 201.0  
Notices  
  Of violation, 121.2  
  Posting occupancy load, 120.2  
  Posting permits, 113.6  
  Safe floor loads, 120.1  
  Stop work order, 122.0  
  Unsafe buildings, 123.3, 123.5, 124.1  
**O**  
Occupancy  
  Certificate of, 119.0  
  Covered by code, 101.0  
  Definitions, 201.0  
  Doubtful classification, 212.1  
  Mixed uses and occupancy, 213.0

Change in use, 105.2  
Occupant load  
  Allowances, 608.0, Table 608  
  Definition, 201.0  
Office buildings  
  Use group B, business, 204.0  
Oil  
  Burning equipment installations, 1100.0  
Oil storage  
  Fuel oil tanks and equipment, 1100.2  
  Tank vents, 1100.2  
Openings  
  Exterior opening protectives, 914.0  
  Horizontal protection, 914.2  
  In fire partitions, 908.0  
  In shaft enclosure walls, 910.0  
  Protected with fire doors or windows, 903.4  
  Vertical protection, 914.3  
  On or near exterior stairways, 618.3  
Open parking structures  
  Height and area, 429.6  
  Protective railings, 429.6  
  Separations for, 429.3  
  Use group S-1, storage, moderate hazard, 210.2, 210.4  
  Type of construction permitted, 429.2  
  Wheels guards required, 429.9  
Oriel window  
  Definition, 201.0  
Owner  
  Definition, 201.0  
**P**  
Paint  
  Of formed steel, 827.3  
  Of structural steel, 826.6  
  Spraying and spray booths, 411.0  
Panels  
  Fire access, 859.0  
  Stress skin, 855.0  
Panel walls  
  Glass block, 860.0  
  Thickness of, hollow, 867.2  
  Thickness of solid, 867.1  
  Weather resistance of, 867.3  
Panic hardware, on exit doors, 612.5  
Parapet wall  
  Construction of, 868.3  
  Not required, 868.2  
  Where required, 868.2  
Parking structure, open  
  Definition, 201.0  
  General requirements, 429.0  
Parking lot requirements, 423.0  
Party walls  
  Affected by excavations, 1307.0  
  Carried to underside or above roof, 907.7  
  Construction of, 907.0  
  Definition, 201.0  
  Parapets required, 907.7  
  Size and construction of openings, 908.0  
Passenger and bus terminals (within fire limits), 302.8  
Passageways  
  Corridors, 610.0  
  Grade and lobbies, 611.0  
  Horizontal exits, 614.0

- Obstructions prohibited, 805.1
- Penalties and violations, provided by code, 121.0
- Penthouse
  - Definition, 201.0
  - General requirements, 325.4
- Permits
  - Action on applications, 113.1
  - Amendments to, 112.6
  - Application for, 112.2, 112.3
  - Approval in part, 113.7
  - Awnings, 313.1
  - Conditions of, 114.0
  - Definition, 201.0
  - Electrical, 1504.0
  - Examination of drawings, 113.5
  - Expiration, 113.2
  - Fees, 117.0
  - For awnings and canopies, 313.1
  - Issued upon affidavit, 112.3
  - Posting of, 113.8
  - Records to be kept, 109.2.1, 113.5
  - Revoked, 113.8, 308.5
  - Signs, 1401.0
  - Special permits, 405.1
  - Suspension of, 113.2
  - Temporary, 113.7, 314.0
  - To move buildings, 115.1
  - To wreck buildings, 115.6
  - When required, 112.1
  - Validity, 128.0
  - Validations, 108.8, 117.0
- Person
  - Definition, 201.0
- Petroleum storage
  - Bulk storage buildings, 905.3
- Piers
  - Isolated masonry, 871.1
- Piles
  - Cast-in-place concrete, 737.0
  - Composite, 741.0
  - Corrosion-protected, 733.0
  - Foundations, 732.0
  - Loads allowable, 734.0
  - Precast concrete, 735.0
  - Special, 742.0
  - Steel pipe and tubular, 738.0
  - Structural steel, 740.0
  - Timber, 735.0
- Pipe
  - Columns, concrete filled, 846.0
  - Piles, 738.0
  - Shafts, 910.5
- Pits in garages, 415.1.3
- Planking
  - For combustible construction, 1313.2
  - For structural steel frames, 1313.3
- Plestering and lathing
  - Application, exterior, 820.1
  - Application, interior, 819.1
  - Combustible (wood) lath, 822.7
  - Fire-resistance requirements, 818.0
  - General requirements, 819.1, 820.1
  - Gypsum lath, 822.2, 822.3
  - Gypsum plaster, 821.4
  - Interior lathing and plestering, 819.0
  - Inspection of, 819.2.1
  - Lime, 821.3
  - Materials, 821.0
  - Metal and wire lath, accessories, 820.3, 822.4, 822.5
  - Over masonry, 820.7
- Plastics
  - Approved, 1900.2 1900.2.1
  - Approval for use, 1900.2.2
  - Bathroom accessories, 1808.1
  - Design and installation, 1901.0
  - Fastenings, 1901.0
  - Foam, 876.5, 920.4.1
  - Glazing of unprotected openings, 1902.0
  - Interior finish and trim, 920.0
  - Light diffusing systems, 1908.0
  - Of signs, 1407.4.2
  - Partitions, 1907.0
  - Pyroxylin, 407.0
  - Roof panels, 1904.0
  - Scope and use, 1900.1
  - Skylights, 1905.0
  - Structural requirements, 1901.1
  - Thermoplastics, definition, 201.0, 1900.2.1
  - Thermosetting, definition, 201.0, 1900.2.1
  - Veneer, 865.1
  - Wall panels exterior, 1903.0
- Plenums, 905.10
- Plenum chamber definition, 201.0
- Plot plan, required, 112.6
- Plumbing
  - Certificate of approval, 1703.3
  - Existing, 1705.0
  - Permits, 1703.0
  - Plans and specifications, 1701.0, 1703.1, 1703.2
  - Sewer and water supply data, 1702.0
  - Water supply systems, 1704.0
- Plywood, 824.0
- Pneumatically placed concrete, 847.0
- Portable signs, 1415.0
- Posting
  - Certificate of occupancy, 120.1, 120.2
  - Live loads, 120.1, 706.2
  - Permits, 113.8
  - Unsafe building, 124.1
- Prefabricated construction
  - Approvals on design, 1806.0
  - Approval and inspection services, 1803.0
  - Approvals on tests, 1807.0
  - Egress facilities for (see also Means of egress), 1815.0
  - General, 1800.0
  - Heating and air-conditioning for, 1817.0
  - Light and ventilation for, 1814.1
  - Light gage steel frame, 1809.0
  - Light reinforced concrete frame, 1811.0
  - Light reinforced gypsum frame, 1812.0
  - Light wood frame, 1810.0
  - Materials for, 1808.0
  - Plans, 1801.0
  - Plumbing and piping for, 1816.0
  - Prefabricated units, 1804.0
  - Test, 1802.0
- Pressure vessels, unfired, 1100.2
- Projecting signs, 1411.0
- Projections from buildings
  - Awnings and canopies, 310.6, 313.0
  - Bay windows, 310.6
  - Balconies and stairs, 310.7
  - Below sidewalk, 309.2
  - Belt courses, 310.3
  - Cornices and eaves, 310.2
  - General, 309.1

