



DEPARTMENT OF ADMINISTRATIVE SERVICES

CODE CHANGE PROPOSALS FOR THE PROPOSED 2020 CONNECTICUT STATE BUILDING & FIRE SAFETY CODES

COMPILATION OF PUBLIC PROPOSALS

May 20, 2019

*Department of Administrative Services
Office of the State Building Inspector
450 Columbus Boulevard, Suite 1303
Hartford, CT 06103
Tel: 860-713-5900 Fax: 860-713-7410
Affirmative Action/Equal Opportunity Employer*

2020 State Building Code - Code Change Proposals

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DEPARTMENT OF ADMINISTRATIVE SERVICES

PROPOSED CHANGE OF THE CONNECTICUT STATE BUILDING CODE AND FIRE SAFETY CODE

DATE SUBMITTED: 5 February 2019

CODE INFORMATION

Proposed change to: [x] Building Code [] Fire Safety Code

Code section(s): IPC 107.4

PROPONENT INFORMATION

Name: Earl Dean

Representing: North Stonington

Telephone: 8603778251

Email: earlydean@atlanticbb.net

Address: 238 Stonehill Road, Griswold, CT

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed): reads: "Tests shall be made by the permit holder and observed by the code official."

Proposed text change, addition or deletion (attach additional information as needed): Tests shall be made by the plumbing contractor.....

Supporting data and documents (attach additional information as needed) In CT, a separate permit is not required and often the general contractor or owner is the permit

[x] This Proposal is original material. (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)

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[] I would like to make an in-person presentation of my proposal.

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Proponent's Signature

Earl Dean Printed Name

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DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 2/19/19**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): NEC 250.50**PROPONENT INFORMATION**Name: Earl DeanRepresenting: North StoningtonTelephone: 860 377 8251Email: earlydean@atlanticbb.netAddress: 238 Stonehill RoadGriswoldCT06351*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

delete current amendment

Proposed text change, addition or deletion (attach additional information as needed):

use text from the 2017 NEC as is

Supporting data and documents (attach additional information as needed)

2017 NEC includes exception for Ufer electrode of existing buildings

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2017 NEC
- I would like to make an in-person presentation of my proposal.**

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Proponent's Signature

Earl Dean**Printed Name**PLEASE EMAIL (PREFERRED) TO DAS.CodesStandards@CT.GOV OR MAIL OR FAX (SEE BELOW)

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12/29/16



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 3-7-19**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): 707.3.2 Roof diaphragm resisting wind loads in high wind regions**PROPONENT INFORMATION**Name: Tim ArcherRepresenting: Advanced Roof ManagerTelephone: 603-234-6030Email: tim@armroofs.comAddress: P.O.Box 628North HamptonNH03862*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

Please see attached

Proposed text change, addition or deletion (attach additional information as needed):

Please see attached

Supporting data and documents (attach additional information as needed)

Please see attached

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Proponent's Signature

Timothy Archer
Printed Name

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12/29/16



July 12, 2018

RE: Roof diaphragms resisting wind loads in high wind regions

Connecticut State Code and Standards Committee,

We are hoping you can provide some direction on a section of the 2015 International Existing Building Code with the 2018 Connecticut State amendments. The section of concern is 707.3.2 Roof diaphragm resisting wind loads in high wind regions which states:

“Where roofing materials are removed from more than 50 percent of the roof diaphragm or section of a building located where the ultimate design wind speed, *Vult*, determined in accordance with Appendix N of the 2015 International Building Code portion of the 2018 State Building code is greater than 115 mph (51m/s) or in a special wind region, as defined in section 1609 of the International Building Code, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to-wall connections shall be evaluated for the wind loads specified in the International Building Code, including wind uplift. If the diaphragm and connections in their current condition are not capable of resisting at least 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in the International Building Code.”

In looking through the 2015 International Existing Building Code and Commentary it goes on to state that “The removal of the roofing provides an opportunity to inspect a portion of the structure that is otherwise concealed.” While it does provide this “opportunity” these existing elements of the building should have been inspected at the time of installation when the building was newly being constructed not after 20+ years of service. This also does not take into account other common building practices like drag struts which are generally not exposed or accessible. If the connections are not sufficient between the walls and roof diaphragm the original engineer could’ve used other building elements to take the loading which are not evident while replacing roofing materials. Also, there is the possibility that the connections from the roof to wall are sound, but the walls are not designed to take the shear forces that will be applied. Most of the roof to wall connections are hidden behind sheetrock or above ceilings and cannot be viewed from the roof level at all.

While everyone can agree that the buildings should be as safe as possible, this area of the code seems a little outside of the intent of section 701.2 Conformance which reads “An existing building or portion thereof shall not be altered such that the building becomes less safe than its existing condition.” When replacing the roofs on buildings the new systems should be designed for the current uplift values and gravity loading. Providing there aren’t additional loads more than 5% of the dead load or more than 3# to the dead load the structural requirements are met for the roof system as set for in section 707.2. There should not be any significant increase of the lateral loading on the building therefore not making it any less safe than it was prior to the reroof operations.

The possibility of these types of repairs also opens the building owners up to potentially huge additional costs on their projects due to the fact that some of these areas cannot be accessed prior to bidding documents being provided and the project started. No owner will want to replace their roof systems if there is the risk of 10s of thousands of dollars in additional charges looming for structural repairs that cannot be foreseen.

This review and potential repair of the lateral load resisting elements of the buildings directly affects 109 out of the 169 (approximately 65%) of the municipalities in the State of Connecticut when using the Risk Category I. However, most buildings are considered Risk Category II making this section of the code effect 100% of the towns with these types of buildings.

In summary, to properly design a replacement roof system that does not include removal of the structural decking, the designer shouldn’t have to re-analyze the entirety of the building’s structure to keep it water tight. Thank you for your time and attention to this issue.

Tim Archer
Advanced Roof Management Associates, Inc.



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 3/19/2019**CODE INFORMATION**

Proposed change to: Building Code Fire Safety Code
Code section(s): R105.1.1 By Whom application is made

PROPONENT INFORMATION

Name: Richard C. Doucette Jr. Representing: City of Meriden
Telephone: 203-630-4094 Email: Rdoucette@meridenct.gov
Address: 142 East Main Street Meriden CT 06450
Street Address Town State Zip Code

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

This addendum would add language that would assist the Building Official and or Inspectors

Proposed text change, addition or deletion (attach additional information as needed):

see attached

Supporting data and documents (attach additional information as needed)

see attached

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Proponent's Signature

Richard C. Doucette Jr.

Printed Name

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Description of change:

Wording, language.

Proposed text:

R105.1.1 By Whom application is made.

Pursuant to section 29-263 of the Connecticut General Statutes, application for permit shall be made by the owner or by the owner's agent. If the authorized agent is a contractor such contractor shall follow the provisions of section 20-338b of the Connecticut General Statutes. The applicant shall include the full names and addresses of the owner, agent and the responsible officers, if the owner or agent is a corporate body.

When made by the owner other than in single family home they, the Building Owner shall provide the contact name and license numbers of Contractors that will be performing said work as listed on application.

By adding the bold verbage, it will allow the Building Official and / or Inspector to discuss the status of violations, in detail, with a person of knowledge of the applicable code.



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 3/20/2019**CODE INFORMATION**

Proposed change to: Building Code Fire Safety Code
 Code section(s): P3003.9.2 Solvent cementing

PROPONENT INFORMATION

Name: Richard C. Doucette Jr Representing: City of Meriden
 Telephone: 203-630-4094 Email: Rdoucette@meridenct.gov
 Address: 142 East Main Street Meriden CT 06450
Street Address Town State Zip Code

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

This addendum would remove the exception, which would remove confusion.

Proposed text change, addition or deletion (attach additional information as needed):

See attached

Supporting data and documents (attach additional information as needed)

See attached

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Printed Name

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12/29/16

Description of change:

Wording, removal

Proposed text:

P3003.9.2 Solvent cementing.

Joint surfaces shall be clean and free from moisture. A purple primer that conforms to ASTM F656 shall be applied. Solvent cement. Solvent cement not purple in color and conforming to ASTM D2564, CSAB137.3 or CSA B181.2 shall be applied to all joint surfaces. The joint shall be made while the cement is wet, and shall be in accordance with ASTM D2885. Solvent cements joints shall be above or below grade.

Exception: A primer shall not be required where all of the following conditions apply.

1. The solvent cement used is third-party certified as conforming to ASTM D2564
2. The solvent cement is used only for jointing PVC drain, waste and vent piping and fittings in non-pressure applications in sizes up to and including 4 inches (102mm) in diameter.

Removal of exception.

By removal of the exception takes out any confusion the contractor, and or home owner has about what primer is to be used. Which also allows the Building Official and or Inspectors visual clarity that primer was in fact used.



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 3/20/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): P2503.5.1 Rough plumbing**PROPONENT INFORMATION**Name: Richard C. Doucette Jr.Representing: City of MeridenTelephone: 203-630-4094Email: Rdoucette@meridenct.govAddress: 142 East Main StreetMeridenCT06450*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

This addendum would removed confusion from code and manufactures instructions

Proposed text change, addition or deletion (attach additional information as needed):

See attached

Supporting data and documents (attach additional information as needed)

See attached

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Richard C. Doucette Jr.

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Description of change:

Wording, language.

Proposed text:

P2503.5.1 Rough plumbing.

DWV system shall be tested on completion of rough piping installation by water or, for piping systems other than plastic, by air, without evidence of leakage. Either test shall be applied to the drainage system in its entirety or in sections after rough-in piping has been installed, as follows.

1. Water test. Each section shall be filled with water to a point not less than 10 feet (1524 mm) above the highest fitting connection in that section, or to the highest point in the completed system. Water shall be held in the section under test for a period of 15 minutes. The system shall prove leak free by visual inspection.
2. Air test. The portion under test shall be maintained at a gauge pressure of 5 pounds per square inch (psi) (34kPa) or 10 inches of mercury column (34kPa). This pressure shall be held without introduction of additional air for a period of 15 minutes.

Removal of wording:

Other than plastic, and add Shall be tested as per manufactures instructions. Confusion exist as cast iron DWV shall not be tested with compressed air per manufactures installation manual.

TESTING AND INSPECTION

Cast Iron Installation

It is important to test all cast iron piping installations for leaks after the roughing-in has been completed. Before testing, the installer should notify the inspector of the local administrative authority having jurisdiction over plumbing installations. Leave concealed work uncovered until the required tests are performed and the system receives approval.

⚠ WARNING

Testing with or use of compressed air or gas in Cast Iron pipe or fittings can result in explosive failures and cause severe injury or death.

AIR/GAS



- NEVER test with or transport/store compressed air or gas in Cast Iron pipe or fittings.
- NEVER test Cast Iron pipe or fittings with compressed air or gas.
- ONLY use Cast Iron pipe and fittings for drain, waste and vent or sanitary sewer applications.

Various procedures are used to test installed cast iron soil pipe and fitting systems. They include the use of water (hydrostatic), smoke, and peppermint.

For testing purposes, the system should be properly restrained at all bends, changes of direction, and ends of runs.

⚠ WARNING

Use proper safety procedures, equipment, eye-wear and clothing during any testing procedures.

Note: In all installations, installers should be aware of local conditions, codes and regulations. Comply with all local codes, regulations, manufacturers' instructions and architect/engineer specifications.

Water or Hydrostatic Testing

This is the most common type of test used to test a completed cast iron soil pipe installation, and it is the test most often recommended by plumbing codes. Its purpose is to check the installation for leaks and to correct these prior to putting the system into service. Use the following steps to perform a water test:

1. Since visual inspection of the system is required, conduct this test prior to enclosing above-ground installations, or backfilling below-ground installations.
2. Isolate each floor or section being tested by inserting plugs into the test tees in the stacks.
3. Plug or cap all other openings with test plugs or test caps.

⚠ WARNING

Horizontal pipe and fittings five (5) inches and larger must be suitably braced to prevent horizontal movement. This must be done at every branch opening or change in direction by the use of a brace, block, rodding or other suitable method, to prevent movement or joint separation. Heavy Duty or wide body couplings are not a substitute for proper thrust restraint. Failure to properly restrain branch openings or changes in direction will result in joint movement or separation, causing system failure and potential serious injury.

4. Fill the system with water at its highest point. Do this slowly to allow any trapped air to escape as the water level rises. Note: Failure to remove entrapped air may cause faulty test results, so be sure all entrapped air has been removed to obtain reliable test results.
5. As water fills a vertical pipe, it creates hydrostatic pressure. This pressure increases as the height of the water in the vertical pipe increases. Charlotte Pipe recommends water testing with ten feet of hydrostatic pressure (4.3 pounds per square inch).
6. After filling the stack to ten feet of head, visually inspect the section you are testing for any leaks around its joints.
7. In hubless systems, leaks can often be traced to hubless couplings that were not tightened properly to the recommended torque. In these cases, correctly tightening the couplings should eliminate the leak.
8. If leaks are detected in hub and spigot systems, disassemble the joints and check to determine if the correct installation procedures were used.
9. Water test each portion of the system for 15 minutes. This is sufficient time for any problems to be detected.
10. After a successful test, drain the system and prepare the next section for testing.



DEPARTMENT OF ADMINISTRATIVE SERVICES

PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODEDATE SUBMITTED: 4-1-19CODE INFORMATIONProposed change to: Building Code Fire Safety CodeCode section(s): TABLE R402.1.2, TABLE R402.1.4 EQUIVALENT U-FACTORSa
TABLE N1102.1.2 (R402.1.2), TABLE N1102.1.4 (R402.1.4) EQ.U-FACTbPROPONENT INFORMATIONName: Anthony A. Denorfia Representing: CT Home Builders Association
Telephone: 8606289671 Email: tony@denorfiabuilders.com
Address: 133 Main St., Southington CT 06489
Street Address Town State Zip CodePROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

See attached commentary

Proposed text change, addition or deletion (attach additional information as needed):

See attached commentary

Supporting data and documents (attach additional information as needed)

See attached commentary

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National Association of Homebuilders Study
- I would like to make an in-person presentation of my proposal.**

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Proponent's Signature

Anthony A. Denorfia
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E4. Basement Wall R-Value/U-Factors Reduction (Climate Zone 5)

This amendment reduces the basement wall insulation value requirements in Climate Zone 5, to a more reasonable R-Value/U-Factor based on values acceptable to both NAHB and DOE in the 2009 IECC.

Revise as follows:

CLIMATE ZONE	FENESTRATION U-FACTOR ^b	SKYLIGHT ^b U-FACTOR	GLAZED FENESTRATION SHGC ^{c,d}	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE ^e	FLOOR R-VALUE	BASEMENT ^c WALL R-VALUE	SLAB ^e R-VALUE AND DEPTH	CRAWL SPACE ^e WALL R-VALUE
1	NR	0.75	0.25	30	13	3/4	13	0	0	0
2	0.40	0.65	0.25	38	13	4/6	13	0	0	0
3	0.35	0.55	0.25	38	20 or 13+5 ^{h,i}	8/13	19	5/13f	0	5/13
4 except Marine	0.35	0.55	0.40	49	20 or 13+5 ^{h,i}	8/13	19	10/13	10, 2 ft	10/13
5 and Marine 4	0.32	0.55	NR	49	20 or 13+5 ^{h,i}	13/17	30g	10/13 16/16	10, 2 ft	15/19
6	0.32	0.55	NR	49	20+5 or 13+10 ^{h,i}	15/20	30g	15/19	10, 4 ft	15/19
7 and 8	0.32	0.55	NR	49	20+5 or 13+10 ^{h,i}	19/21	38 ^g	15/19	10, 4 ft	15/19

Climate Zone	Fenestration U-Factor	Skylight U-Factor	Ceiling U-Factor	Frame Wall U-Factor	Mass Wall U-Factor ^b	Floor U-Factor	Basement Wall U-Factor	Crawl Space Wall U-Factor
1	0.50	0.75	0.035	0.084	0.197	0.064	0.360	0.477
2	0.40	0.65	0.030	0.084	0.165	0.064	0.360	0.477
3	0.35	0.55	0.030	0.060	0.098	0.047	0.091c	0.136
4 except Marine	0.35	0.55	0.026	0.060	0.098	0.047	0.059	0.065
5 and Marine 4	0.32	0.55	0.026	0.060	0.062	0.033	0.059 0.060	0.055
6	0.32	0.55	0.026	0.045	0.060	0.033	0.050	0.055
7 and 8	0.32	0.55	0.026	0.045	0.057	0.028	0.050	0.055

Footnotes remain unchanged

Reason:

The prescriptive basement wall requirement increased from R-10 to R-15 in the 2012 IECC. Calculations used to justify the change were based on energy models with less sophisticated algorithms than Energy Plus, now DOE's preferred modeling software. When using Energy Plus, the energy savings in a 700-square-foot basement totaled \$7 a year in Chicago (Climate Zone 5). The additional cost for this is conservatively estimated at \$590. This makes the simple payback in excess of 84 years. The values being modified by this proposal are the same as those that DOE proposed in EC13 during the last code cycle. The values currently adopted were an increase from proposals not submitted by DOE.

Climate Zone	Representative City	Basement Wall R-Value Change	Energy Savings	Incremental Cost	Simple Payback
5	Chicago, IL	R-10->R-15	\$7/yr	\$590 (\$0.82/ft ²)	84 years

The energy modeling was done using the Energy Plus simulation engine and BEopt version 1.4. Cost figures came from ASHRAE RP-1481.

[Return to IECC](#)

15. Basement Wall R-Value/U-Factor Reduction (Climate Zone 5)

This amendment reduces the basement wall R-Value requirement in Climate Zone 5 to a more reasonable R-value based on values that were acceptable to both NAHB and DOE in the 2009 IRC Chapter 11..

Revise as follows:

TABLE N1102.1.2 (R402.1.2)
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT^a

CLIMATE ZONE	FENESTRATION U-FACTOR ^b	SKYLIGHT ^b U-FACTOR	GLAZED FENESTRATION SHGC ^{b, e}	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE ^e	FLOOR R-VALUE	BASEMENT ^c WALL R-VALUE	SLAB ^d R-VALUE AND DEPTH	CRAWL SPACE ^c WALL R-VALUE
1	NR	0.75	0.25	30	13	3/4	13	0	0	0
2	0.40	0.65	0.25	38	13	4/6	13	0	0	0
3	0.35	0.55	0.25	38	20 or 13+5h ⁱ	8/13	19	5/13 ^f	0	5/13
4 except Marine	0.35	0.55	0.40	49	20 or 13+5 ^{h, i}	8/13	19	10/13	10, 2 ft	10/13
5 and Marine 4	0.32	0.55	NR	49	20 or 13+5h ⁱ	13/17	30g	10/13 16/19	10, 2 ft	15/19
6	0.32	0.55	NR	49	20+5 or 13+10h ⁱ	15/20	30g	15/19	10, 4 ft	15/19
7 and 8	0.32	0.55	NR	49	20+5 or 13+10 ^{h, i}	19/21	38 ^g	15/19	10, 4 ft	15/19

Footnotes remain unchanged

TABLE N1102.1.4 (R402.1.4) EQUIVALENT U-FACTORS^a

Climate Zone	Fenestration U-Factor	Skylight U-Factor	Ceiling U-Factor	Frame Wall U-Factor	Mass Wall U-Factor ^b	Floor U-Factor	Basement Wall U-Factor	Crawl Space Wall U-Factor
1	0.50	0.75	0.035	0.084	0.197	0.064	0.360	0.477
2	0.40	0.65	0.030	0.084	0.165	0.064	0.360	0.477
3	0.35	0.55	0.030	0.060	0.098	0.047	0.091 ^c	0.136
4 except Marine	0.35	0.55	0.026	0.060	0.098	0.047	0.059	0.065
5 and Marine 4	0.32	0.55	0.026	0.060	0.082	0.033	0.050 0.059	0.055
6	0.32	0.55	0.026	0.045	0.060	0.033	0.050	0.055
7 and 8	0.32	0.55	0.026	0.045	0.057	0.028	0.050	0.055

Footnotes remain unchanged

Reason:

The prescriptive basement wall requirement increased from R-10 to R-15 in the 2012 IRC Chapter 11. Calculations used to justify the change were based on energy models, which had less sophisticated algorithms than Energy Plus, now the preferred modeling software for the Department of Energy (DOE). When using Energy Plus, the energy savings in a 700 square foot basement totaled \$7/yr. in Chicago (Climate zone 5). The additional cost for this is conservatively estimated at \$590. This makes the simple payback in excess of 84 years. This also will create a negative cash flow for the consumer. The values being modified by this amendment are the same as what was proposed by DOE in its proposal EC13 from the 2009 cycle. The excessive values currently in code were not submitted by DOE.

The energy modeling was done using the Energy Plus simulation engine and BEopt version 1.4, Cost

figures came from ASHRAE RP-1481.

Climate Zone	Representative City	Basement Wall R-Value Change	Energy Savings	Incremental Cost	Simple Payback
5	Chicago, IL	R-10->R-15	\$7/yr	\$590 (\$0.82/ft ²)	84 years

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DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/1/19**CODE INFORMATION**

Proposed change to: Building Code Fire Safety Code
 Code section(s): Tables R405.5.2(1) and N1105.5.2 (1) Mechanical Equipment Trade-off
IRC and IECC

PROPONENT INFORMATION

Name: Matthew S. Gilchrist / EG Home Representing: HBRA of CT
 Telephone: 203-448-6562 Email: mgilchrist@eghome.net
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Street Address Town State Zip Code

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

See attached

Proposed text change, addition or deletion (attach additional information as needed):

See attached

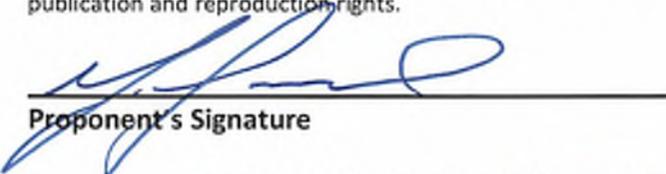
Supporting data and documents (attach additional information as needed)

See attached

- This Proposal is original material.** (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)
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- I would like to make an in-person presentation of my proposal.**

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Matthew S. Gilchrist
 Printed Name
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12/29/16

E8. Mechanical Equipment Trade-Off

This amendment reinstates the performance option to reduce prescriptive requirements by installing HVAC equipment with higher energy-efficiency performance ratings than required by the code.

Revise as follows:

TABLE R405.5.2(1)
SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS

BUILDING COMPONENT	STANDARD REFERENCE DESIGN	PROPOSED DESIGN
Heating systems ^{d, e}	<p>As proposed for other than electric heating without a heat pump. Where the proposed design utilizes electric heating without a heat pump the standard reference design shall be an air-source heat pump meeting the requirements of Section R403 of the IECC-Commercial Provisions.</p> <p>Fuel type: same as proposed design Efficiencies: Electric: air-source heat pump with prevailing federal minimum standards Nonelectric furnaces: natural gas furnace with prevailing federal minimum standards Nonelectric boilers: natural gas boiler with prevailing federal minimum standards Capacity: sized in accordance with Section R403.6</p>	<p>As proposed</p> <p>As proposed</p> <p>As proposed</p> <p>As proposed</p> <p>As proposed</p>
Cooling systems ^{d, e}	<p>As proposed</p> <p>Fuel type: Electric Efficiency: in accordance with prevailing federal minimum standards Capacity: sized in accordance with Section R403.6</p>	<p>As proposed</p> <p>As proposed</p> <p>As proposed</p>
Service Water Heating ^{d, e, f, g}	<p>As proposed</p> <p>Fuel type: same as proposed design Efficiency: in accordance with prevailing federal minimum standards Use: gal/day = $30 + 10 \times Nbr$ Tank temperature: 120°F</p> <p>Use: same as proposed design</p>	<p>As proposed</p> <p>As proposed</p> <p>Same as standard reference</p> <p>Same as standard reference</p> <p>gal/day = $30 + (10 \times Nbr)$</p>

Footnotes remain unchanged

Reason:

This amendment serves to retain energy-neutral equipment trade-off provisions from the 2006 IECC for heating and cooling systems and service water heating. By retaining these, builders have an opportunity to optimize a code-compliant house design by using energy-efficient equipment. Quite often, the use of this high-efficiency equipment provides a more cost-effective solution to achieve code compliance. Eliminating this ability discourages the concept of the "house as a system" approach, which is a cornerstone of building science.

Rejecting this amendment will reduce any incentive to install state-of-the-art, energy-efficient

equipment. It will increase the cost of construction by driving builders to often use less efficient equipment.

Significant improvements in the efficiency of HVAC and water heating equipment have been made in the last 20 years. With the increased emphasis on new and improved technologies, this trend is expected to continue and will result in even higher energy savings in future years. If builders are forced to comply with the energy code by installing requirements which are not cost-effective, there will be a resistance to install higher efficiency equipment. This could end up hurting energy efficiency in the long term, consumers which have non-condensing furnaces will be less likely to install a higher efficiency condensing replacement furnace because of the additional cost to run an exhaust vent.

Industries such as log home manufacturers may no longer be able to construct to projected higher envelope requirements. The combination of increases in envelope thermal requirements, building tightness and duct tightness combined with the elimination of energy neutral trade-offs pose a serious threat to the viability of the log home industry. There are practical limitations to the thickness of log home walls. Increasing requirements for the log diameter has an exponential increase in the cost of the logs, making log walls with a U- factor of 0.082 or lower prohibitively expensive

19. Mechanical Equipment Trade-Off

This amendment reinstates the performance option in IRC Chapter 11 to reduce prescriptive requirements by installing HVAC equipment with higher energy-efficiency performance ratings than required by the code.

Revise as follows:

TABLE N1105.5.2 (1) (R405.5.2 (1))
SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS

BUILDING COMPONENT	STANDARD REFERENCE DESIGN	PROPOSED DESIGN
Heating systems ^{d,e}	<p>As proposed for other than electric heating without a heat pump. Where the proposed design utilizes electric heating without a heat pump the standard reference design shall be an air source heat pump meeting the requirements of Section R403 of the IECC-Commercial Provisions.</p> <p>Fuel type: same as proposed design</p> <p>Efficiencies:</p> <ul style="list-style-type: none"> - Electric: air source heat pump with prevailing federal minimum standards - Nonelectric furnaces: natural gas furnace with prevailing federal minimum standards - Nonelectric boilers: natural gas boiler with prevailing federal minimum standards <p>- Capacity: sized in accordance with Section R403.6</p>	<p>As proposed</p> <p>As proposed</p> <p>As proposed</p> <p>As proposed</p>
Cooling systems ^{d,f}	<p>As proposed</p> <p>- Fuel type: Electric</p> <p>- Efficiency: in accordance with prevailing federal minimum standards</p> <p>- Capacity: sized in accordance with Section N1103.6</p>	<p>As proposed</p> <p>As proposed</p> <p>As proposed</p> <p>As proposed</p>
Service Water Heating ^{d,e,f,g}	<p>As proposed</p> <p>- Fuel type: same as proposed design</p> <p>- Efficiency: in accordance with prevailing federal minimum standards</p> <p>- Use: gal/day = 30 + 10 × N_{br}</p> <p>- Tank temperature: 120°F</p> <p>Use: same as proposed design</p>	<p>As proposed</p> <p>As proposed</p> <p>As proposed</p> <p>Same as standard reference</p> <p>Same as standard reference</p> <p>gal/day = 30 + (10 × N_{br})</p>

Footnotes remain unchanged

Reason:

This amendment serves to retain energy-neutral equipment trade-off provisions from 2006 IRC Chapter 11 for heating systems, cooling systems, and service water heating. By retaining these, builders can optimize a code-compliant house design by using energy-efficient equipment. Quite often, the use of this high-efficiency equipment provides a more cost-effective solution to achieve code compliance. Eliminating this ability discourages the concept of the "house as a system" approach which is a cornerstone of building science.

Rejecting this amendment will create a disincentive to install state-of-the-art, energy-efficient equipment. It will increase the cost of construction by driving builders to often use less efficient equipment while increasing the cost of construction.

Significant improvements in the efficiency of HVAC and water heating equipment have been made in the

last 20 years. With the increased emphasis on new and improved technologies, this trend is expected to continue and will result in even higher energy savings in future years. If builders are forced to comply with the energy code by installing requirements which are not cost effective, there will be a resistance to install higher efficiency equipment. This could end up hurting energy efficiency in the long term: For instance, consumers in homes with non-condensing furnaces will be less likely to install a higher efficiency condensing replacement furnace because of the additional cost to run an exhaust vent.

Industries such as log home manufacturers may no longer be able to construct to projected higher envelope requirements. The combination of increases in envelope thermal requirements, building tightness and duct tightness combined with the elimination of energy-neutral trade-offs pose a serious threat to the viability of the log home industry. There are practical limitations to the thickness of log home walls, increases in log diameter have an exponential increase to the cost of logs, making log walls with a U-factor of 0.082 or lower prohibitively expensive.

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DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/1/19**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): R402.4.4 (N1102.4.4) Rooms Containing fule burning appliances**PROPONENT INFORMATION**Name: Matthew S. Gilchrist / EG HomeRepresenting: HBRA of CTTelephone: 203-448-6562Email: mgilchrist@eghome.netAddress: 41 Fieldstone LaneBeacon FallsCT06762*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

See attached

Proposed text change, addition or deletion (attach additional information as needed):

See attached

Supporting data and documents (attach additional information as needed)

See attached

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NAHB

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Proponent's Signature

Matthew S. Gilchrist

Printed Name

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12/29/16

E9. Rooms Containing Fuel Burning Appliances

This amendment removes the requirement to insulate, seal and separate from the thermal envelope the area surrounding fuel burning appliances.

Revise as follows:

Delete section and do not replace.

~~**R402.4.4 (N1102.4.4) Rooms containing fuel-burning appliances.** In Climate Zones 3 through 8, where open combustion air ducts provide combustion air to open combustion fuel burning appliances, the appliances and combustion air opening shall be located outside the building thermal envelope or enclosed in a room, isolated from inside the thermal envelope. Such rooms shall be sealed and insulated in accordance with the envelope requirements of Table R402.1.2, where the walls, floors and ceilings shall meet not less than the basement wall R-value requirement. The door into the room shall be fully gasketed and any water lines and ducts in the room insulated in accordance with Section R403. The combustion air duct shall be insulated where it passes through conditioned space to a minimum of R-8.~~

Exceptions:

- ~~1. Direct vent appliances with both intake and exhaust pipes installed continuous to the outside.~~
- ~~2. Fireplaces and stoves complying with Section R402.4.2 and Section R1006 of the *International Residential Code*.~~

Reason:

This was a new section to the 2015 IECC and has proven to be confusing and is being misinterpreted.

- No data was shown verifying a problem existed*
- No energy savings potential was shown.*
- No cost data was provided to justify the increase to the cost of construction.*
- A study done by Home Innovation Research Labs finds the cost of meeting this requirement would be \$878 for a home with space heating or water heating equipment in the basement.*

20. Rooms Containing Fuel Burning Appliances

This amendment removes the requirement to insulate, seal and separate from the thermal envelope the area surrounding fuel burning appliances.

Revise as follows:

Delete section and do not replace.

~~**N1102.4.4 (R402.4.4) Rooms containing fuel-burning appliances.** In Climate Zones 3 through 8, where open combustion air ducts provide combustion air to open combustion fuel-burning appliances, the appliances and combustion air opening shall be located outside the building thermal envelope or enclosed in a room, isolated from inside the thermal envelope. Such rooms shall be sealed and insulated in accordance with the envelope requirements of Table R402.1.2, where the walls, floors and ceilings shall meet not less than the basement wall R-value requirement. The door into the room shall be fully gasketed and any water lines and ducts in the room insulated in accordance with Section R403. The combustion air duct shall be insulated where it passes through conditioned space to a minimum of R-8.~~

Exceptions:

- ~~1. Direct-vent appliances with both intake and exhaust pipes installed continuous to the outside.~~
- ~~2. Fireplaces and stoves complying with Section R402.4.2 and Section R1006 of the *International Residential Code*.~~

Reason:

This was a new section to the 2015 IECC and has proven to be confusing and is being misinterpreted.

- No data was shown verifying a problem existed*
- No energy savings potential was shown.*
- No cost data was provided to justify the increase to the cost of construction.*
- A study done by Home Innovation Research Labs finds the cost of meeting this requirement would be \$878 for a home with space heating or water heating equipment in the basement.*



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/3/19**CODE INFORMATION**

Proposed change to: Building Code Fire Safety Code
 Code section(s): 2018 IRC Chapter 11 13. Air Leakage Trade-OFF
2018 IRC Chapter 11 14. Prescriptive Table Requirements

PROPONENT INFORMATION

Name: George A. LaCava Representing: HBRA of Connecticut
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 Address: PO Box 159 Cromwell CT 06416-0159
Street Address Town State Zip Code

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):
See attached for both 13. Air Leakage Trade-OFF & 14. Prescriptive Table Requirements

Proposed text change, addition or deletion (attach additional information as needed):
See attached for both 13. Air Leakage Trade-OFF & 14. Prescriptive Table Requirements

Supporting data and documents (attach additional information as needed)
See attached for both 13. Air Leakage Trade-OFF & 14. Prescriptive Table Requirements

- This Proposal is original material.** (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)
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National Association of Home Builders
- I would like to make an in-person presentation of my proposal.**

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 Proponent's Signature

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12/29/16

13. Air Leakage Trade-Off

This amendment allows builders to trade improvements in other building energy components for less stringent building envelope pressure test results, provides flexibility in meeting the air-tightness requirements and provides options for recovering from an unexpected air-tightness test failure.

Revise as follows:

N1102.4 (R402.4) Air leakage (Mandatory). The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of Sections N1102.4.1 through N1102.4.4.

N1102.4.1 (R402.4.1) Building thermal envelope. The *building thermal envelope* shall comply with Sections N1102.4.1.1 and N1102.4.1.2. The sealing methods between dissimilar materials shall allow for differential expansion and contraction.