## CONNECTICUT BASIC BUILDING CODE/1978

- In alleys, 312.0
- Marquees, 310.10
- Signs, 1403.2.3, 1411.0, 1412.0
- Special and temporary, 312.0
- Street encroachments, 309.0
- Street projections, permissible, 310.0
- Yard and court, 311.0
- Protection against corrosion
  - Formed steel, 827.3
  - Structural steel, 826.6
- Protection against dampness
  - Of crawl spaces, 507.3
  - Of foundation walls, 872.4
- Protection against decay and termites, 874.0
- Protection during construction
  - During wrecking, 1308.0
  - Of adjoining property, 1312.0
  - Of excavation, 1307.0
- Protection of exterior openings
  - Of exterior wall, 814.0, 816.0
  - Of fire wall opening, 908.0
- Public assembly
  - Use group A, assembly, 203.0
- Public space, definition, 201.0
- Pyroxylin plastics, 407.0

## Q

- Qualifications
  - For board of survey, 125.2
  - Of assistants, 107.6
  - Of board of appeals, 128.2.2
  - Of building official, 107.5

## R

- R, use groups, residential, 209.0
- Radio antennae and towers, 427.0
- Railings (see Handrails)
- Ramps, 615.0
- Recesses (see Masonry and Walls)
- Ratproofing
  - General, 873.1
  - Grade floors, 873.3
  - Grade protection, 873.2
  - Opening protection for, 873.4
- Records
  - Of decisions, 126.5
  - Of departments, 107.9
- Recreation buildings
  - Use group A, assembly, 203.0
- Refineries
  - Use group H, high hazard, 208.0
- Reformatories
  - Use group I-1, institutional, 207.2, 207.4
- Refuse, chutes, 1107.0
- Refuse vaults, 1108.0
- Reinforced
  - Foundation walls, concrete, 869.2.1
  - Gypsum concrete, 849.0
  - Masonry, foundation walls, 869.2.2
  - Walls, 869.0
- Reinforced concrete (see also Concrete)
  - Definition, 201.0
  - Design, 841.1
  - Footings, 731.2.2
  - Gypsum, 849.0
  - Pipes in, 841.5
  - Slabs, 841.2
- Reinforced gypsum concrete, 849.0

- Removal
  - Of buildings and structures, 123.0
  - Of waste during construction, 1311.0
- Repair
  - Of existing buildings, 102.1, 106.0
  - Of unsafe buildings or structures, 123.4
    - Permit not required, 102.1
    - To roofs of existing buildings, 826.2
- Repair shops, motor vehicle
  - Definition (see Garages, public), 201.0
  - General, 416.1
  - Public garages, 414.0
  - Use group S-1, storage, moderate hazard, 210.2, 210.4
- Residential buildings
  - Sound transmission control, 522.0
  - Use group R, 209.0
- Restaurants
  - Use group A-3, assembly, 203.4, 203.7
- Restrictions
  - Area, 305.2
  - Height, 305.3
  - On employees, 107.7
  - Outside fire limits, 303.0
  - Special occupancy, 400.0
  - Within fire limits, 302.0
- Retail stores
  - Use group M, mercantile, 208.0
- Retaining wall
  - Definition, 201.0
  - Design, 870.2
  - General, 870.1
  - Guard rails for, 870.5
- Reviewing stands, 420.0
- Revocation of permit 113.6, 309.5
- Revolving doors, 613.0
- Risers for stairways (see Stairways)
- Roof construction
  - As required by type of construction, 215.0, 216.0, 217.0, 218.0
  - Cooling towers, 925.9
  - Covering, 926.0
  - Definition of roof structure, 201.0
  - Fire and party walls to extend to or above, 907.7
  - Fireresistance requirements, Table 214
  - Loads, 710.0, 714.0
  - Mansard or ordinary construction, 925.6
  - Of approved plastics, 1900.2.1, 1904.0
  - Over terraces, approved plastics, 1904.5
  - Wind loads, 712.0
  - Wood construction, 854.8
- Roof covering
  - Classified, 903.3, 925.3
  - Definitions, 201.0
- Roofing repairs on existing buildings, 925.2
- Roof signs, 1409.0
- Roof structures, 925.0
- Rooming houses
  - Use group R, residential, 209.0
- Rubbish chutes, 1107.0
- Rubble stone foundation walls, 869.2.4
- Rule making authority
  - Promulgated by building official, 108.6
- Rust protection
  - For formed steel, 827.3
  - For metal in footings, 733.0
  - For structural steel, 826.6