N1102.4.1.1 (R402.4.1.1) Installation (Mandatory). The components of the *building thermal envelope* as listed in Table N1102.4.1.1 shall be installed in accordance with the manufacturer's instructions and the criteria listed in Table N1102.4.1.1, as applicable to the method of construction. Where required by the *code official*, an *approved* third party shall inspect all components and verify compliance.

N1102.4.1.2 (R402.4.1.2) Testing (Mandatory). The building or dwelling unit shall be tested ~~and verified as having an air leakage rate of not exceeding 5 air changes per hour in Climate Zones 1 and 2, and 3 air changes per hour in Climate Zones 3 through 8~~ for air leakage. Testing shall be conducted with a blower door at a pressure of 0.2 inches w.g. (50 Pascals). Where required by the *code official*, testing shall be conducted by an *approved* third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the *code official*. Testing shall be performed at any time after creation of all penetrations of the *building thermal envelope*. During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weather stripping or other infiltration control measures;
2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures;
3. Interior doors, if installed at the time of the test, shall be open;
4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed;
5. Heating and cooling systems, if installed at the time of the test, shall be turned off; and
6. Supply and return registers, if installed at the time of the test, shall be fully open.

N1102.4.1.3 (R402.4.1.3) Leakage rate (Prescriptive). The building or dwelling unit shall have an air leakage rate not exceeding 5 air changes per hour in Climate Zones 1 and 2, and 3 air changes per hour in Climate Zones 3 through 8, when tested in accordance with Section N1102.4.1.2.

Reason:

These modifications relocate the mandatory maximum air-tightness requirement and provide designers and builders the flexibility to trade off building tightness with other performance path measures when using the performance path. Currently the building tightness requirement is "mandatory" and the 3 and 5 ACH tightness levels, even under ideal circumstances, are very difficult to achieve. This amendment will provide energy neutral trade-offs, for expensive and sometimes unattainable requirements, by allowing other building improvements to be used to attain the same level of efficiency. This amendment does not change the stringency; it only increases its flexibility while achieving the required energy efficiency.

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14. Prescriptive Table Requirements

This amendment replaces 2018 IRC Chapter 11 Tables N1102.1.2 and N1102.1.4 with tables from the 2009 IRC Chapter 11.

Delete Table N1102.1.2 and Table N1102.1.4 in their entirety and replace with the following:

TABLE N1102.1.2 (R402.1.2)
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT^a

CLIMATE ZONE	FENESTRATION U-FACTOR ^b	SKYLIGHT ^b U-FACTOR	GLAZED FENESTRATION SHGC ^{c, *}	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE ^e	FLOOR R-VALUE	BASEMENT ^c WALL R-VALUE	SLAB ^d R-VALUE & DEPTH	CRAWL SPACE ^e WALL R-VALUE
1	1.20	0.75	0.30	30	13	3 / 4	13	0	0	0
2	0.65 ^f	0.75	0.30	30	13	4 / 6	13	0	0	0
3	0.50 ^f	0.60	0.30	30	13	5 / 8	19	5/13 ^g	0	5/13
4 except Marine	0.35	0.60	NR	38	13	5 / 10	19	10/13	10, 2ft	10/13
5 and Marine 4	0.35	0.60	NR	38	20 or 13+5 ^h	13 / 17	30 ^g	10/13	10, 2ft	10/13
6	0.35	0.60	NR	49	20 or 13+5 ^h	15 / 19	30 ^g	15/19	10, 4ft	10/13
7 and 8	0.35	0.60	NR	49	21	19 / 21	38 ^g	15/19	10, 4ft	10/13

For SI: 1 foot = 304.8 mm.

- R-values are minimums. U-factors and SHGC are maximums. R-19 batts compressed into a nominal 2 x 6 framing cavity such that the R-value is reduced by R-1 or more shall be marked with the compressed batt R-value in addition to the full thickness R-value.
- The fenestration U-factor column excludes skylights. The SHGC column applies to all glazed fenestration.
- "15/19" means R-15 continuous insulated sheathing on the interior or exterior of the home or R-19 cavity insulation at the interior of the basement wall. "15/19" shall be permitted to be met with R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulated sheathing on the interior or exterior of the home. "10/13" means R-10 continuous insulated sheathing on the interior or exterior of the home or R-13 cavity insulation at the interior of the basement wall.
- R-5 shall be added to the required slab edge R-values for heated slabs. Insulation depth shall be the depth of the footing or 2 feet, whichever is less in Zones 1 through 3 for heated slabs.
- There are no SHGC requirements in the Marine Zone.
- Basement wall insulation is not required in warm-humid locations as defined by Figure 301.1 and Table 301.1.
- Or insulation sufficient to fill the framing cavity, R-19 minimum.
- "13+5" means R-13 cavity insulation plus R-5 insulated sheathing. If structural sheathing covers 25 percent or less of the exterior, insulating sheathing is not required where structural sheathing is used. If structural sheathing covers more than 25 percent of exterior, structural sheathing shall be supplemented with insulated sheathing of at least R-2.
- The second R-value applies when more than half the insulation is on the interior of the mass wall.
- For impact rated fenestration complying with Section R301.2.1.2 of the *International Residential Code* or Section 1608.1.2 of the *International Building Code*, the maximum U-factor shall be 0.75 in Zone 2 and 0.65 in Zone 3.

TABLE N1102.1.4 (R402.1.4) EQUIVALENT U-FACTORS^a

Climate Zone	Fenestration U-Factor	Skylight U-Factor	Ceiling U-Factor	Frame Wall U-Factor	Mass Wall U-Factor ^b	Floor U-Factor	Basement Wall U-Factor	Crawl Space Wall U-Factor
1	1.20	0.75	0.035	0.082	0.197	0.064	0.360	0.477
2	0.75	0.75	0.035	0.082	0.165	0.064	0.360	0.477
3	0.65	0.65	0.035	0.082	0.141	0.047	0.360	0.136
4 except Marine	0.40	0.60	0.030	0.082	0.141	0.047	0.059	0.065
5 and Marine 4	0.35	0.60	0.030	0.057	0.082	0.033	0.059	0.065
6	0.35	0.60	0.026	0.057	0.060	0.033	0.050	0.065
7 and 8	0.35	0.60	0.026	0.057	0.057	0.033	0.050	0.065

- a. Non-fenestration U-factors shall be obtained from measurement, calculation or an approved source.
- b. When more than half the insulation is on the interior, the mass wall U-factors shall be a maximum of 0.17 in Zone 1, 0.14 in Zone 2, 0.12 in Zone 3, 0.10 in Zone 4 except Marine, and the same as the frame wall U-factor in Marine Zone 4 and Zones 5 through 8.
- c. Basement wall U-factor of 0.360 in warm-humid locations as defined by Figure 301.1 and Table 301.2.

Reason:

The increased table values in the 2012 IECC and the 2015 IECC did not show justification for the cost increases from the 2009 IECC. Studies indicate nationally almost a \$6,000 increase to the cost of constructing a single-family detached dwelling with a 13-year simple payback. With statistics showing that for every \$1,000 increase to the cost of construction nearly 206,000 potential home buyers will not qualify for a mortgage. This, increase disqualifies approximately 1.3 million families from purchasing a home every year. That equates to approximately \$24,000,000 in potential taxes revenues never being generated for municipalities.



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/3/19**CODE INFORMATION**

Proposed change to: Building Code Fire Safety Code
 Code section(s): 2018 International Energy Conservation Code
E2. Air Leakage Trade-Offs & E3. Prescriptive Table Requirements

PROPONENT INFORMATION

Name: George A. LaCava Representing: HBRA of Connecticut
 Telephone: (860) 632-7863 Email: george@trilacon.com
 Address: PO Box 159 Cromwell CT 06416-01589
Street Address Town State Zip Code

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

See attached for both E2. & E.3

Proposed text change, addition or deletion (attach additional information as needed):

See attached for both E2. & E.3

Supporting data and documents (attach additional information as needed)

See attached for both E.2 & E.3

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- This Comment is not original material, its source (if known) is as follows:** (such as material / code development proposal from a prior development cycle or proposal submitted to model code committee etc.)
National Association of Home Builders
- I would like to make an in-person presentation of my proposal.**

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Proponent's Signature

George A. LaCava

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12/29/16

E2. Air Leakage Trade-Offs

This Amendment allows builders to trade improvements in other building energy components for less stringent building envelope pressure test results. This performance option provides flexibility in meeting the air tightness requirements and provides options for recovering from an unexpected air tightness test failure.

Revise as follows:

R402.4 Air leakage (Mandatory). The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of Sections R402.4.1 through R402.4.4.

R402.4.1 Building thermal envelope. The *building thermal envelope* shall comply with Sections R402.4.1.1 and R402.4.1.2. The sealing methods between dissimilar materials shall allow for differential expansion and contraction.

R402.4.1.1 Installation (Mandatory). The components of the *building thermal envelope* as listed in Table R402.4.1.1 shall be installed in accordance with the manufacturer's instructions and the criteria listed in Table R402.4.1.1, as applicable to the method of construction. Where required by the *code official*, an *approved* third party shall inspect all components and verify compliance.

R402.4.1.2 Testing (Mandatory). The building or dwelling unit shall be tested ~~and verified as having an air leakage rate of not exceeding 5 air changes per hour in Climate Zones 1 and 2, and 3 air changes per hour in Climate Zones 3 through 8 for air leakage.~~ Testing shall be conducted with a blower door at a pressure of 0.2 inches w.g. (50 Pascals). Where required by the *code official*, testing shall be conducted by an *approved* third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the *code official*. Testing shall be performed at any time after creation of all penetrations of the *building thermal envelope*. During testing:

7. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures;
8. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures;
9. Interior doors, if installed at the time of the test, shall be open;
10. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed;
11. Heating and cooling systems, if installed at the time of the test, shall be turned off; and
12. Supply and return registers, if installed at the time of the test, shall be fully open.

R402.4.1.3 Leakage rate (Prescriptive). The building or dwelling unit shall have an air leakage rate not exceeding 5 air changes per hour in Climate Zones 1 and 2, and 3 air changes per hour in Climate Zones 3 through 8, when tested in accordance with Section R402.4.1.2.

Reason:

These modifications relocate the mandatory maximum air-tightness requirement and provide designers and builders the flexibility to trade off building tightness with other performance path measures when using the performance path. Currently the building tightness requirement is "mandatory" and the 3 and 5 ACH tightness levels, even under ideal circumstances, are very difficult to achieve. This amendment will provide energy neutral trade-offs, for expensive and sometimes unattainable requirements, by allowing other building improvements to be used to attain the same level of efficiency. This amendment does not change the stringency; it only increases its flexibility while achieving the required energy efficiency.

[Return to IECC](#)

E3. Prescriptive Table Requirements

This amendment replaces 2015 IECC Tables R402.1.2 and R402.1.4 in the residential section of the 2015 with the following tables from the 2009 IECC.

Revise as follows:

Delete Table 402.1.1 and Table 402.1.3 in their entirety and replace with the following:

TABLE R402.1.2
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT^a

CLIMATE ZONE	FENESTRATION U-FACTOR ^b	SKYLIGHT ^b U-FACTOR	GLAZED FENESTRATION SHGC ^{b, c}	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE ⁱ	FLOOR R-VALUE	BASEMENT ^e WALL R-VALUE	SLAB ^f R-VALUE & DEPTH	CRAWL SPACE ^g WALL R-VALUE
1	1.20	0.75	0.30	30	13	3 / 4	13	0	0	0
2	0.65 ^j	0.75	0.30	30	13	4 / 6	13	0	0	0
3	0.50 ^j	0.60	0.30	30	13	5 / 8	19	5/13 ^f	0	5/13
4 except Marine	0.35	0.60	NR	38	13	5 / 10	19	10/13	10, 2ft	10/13
5 and Marine 4	0.35	0.60	NR	38	20 or 13+5 ^h	13 / 17	30 ^g	10/13	10, 2ft	10/13
6	0.35	0.60	NR	49	20 or 13+5 ^h	15 / 19	30 ^g	15/19	10, 4ft	10/13
7 and 8	0.35	0.60	NR	49	21	19 / 21	38 ^g	15/19	10, 4ft	10/13

For SI: 1 foot = 304.8 mm.

- R-values are minimums. U-factors and SHGC are maximums. R-19 batts compressed into a nominal 2 x 6 framing cavity such that the R-value is reduced by R-1 or more shall be marked with the compressed batt R-value in addition to the full thickness R-value.
- The fenestration U-factor column excludes skylights. The SHGC column applies to all glazed fenestration.
- "15/19" means R-15 continuous insulated sheathing on the interior or exterior of the home or R-19 cavity insulation at the interior of the basement wall. "15/19" shall be permitted to be met with R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulated sheathing on the interior or exterior of the home. "10/13" means R-10 continuous insulated sheathing on the interior or exterior of the home or R-13 cavity insulation at the interior of the basement wall.
- R-5 shall be added to the required slab edge R-values for heated slabs. Insulation depth shall be the depth of the footing or 2 feet, whichever is less in Zones 1 through 3 for heated slabs.
- There are no SHGC requirements in the Marine Zone.
- Basement wall insulation is not required in warm-humid locations as defined by Figure 301.1 and Table 301.1.
- Or insulation sufficient to fill the framing cavity, R-19 minimum.
- "13+5" means R-13 cavity insulation plus R-5 insulated sheathing. If structural sheathing covers 25 percent or less of the exterior, insulating sheathing is not required where structural sheathing is used. If structural sheathing covers more than 25 percent of exterior, structural sheathing shall be supplemented with insulated sheathing of at least R-2.
- The second R-value applies when more than half the insulation is on the interior of the mass wall.
- For impact rated fenestration complying with Section R301.2.1.2 of the *International Residential Code* or Section 1608.1.2 of the *International Building Code*, the maximum U-factor shall be 0.75 in Zone 2 and 0.65 in Zone 3.

TABLE 402.1.4
EQUIVALENT U-FACTORS^a

Climate Zone	Fenestration U-Factor	Skylight U-Factor	Ceiling U-Factor	Frame Wall U-Factor	Mass Wall U-Factor ^b	Floor U-Factor	Basement Wall U-Factor	Crawl Space Wall U-Factor
1	1.20	0.75	0.035	0.082	0.197	0.064	0.360	0.477
2	0.75	0.75	0.035	0.082	0.165	0.064	0.360	0.477
3	0.65	0.65	0.035	0.082	0.141	0.047	0.360	0.136
4 except Marine	0.40	0.60	0.030	0.082	0.141	0.047	0.059	0.065
5 and Marine 4	0.35	0.60	0.030	0.057	0.082	0.033	0.059	0.065
6	0.35	0.60	0.026	0.057	0.060	0.033	0.050	0.065
7 and 8	0.35	0.60	0.026	0.057	0.057	0.033	0.050	0.065

- Nonfenestration U-factors shall be obtained from measurement, calculation or an approved source.
- When more than half the insulation is on the interior, the mass wall U-factors shall be a maximum of 0.17 in Zone 1, 0.14 in Zone 2, 0.12 in Zone 3, 0.10 in Zone 4 except Marine, and the same as the frame wall U-factor in Marine Zone 4 and Zones 5 through 8.
- Basement wall U-factor of 0.360 in warm-humid locations as defined by Figure 301.1 and Table 301.2.
- Foundation U-factor requirements shown in Table 402.1.3 include wall construction and interior air films but exclude soil conductivity and exterior air films. U-factors for determining code compliance in accordance with Section 402.1.4 (total UA alternative) of Section 405 (Simulated Performance Alternative) shall be modified to include soil conductivity and exterior air films.

Reason:

The increased table values in the 2012 IECC and the 2015 IECC did not show justification for the cost increases from the 2009 IECC. Studies indicate nationally almost a \$6,000 increase to the cost of constructing a single-family detached dwelling with a 13-year simple payback. With statistics showing that for every \$1,000 increase to the cost of construction nearly 206,000 potential home buyers will not qualify for a mortgage. This, increase disqualifies approximately 1.3 million families from purchasing a home every year. That equates to approximately \$24,000,000 in potential taxes revenues never being generated for municipalities.



DEPARTMENT OF ADMINISTRATIVE SERVICES

PROPOSED CHANGE OF THE CONNECTICUT STATE BUILDING CODE AND FIRE SAFETY CODE

DATE SUBMITTED: _____

CODE INFORMATION

Proposed change to: Building Code Fire Safety Code

Code section(s): _____

PROPONENT INFORMATION

Name: Joe Aresimowicz

Representing: David Perlot

Telephone: _____

Email: cara.passaro@cga.ct.gov

Address: Legislative Office Building, Rm. 4 Hartford CT 06106-1591

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed): Addition of "drop-down" grab bar as a required fixture in public restrooms; reason for addition is

Proposed text change, addition or deletion (attach additional information as needed): Taken from the 2005 Building Code, to be modified as necessary: "(Add) 1109.2.4 Additional g

Supporting data and documents (attach additional information as needed) Please see attached letter.

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Proponent's Signature

Joe Aresimowicz Printed Name

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JOE ARESIMOWICZ
SPEAKER OF THE HOUSE

STATE OF CONNECTICUT
HOUSE OF REPRESENTATIVES
HARTFORD, CONNECTICUT 06106-1591

April 11, 2019

Mr. Joseph Cassidy, State Building Inspector
Codes & Standards Committee
Department of Administrative Services
450 Columbus Boulevard
Hartford, CT 06103

Dear Mr. Cassidy and Members of the Codes & Standards Committee:

In the spring of 2018, I had a meeting with former Department of Administrative Services Commissioner Melody Currey, Building Inspector Joseph Cassidy and my constituent, David Perlot, to discuss the issue of restoring the requirement of drop-down grab bars to the State Building Code. The consensus we reached was that rather than attempt to enact a law to modify the code, we would wait to address drop-down grab bars until the next code revision cycle when members of the public would be allowed to propose additions to the code.

The importance and necessity of public restrooms having drop-down grab bars cannot be overstated. The Americans with Disabilities Act (ADA) was enacted in 1990 to protect the right of people with disabilities to equal treatment and equal privileges as guaranteed by the U.S. Constitution. Specifically, the ADA provides that no person, by reason of his or her disability, can be "excluded from participation in or be denied the benefits of the services, programs, or activities of a public entity, or be subjected to discrimination by any such entity." (42 U.S.C.A. § 12132) As a result, over almost four decades since its enactment, the ADA has improved the accessibility of public services and public areas, including public restrooms, for those living with a disability. For instance, ADA guidelines require the height of toilets in public restrooms to be reasonable for wheelchair access, ranging between 17 and 19 inches in height. Other public restroom requirements include such conditions as "clear floor space" for movement, reachable toilet paper dispensers and -- most notably for the purpose of our proposed modification to the code -- grab bars for stabilization.

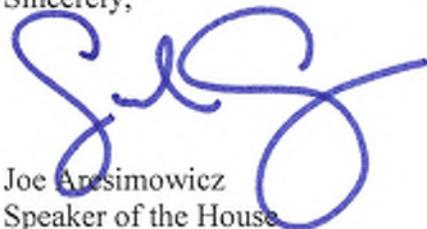
The Connecticut state building code, at one time, required public restrooms to contain drop-down grab bars, and I strongly believe it was a mistake to eliminate this requirement. The absence of these bars in *public* restrooms has effectively denied the services of such restrooms to many of our residents, simply by reason of their disability. For example, my constituent, Mr. Perlot, has paraplegia and cannot use a public toilet stall without a drop-down grab bar. The stalls for people with disabilities must have enough floor clearance to accommodate the movement of a wheelchair. Capable of swinging, a drop-down bar provides this clearance when

not in use; does not obstruct a wheelchair from moving close to the toilet; and yet, when pulled down and latched, provides the stabilization needed to move onto the seat. Having a horizontal grab bar on one side of the toilet, while needed, is simply not sufficient.

For individuals like Mr. Perlot and those who rely on other assistive devices, the absence of drop-down grab bars in public restrooms is more than a mere inconvenience; it is dangerous. Many of us have relied on these types of accessibility features over the years, because of injury or age, or both. As one of these people, I can personally attest to the danger caused when safety products intended to ensure basic access to the “instrumental activities of daily living,” in accordance with the ADA, are not present.

Restoring the requirement of drop-down grab bars to the state building code will ensure that the most fundamental need for equal access in a public area is met. Thank you for your consideration of this important proposal to protect the rights of those with disabilities.

Sincerely,



Joe Arsimowicz
Speaker of the House



DEPARTMENT OF ADMINISTRATIVE SERVICES

PROPOSED CHANGE OF THE CONNECTICUT STATE BUILDING CODE AND FIRE SAFETY CODE

DATE SUBMITTED: March 29, 2019

CODE INFORMATION

Proposed change to: [X] Building Code [] Fire Safety Code

Code section(s): NFPA 54 - 2018 12.5.2

PROPONENT INFORMATION

Name: Larry Gill

Representing: IPEX USA LLC

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Email:

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PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

See attached.

Proposed text change, addition or deletion (attach additional information as needed):

See attached.

Supporting data and documents (attach additional information as needed)

See attached.

[X] This Proposal is original material. (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)

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Proposed Change – Mandate listed and labeled flue gas vent system

12.5.2 Plastic Piping.

Where plastic piping is used to vent an appliance, the appliance shall be listed for use with such venting materials and the appliance manufacturer's installation instructions shall identify the specific plastic piping material. ~~The plastic pipe venting materials system shall be labeled in accordance with the product standards specified by the appliance manufacturer or shall be listed and labeled in accordance with ANSI/UL 1738, *Venting Systems for Gas-Burning Appliances, Categories II, III, and IV.*~~

Rationale

Currently in the United States plastic flue gas venting is required to meet the appliance standards. The appliance standards mandate that plastic vent materials be tested with the appliance for various scenarios. The temperature of the plastic vent is measured at defined locations with a requirement that the temperature cannot exceed the Heat Deflection Temperature (HDT) for the plastic in question. Recently, performance concerns with Cell core PVC and cell core ABS resulted in these products being removed from the CSA appliance standards. It should be noted that these products in fact pass the appliance standards requirements for venting but they will not pass the more strict UL 1738 test requirements.

In Canada there were venting incidents which prompted ULC S636 to be mandated in the B149 gas Code in 2007. As a result, Plumbing DWV products certified to CSA or ASTM standards are no longer permitted as a venting material in Canada. ULC S636 has some similarities to UL 1738 but the standards are different.

In the United States it appears that there have been reported appliance venting related incidents but details are lacking other than for perhaps a handful of incidents.

In 2014, the Consumer Product Protection Association reported 165 unintentional non-fire CO poisoning deaths; an increase of 11% from the average number of reported incidents between 2012–2013.

Of these reported incidents, heating system fatalities represented the largest percentage at 39% and 65 deaths. Unfortunately, these incidents were never investigated to determine whether the root cause was the appliance or venting that caused the CO leak. Any venting related failures and fatalities are categorized under heating system failures. The only time that a heating system failure is investigated further for determining the exact root cause of the failure is if the incident is presented before the courts.

Some examples of vent failure fatalities that have been documented occurred in Aspen Colorado, Nashua New Hampshire, South Bend Indiana, and Port Mouth Virginia.

Clearly there have been some venting “issues” and the industry has reacted with changes to the appliance standards and the Gas Code in Canada. Attached is a policy statement from the City of Loveland, CO, (Attach 1) and information from Charlotte Pipe and Foundry Company (Attach 2) on the use of plastic piping materials for gas vents. In addition, the Town of Danvers, MA includes the following with all gas permits: NOTE: (a) Standard schedule 40-PVC is NOT permitted for use as a material to vent products of combustion for furnaces, boilers and water heaters-(see ASTM D-1785 requirements prohibiting this usage). (b) UL-1738-(Listed) venting material-[i.e. polypropylene, CPVC and LISTED schedule-40] is acceptable. NFPA 54 – 2018 was revised to include a reference to UL 1738 as an option for venting gas fired appliances.

Recent events require that the current 2018 Code language be revisited. Most of the ASTM and CSA standards referenced in the appliance standards for flue gas venting contain warnings on the use of Plumbing DWV products for venting applications. This can create a conflict between the Code and appliance standards with the Code currently providing an option for venting that promotes the use of a product not recommended by the application.

As an example, ASTM D1785-15 (a standard for pressure rated Schedule 40, 80, and 120 PVC pipe intended for use with distribution of pressurized liquids only) states:

“This standard specifies dimensional, performance and test requirements for plumbing and fluid handling applications only. It does not include provisions for the use of these products for venting of combustion gases. UL 1738 is a standard that does include specific testing and marking requirements for flue gas venting products, including PVC.”

Below is a table including all CSA and ASTM standards that contain this specific note or a similar note:

ASTM D1785 – PVC Schedule 40, 80, 120	ASTM F891 – PVC Cellular Core
ASTM D2441 – PVC Pressure SDR Series	ASTM D2846 – CPVC for Hot and Cold Water Distribution
ASTM F441 – CPVC Schedule 40 and 80	ASTM F442 – CPVC SDR Series
ASTM D2661 – ABS Schedule 40 DWV Pipe and Fittings	ASTM F628 – ABS Schedule 40 DWV Cellular Core
ASTM D2665 – PVC DWV Pipe and Fittings	CSA B137.3 – PVC Pipe and Fittings for Pressure
CSA B137.6 – CPVC for Hot and Cold Water Distribution	CSA B181.1 – ABS Schedule 40 DWV Pipe and Fittings

This proposal is intended to eliminate conflict between the ASTM/CSA standards, the NFPA 54 Code and the appliance standards. Currently products are being permitted which meet ASTM and CSA plumbing standards when these standards contain warnings on the products use in a venting application. In addition, UL 1738 mandates that pipe fittings and cements are to be supplied by one manufacture. The reason for this is that tolerances between pipes and fittings from various manufacturers can result in an improper fit potentially creating a void where leakage can occur. Further, installation requirements are being proposed to ensure that installers are properly trained and that there is some level of quality is being met. Also attached (Attach 3) is a comparison of the test requirements of UL 1738 and the relevant appliance test standards. This shows the more stringent requirements of UL 1738 in support of the need to require that it be used.

Proposed Change – Table 12.5.1

Category II, Category III and Category IV Appliances	As specified or furnished by <u>Materials as specified by manufacturers of listed appliances</u> the appliance manufacturer	12.5.2, 12.5.4
--	---	----------------

Rational

The appliance venting is not “furnished” by the appliance manufacturer. It is only specified. The vent is supplied by a plastic pipe manufacturer.

Proposed Change - Training

4.2 Personnel performing installation, operation, and maintenance work shall be trained in such functions, and the training shall be documented.

Rational

Text is proposed to provide specific training requirements for the Qualified Agency. This is needed as there have been failures in venting systems due to improper installation of plastic venting systems. Such failures can lead to carbon monoxide release.

Proposed Change - Training

A.3.3.81 The qualified agency should ensure that all work is done in a skillful, thorough manner. Careful attention should be paid not only to the mechanical execution of the work but also to the arrangement of the installation. The qualified agency should provide or arrange for training of installers.

Rationale

Annex text is added to provide information to qualified agencies and enforcers on training. Currently the Code defines a Qualified Agency as an individual or company that installs piping and appliances that is experienced and familiar with all precautions required. Training is not covered in the definition, or in paragraph 4.1. In order to be qualified, the individual or company must be trained. A separate proposal recommends a new paragraph 4.2 to require training and documentation of training. This new annex text provides this guidance on the definition of a Qualified Agency

CHARLOTTE

PIPE AND FOUNDRY COMPANY

Should Plastic Pipe & Fittings Be Used to Vent Combustion Gasses?

Use of plastic pipe to vent combustion gasses produced by water and space heating equipment has become common practice among plumbers and builders. Some equipment manufacturers expressly recommend this practice. Occasionally, Charlotte Pipe is asked for its position on the use of plastic pipe and fitting products for this application.

Industry Standards

A variety of organizations produce standards for the construction industry. The best known of these organizations is the American Society for Testing and Materials International (ASTM). ASTM standards are developed by committees of industry experts and approved by the ASTM organization through a rigorous consensus process. These standards specify dimensional, performance and test requirements for various materials, including piping products. Manufacturers like Charlotte Pipe produce products that conform to these published standards.

None of these standards addresses the use of plastic piping to vent combustion gasses.

Equipment Manufacturers

Manufacturers produce a wide variety of gas-fired water and space heating equipment. These manufacturers may specify plastic piping for venting of combustion gasses, citing these ASTM and other standards within their technical literature:

- ASTM D 2241 Specification for PVC Pressure Rated Pipe
- ASTM D 1785 Specification for PVC Plastic Pipe, Schedules 40, 80 and 120.
- ASTM F 891 Specification for Coextruded PVC Plastic Pipe With a Cellular Core.
- ASTM F 441 Specification for CPVC Plastic Pipe, Schedules 40 and 80.
- ASTM D 2661 Specification for ABS Schedule 40 Plastic Drain, Waste and Vent Pipe and Fittings.
- ASTM D 2665 Specification for PVC Plastic Drain, Waste and Vent Pipe and Fittings.
- ASTM F 438 Specification for Socket Type CPVC Plastic Fittings, Schedule 40.
- ASTM D 3311 Specification for Drain, Waste and Vent Fitting Patterns.
- ASTM F 628 Specification for ABS Schedule 40 Plastic Drain, Waste and Vent Pipe with a Cellular Core.

Although these standards specify dimensional, performance and test requirements for plumbing and fluid handling applications, and are often used to refer to or describe a particular type of pipe, they **do not** address venting of combustion gasses. References to these standards by water heater or space heating equipment manufacturers should not be viewed as acceptance or approval by the ASTM for these applications.

Conclusion

At present there is little data available on the safety or durability of plastic pipe products used to vent combustion gasses. The ASTM has not addressed this application, and the available data is insufficient for the plastic pipe and fitting industry to develop consensus specifications or guidelines. Equipment manufacturers are most knowledgeable about their own products and are best equipped to determine how their gas-fired heating equipment should be vented. Accordingly, Charlotte Pipe recommends that inquiries about the suitability of plastic piping systems to vent combustion gasses be directed to the manufacturer of the water or space heating equipment being installed.



**Development Services
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POLICY AND PROCEDURE STATEMENT

BDP-16-01 Prohibition on the Use of Cellular Core PVC or ABS Piping as Exhaust Vent Piping for Fuel-fired Combustion Appliances

PURPOSE: To clarify the prohibition of use of cellular core PVC or ABS piping as exhaust vent piping on fuel-fired combustion appliances

ISSUE: Information from product listing agencies, product manufacturer's, and a licensed plumbing engineer serving as committee chair for the International Code Council's Residential Plumbing and Mechanical Committee has demonstrated that the use of cellular core PVC piping for exhaust vent piping is not compliant with the requirements of the International Residential Code, has been reported to have failed and caused life-threatening conditions, and has been specifically warned against by the major manufacturers of such pipe, warranting the prohibition of the use of such pipe for vent piping on fuel-fired combustion appliances.

EVIDENCE: The CSA, a world recognized and code approved product testing and listing agency recently provided guidance concerning the use of cellular core PVC piping for venting of fuel-fired combustion appliances stating that "the use of [cell core vent pipe] as a vent pipe for combustion products is no longer permitted in the US and Canada. There have been reported instances of this material failing in the field and releasing carbon monoxide into the living space...At this point all manufacturers of these products should have amended their instruction manuals to reflect this change."

The Supplemental Information to the installation instructions for one of the largest manufacturers of cell core PVC piping, Charlotte Pipe, states "Never use PVC or ABS cellular core pipe for combustion gas venting". Information from other pipe manufacturers provides similar directives.

The Chairman of the ICC's Residential Plumbing and Mechanical Committee indicates states that there is no listing or testing of cellular core piping for use as combustion vent piping and he attributes the death of a family of four in Aspen in 2008 to carbon monoxide poisoning occurring as a result of failed cellular core PVC combustion vent piping. He further states that requirements within the codes that products, including cellular core PVC vent piping, be tested, listed and labeled for their intended use, have not been met by this product. He also states that he has personally witnessed failures and degradation of this product in the field when used in this manner.

POLICY BDP-16-01 (Effective June 20, 2016 and thereafter):

1. The use of cellular core PVC or ABS piping for conveyance of exhaust combustion product from fuel-fired appliances will not be approved by the City of Loveland Building Division. Effective June 20, 2016, the Building Division will disapprove all rough mechanical and/or plumbing inspections for fuel-fired combustion exhaust venting systems incorporating cellular core PVC or ABS piping. Those structures with fully approved

rough mechanical and/or plumbing inspections of systems as of close of business on June 17, 2016, which have incorporated cellular core PVC or ABS pipe will be exempt from this policy.

2. This policy is not intended to prevent the use of solid PVC or ABS piping not of cellular core construction for venting of fuel-fired combustion appliances.