**S**

S, use group, storage, 210.0  
 Safeguards during construction, 1300.0  
 Safe loads on soil, 720.0  
 Safety devices for window cleaning, 521.0  
 Salamanders, 1318.2  
 Sanitariums  
     Use group I-2, institutional, 207.3  
     207.4  
 Scale of plans, 112.5  
 Schools  
     Use group A-4, assembly, 203.5, 203.7  
 Scope of code  
     General, 100.0  
 Screens for skylights, 925.5.3  
 Scuttle  
     Scuttle size and construction, 925.2  
 Seismic (earthquake) design, 716.0  
     Appendix L (L-101.0)  
 Shaft  
     Definition, 201.0  
     Duct and pipe, 910.5  
     Enclosures, 910.2, 910.3  
     Top enclosures, 910.6  
     Ventilation of, 515.0  
     Vertical enclosures, 910.0  
 Shell, definition of, 201.0  
 Sheathing  
     Floor, 824.3.1  
     For exterior lathing and stucco, 820.5  
     General requirements for, 825.1  
     Roof, 824.3.1, 854.8.1  
     Subfloor, 824.3.2  
     Wall, 825.0, 854.3  
 Shed  
     Sidewalk, 1306.4  
 Sheet piling for excavations, 1307.1  
 Shelter, layout, 430.0  
 Shingles and shakes  
     Wood, 854.8.2  
 Shutters  
     Shutters on exterior wall openings,  
     916.0  
 Sidewalks  
     Bridge, 1306.3  
 Siding  
     Minimum material requirements, 854.4  
 Signs  
     Alley, 1403.2.4  
     Alterations to, 1401.4  
     Banner and cloth, 1413.1  
     Bonds and liability insurance, 1406.0  
     Design loads, 1407.1, 1407.2, 1411.4  
     Exemptions, 1402.0  
     Extending, 1404.0  
     Extending over curb prohibited, 1411.2  
     For exits, 623.0  
     General requirements, 1407.0  
     Ground, 1408.0  
     Ground projecting, 1411.0  
     Identification, 1401.3  
     Illuminated, 1407.3, 1414.0  
     Inspection of, 1405.4  
     Maintenance, 1405.2  
     Marquee, 1412.0  
     Miscellaneous, 1413.0  
     Permit fees for, 117.6  
     Permits for, 1401.0  
     Plans and specifications, 1401.0  
     Plastics for, 1407.4.2, 1900.2  
     Pole, 1408.0

Roof, 1409.0  
 Temporary, 1413.0  
 Unsafe, unlawful, 1403.0  
 Wall, 1410.0  
 Wind loads, 715.0, 1407.2.1  
 Within fire limits, 1408.1.1  
 Skylights  
     Over shaft enclosures, 910.8.2  
     Over shafts and stairways, 515.2  
     Plastic, 1900.2, 1900.2.1, 1905.0  
     Screens, 925.5.3  
 Slideescapes, 822.0  
 Smokeproof enclosure, 618.0  
 Snow load, 711.0  
 Soil  
     Bearing, allowable, 720.0  
     Bearing capacity, 720.0  
     Tests, 721.0, 722.0  
 Sound transmission control in residential  
 buildings  
     Airborne noise, 522.2  
     Scope, 522.1  
     Structure borne sound, 522.3  
     Tested assemblies, 522.2.1, 522.3.1  
 Spondra for vertical separation of windows,  
 906.3  
 Spark arrestors, 1010.0  
 Special fire-resistance requirements  
     For grade floor protection, 905.7  
     For petroleum bulk storage buildings,  
     905.3  
     For packing and shipping rooms, 905.4  
     For public garages, 905.2  
     For residential buildings, 905.6  
     For truck loading and shipping areas,  
     905.5  
 Special occupancy use and requirements  
     Assembly occupancies, 417.0  
     Explosion hazards, 401.0  
     General requirements, 400.0  
     Scope, 400.1  
     Special industrial buildings, 400.0  
 Spray painting  
     Booths, 411.0  
 Sprinklers (see also Fire protection systems)  
     Area increase permitted, 306.3  
     Capacity per unit egress, width  
     permitted, 608.2, Table 609  
     General requirements, 1200.0  
     Length of travel, increase permitted,  
     607.4, Table 607  
     Where required, 1202.0  
 Stadiums  
     Use group A-5, assembly, 203.6,  
     203.7, 420.0  
 Stage  
     Classification of occupancy, 417.1  
     Construction, 417.7  
     Curtain, proscenium, 417.7.7  
     Definition, 201.0  
     Exits from 417.7.6  
     Floor construction, 417.7.2  
     Rooms, accessory, 417.6  
     Separated from auditorium by wall,  
     417.7.1, 417.7.6  
     Switchboard, 417.7.4  
     Ventilation of, 417.7.8  
 Stairways  
     Access to roof, 817.0  
     Definition, 201.0  
     Door to stairway, 816.6  
     Enclosure, combustible, 816.9.3, 909.3  
     Enclosures, exterior, 819.1