Clause	Test	Test Description	Appliance Standards Provision	UL 1738 Provision
19	Temperature test and surrounding Structure	In both a vertical and horizontal structure the thermoplastic material is tested at a minimum of 38°C (ambient) above the rating of the vent system. The temperature the surrounding structure cannot exceed 65°C on the exposed surface and 50°C on concealed surfaces	YES* *only test to the HDT. Only considers the effect of the appliance on surrounding combustibles and not	YES* *test to rated temperature plus ambient (38°C) and considers the effect of the vent on surrounding
21	Vertical support	A static load is applied equal to 4x the heaviest assembly, for 1 hour duration.	NO	YES
22	Strength			
22.1	Impact	Horizontal and Vertical assemblies incorporating at least three sections of pipe are to be impacted three times using a sand bag. No breaking, disassembly, or any damage allowed. Weight of sand bag is either 20lbs or 50 lbs depending on pipe diameter.	NO	YES
22.2	longitudinal force	A force of 100 pounds applied for 5 minutes in an attempt to pull apart two companion parts, No breaking, disassembly, or any damage allowed.	YES* *50 lbs ONLY	YES
22.3	load test for vent elbow	Apply 4x the weight of the system or 10 pounds whatever is greater for 5 minutes. No breaking, disassembly, or any damage allowed.	NO	YES
22.4	vent joint load test	Apply 4x the weight of the system or 10 pounds whatever is greater for 5 minutes. No breaking, disassembly, or any damage allowed.	NO	YES
23	Wind Load			
23.1	Test on roof assembly	Vent exposed above the roof line has a load equivalent to 30 pounds per sq' of exposed area applied for 60 minutes. No breaking, disassembly, or any damage allowed.	NO	YES
23.2	Test on lateral supports	Vent exposed outside the wall line has a load equivalent to 30 pounds per sq' of exposed area applied for 60 minutes. No breaking, disassembly, or any damage allowed.	NO	YES
24	Rain Test	Vents are exposed to a water spray configuration as per the standard at 5 psi water pressure. Max allowable water entering the vent system is 2% of the total without the vent cap installed.	NO	YES
28	Vent Sag - Horizontal Installation	Horizontal installation with max allowable spacing/joints between supports shall not sag more than 6.25% of the diam. when subject to the rated temperature from Test 19 plus 38.8°C. Run for 3 hrs or until equilibrium.	NO	YES
29	Puncture Test	Plunger shall not penetrate the wall when dropped from 20" above the outer wall surface. Plunger consists of 3/8" steel rod with a 9/16" diameter head at the end and the overall assembly	NO	YES

		weighs 2lbs.	Return to Table of Contents		
32	Pressure Test	Assembly including fittings to be subject to a pressure of 311 Pa or 2.5 times the maximum rated pressure as per client. Tested for 1hr.	NO	YES	
33	Leakage Test	Assembly will include fittings/typical joint placed under a pressure of 124 Pa for 1hr. The assembly volume will be calculated and the amount of air used to maintain pressure is not to exceed 20 times the volume of the sample.	YES	YES	
35	Joint Tightness	A torque of 25 ft-lb is applied to the various pipe/fitting assemblies, No breaking, disassembly, or any damage allowed.	NO	YES	
37	Low Temperature Handling	Samples are cooled for 5 hr @ -20deg C, once removed samples are dropped at a height of 60" on to a concrete floor twice (once at 45 deg angle and once parallel to the floor). Samples shall not chip, crack, break or be damaged.	NO	YES	
38	Water Absorption	Conditioned at @ 50°C for 24 hr, then remain at 23°C for 24hr. Samples are then submerged in distilled water for 24 hrs. Weight before and after water submersion must not exceed a 1.5 percent gain.	NO	YES	

Clause	Test	Test Description	Appliance Standards Provision	UL 1738 Provision
40		<u>Polymeric Materials</u>		
40.2	Elevated Temp Conditioning	Subject to an Elevated temperature as specified in section 19.2, at 30,60,90 and 180 day evaluations for the following are conducted; Tensile, Shall be retained ≥ 70 % of its original value (Per ASTM D638) Impact(Only on Plaques), Shall be retained ≥ 70 % of its original value (Per ASTM D5420) Flammability, For use $\leq 60^{\circ}\text{C}$: shall comply to Class V-0 (UL94) For use $>60^{\circ}\text{C}$: shall comply to Class 5VA or 5VB (UL94) Pipe Deflection and stiffness (only on pipe), Shall be retained ≥ 50 % of its original pipe deflection and stiffness	NO	YES
40.3	Light and water	Subject to Xenon-arc lamp and conditioning of 102 minutes of light followed by 18 minutes of light and water spray. @360 hours samples are evaluate for; Tensile, Shall be retained ≥ 70 % of its original value (Per ASTM D638) Impact, Shall be retained ≥ 70 % of its original value (Per ASTM D5420) Flammability, For use $\leq 60^{\circ}\text{C}$: shall comply to Class V-0 (UL94) For use $>60^{\circ}\text{C}$: shall comply to Class 5VA or 5VB (UL94)	NO	YES
40.4	Condensate Conditioning	Samples are immersed in the specified solution for 30,60,90 and 180 day evaluations of; Tensile, Shall be retained ≥ 50 % of its original value (Per ASTM D638) Impact (Only on Plaques), Shall be retained ≥ 50 % of its original value (Per ASTM D5420) Flammability(Only on Plaques), For use $\leq 60^{\circ}\text{C}$: shall comply to Class V-0 (UL94) For use $>60^{\circ}\text{C}$: shall comply to Class 5VA or 5VB (UL94) Pipe Deflection and stiffness (only on pipe), Shall be retained ≥ 50 % of its original pipe deflection and stiffness	NO	YES
42		<u>Polymeric Materials Physical</u>		
42.2	Tensile-baseline	As per ASTM D638 and section 40.2 - 4.03 above	NO	YES
42.3	Impact-baseline	As per ASTM ASTM D5420 and section 40.2 - 4.03 above	NO	YES
42.4	pipe deflection-baseline	As per ASTM D2412 and section 40.2 – 40.3 above	NO	YES
42.5	flammability-baseline	As per UL 94 and section 40.2 – 40.3 above	NO	YES

43	Deflection Temp Load Test	Deflection temperature shall be at least 10°C above the use temperature for the section 19.2 but not less than 70°C when tested as per ASTM D648.	Return to Table of Contents NO	YES
44	Internal stress	Average Internal residual stress for straight section of pipe shall be less than 300psi, but a positive number.	NO	YES
45	Product Marking	Marking on the vent product to include the following: <ul style="list-style-type: none"> • Minimum clearance to combustible materials • Direction of intended flow • Mark noting the factory of manufacturer • All components to be marked (including cements) • Drain tees to be marked with warning of flue gas leak. • Special marking for condensate drains • Markings to be permanent for the application. 	NO	YES
47	Installation Instructions	Instructions for venting to include but not limited to (section 47 has 25 requirements for the installation instructions): <ul style="list-style-type: none"> • Safety alert warning if the instructions are not adhered to • Details on unpacking, damage and the consequences, expansion and contraction, no mixing of components from different manufacturers • Vent support 	NO	YES



DEPARTMENT OF ADMINISTRATIVE SERVICES

PROPOSED CHANGE OF THE CONNECTICUT STATE BUILDING CODE AND FIRE SAFETY CODE

DATE SUBMITTED: Apr/11/2019

CODE INFORMATION

Proposed change to: [x] Building Code [] Fire Safety Code

Code section(s): IECC 2015

C202 and IECC C403.8.3, Chapter 6CE

PROPONENT INFORMATION

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06034

Street Address

Town

State

Zip Code

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

Replace Fan Efficiency Grade (FEG per AMCA 205) with Fan Energy Index (FEI, AMCA 208)

Proposed text change, addition or deletion (attach additional information as needed):

underline and strike-out is attached

Supporting data and documents (attach additional information as needed)

AMCA advocacy brief & free download, IECC proposal by ASHRAE and AMCA, Florida prpsl

[] This Proposal is original material. (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)

[x] This Comment is not original material, its source (if known) is as follows: (such as material / code development proposal from a prior development cycle or proposal submitted to model code committee etc.)

IECC 2021 change proposal; ASHRAE Technical Committee "Fans"; AMCA International.

[x] I would like to make an in-person presentation of my proposal.

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Armin Hauer signature

Proponent's Signature

Dipl.-Ing. (FH) Armin Hauer, CEM, CPQ

Printed Name

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2018 Connecticut State Building Code

Change Proposal

- *The ASHRAE Board of Directors at its meetings in June 2019 will be voting to approve addendum AO to 90.1-2016.*
- *This Connecticut proposal is identical to an IECC 2021 and a Florida proposal, which all are harmonized with aforementioned ASHRAE addendum AO.*

Code:

IECC Sections [C202](#), [C403.8.3](#) and [Referenced Standards](#)

Proposal Text (Shown in ~~strikeout~~ and Underline):

Section C202 – adding and replacing definitions

Fan, Embedded. A fan that is part of a manufactured assembly where the assembly includes functions other than air movement.

Fan Array. Multiple fans in parallel between two plenum sections in an air distribution system.

Fan Nameplate Electrical Input Power. The nominal electrical input power rating stamped on a fan assembly nameplate.

~~FAN EFFICIENCY GRADE (FEG). A numerical rating identifying the fan's aerodynamic ability to convert shaft power, or impeller power in the case of a direct-driven fan, to air power.~~

Fan Energy Index (FEI). The ratio of the electric input power of a reference fan to the electric input power of the actual fan as calculated in accordance with AMCA 208.

Fan System Electrical Input Power. The sum of the fan electrical power of all fans that are required to operate at fan system design conditions to supply air from the heating or cooling source to the conditioned spaces and/or return it to the source or exhaust it to the outdoors.

Chapter 4 – revising fan efficiency requirement

~~C403.8.3 Fan efficiency (Mandatory). Each fFans and fan array shall have a fan energy index (FEI) efficiency grade (FEG) of not less than 67-1.00 at the design point of operation, as determined in accordance with AMCA 2058 by an approved, independent testing laboratory and labeled by the manufacturer. The total efficiency of the fan at the design point of operation shall be within 15 percentage points of the maximum total efficiency of the fan. Each fan and fan array used for a variable-air-volume system shall have an FEI of not less than 0.95 at the design point of operation as determined in accordance with AMCA 208 by an approved, independent testing laboratory and labeled by the manufacturer. The FEI for fan arrays shall be calculated in accordance with AMCA 208 Annex C.~~

Exceptions: The following fans are not required to have a fan ~~efficiency grade~~ energy index:

1. Fans that are not embedded fans with motor nameplate horsepower of less than 1.0 of 5 hp (3.7 0.75 kW) or ~~less as follows:~~ with a fan nameplate electrical input power of less than 0.89 kW.

~~4.12. Individual Embedded fans that have a motor nameplate horsepower of 5 hp (3.7 kW) or less, unless Exception 1.2 applies or with a fan system electrical input power of 4.1 kW or less.~~

~~4.23. Multiple fans operated in series or parallel as the functional equivalent of a single fan that have a combined motor nameplate horsepower of 5 hp (3.7 kW) or less and are operated as the functional equivalent of a single fan or with a fan system electrical input power of 4.1 kW or less.~~

~~24. Fans that are part of equipment covered in Section C403.3.2.~~

~~35. Fans included in an equipment package certified by an approved agency for air or energy performance.~~

~~6. Ceiling fans, i.e., nonportable devices suspended from a ceiling or overhead structure for circulating air via the rotation of fan blades.~~

~~7. Fans used for moving gases at temperatures above 482°F (250°C).~~

~~8. Fans used for operation in explosive atmospheres.~~

~~9. Reversible fans used for tunnel ventilation.~~

~~4. Powered wall/roof ventilators.~~

~~511. Fans outside the scope of AMCA 2058.~~

~~610. Fans that are intended to operate only during emergency conditions.~~

Chapter 6 [CE] – revising referenced standards

AMCA:

Air Movement and Control Association International 30 West University Drive Arlington Heights, IL 60004-1806

~~205—12: Energy Efficiency Classification for Fans C403.8.3~~

~~208—18: Calculation of the Fan Energy Index C403.8.3~~

Supporting data and documents

- AMCA advocacy brief
- AMCA announcement & free download
- FAQ about FEI versus FEG
- CT ASHRAE Tech session March 2019
- IECC proposal by ASHRAE and AMCA include reasons, bibliography, and analyses
- Florida proposal



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: April 12, 2019**CODE INFORMATION**

Proposed change to: Building Code Fire Safety Code
 Code section(s): 2020 CSBC / 2018 IBC. Section 712. Vertical Openings. Section 712.1.3.
Escalator Openings.

PROPONENT INFORMATION

Name: Bruce J. Spiewak AIA Representing: Bruce J. Spiewak AIA
 Telephone: 203.931.9945. Ext 0 Email: bruces@conncode.com
 Address: 375 Morgan Lane. Unit 405 West Haven CT 06516
Street Address Town State Zip Code

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

Include stairways which are not a portion of the means of egress.

Proposed text change, addition or deletion (attach additional information as needed):

Section 712.1.3. Escalator and Stairway Openings. See Attached.

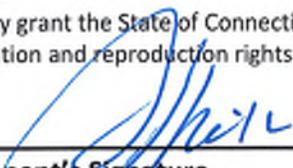
Supporting data and documents (attach additional information as needed)

2005 CSBC Section 707. Shaft Enclosures

- This Proposal is original material.** (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)
- This Comment is not original material, its source (if known) is as follows:** (such as material / code development proposal from a prior development cycle or proposal submitted to model code committee etc.)
Revert back to the 2005 CT State Building Code language and concept.
- I would like to make an in-person presentation of my proposal.**

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 Proponent's Signature

Bruce J. Spiewak

 Printed Name
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12/29/16

2018 IBC.
Section 712
Vertical Openings.

712.1.3. Escalator and Stairway Openings.

Where a building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, vertical openings for an escalator opening or a stairway, which is not a portion of the means of egress, shall be permitted where protected in accordance with Section 712.1.3.1 or 712.1.3.2.

711.2.3 Supporting construction. The supporting construction shall be protected to afford the required *fire-resistance rating* of the *horizontal assembly* supported.

Exception: In buildings of Type IIB, IIIB or VB construction, the construction supporting the *horizontal assembly* is not required to be fire-resistance rated at the following:

1. *Horizontal assemblies* at the separations of incidental uses as specified by Table 509 provided that the required *fire-resistance rating* does not exceed 1 hour.
2. *Horizontal assemblies* at the separations of *dwelling units* and *sleeping units* as required by Section 420.3.
3. *Horizontal assemblies* at *smoke barriers* constructed in accordance with Section 709.

711.2.4 Fire-resistance rating. The *fire-resistance rating* of *horizontal assemblies* shall comply with Sections 711.2.4.1 through 711.2.4.6 but shall be not less than that required by the building type of construction.

711.2.4.1 Separating mixed occupancies. Where the *horizontal assembly* separates mixed occupancies, the assembly shall have a *fire-resistance rating* of not less than that required by Section 508.4 based on the occupancies being separated.

711.2.4.2 Separating fire areas. Where the *horizontal assembly* separates a single occupancy into different fire areas, the assembly shall have a *fire-resistance rating* of not less than that required by Section 707.3.10.

711.2.4.3 Dwelling units and sleeping units. *Horizontal assemblies* serving as dwelling or sleeping unit separations in accordance with Section 420.3 shall be not less than 1-hour *fire-resistance-rated* construction.

Exception: *Horizontal assemblies* separating *dwelling units* and *sleeping units* shall be not less than $\frac{1}{2}$ -hour *fire-resistance-rated* construction in a building of Types IIB, IIIB and VB construction, where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

711.2.4.4 Separating smoke compartments. Where the *horizontal assembly* is required to be a *smoke barrier*, the assembly shall comply with Section 709.

711.2.4.5 Separating incidental uses. Where the *horizontal assembly* separates incidental uses from the remainder of the building, the assembly shall have a *fire-resistance rating* of not less than that required by Section 509.

711.2.4.6 Other separations. Where a *horizontal assembly* is required by other sections of this code, the assembly shall have a *fire-resistance rating* of not less than that required by that section.

711.2.5 Ceiling panels. Where the weight of lay-in ceiling panels, used as part of *fire-resistance-rated floor/ceiling* or *roof/ceiling assemblies*, is not adequate to resist an upward force of 1 pound per square foot (48 Pa), wire or other

approved devices shall be installed above the panels to prevent vertical displacement under such upward force.

711.2.6 Unusable space. In 1-hour *fire-resistance-rated floor/ceiling assemblies*, the ceiling membrane is not required to be installed over unusable crawl spaces. In 1-hour *fire-resistance-rated roof assemblies*, the floor membrane is not required to be installed where unusable *attic* space occurs above.

711.3 Nonfire-resistance-rated floor and roof assemblies. Nonfire-resistance-rated floor, floor/ceiling, roof and roof/ceiling assemblies shall comply with Sections 711.3.1 and 711.3.2.

711.3.1 Materials. Assemblies shall be of materials permitted by the building type of construction.

711.3.2 Continuity. Assemblies shall be continuous without vertical openings, except as permitted by Section 712.

SECTION 712 VERTICAL OPENINGS

712.1 General. Each vertical opening shall comply in accordance with one of the protection methods in Sections 712.1.1 through 712.1.16.

712.1.1 Shaft enclosures. Vertical openings contained entirely within a shaft enclosure complying with Section 713 shall be permitted.

712.1.2 Individual dwelling unit. Unconcealed vertical openings totally within an individual residential dwelling unit and connecting four stories or less shall be permitted.

712.1.3 Escalator openings. Where a building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, vertical openings for escalators shall be permitted where protected in accordance with Section 712.1.3.1 or 712.1.3.2.

712.1.3.1 Opening size. Protection by a draft curtain and closely spaced sprinklers in accordance with NFPA 13 shall be permitted where the area of the vertical opening between stories does not exceed twice the horizontal projected area of the escalator. In other than Groups B and M, this application is limited to openings that do not connect more than four stories.

712.1.3.2 Automatic shutters. Protection of the vertical opening by approved shutters at every penetrated floor shall be permitted in accordance with this section. The shutters shall be of noncombustible construction and have a *fire-resistance rating* of not less than 1.5 hours. The shutter shall be so constructed as to close immediately upon the actuation of a smoke detector installed in accordance with Section 907.3.1 and shall completely shut off the well opening. Escalators shall cease operation when the shutter begins to close. The shutter shall operate at a speed of not more than 30 feet per minute (152.4 mm/s) and shall be equipped with a sensitive leading edge to arrest its progress where in contact with any obstacle, and to continue its progress on release therefrom.

FIRE-RESISTANCE-RATED CONSTRUCTION

of the wall where the opening protective assembly has been tested in accordance with ASTM E 119 and has a minimum fire-resistance rating not less than the fire-resistance rating of the wall.

706.8 Penetrations. Penetrations through fire barriers shall comply with Section 712.

Issue
706.8.1 Prohibited penetrations. Penetrations into an exit enclosure shall only be allowed when permitted by Section 1019.1.2.

706.9 Joints. Joints made in or between fire barriers shall comply with Section 713.

706.10 Ducts and air transfer openings. Penetrations by ducts and air transfer openings shall comply with Sections 712 and 716.

SECTION 707 SHAFT ENCLOSURES

707.1 General. The provisions of this section shall apply to vertical shafts where such shafts are required to protect openings and penetrations through floor/ceiling and roof/ceiling assemblies.

707.2 Shaft enclosure required. Openings through a floor/ceiling assembly shall be protected by a shaft enclosure complying with this section.

Exceptions:

1. A shaft enclosure is not required for openings totally within a residential dwelling unit and connecting three stories or less.

2. A shaft enclosure is not required in a building equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 for an escalator opening or a stairway which is not a portion of the means of egress protected according to Item 2.1 or 2.2:

2.1. Where the area of the floor opening between stories does not exceed twice the horizontal projected area of the escalator or stairway and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13-02. In other than Groups B and M, this application is limited to openings that do not connect more than three stories.

2.2. Where the opening is protected by approved power-operated horizontal automatic shutters at every floor penetrated. The shutters shall be of noncombustible construction and have a fire-resistance rating of not less than 1.5 hours. The shutter shall be so constructed as to close immediately upon actuation of a smoke detector installed in accordance with Section 907.10 and shall completely shut off the well opening. Escalators shall cease operation when the shutter begins to close. The shutter shall operate at a speed of not more than 30 feet per minute and shall be equipped with a sensitive leading edge to arrest its progress

where in contact with any obstacle, and to continue its progress on release therefrom.

3. A shaft enclosure is not required for penetrations by pipe, tube, conduit, wire, cable and vents protected in accordance with Section 712.4.

4. A shaft enclosure is not required for penetrations by ducts protected in accordance with Section 712.4. Grease ducts shall be protected in accordance with the 2003 International Mechanical Code.

5. A shaft enclosure is not required for floor openings complying with the provisions for covered malls or atriums. *404*

6. A shaft enclosure is not required for approved masonry chimneys, where annular space protection is provided at each floor level in accordance with Section 717.2.5.

7. In other than Groups I-2 and I-3, a shaft enclosure is not required for a floor opening that complies with the following:

7.1. Does not connect more than two stories.

DRAFT CURTAINS AND SPRINKLERS (903.3.1.1.2) 2009 IBC
7.2. Is not part of the required means of egress system except as permitted in Section 1019.1.

7.3. Is not concealed within the building construction.

7.4. Is not open to a corridor in Group I and R occupancies.

7.5. Is not open to a corridor in buildings not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1 in any occupancy.

7.6. Is separated from floor openings serving other floors by construction conforming to Section 706. *7100 1200/1000*

8. A shaft enclosure is not required for automobile ramps in open parking garages and enclosed parking garages constructed in accordance with Sections 406.3 and 406.4, respectively. *406.3.1.1*

9. A shaft enclosure is not required for floor openings between a mezzanine and the floor below.

10. A shaft enclosure is not required for joints protected by a fire-resistant joint system in accordance with Section 713.

11. Where permitted by other sections of this code.

707.3 Materials. The shaft enclosure shall be of materials permitted by the building type of construction.

707.4 Fire-resistance rating. Shaft enclosures shall have a fire-resistance rating of not less than 2 hours where connecting four stories or more and not less than 1 hour where connecting less than four stories. The number of stories connected by the shaft enclosure shall include any basements but not any mezzanines. Shaft enclosures shall be constructed as fire barriers in accordance with Section 706. Shaft enclosures shall have a fire-resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours. *EXCLUDING STAIRS*

CODE INFORMATIONProposed change to: Building Code Fire Safety Code

Code section(s): International Fire Code (2018 Edition) - Section 105.4.2.1

DATE SUBMITTED: 4/12/2019

PROPONENT INFORMATION

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	<i>Street Address</i>	<i>Town</i>	<i>State</i> <i>Zip Code</i>

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

This proposal is to ADD a code section with language from Chapter 1 of the State Building Code. This language has been in the International Building Code for several code cycles. The language provides specific details for the egress requirements that need to be included in plan design submittals.

Proposed text change, addition or deletion (attach additional information as needed):

ADD - Section 105.4.2.1 Means of Egress. The construction documents shall show in sufficient detail the location, construction, size, and character of all portions of the means of egress including the path of the exit discharge to the public way in compliance with the provisions of this code. In other than occupancies in Groups R-2, R-3, and I-1, the construction documents shall designate the number of occupants to be accommodated on every floor, and in all rooms and spaces.

Supporting data and documents (attach additional information as needed):

This language currently exists in both the International Building Code and the Connecticut State Building Code. This proposal to ADD the language to a section in Chapter 1 of the CSFSC would allow the local fire marshal to properly cite this requirement on insufficient plan review submittals. Architects and designers should be familiar with the requirements as they are currently cited by the local building officials.

This Proposal is original material. (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)

This Comment is not original material, its source (if known) is as follows: (such as material / code development proposal from a prior development cycle or proposal submitted to model code committee etc.) [International Building Code – 2018 Edition](#)

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Proponent's Signature

Anthony W. Fino
Printed Name

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DEPARTMENT OF ADMINISTRATIVE SERVICES

PROPOSED CHANGE OF THE CONNECTICUT STATE BUILDING CODE AND FIRE SAFETY CODE

DATE SUBMITTED: April 14, 2019

CODE INFORMATION

Proposed change to: Building Code Fire Safety Code

Code section(s): Solar photovoltaic Roof systems
~~Protection of building envelope~~

PROPONENT INFORMATION

Name: Greg Chandler

Representing: Home Builders + Remodels of CT

Telephone: 860.982.9009

Email: greg@goldshieldconstruction.com

Address: 1224 Worthington Ridge Bellin CT 06037
Street Address Town State Zip Code

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):
See attached

Proposed text change, addition or deletion (attach additional information as needed):
See attached

Supporting data and documents (attach additional information as needed)
see attached.

This Proposal is original material. (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)

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Proponent's Signature

Gregory Chandler
Printed Name

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Department of Administrative Services
Office of the State Building Inspector
450 Columbus Boulevard, Suite 1303
Hartford, CT 06103
Tel: 860-713-5900 Fax: 860-713-7410
Affirmative Action/Equal Opportunity Employer

9. Solar Photovoltaic Roof Systems

This amendment corrects language copied from the International Fire Code to address solar photovoltaic panels installed on the roof of a one- and two-family dwelling.

Revise as follows:

R324.7 Access and pathways. Roof access, pathways and spacing requirements shall be provided in accordance with Sections R324.7.1 through R324.7.2.5.

Exceptions:

1. Detached garages and accessory structures to one and two-family dwellings and townhouses, such as parking shade structures, carports, solar trellises and similar structures.
2. Roof access, pathways and spacing requirements need not be provided where an alternative ventilation method approved by the code official has been provided or where the code official has determined that vertical ventilation techniques will not be employed.

R324.7.1 Roof access points. Roof access points shall be located in areas that do not require the placement of ground ladders over openings such as windows or doors, and located at strong points of building construction in locations where the access point does not conflict with overhead obstructions such as tree limbs, wires or signs.

R324.7.2 Solar photovoltaic systems. Solar photovoltaic systems shall comply with Sections R324.7.2.1 through R324.7.2.5.

R324.7.2.1 Size of solar photovoltaic array. Each photovoltaic array shall be limited to 150 feet by 150 feet (45 720 by 45 720 mm). Multiple arrays shall be separated by a clear access pathway not less than 3 feet (914 mm) in width.

R324.7.2.2 Hip roof layouts. Panels and modules installed on dwellings with hip roof layouts shall be located in a manner that provides a clear access pathway not less than 3 feet (914 mm) in width from the eave to the ridge on each roof slope where panels and modules are located. The access pathway shall be ~~located at a structurally strong location on the building capable of supporting the live load of fire fighters~~ located at a structurally strong location along the structural members of the roof framing to support any person accessing the roof.

Exception: These requirements shall not apply to roofs with slopes of 2 units vertical in 12 units horizontal (16.6 percent) and less.

R324.7.2.3 Single ridge roofs. Panels and modules installed on dwellings with a single ridge shall be located in a manner that provides two, 3-foot-wide (914 mm) access pathways from the eave to the ridge on each roof slope where panels or modules are located.

Exception: This requirement shall not apply to roofs with slopes of 2 units vertical in 12 units horizontal (16.6 percent) and less.

R324.7.2.4 Roofs with hips and valleys. Panels and modules installed on dwellings with roof hips or valleys shall not be located less than 18 inches (457 mm) from a hip or valley where panels or modules are to be placed on both sides of a hip or valley. Where panels are to be located on one side only of a hip or valley that is of equal length, the 18-inch (457 mm) clearance does not apply.

Exception: These requirements shall not apply to roofs with slopes of 2 units vertical in 12 units horizontal (16.6 percent) and less.

~~**R324.7.2.5 Allowance for smoke ventilation operations.** Panels and modules installed on dwellings shall not be located less than 3 feet (914 mm) below the roof ridge to allow for fire department smoke ventilation operations.~~

~~**Exception:** Where an alternative ventilation method approved by the code official has been provided or where the code official has determined that vertical ventilation techniques will not be employed, clearance from the roof ridge is not required.~~

Reason:

This change is suggested based on two reasons. First, there is no reference in any of the ICC codes which specifically quantifies the weight of a fully geared up fire fighter. In addition, the provision for the access and the ability of the roof to support the live load of an individual should not be limited to the fire service. Solar PV panels will require cleaning and maintenance by the installer, electricians will need to periodically access

it to repair or replace components, and owners will need to clear debris and perform other housekeeping items. Secondly, while the IRC does take in to consideration the safety of occupants and fire service personnel, the IRC is not a fire service manual and should not include operational requirements for attacking fires from an offensive or defensive position. The IRC is a standalone building code for one- and two family dwellings and townhouses and it is not a fire operation manual.

[Return to Residential](#)

8. Protection of Building Envelope

This amendment eliminates the requirement to provide an exterior-rated door at the top of a stairway that is enclosed by breakaway walls and provides access to a dwelling elevated on piers or piles in a coastal flood zone.

Revise as follows:

~~**R322.3.5.1 Protection of building envelope.** An exterior door that meets the requirements of Section R609 shall be installed at the top of stairs that provide access to the building and that are enclosed with walls designed to break away in accordance with Section R322.3.4.~~

Reason:

This amendment deletes the requirement added in the 2015 IRC that an exterior door be provided at the top of a stairway enclosed by breakaway walls and providing access to a dwelling located in a Coastal A Zone or Zone V special flood hazard area and elevated on piers or piles. While having a door at the top of such a stair may be good practice, the additional requirements associated with it being an exterior door are overly conservative, particularly if the door at the bottom of the enclosed stair is also an exterior door. By requiring compliance with all of the requirements of Section R609, the specified door would need to have a design pressure rating consistent with the design wind speed for the site, the door frame would need to be stiffened to resist the loads from such a door, proper anchorage of the door to the frame would need to be provided, and the door opening would need head, jamb, and sill flashing. The minimum added cost to provide a standard exterior door with flashing in lieu of a standard interior door is around \$300; a hurricane wind-rated door would add an additional \$200-\$300 to the minimum costs.

It is noted that this requirement does not appear in the basic construction requirements of the National Flood Insurance Program in accordance with 44 CFR 60.3. It is also not specified as a practice that a community would earn credit for mandating and enforcing under FEMA's Community Rating Service, and would not lead to discounted flood insurance premiums.



DEPARTMENT OF ADMINISTRATIVE SERVICES

PROPOSED CHANGE OF THE CONNECTICUT STATE BUILDING CODE AND FIRE SAFETY CODE

DATE SUBMITTED: April 14, 2019

CODE INFORMATION

Proposed change to: Building Code Fire Safety Code

Code section(s): ~~Solar photovoltaic Roof systems~~
Protection of building envelope

PROPONENT INFORMATION

Name: Greg Chandler

Representing: Home Builders + Remodels of CT

Telephone: 860.982.9009

Email: greg@goldshieldconstruction.com

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Gregory Chandler
Printed Name

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~~**Exception:** Where an alternative ventilation method approved by the code official has been provided or where the code official has determined that vertical ventilation techniques will not be employed, clearance from the roof ridge is not required.~~

Reason:

This change is suggested based on two reasons. First, there is no reference in any of the ICC codes which specifically quantifies the weight of a fully geared up fire fighter. In addition, the provision for the access and the ability of the roof to support the live load of an individual should not be limited to the fire service. Solar PV panels will require cleaning and maintenance by the installer, electricians will need to periodically access

it to repair or replace components, and owners will need to clear debris and perform other housekeeping items. Secondly, while the IRC does take in to consideration the safety of occupants and fire service personnel, the IRC is not a fire service manual and should not include operational requirements for attacking fires from an offensive or defensive position. The IRC is a standalone building code for one- and two family dwellings and townhouses and it is not a fire operation manual.

[Return to Residential](#)

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Revise as follows:

~~**R322.3.5.1 Protection of building envelope.** An exterior door that meets the requirements of Section R609 shall be installed at the top of stairs that provide access to the building and that are enclosed with walls designed to break away in accordance with Section R322.3.4.~~

Reason:

This amendment deletes the requirement added in the 2015 IRC that an exterior door be provided at the top of a stairway enclosed by breakaway walls and providing access to a dwelling located in a Coastal A Zone or Zone V special flood hazard area and elevated on piers or piles. While having a door at the top of such a stair may be good practice, the additional requirements associated with it being an exterior door are overly conservative, particularly if the door at the bottom of the enclosed stair is also an exterior door. By requiring compliance with all of the requirements of Section R609, the specified door would need to have a design pressure rating consistent with the design wind speed for the site, the door frame would need to be stiffened to resist the loads from such a door, proper anchorage of the door to the frame would need to be provided, and the door opening would need head, jamb, and sill flashing. The minimum added cost to provide a standard exterior door with flashing in lieu of a standard interior door is around \$300; a hurricane wind-rated door would add an additional \$200-\$300 to the minimum costs.

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DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4-17-19**CODE INFORMATION**

Proposed change to: Building Code Fire Safety Code
 Code section(s): 305.1, 404.1.3.3.6.2 2018 IRC; Definition in 2018 IEBC, Definition 2018
IRC +IBC

PROPONENT INFORMATION

Name: Peter Zvingilas Representing: Town of Groton/Voluntown
 Telephone: 860-446-5989 Email: pzvingilas@groton-ct.gov
 Address: 134 Groton Long Point Road Groton CT 06340
Street Address Town State Zip Code

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

Attached

Proposed text change, addition or deletion (attach additional information as needed):

Attached

Supporting data and documents (attach additional information as needed)

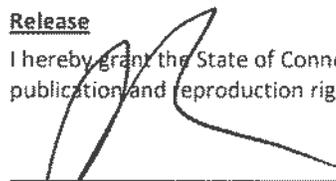
Attached

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 Proponent's Signature

Peter Zvingilas
 Printed Name

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12/29/16

Peter Zvingilas, Representing ICC Region 6- North East Regional Coalition,
Town of Groton and Voluntown, CT,
(pzvingilas@voluntown.gov; pzvingilas@groton-ct.gov)

2018 International Residential Code

Revise as follows:

R305.1 Minimum height. Habitable space, hallways and portions of basements containing these spaces shall have a ceiling height of not less than 7 feet (2134 mm). Bathrooms, toilet rooms and laundry rooms shall have a ceiling height of not less than 6 feet 8 inches (2032 mm).

Exceptions:

1. For rooms with sloped ceilings, the required floor area of the room shall have a ceiling height of not less than 5 feet (1524 mm) and not less than 50 percent of the required floor area shall have a ceiling height of not less than 7 feet (2134 mm).
2. The ceiling height above bathroom and toilet room fixtures shall be such that the fixture is capable of being used for its intended purpose. A shower or tub equipped with a showerhead shall have a ceiling height of not less than 6 feet 8 inches (2032 mm) above an area of not less than 30 inches (762 mm) by 30 inches (762 mm) at the showerhead.
3. Beams, girders, ducts or other obstructions in basements containing habitable space shall be permitted to project to within 6 feet 4 inches (1931 mm) of the finished floor.

4. Beams and girders spaced not less than 4 feet (1219 mm) on-center shall project not more than 6 inches (152 mm) below the required ceiling height.