CONNECTICUT BASIC BUILDING CODE/1978

- Enclosures, interior, 616.9.2
- Exterior, 619.0
- Fire escapes, 621.0
- Guard details, 616.5.2
- Handrails, 616.5, 616.5.1
- Headroom clearance, 616.2.2
- Interior, 616.0
- Landings, width, 616.3
- Lighting, 513.3
- Means of egress, 609.2, 616.0
- Means of egress lighting, 624.0
- Moving, 620.0, 1620.0
- Railings, 616.5
- Rise between landings, 616.3.2
- Slidescapes, 622.0
- Spiral stairway, 616.7
- Supplemental, 616.6
- Treads and risers, 616.4
- Width, 616.2.1
- Winders, 616.4.2
- Standing in aisles prohibited, 417.6
- Standpipes
  - During construction, 1212.0
  - Water supplies, 1214.0
  - Wet standpipe requirements, 1211.0
- Starting work
  - Notice to building official, 113.9
- Steel construction
  - Buildings in fire limits, 302.0
  - Cast iron construction, 831.0
  - Cast steel construction, 830.0
  - Fire escapes, 621.0
  - Frame construction planking, 1313.3
  - Grillage in footings, 727.0
  - Joists, open web construction, 828.0
  - Light gage and formed steel construction, 827.0
  - Painting, 826.6
  - Reinforcing, 829.0
  - Special steel, 832.0
  - Structural, 826.0
  - Welding, 826.5
- Steel pipes
  - Concrete filled, 738.1
- Stone
  - Cast, 814.0
  - Foundation walls, 889.2.4
  - Natural stones, 813.0
  - Veneer, 853.0
- Stop work orders, 122.0
- Storage
  - Of combustible fibers, 409.0
  - Of combustible dusts, grain processing and storage, 410.0
  - Of pyroxylin plastics, 407.5, 407.5.1
  - Use group S, storage, 210.0
- Story, definition, 201.0
- Street
  - Definition, 201.0
  - Encroachments, 309.0
  - Permissible projections, 310.0
- Structural clay tile, 807.0
- Structural glass block, 811.0
- Structural requirements for plastics, 1901.0
- Structural steel (see Steel)
- Structure
  - Definition, 201.0
  - Unsafe, 123.0
- Survey, board of, 125.0
- Swimming pools
  - Change of use, 405.4.1
  - Classification of 428.2
  - Design and construction, 428.5
- Permit and plans, 428.3
- Safety precaution, 428.8
- Water supply treatment, and drainage system, 428.6

T

- T, use groups, temporary and miscellaneous, 211.0
- Television antennas, 427.0
- Temporary
  - Boilers, 1318.3
  - Buildings or structures, 314.0, 422.0
  - Electrical use, 1503.0
  - Heating devices, 1318.2
  - Occupancy, 118.5
  - Permits, 113.7, 314.1
  - Safeguards, 124.1
  - Signs, 1413.0
  - Structures, use group T, 211.0
  - Structures in fire limits, 302.4
  - Termination of approval for temporary buildings, 314.3
- Tents, air-supported structures, requirements, 422.0
- Termite protection
  - Approved pressure preservative treatment of wood, 874.6, 874.7
  - Special, 874.7.1
- Tests
  - Fire, 802.7
  - Fire-resistance, 803.0
  - Flame-resistance, 904.0
  - General, 802.0
  - New materials and devices, 800.4
  - Of construction equipment, 1302.0
  - Of electrical systems, 1502.3
  - Pile capacity, 734.6.2
  - Prefabricated construction, 602.8, 1800.3, 1802.1
  - Procedure for soil, 722.0
  - Quality of material, 602.0
  - Soil bearing values, 720.0
  - Structural steel unit, 826.0
  - Working stresses, 719.0
- Theatres
  - Aisles, 626.0
  - Balcony and gallery entrance and exits, 417.3.2
  - Dressing and appurtenant rooms, 417.8
  - Drive-in (see Drive in theatre)
  - Egress requirements, 417.3, 417.8.4
  - Existing, 405.3
  - Exitway discharge courts, 417.3.5
  - Exitway doors, 417.3.7
  - Exit lights, 417.3.8
  - Fire protection requirements, 417.10
  - Foyers, 417.6
  - Horizontal exits, 417.3.1
  - Interior wall and ceiling finish, 417.2.5, 417.8.3, 923.0
  - Lighting, general, 417.9
  - Proscenium curtain, 417.7.7
  - Railings, 417.5
  - Restrictions, 417.2
  - Seating, 417.4
  - Stage construction, 417.7
  - Standpipes, 417.10.2, 417.10.3
  - Use group A-1, assembly, 203.2, 203.7, 417.0
  - Ventilation of stage, 417.7.9
  - Waiting space, 417.8.5

Thermal insulating materials, 876.0  
 Thermoplastics accepted, Article 19  
 Thermosetting plastics, accepted, Article 19  
 Towers  
     Radio and television, requirements, 426.0  
     Wind, loads, 715.0, 426.4  
 Travel, length of, to exits, 607.4  
 Treads, stairs, 616.4  
 Trim, exterior, 924.0  
 Trim, interior (see Interior finish and trim)  
 Trusses  
     Individual encasement, 913.1  
     Roof slabs and arches, 913.3  
     Roofs, 20 feet or higher, 913.2  
 Tunnel flame spread test, 903.5.1  
 Types of construction  
     Type 1, fireproof, 216.0  
     Type 2, noncombustible, 216.0  
     Type 3, exterior masonry walls, 217.0  
     Type 4, combustible, 216.0  
 Types of fires, gas fuels, 1004.0

**U**

Underpinning, 1305.3  
 Unfired pressure vessels, 1100.2  
 Unlimited area, buildings, 307.0  
 Unsafe  
     Structures, 123.0

Use  
     Certificate of occupancy for, 119.0  
     Change in existing, 105.0  
     Doubtful classification, 212.0  
     Group classification, 202.0  
     Of exitways, 602.0  
     Part change in, 106.7  
 Utilities, public, discontinuance of in demolition of structures, 115.1, 1308.2

**V**

Validity  
     Of code, 128.0  
 Vaults, refuse, 1108.0  
 Veneers  
     Definition, 201.0  
     For frame construction, 854.4  
     Height of, for frame buildings, 854.4.3  
     Metal, 864.0  
     Plastic, 865.0  
     Stone and tile, 863.0  
     Structural glass, 862.0  
     Wall facings and, 861.0  
 Ventilation  
     Attics, 607.2  
     Basements and cellars, 508.1  
     Bath and toilet rooms, 512.0  
     Court requirements for, 516.0  
     Crawl space, 507.3  
     Ducts through fire walls, 1009.0  
     Fire emergency ventilating systems, 519.0  
     Fire ventilation of open walls, 520.0  
     For existing buildings, 606.0  
     For stairways and exitways, 513.0  
     Garages, 414.3  
     General requirements, 500.0  
     Institutional buildings, 511.0  
     Mechanical, 504.0, Article 20  
     Natural, 503.1, 508.0

Of alcoves, 507.1  
 Shaft other than elevator and dumbwaiter, 515.0  
 Skylights, vent and louvers, 512.5  
 Windows, 508.2  
 Vents  
     Appliances requiring, 1006.2  
     For listed appliances, 1008.1  
     Ventilators over stages, 417.7.9  
     Vent shafts, 910.0  
     Ventilating skylights, 513.1.2  
     Ventilating systems, 519.8  
 Vertical openings  
     Conveyor openings, 1618.2  
     Enclosures, 910.0  
     Shafts, 515.0  
 Vertical separation of windows, 906.3  
 Violations and penalties  
     Abatement, 121.5  
     Notice of, 121.2  
     Penalties, 121.4  
     Stop-work, 122.0  
     Unsafe building, 123.0

**W**

Wallboard (see also Sheathing)  
     For frame construction, 854.3  
     Gypsum, 823.6  
     Plywood, 824.0  
 Walls (see also Masonry)  
     Bearing, chases and recesses in, 837.0  
     Bearing, lateral bracing of, 836.0  
     Bearing, wood frame construction, 854.2.1  
     Bonding of, 835.0  
     Concrete masonry units, 809.0  
     Concrete, ordinary, 843.0  
     Corbeled and projecting masonry, 836.0  
     Definitions, 201.0  
     Design for wind on vertical surfaces, 712.0, 713.0  
     Ducts in fire walls, 903.4.5, 905.11, 1009.0  
     Enclosure for theatre stages, 417.7.1  
     Enclosure walls required, 857.0  
     Fire and party, 907.0  
     Fire wall openings, 908.0  
     Fire separation, 909.0  
     Foundation walls, 869.0  
     Glass block, 811.1, 862.0  
     Gypsum, 810.0  
     Hollow, 839.0  
     Hollow panels, thickness of, 867.2  
     Lateral support of bearing, 836.0  
     Lintels, protection, 911.7  
     Masonry wall construction, 834.0  
     Panel, 867.0  
     Parapet, 868.0  
     Penthouse, 925.4  
     Plain concrete, 840.0  
     Proscenium, 417.7.6  
     Protection of exterior openings in, 914.0  
     Protection of openings in, 858.0  
     Reinforced concrete, 841.0  
     Reinforced concrete walls, 889.2.1  
     Retaining, 870.0  
     Roof structure, 925.0  
     Shaft enclosure, 910.0  
     Solid masonry, 866.0

CONNECTICUT BASIC BUILDING CODE/1978

Stone, foundation, 669.2.4  
 Thickness of panel, 887.0  
 Thickness of parapet, 868.0  
 Thickness of solid, 866.0  
 Veneers, glass, 862.0  
 Veneers, metal, 864.0  
 Veneers, plastic, 865.1  
 Veneers, thickness of, 861.2  
 Veneers, thin and tile, 863.0  
 Wall signs, 1410.0  
 Warehouse  
     Use group S, storage, 210.0  
 Warm air heating systems, 1100.0  
 Waste chutes, 1107.0  
 Waste to be removed, 1311.0  
 Watchman's shelters, 302.5  
 Water  
     Supply for plumbing, 1704.0  
     Tanks, 925.8  
 Waterproofing of exterior structural elements, 872.0  
 Waterproofing of foundation walls, 872.4  
 Welding  
     General requirements, 826.5  
     Safeguards during construction, 1320.0  
 Width  
     Aisles, 610.3  
     Lobbies used as an exitway element, 611.2  
     Means of egress doors, 612.3  
     Stair exitway doors, 616.6.1  
     Units of exit width, 608.1  
 Wind load design  
     Buildings, 712.0  
     Glass, 857.5.4  
     Radio and television towers, 426.4  
     Signs, 715.0, 1407.2.1  
 Windows  
     Cleaning safeguards, 521.0  
     Dormer, 925.7  
     Fire, 816.0  
     Fire-resistant design, 903.4.4  
     Glass area required, 506.2  
     in stairways and passageways, 513.0  
     Required for light and ventilation, 506.0  
     Vertical separation of, 906.0  
 Wired glass  
     In fire-resistant doors and windows, 917.0  
 Wood construction  
     At grade protection, 854.6  
     Bearing walls, 854.2.1  
     Bracing, 854.2.1  
     Bridging, 854.7.1  
     Buildings in fire limits, 302.0  
     Buildings outside fire limits, 303.0  
     Cambering, 852.3.2  
     Connections, 852.3.1  
     Cornices, 924.2.1  
     Creosote treatment of footings, 782.2  
     Cutting and notching, 852.3.3  
     Designated type of, 218.1  
     Fiberboards, 823.0  
     Flashing, 854.9  
     Floor sheathing, 824.3.1  
     Foundation anchorage, 854.5  
     Foundation, general, 869.0  
     Framing around fireplaces, 1007.4  
     Framing around flues and chimneys, 875.4  
     Header beam, 852.4