Reason: The proposed language was removed in the 2009 IRC because the argument was made that a 4-foot space between beams could not be regulated due to any definitive beam size. We are suggesting 5-1/2" width for a beam to allow a 2x6 wall to be utilized for beam support. The original intent of this section was to allow supportive exposed beams between rooms to be lower than 7 feet. With the engineered lumber and spans larger than normal in homes, beams are larger than traditional nominal lumber. The removal of this language has left the ceiling height unattainable in many situations. If the current code is to be followed, no beams are allowed to fall below 7 feet in any home, except for basements, which we have defined in Section 305.1 exception 3.

By adding relief to the current code will allow the use of engineered lumber for many situations that are not legal under current code. In practice, this section is either ignored by the code official, or they may need to issue a lot of variances. In section R311.2, we allow a minimum of 78 inches (1981 mm) in height for an egress door. By that logic, we should allow 78 inches (1981 mm) for any transitional opening between rooms. By defining this, we can minimize the confusion of what is allowable height on a beam on any floor other than basements.

Cost Impact: The code change proposal will not increase or decrease the cost of construction. Adding relief to the current code will allow the use of engineered lumber for many situations that are not legal under current code.

Peter Zvingilas, ICC Region 6- North East Regional Coalition, Town of Groton and Voluntown CT (pzvingilas@voluntown.gov; pzvingilas@groton-ct.gov)

2018 International Residential Code

Add new text as follows:

R404.1.3.3.6.2 Removal of form ties Form ties shall be removed from the both faces of the foundation walls which enclose basements or other enclosed habitable and occupiable spaces. Remaining holes shall be parged with hydraulic cement, portland cement, or any other approved material.

Reason: Modern concrete foundation installation practices frequently utilize form ties. When the forms are removed, the ends of the form ties are typically removed, and a cone or hole remains in the place of the old end. The metal form tie is still remaining in the wall, and may be subject to corrosion due to acidity of the soil and exposure to water. Many builders already implement parging and sealing these holes with cementitious products as a best practice. This proposal will codify a current industry best practice. The requirement is only applicable to areas that may be subject to human contact where items can be damaged due to resulting moisture.

Cost Impact: The code change proposal will increase the cost of construction. This code change proposal may minimally increase the cost of construction by implementing a current best practice. Where the affected holes are so small, the resulting cost increase is expected to be minimal.

Peter Zvingilas, ICC Region 6- North East Regional Coalition, Town of Groton and Voluntown CT
(pzvingilas@voluntown.gov; pzvingilas@groton-ct.gov)

2018 International Existing Building Code

Add new definition as follows:

SPACE, RECONFIGURED An alteration that results in a change to any component of the means of egress or the path of egress travel and does not meet the scope of Alteration--Level 1 in Section 602.1.

Reason: Code officials and RDPs often debate whether a proposed project is either an Alteration--Level 1 Alteration--Level 2. From experience, this determination frequently hinges upon a determination whether the proposed work is a "reconfiguration of space," but this term is not defined in the IEBC. . Without the addition of the last preposition of the definition, code officials may erroneously misclassify "removal and replacement or covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose" (scope of Alteration--Level 1 from Section 602.1) as an Alteration--Level 2 or Alteration--Level 3; thus requiring a more extensive scope of work and increasing the potential cost of construction. Addition of this definition can potentially reduce the number of appeals of code officials' interpretations; thus improving efficiency in the permitting process.

Cost Impact: The code change proposal will decrease the cost of construction. Due to the extended guidance to code officials, addition of this definition can only decrease the cost of construction. This is because it further clarifies when an alteration project should be classified as an Alteration--Level 1 or one of the other two alteration levels.

G12-19 Part I

PART I — IBC®: [BS] 202

PART II — IRC: [RB]202

Proponent: Don Scott, Representing National Council of Structural Engineers Association, representing Representing National Council of Structural Engineers Association (dscott@pcs-structural.com)
THIS IS A TWO PART PROPOSAL. PART I WILL BE HEARD BY THE IBC-STRUCTURAL COMMITTEE. PART II WILL BE HEARD BY THE IRCBUILDING COMMITTEE. PLEASE CHECK THE RESPECTIVE HEARING AGENDAS.

2018 International Building Code

Revise as follows:

[BS] WINDBORNE DEBRIS REGION. Areas within hurricane-prone regions located:

1. Within 1 mile (1.61 km) of the coastal mean high-water line , where an Exposure D condition exists upwind at the waterline and the basic design wind speed, V, is 130 mph (58 m/s) or greater; or
2. In areas where the basic design wind speed is 140 mph (63.6 m/s) or greater.

For Risk Category II buildings and structures and Risk Category III buildings and structures, except health care facilities, the windborne debris region shall be based on Figure 1609.3.(1). For Risk Category IV buildings and structures and Risk Category III health care facilities, the windborne debris region shall be based on Figure 1609.3(2).

Proposal # 5425



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: Apr/19/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IECC 2018C202 and IECC C403.2.12.2 Motor nameplate horsepower**PROPONENT INFORMATION**Name: Armin HauerRepresenting: ebm-papst Inc.Telephone: 860-507-8259Email: armin.hauer@us.ebmpapst.comAddress: 110 Hyde RoadFarmingtonCT06034*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

Revise sizing limits for fan motors

Proposed text change, addition or deletion (attach additional information as needed):

underline and strike-out is attached

Supporting data and documents (attach additional information as needed)

IECC proposal by ASHRAE, AMCA standards, peer-reviewed HPAC Engineering article

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IECC 2021 change proposal; AMCA International, AHRI engineering committee (std1210)
- I would like to make an in-person presentation of my proposal.**

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Proponent's Signature

Dipl.-Ing. (FH) Armin Hauer, CEM, CPQ

Printed Name

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12/29/16

Connecticut State Building Code

Proposal based on pending changes to IECC 2018 "Commercial Energy Efficiency"

- *The ASHRAE Board of Directors at its meetings in June 2019 will be voting to approve addendum CE to 90.1-2016.*
- *This Connecticut proposal is identical to ASHRAE's proposal CE136-19 for IECC 2021 and a Florida proposal, which all are harmonized with aforementioned ASHRAE addendum CE.*

Section C202 Definitions

Add new text as follows

Fan Nameplate Electrical Input Power. The nominal electrical input power rating stamped on a fan assembly nameplate.

Section C403 Building Mechanical Systems

Revise as follows

C403.2.12.2 Fan Motor ~~nameplate horsepower~~ Selection (Mandatory).

For each fan, the *fan brake horsepower* shall be indicated on the construction documents and the selected motor shall be no larger than the first available motor size greater than the following:

1. For fans less than 6 bhp (~~4413~~ 4476 W), 1.5 times the *fan brake horsepower*.
2. For fans 6 bhp (~~4413~~ 4476 W) and larger, 1.3 times the *fan brake horsepower*.

Exceptions:

1. Fans equipped with electronic speed control devices to vary the fan airflow as a function of load.
2. Fans with *fan nameplate electrical input power* of less than 0.89 kW.
3. Systems complying with Section 403.8.1 *fan system motor nameplate hp* (Option 1).
- Exceptions:** 4. Fans with motor *nameplate horsepower* less than 1 hp (746 W)-are exempt from this section.

Reason Statement:

1. This proposal corrects an IP / SI conversion error related to shaft power: 6 bhp equals 4476 W mechanical power.
2. It proposes moving the clause about *fan system motor nameplate* into the exceptions section for better clarity.
3. This proposal increases the design options for load-matching variable-speed fan motors, accommodates new motor and drive technologies, and it simplifies the motor selection criteria for fans.

Only motors that are government regulated in terms of test procedure and labeling have verifiable output power rating on the nameplates. None-covered motor types that are common for fans are air-over rated motors and electronically commutated permanent magnet motors. All other advanced motor topologies also prevent straight-forward motor output power ratings.

Related ASHRAE 90.1 interpretations are 90.1-2013-11 and 90.1-2016-3 of January 29, 2017, 90.1-2013-13 of June 25, 2017.

Even the nameplate output power rating of government regulated motors is irrelevant when the fan design duty requires variable frequency drive operation below 60 Hz. Then the motor horsepower must be oversized to deliver the required torque.

AC induction motors operated with variable frequency drives maintain high efficiency at part load. Permanent magnet fan motors maintain even higher efficiency. For all so-called power drive applications exists a self-regulating effect because of the higher marginal cost of oversized combinations of drives and motors as opposed to oversized induction motors for across-the-line operation. The existing restriction of motor selections provides no benefits in the case of fans with electronic variable-speed controls.

Small fans especially are often supplied strictly with electrical input power ratings rather than motor output power ratings. A lower limit expressed in electrical input power is therefore needed. The original 1 hp motor nameplate output power limit equates to 0.89 kW electrical motor input power according to the reference motor in ANSI/AMCA 208.

Bibliography:

- ASHRAE's proposal CE136-19 for IECC
- HPAC Engineering article Mar-05-2019
<https://www.hpac.com/association-solutions/fan-system-comparisons-made-reliable-amca-207>
- ANSI/AMCA 207-17 Fan System Efficiency and Fan System Input Power
https://www.techstreet.com/amca/standards/amca-207-17?product_id=1949776
- ANSI/AMCA 208-18 Calculation of the Fan Energy Index
Courtesy copy available at https://www.techstreet.com/amca/standards/amca-208-18?product_id=2004773
- The term "power drive system" is established in IEC 61800
<https://webstore.iec.ch/publication/31527> and in ANSI/ASHRAE standard 222
https://www.techstreet.com/ashrae/standards/ashrae-222-2018?product_id=2020896#full.

Cost Impact Statement

The code change proposal will not increase or decrease the cost of construction.

It removes restrictions for fan selections with electronic power drive systems such as variable frequency drives and electronically committed motors.

CE136-19

IECC: SECTION C202 (New), C403.8.2

Proponent: Connor Barbaree, representing ASHRAE (cbarbaree@ashrae.org)

2018 International Energy Conservation Code**SECTION C202
GENERAL DEFINITIONS**

Add new definition as follows:

FAN NAMEPLATE ELECTRICAL INPUT POWER. The nominal electrical input power rating stamped on a fan assembly nameplate.

Revise as follows:

C403.8.2 Motor nameplate horsepower (Mandatory). For each fan, the fan brake horsepower shall be indicated on the construction documents and the selected motor shall be not larger than the first available motor size greater than the following:

1. For fans less than 6 bhp (~~4413~~ 4476 W), 1.5 times the fan brake horsepower.
2. For fans 6 bhp (~~4413~~ 4476 W) and larger, 1.3 times the fan brake horsepower.

Exception Exceptions:

1. Fans equipped with electronic speed control devices to vary the fan airflow as a function of load
2. Fans with a fan nameplate electrical input power of less than .89 kW.
3. Systems complying with Section C403.8.1 fan system motor nameplate hp (Option 1).
4. Fans with motor nameplate horsepower less than 1 hp (746 W) are exempt from this section.

Reason: 1. This proposal corrects an IP / SI conversion error related to shaft power: 6 bhp equals 4476 W mechanical power.2. It proposes moving the clause about *fan system motor nameplate* into the exceptions section for better clarity.

3. This proposal increases the design options for load-matching variable-speed fan motors, accommodates new motor and drive technologies, and it simplifies the motor selection criteria for fans.

Only motors that are government regulated in terms of test procedure and labeling have verifiable output power rating on the nameplates. None-covered motor types that are common for fans are air-over rated motors and electronically commutated permanent magnet motors. All other advanced motor topologies also prevent straight-forward motor output power ratings.

Related ASHRAE 90.1 interpretations are 90.1-2013-11 and 90.1-2016-3 of January 29, 2017, 90.1-2013-13 of June 25, 2017.

Even the nameplate output power rating of government regulated motors is irrelevant when the fan design duty

requires variable frequency drive operation below 60 Hz. Then the motor horsepower must be oversized to deliver the required torque.

AC induction motors operated with variable frequency drives maintain high efficiency at part load. Permanent magnet fan motors maintain even higher efficiency. For all so-called power drive applications exists a self-regulating effect because of the higher marginal cost of oversized combinations of drives and motors as opposed to oversized induction motors for across-the-line operation. The existing restriction of motor selections provides no benefits in the case of fans with electronic variable-speed controls.

Small fans especially are often supplied strictly with electrical input power ratings rather than motor output power ratings. A lower limit expressed in electrical input power is therefore needed. The original 1 hp motor nameplate output power limit equates to 0.89 kW electrical motor input power according to the reference motor in ANSI/AMCA 208.

Bibliography:

- ANSI/AMCA 208 Calculation of the Fan Energy Index
https://www.techstreet.com/standards/amca-208-18?product_id=2004773
Courtesy copy available for the IECC committee through AMCA.
- The term “power drive system” is established in IEC 61800 and in ANSI/ASHRAE standard 222.

Cost Impact: The code change proposal will not increase or decrease the cost of construction. It removes restrictions for fan selections with electronic power drive systems such as variable frequency drives and electronically committed motors.

Proposal # 4869

CE136-19

ASSOCIATION SOLUTIONS

BY JOHN BADE AND ARMIN HAUER, AMCA HIGH PERFORMANCE AIR SYSTEMS COMMITTEE

Fan-System Comparisons Made Reliable With AMCA 207

Standard enables calculation of efficiency of individual components

With few exceptions, energy-efficiency metrics for HVAC equipment are based on electrical-power input vs. desired output. One glaring exception concerns fans. Most fan manufacturers provide only shaft input power and impeller speed. Of course, the electrical power needed to drive a fan (A) depends on the individual efficiencies of the rest of the system: transmission (B), motor (C), and variable-speed drive (D) (Figure 1). Electrical-power input is calculated by multiplying shaft input power by each of the efficiencies:

$$P = H_1 \times \eta_b \times \eta_m \times \eta_c \times 0.7457 \quad (\text{IP})$$

$$P = H_1 \times \eta_b \times \eta_m \times \eta_c \quad (\text{SI})$$

where:

P = Electrical-power input (kW)

H_1 = Fan-shaft input power (HP for IP, kW for SI)

η_b = transmission efficiency (%)

η_m = motor efficiency (%)

η_c = speed-controller efficiency (%)

0.7457 = Conversion of horsepower to kilowatts

Historically, a significant problem for fan-system engineers was the lack of a standard method for calculating individual-component efficiencies, which made reliable comparisons of systems nearly impossible (Figure 2). The dilemma was exacerbated by the growing popularity of integrated electronically commutated fan/motor/controller packages, for which a manufacturer can certify only electrical input power, forcing designers to try to compare apples and oranges.

Recognizing this problem, Air Movement and Control Association (AMCA) International developed ANSI/AMCA Standard 207, *Fan System Efficiency and Fan System Input Power Calculation*. ANSI/

AMCA Standard 207 provides tools enabling reliable comparisons of the electrical-power input of different fan-system configurations at varying loads, including motor service factor.

ANSI/AMCA Standard 207 covers most conventional fan systems, starting with the familiar fan total or static efficiency and fan-shaft input power based on fan airflow performance tested in accordance with ANSI/AMCA Standard 210, *Laboratory Methods of Testing Fans for*

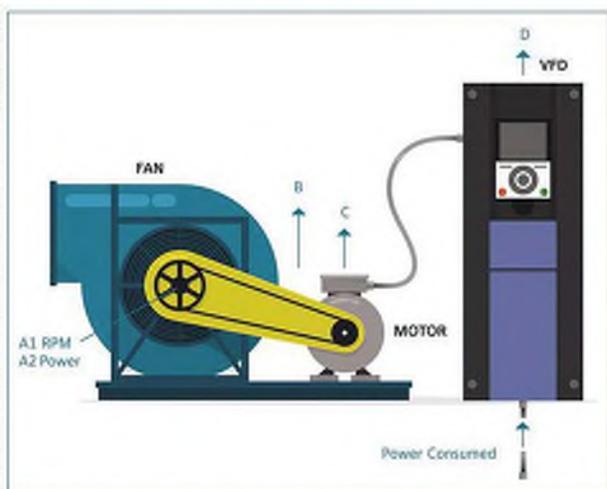


Figure 1. Components of a conventional fan system.

Certified Aerodynamic Performance Rating; ANSI/AMCA Standard 230, *Laboratory Methods of Testing Air Circulating Fans for Rating and Certification*; ANSI/AMCA Standard 260, *Laboratory Methods of Testing Induced Flow Fans for Rating*; or ISO 5801, *Industrial Fans -- Performance Testing Using Standardized Airways*, and rated in accordance with AMCA Publication 211, *Certified Ratings Program Product Rating Manual for Fan Air Performance*.

Transmission-efficiency equations are provided for V-belts, synchronous belts, and flexible couplings. Direct-drive connections are considered to be 100-percent efficient. ANSI/AMCA Standard 207 assumes belts and pulleys are properly aligned and tensioned.

Motor-efficiency calculations apply only to three-phase induction motors within the scope of the Energy Independence and Security Act (EISA) in North America—that is, three-phase NEMA MG 1 Premium Efficiency general-purpose motors—and motors regulated under European and Chinese standards. This includes open-drip-proof and totally enclosed, fan-cooled (TEFC) motors from 1 to 500 HP. Other types of motors are explicitly excluded. Single-phase, 575-V, and permanent-magnet motors are out of scope.