Heavy timber construction, 853.0  
 Minimum lumber dimensions, 852.2  
 Nailing, 854.4.4, Appendix M  
 Non-bearing walls, 854.2.2  
 Piles, 735.0  
 Plywood, 824.0  
 Quality of materials, 824.1  
 Reflections within fire limits, 302.0  
 Roof sheathing, 824.3.1, 854.8.1  
 Sheathing lath, 854.3.1  
 Shingles and shakes, 854.8.2  
 Spans for plywood sheathing, 824.3, 824.3.1, 824.3.2  
 Stressed skin panels, 855.0  
 Structural glued laminated timber, 857.0  
 Structural members, 852.0  
 Structural wood glues, 818.0  
 Stud spacing, 824.3.3  
 Subfloors, 824.3.2  
 Veneer, height of, 854.4.3  
 Veneer, masonry, 854.4.1  
 Veneer, metal, 854.4.2  
 Wall sheathing, 854.3  
 Weatherboarding, exterior, 854.4  
 Wood frame construction, 854.0

Work  
     Start, 113.9  
     Stop order, 122.0  
 Working stresses, allowable  
     Controlled materials, 719.0  
 Workmanship (see Articles 7 and 8)  
     Tests, 802.5  
 Written notice  
     Definition, 201.0  
  
**Y**  
 Yard  
     Definition, 201.0  
     Obstruction of, 5180  
     Permissible encroachments, 311.0

**Z**  
 Zoning  
     Restrictions, 101.5



File No. BMR 033-81

Board of Materials Review

Notification of Listing

Date of Listing: June 8, 1982

Expiration Date: June 8, 1983

1. Manufacturer: Arpin Products  
1718 F. Street  
South Belmar, NJ 07719
2. Listed Unit: Asbestite #2000
3. Application: To be sprayed on Asbestos containing  
insulation to encapsulate asbestos  
fibers per U.S. E.P.A. and OSHA  
regulations.
4. Applicable Code References:  
Asbestos encapsulation and/or removal  
of insulation on ceilings, walls and  
pipe lagging.
5. Conditions of Listing:  
That it be installed in accordance  
with the manufacturer's instructions.

NOTE: An original copy of the listed application is on  
file in the State Building Inspector's Office for  
inspection or reference.

File No. BMR 005-82

Board of Materials Review

Notification of Listing

Date of Listing: June 8, 1982

Expiration Date: June 8, 1983

1. Manufacturer: Basic Instruments, Inc.  
1560 24th Street  
North Chicago, IL 60064
2. Listed Unit: "Thrifty-Vent" or En-R-Tech System -  
Design certified draft hood -  
"Diverter" to A.N.S.I. Z21.12 by the  
American Gas Association.
3. Application: Draft controlling; energy conservation;  
custom installed.
4. Applicable Code References:  
Venting - Heating
5. Conditions of Listing:  
That it be installed in accordance  
with the manufacturer's instructions.

NOTE: An original copy of the listed application is on  
file in the State Building Inspector's Office for  
inspection or reference.

( File No. BMR 003-82

Board of Materials Review  
Notification of Listing

Date of Listing: April 27, 1982  
Expiration Date: April 27, 1983

- (
1. Manufacturer: Borg Warner, Dow and Monsanto Companies  
Borg-Warner Corporation  
International Center  
Parkersburg, WV 26101
  2. Listed Unit: ABS Schedule 40 DWV Foam Core Pipe  
conforming to ASTM Standard F628-79.
  3. Application: Drain, waste, vent and building sewer  
installation instruction is in the ASTM  
F628-79 Standard.

4. Applicable Code References:

In the Drain, Waste, Vent and Building  
Sewer Section of the 1979 BOCA  
Plumbing Code. Material is currently  
approved and listed in the 1981  
Edition of the BOCA Basic Plumbing  
Code.

( 5. Conditions of Listing:

None.

NOTE: An original copy of the listed application is on  
file in the State Building Inspector's Office for  
inspection or reference.

(

(

(

File No. BMR 011-82

Board of Materials Review

Notification of Listing

Date of Listing: June 29, 1982

Expiration Date: June 29, 1983

1. Manufacturer: Cen-Tec Manufacturing Corporation  
5858 Thunderbird Road  
Indianapolis, IN 46236
2. Listed Unit: Cen-Tec Couplings  
Cen-Tex Flexible Couplings, sizes 1-1/2"  
x 1-1/2" through 12" x 12"; Centex  
Rollon Universal Sewer Adapter, size  
6" x 4".
3. Application: Transition fitting for drain waste and  
vent; sewer and storm drains both above  
and below ground application.
4. Applicable Code References:  
Plumbing and Drainage  
Sewer and Storm Drainage
5. Conditions of Listing:  
That it be installed in accordance with  
the manufacturer's instructions.

NOTE: An original copy of the listed application is on  
file in the State Building Inspector's Office for  
inspection or reference.

( File No. BMR 013-82

Board of Materials Review

Notification of Listing

Date of Listing: June 29, 1982

Expiration Date: June 29, 1983

- (
1. Manufacturer: Dumont Industries  
P.O. Box 148  
Monmouth, ME 04259
  2. Listed Unit: Dumont Storage/Expansion Tank - Unfired  
pressure vessel built to material, cal-  
culation and welding specifications of  
Section VIII ASME Boiler and Pressure  
Vessel Code.
  3. Application: Heat storage tank to be used in con-  
junction with DWB-130 or DWB-350 (BMR  
File No. 030-80).
  4. Applicable Code References:  
Article 11, Connecticut Basic Building  
Code  
BOCA Basic Mechanical Code/1978
  5. Conditions of Listing:  
That it be installed in accordance with  
the manufacturer's instructions.

(

NOTE: An original copy of the listed application is on  
file in the State Building Inspector's Office for  
inspection or reference.

(

(

(

File No. BMR 028-81

Board of Materials Review  
Notification of Listing  
Date of Listing: February 23, 1982  
Expiration Date: February 23, 1983

1. Manufacturer: Energy Marketing Corporation  
P.O. Box 636  
Bennington, VT 05201
2. Listed Unit: Home Heater - Model B1 and B2 -  
Hot Air Packs.
3. Application: Use with H1 and H2 Home Heater as  
shown in Operation and Accessories  
Manual.
4. Applicable Code References:  
Article 10 - Sections 1007.1, 1007.14.1  
and 1007.15  
Article 11
5. Conditions of Listing:  
That it be installed in accordance  
with the manufacturer's instructions.

NOTE: An original copy of the listed application is on  
file in the State Building Inspector's Office for  
inspection or reference.

File No. BMR 023-81

Board of Materials Review

Notification of Listing

Date of Listing: December 22, 1981

Expiration Date: December 22, 1982

1. Manufacturer: Gold Bond Building Products  
1650 Military Road  
Buffalo, NY 14217-1198
2. Listed Unit: Gold Bond I-Stud Shaftwall and  
Separation Wall System; Interior two-  
hour fire-rated partition systems.
3. Application: Shaft and stairway enclosures and fire  
separation walls.
4. Applicable Code References:  
903.0 - Fire Resistance Tests  
907.0 - Fire Walls and Party Walls  
909.0 - Fire Separation Walls  
910.0 - Vertical Shafts
5. Conditions of Listing:  
Subject to limitations, recommendations  
and installation procedures contained  
in the manufacturer's construction  
guide and technical bulletin.

NOTE: An original copy of the listed application is on  
file in the State Building Inspector's Office for  
inspection or reference.

File No. BMR 027-81

Board of Materials Review  
Notification of Listing

Date of Listing: December 22, 1981

Expiration Date: December 22, 1982

1. Manufacturer: Heil-Quaker Corporation  
647 Thompson Lane  
Nashville, TN 37204
2. Listed Unit: Heil and Whirlpool - Gas fired counter-  
flow power vent furnaces - NDGE075AF01,  
NDGE105AF01, NDGE135AH01.
3. Application: See Installation and Operating  
Instructions.
4. Applicable Code References:  
Heating Equipment
5. Conditions of Listing:  
That it be installed in accordance  
with the manufacturer's instructions.

NOTE: An original copy of the listed application is on  
file in the State Building Inspector's Office for  
inspection or reference.



File No. BMR 001-82

Board of Materials Review

Notification of Listing

Date of Listing: February 2, 1982

Expiration Date: February 2, 1983

1. Manufacturer: See pages 1 and 2 of U.L. File #E65378, "Energy Distribution System".
2. Listed Unit: Herman Miller Energy Distribution System.
3. Application: See brochure.
4. Applicable Code References:

The panels used with this system pass Class 1 Fire Resistance Code per BOCA Basic Building Code/1978. The electrical section of the system passes 1978 NEC 90-6 because the entire system is U.L. approved, tested, listed and labeled.

5. Conditions of Listing:

That it be installed in accordance with the manufacturer's instructions.

NOTE: An original copy of the listed application is on file in the State Building Inspector's Office for inspection or reference.

File No. BMR 010-82

Board of Materials Review

Notification of Listing

Date of Listing: June 29, 1982

Expiration Date: June 29, 1983

1. Manufacturer: Ken-Weld Inc.  
68 Albany Street  
Worcester, MA
2. Listed Unit: A.M. Andersen Ambassador Multi-Fuel  
Boiler - Hydronic, Ambassador, T-30,  
T-40, T-60, T-90 and T-125 multi-fuel  
steel plate.
3. Application: Space heating for buildings, residences  
and industry.
4. Applicable Code References:  
  
Low pressure hot water heating boiler  
A.S.M.E., Section - H Stamp.
5. Conditions of Listing:  
  
That it be installed in accordance with  
the manufacturer's instructions.

NOTE: An original copy of the listed application is on  
file in the State Building Inspector's Office for  
inspection or reference.

File No. BMR 026-81

Board of Materials Review

Notification of Listing

Date of Listing: December 22, 1981

Expiration Date: December 22, 1982

1. Manufacturer: National Cellulose Corporation  
12315 Robin Boulevard  
Houston, TX 77045
2. Listed Unit: Thermal barrier of fire resistive materials for use with foam plastics - Ure-K Spray Coating.
3. Application: Used as protective thermal barrier of fire resistive materials having a finish rating of not less than 15 minutes for use with a polyurethane foam plastic having a flame spread of less than 75.

4. Applicable Code References:

Section 876.0  
Thermal Insulating Materials

5. Conditions of Listing:

This application has been approved for use as a thermo barrier for the application over foam plastics in accordance with Paragraph 876.5.1 of the Code. It should be applied in accordance with the following conditions.

That the Factory Mutual approval mark must appear on bags of the Ure-K fiber and the label shall include the minimum 3/4 inch coating thickness with the words "Subject to the Conditions of Approval Described in Factory Mutual Report Serial No. 24703."

NOTE: An original copy of the listed application is on file in the State Building Inspector's Office for inspection or reference.

( File No. BMR 032-81

Board of Materials Review

Notification of Listing

Date of Listing: February 2, 1982

Expiration Date: February 2, 1983

- (
1. Manufacturer: Paige Electric Corporation  
1071 Hudson Street, P.O. Box 368  
Union, NJ 07083
  2. Listed Unit: Polyethylene Insulated Direct Burial  
Lawn Sprinkler Control Wire.
  3. Application: Direct Burial Lawn Sprinkler Control  
System.
  4. Applicable Code References:  
National Electrical Code/1978
  5. Conditions of Listing:  
To be used for lawn sprinkler control.

( NOTE: An original copy of the listed application is on  
file in the State Building Inspector's Office for  
inspection or reference.

(

(

(

File No. BMR 004-82

Board of Materials Review

Notification of Listing

Date of Listing: April 27, 1982

Expiration Date: April 27, 1983

1. Manufacturer: Sentinel Energy Saving Products  
P.O. Box 5, 130 North Street  
Hyannis, MA 02601
2. Listed Unit: Sentinel Window Insulation - EG-133A,  
EG-135A (Adhesive Holding Systems);  
EG-131M (Mechanical Holding Systems).
3. Application: Translucent glazing - installs on  
existing windows.
4. Applicable Code References:  
Applicable Sections of Article 19
5. Conditions of Listing:  
That it be installed in accordance  
with the manufacturer's instructions.

NOTE: An original copy of the listed application is on  
file in the State Building Inspector's Office for  
inspection or reference.

File No. BMR 002-82

Board of Materials Review

Notification of Listing

Date of Listing: June 8, 1982

Expiration Date: June 8, 1983

1. Manufacturer: Simplex Products Group  
3000 West Beecher Street  
Adrian, MI 49221
2. Listed Unit: Thermo-Ply<sup>R</sup> Insulative Sheathing.
3. Application: See data.
4. Applicable Code References:

Connecticut Basic Building Code  
Section 109.4

5. Conditions of Listing:

This application has been listed with the condition that it may be used as structural sheathing (P. 829.0) subject to the following limitations:

1. All edges shall bear on framing members.
2. Exterior finish materials must not depend on Thermo-Ply for support; they must be fastened through the Thermo-Ply to the building framing.
3. Exterior finish materials must be capable of resisting loads perpendicular to the face of the wall.
4. The material is classified as combustible.
5. Minimum fastener spacing and allowable shearload (psf) to be:
  - a. "Structural" grade storm brace sheathing, 0.115" thick, fasten with No. 16 gauge galvanized staples, 7/16" crown, 1-1/4" legs, 3" o.c. on edges and 6" o.c. intermediate supports, allowable 175 psf shearload, 16" o.c. stud spacing.

(CONTINUED ON NEXT PAGE)

( File No. BMR 002-82 (con't)

- b. Same material with No. 16 gauge galvanized staples, 1" crown, 1-1/4" legs, or No. 11 gauge galvanized roofing nails, 1-1/4" long, same spacing as above, allowable 200 psf shearload, 16" o.c. stud spacing.
- c. "Super Strength" sheathing, 0.137" thick, fasten with No. 16 gauge galvanized staples, 7/16" crown, 1-1/4" legs, or No. 11 gauge galvanized roofing nails, 1-1/4" long, 3" o.c. on edges and 3" o.c. intermediate supports, allowable 190 psf shearloads, 24" o.c. stud spacing.

NOTE: An original copy of the listed application is on file in the State Building Inspector's Office for inspection or reference.

File No. BMR 029-81

Board of Materials Review  
Notification of Listing  
Date of Listing: February 23, 1982  
Expiration Date: February 23, 1983

1. Manufacturer: Thermo Products Inc.  
P.O. Box 217  
North Judson, IN 46366
2. Listed Unit: Thermo Pride - Model #WB/16 - Forced  
Warm Air Wood Burning Furnace.
3. Application: Residential Heating.
4. Applicable Code References:  
Heating Equipment
5. Conditions of Listing:  
That it be installed in accordance  
with the manufacturer's instructions.

NOTE: An original copy of the listed application is on  
file in the State Building Inspector's Office for  
inspection or reference.



File No. BMR 030-81

Board of Materials Review

Notification of Listing

Date of Listing: January 12, 1982

Expiration Date: January 12, 1983

1. Manufacturer: Thermo Products Inc.  
P.O. Box 217  
North Judson, IN 46366
2. Listed Unit: Thermo Pride - Model #WC/20 and #WC/27  
Wood/Coal Forced Warm Air Burning  
Furnace.
3. Application: Residential Heating.
4. Applicable Code References:  
Heating Equipment
5. Conditions of Listing:  
That it be installed in accordance  
with the manufacturer's instructions.

NOTE: An original copy of the listed application is on  
file in the State Building Inspector's Office for  
inspection or reference.

File No. BMR 006-82

Board of Materials Review  
Notification of Listing  
Date of Listing: June 8, 1982  
Expiration Date: June 8, 1983

1. Manufacturer: Thetford Corporation  
P.O. Box 1285  
Ann Arbor, MI 48106
2. Listed Unit: Superinse<sup>R</sup> - ultra low water use toilet  
fixtures (water closet); Model 14500;  
Vitreous China Bowl, Fiberglass Tank.
3. Application: To be used where there are water  
shortages or where there is a need to  
reduce the volume of wastewater.
4. Applicable Code References:  
Plumbing, Building and Construction  
Codes - Materials (Plumbing Fixtures)
5. Conditions of Listing:  
That it be installed in accordance  
with the manufacturer's instructions.

NOTE: An original copy of the listed application is on  
file in the State Building Inspector's Office for  
inspection or reference.

File No. BMR 007-82

Board of Materials Review  
Notification of Listing  
Date of Listing: June 29, 1982  
Expiration Date: June 29, 1983

1. Manufacturer: Universal Cast Iron Manufacturing Company  
5404 Tweedy Place  
South Gate, CA 90280

2. Listed Unit: Alfa Coupling - 1-1/2", 2", 3", 4", 5",  
6", 8", 10".

3. Application: A cast iron coupling for joining hubless  
soil pipe and fittings in drainage,  
waste, vent, sewer and roof drains.

4. Applicable Code References:

Plumbing Code (Drainage, Waste, Vent,  
Sewer and Roof Drains)

5. Conditions of Listing:

That it be installed in accordance with  
the manufacturer's instructions.

NOTE: An original copy of the listed application is on  
file in the State Building Inspector's Office for  
inspection or reference.