Speed controllers must be typical pulse-width-modulated variable-frequency drives (VFDs) programmed to maintain a fixed ratio of voltage to frequency at or below synchronous speed. VFDs programmed for constant torque control operate in a very different manner. Other



John Bade is an energy-efficiency consultant. Armin Hauer is manager, regulatory and government affairs, for ebm-papst Inc.

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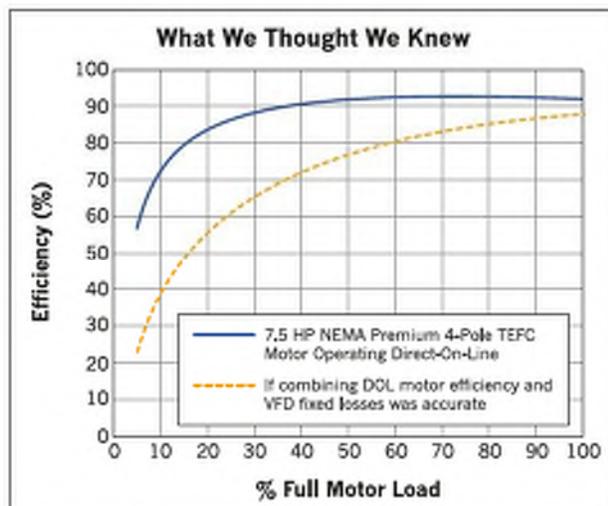


Figure 2. What the air-systems industry thought it knew about motor losses with VFDs.

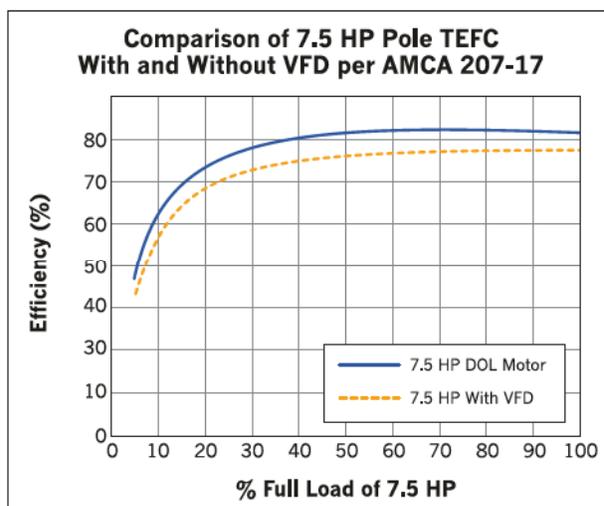


Figure 3. Comparison of a 7.5-HP four-pole TEFC motor operating DOL and one operating with a VFD per ANSI/AMCA Standard 207.

characteristics defining VFD efficiency, such as carrier frequency and lead length, are assumed to be within typical operating parameters. Of course, if a system does not have a VFD, speed-controller efficiency is not part of the equation.

One of the greatest benefits of ANSI/AMCA Standard 207 is that much of what was previously “known” about part-load motor-system efficiency has been debunked. Consider:

Myth: VFD losses are 100-percent parasitic and constant over a motor’s output-power range, leading to huge inefficiencies at low load.

Fact: The efficiency curve of a motor operating in conjunction with a VFD with a constant ratio of voltage to frequency is very different than that of the same motor operating direct on line (DOL) at a constant 50 Hz or 60 Hz.

Varying voltage with frequency maintains a constant flux and, therefore, a very flat efficiency curve for the motor itself. Further, VFD losses do not remain constant as load decreases.

Figure 3 shows that the difference in efficiency between a motor operating DOL and one operating in conjunction with a VFD is relatively constant over the range of motor output power.

Myth: An oversized motor yields much lower efficiencies when the system operates at part load.

Fact: Concerns about part-load efficiency are valid when a motor is operated DOL. Surprisingly, though, when motors of different sizes are operated with a VFD, their efficiencies and power consumption are nearly identical.

Table 1 shows the power consumption of motor/VFD combinations of different sizes with a fan-shaft power of 7 HP (5.2 kW) at the air-system design condition. The

Motor Load		Electric-Power Input (kW)			
Percent	HP	5-HP Motor	7.5-HP Motor	10-HP Motor	15-HP Motor
100	7.0	6.24	5.95	5.93	5.93
95	6.7	5.91	5.66	5.64	5.65
90	6.3	5.58	5.36	5.36	5.37
85	6.0	5.26	5.06	5.07	5.09
80	5.6	4.94	4.77	4.78	4.81
75	5.3	4.63	4.48	4.50	4.53
70	4.9	4.32	4.19	4.21	4.25
65	4.6	4.01	3.90	3.93	3.97
60	4.2	3.71	3.62	3.64	3.69
55	3.9	3.41	3.33	3.36	3.41
50	3.5	3.11	3.04	3.08	3.13
45	3.2	2.81	2.76	2.80	2.85
40	2.8	2.52	2.48	2.52	2.57
35	2.5	2.22	2.19	2.23	2.29
30	2.1	1.93	1.91	1.95	2.01
25	1.8	1.64	1.63	1.67	1.74
20	1.4	1.36	1.35	1.39	1.46
15	1.1	1.07	1.07	1.11	1.18
10	0.7	0.78	0.79	0.83	0.90
5	0.4	0.50	0.51	0.55	0.62

All motors are 460/3/60 four-pole TEFC

Table 1. VFD power consumption with four-pole, EISA-compliant TEFC motors of different sizes, each with a 7-HP (3.2 kW) design load.

ASSOCIATION SOLUTIONS

difference in electricity consumption is slight. In fact, it is shown in table form because a graph of the data looks almost like a single line.

Designers Should Request AMCA 207 Calculations From Manufacturers

Until now, designers have had no easy way to compare the electricity consumption of different fan systems and instead have been reliant on general assumptions that do not always hold true. For example, contrary to popular belief, a high-efficiency permanent-magnet motor does not guarantee lower power consumption. In the vast majority of fan systems, fan-impeller efficiency overshadows differences in motor/drive efficiency. In a typical system, the impeller accounts for 75 percent or more of wire-to-air power losses. A super-high-efficiency motor/drive system gains a few points of wire-to-shaft efficiency over a conventional system, but if its impeller is even only slightly less efficient at the intended duty, then all of the gains will be lost.

Designers should ask manufacturers for electrical-input-power calculations per ANSI/AMCA Standard 207 for fans with induction motors. This will allow a straightforward

duty-point-specific comparison with fan packages that are rated based on electrical-input-power measurements.

Adoption of AMCA 207

ANSI/AMCA Standard 207 will rapidly become part of everyday life in the fan world. It will be used by fan manufacturers to calculate fan energy index (FEI) (read "Meet the new Fan Energy Index," <https://www.hpac.com/industry-perspectives/meet-new-fan-energy-index>). Not only will use of FEI be required starting with the 2019 version of ANSI/ASHRAE/IES 90.1, *Energy Standard for Buildings Except Low-Rise Residential Buildings*, the California Energy Commission has proposed a requirement that all fans sold in California meet minimum FEI requirements. Additionally, the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) is in the process of changing AHRI Standard 430, *Performance Rating of Central Station Air-handling Unit Supply Fans*, to require the reporting of electrical power input instead of shaft power input, with an option to provide a calculation per ANSI/AMCA Standard 207. **HPAC**

For more information about and to purchase ANSI/AMCA Standard 207, go to www.amca.org/store.



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/20/19**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): R302.1(1) and R302.1(2)**PROPONENT INFORMATION**Name: Robert WiedenmannRepresenting: HBRAof CTTelephone: 203-269-0325Email: Bob@SunwoodDevelopment.comAddress: 273 North Colony RoadWallingfordCT06492*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

Fire Separation Distance- This would return the fire separation distances between structures

Proposed text change, addition or deletion (attach additional information as needed):

Please see attached

Supporting data and documents (attach additional information as needed)

Please see attached

- This Proposal is original material.** (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)
- This Comment is not original material, its source (if known) is as follows:** (such as material / code development proposal from a prior development cycle or proposal submitted to model code committee etc.)
Attached info is provided by the National Association of Home Builders
- I would like to make an in-person presentation of my proposal.**

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Proponent's Signature

Robert Wiedenmann

Printed Name

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Office of the State Building Inspector
450 Columbus Boulevard, Suite 1303
Hartford, CT 06103
Tel: 860-713-5900 Fax: 860-713-7410
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12/29/16

1. Fire Separation Distance

This amendment would return the fire separation distances between structures to those required before residential sprinklers became part of the International Residential Code.

Revise as follows:

Delete Tables R302.1(1) and R302.1(2) and replace with new table.

TABLE R302.1 EXTERIOR WALLS

EXTERIOR WALL ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Walls	Fire-resistance rated	1 hour—tested in accordance with ASTM E 119 or UL 263 with exposure from the outside	0 feet
	Not fire-resistance rated	0 hours	3 feet ^a
Projections	Not allowed	N/A	< 2 feet
	Fire-resistance rated	1 hour on the underside ^{b, c}	2 feet ^a
	Not fire-resistance rated	0 hours	3 feet
Openings in walls	Not allowed	N/A	< 3 feet
	Unlimited	0 hours	3 feet ^a
Penetrations	All	Comply with Section R302.4	< 3 feet
		None required	3 feet ^a

For SI: 1 foot = 304.8 mm.

N/A = Not Applicable

a. For residential subdivisions where all dwellings are equipped throughout with an automatic sprinkler system installed in accordance with Section P2904, the fire separation distance for nonrated exterior walls and rated projections shall be permitted to be reduced to 0 feet, and unlimited unprotected openings and penetrations shall be permitted, where the adjoining lot provides an open setback yard that is 6 feet or more in width on the opposite side of the property line.

b. The roof eave fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave if fireblocking is provided from the wall top plate to the underside of the roof sheathing.

c. The roof eave fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave provided that gable vent openings are not installed.

Reason:

During the supplemental code cycle before the 2006 edition of the IRC, the fire separation distances were increased by 2 feet without any scientific data or reports that proved the allowable distance found in previous editions of the IRC contributed to any increase in exposure fires from one dwelling to another. Despite this fact, the IRC code development committee has failed to return this section to the earlier language.

To this day, there are no known reports or studies that demonstrate the previously allowed 3-foot separation distance from the property line and 6-foot separation between structures failed to provide the minimum required safe distance..

[Return to Residential](#)



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/20/19**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): R302.5.1**PROPONENT INFORMATION**Name: Robert WiedenmannRepresenting: HBRAof CTTelephone: 203-269-0325Email: Bob@SunwoodDevelopment.comAddress: 273 North Colony StreetWallingfordCT06492*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

Self Closing Devices- This amendment removes the requirement for all doors separating garage

Proposed text change, addition or deletion (attach additional information as needed):

Please see attached

Supporting data and documents (attach additional information as needed)

Please see attached

- This Proposal is original material.** (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)
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Robert Wiedenmann

Printed Name

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12/29/16

2. Self Closing Devices

This amendment removes the requirement for all doors separating the garage from the interior dwelling to be equipped with a self-closing and latching device.

Revise as follows:

R302.5.1 Opening protection. Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than 1 3/8 inches (35 mm) in thickness, solid or honeycomb core steel doors not less than 1 3/8 inches (35 mm) thick, or 20-minute fire-rated doors, ~~equipped with a self-closing device.~~

Reason:

NAHB strongly disagrees with the new requirement for door closures on openings between the garage and the house. For many years, proponents argued that fires that originate in the garage could pass through these openings but failed to provide any reliable data or statistics. As a result, the committee and the governmental members repeatedly disapproved this requirement.

During the 2009-10 code development process, the proponents returned with a new reason to prevent the spread of carbon monoxide from vehicles and the by-products produced by burning thermoplastics. While the proponents were able to produce an extremely lengthy dissertation on the hazards of carbon monoxide and the number of false alarms created by carbon monoxide detectors, nowhere in their written or oral testimony did they link any statistical substantiation to need for closures on these openings nor has there been any other evidence produced by other parties.



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/20/19**CODE INFORMATION**

Proposed change to: Building Code Fire Safety Code
Code section(s): R311.7.5, R311.7.5.1 and R311.7.5.2

PROPONENT INFORMATION

Name: Robert Wiedenmann Representing: HBRAofCT
Telephone: 203-269-0325 Email: Bob@SunwoodDevelopment.com
Address: 273 North Colony Street Wallingford CT 06492
Street Address Town State Zip Code

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

Stair Geometry (8 1/4" Riser)- This amendment revises the 2012 IRC to return stair geometry

Proposed text change, addition or deletion (attach additional information as needed):

Please see attached

Supporting data and documents (attach additional information as needed)

Please see attached

- This Proposal is original material.** (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)
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12/29/16

3. Stair Geometry (8 ¼ Inch Riser)

This amendment revises the 2012 IRC to return stair geometry to the 8 ¼-inch riser by 9-inch tread depth of the 2006 IRC.

Revise as follows:

R311.7.5 Stair treads and risers. Stair treads and risers shall meet the requirements of this section. For the purposes of this section, dimensions and dimensioned surfaces shall be exclusive of carpets, rugs or runners.

R311.7.5.1 Risers. The riser height shall be not more than 8 ¼ inch (210mm) ~~7 ¾ inches (196 mm)~~. The riser shall be measured vertically between leading edges of the adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm). Risers shall be vertical or sloped from the underside of the nosing of the tread above at an angle not more than 30 degrees (0.51 rad) from the vertical. Open risers are permitted provided that the openings located more than 30 inches (762 mm), as measured vertically, to the floor or grade below do not permit the passage of a 4-inch-diameter (102 mm) sphere.

Exceptions:

1. The opening between adjacent treads is not limited on spiral stairways.
2. The riser height of spiral stairways shall be in accordance with Section R311.7.10.1.

R311.7.5.2 Treads. The tread depth shall be not less than 9 inches (229mm) ~~10 inches (254 mm)~~. The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm).

Reason:

This amendment retains the stair geometry requirements allowed under the Building Officials and Code Administrators National Building Code (BOCA). This amendment allows the continued use of the 8 ¼" x 9" geometry, the dimensions still accepted by many state and local jurisdictions across the country.

These dimensions, originally accepted in the first draft of the IRC and the historic dimensions in the Council of American Building Official's CABO One- and Two-family Building Code, adequately provide for stair safety in residential occupancies. No sound documentation or data has ever been presented demonstrating these proposed dimensions are any less safe or are a contributing factor in accidental residential falls than a stair geometry of 7 ¾"x 10".

The safety benefits of the 7 ¾" riser and 10" tread stair geometry are technically unsubstantiated and are not practical in many home designs. If the footprint of the house must be increased to accommodate the additional space needed, adequately sized living spaces are sacrificed without any demonstrated gain. This can lead to an economic hardship on first-time home buyers of smaller homes, and in particular for construction on smaller lots, infill projects, and townhomes.

As outlined in Section R101.3 of the IRC, the intent of the code is to provide minimum requirements for occupant safety and health. There is adequate substantiation to show that 8 ¼-inch x 9 inch geometry provides this minimum level of occupant safety.

Notes/additional background:

Prior to the Building Officials and Code Administrators 1996 BOCA National Building Code, and the 1995 CABO One-and-Two Family Building Code, stair geometry requirements were set at the 8 ¼" x 9" dimensions.

An alternative amendment is available for jurisdictions that wish to retain the use of past UBC requirements of an 8-inch maximum riser height and 9-inch minimum tread depth. For that amendment, please see suggested amendment "Stair Geometry (8" x 9)".

[Return to Residential](#)

FIRE EQUIPMENT MANUFACTURERS' ASSOCIATION



Saving Lives, Protecting Property.

April 22, 2019

Department of Administrative Services
State Codes & Standards Committee
Office of the State Building Inspector
450 Columbus Boulevard Suite 1303
Hartford, CT 06103

Email: DAS.CodesStandards@ct.gov

Dear Codes Amendment Subcommittee,

I am writing to you on behalf of the Fire Equipment Manufacturers' Association (FEMA) regarding Connecticut's effort to update the Building and Fire Safety Codes. Specifically, we are writing to urge you not to deviate from the national model codes by limiting portable extinguishers from being required throughout buildings. The current Connecticut Fire Safety and Fire Prevention codes do not require extinguishers in existing buildings equipped with quick response sprinklers. This is a deviation from national model codes. Connecticut adopted a new Fire Prevention Code last year requiring extinguishers in new construction regardless of the presence of quick response sprinklers. We are writing to urge you to follow the recommendations of the national model codes and require extinguishers in buildings regardless of the presence of sprinklers in existing buildings as well.

Fire extinguishers are the first line of defense for small, controllable fires. They are intended to be used for fires of limited size and easily controlled. If a fire is discovered in its early stages, the most effective means of protecting life and preventing property loss is to sound an alarm and then to control and/or extinguish the incipient stage fire with a portable fire extinguisher. To simply wait for the fire to grow large enough in size for a sprinkler head to activate, is contrary to lessons and guidance from fire service and fire protection professionals. Since fire extinguishers provide a first line of defense versus sprinklers, it remains unclear as to the justification for this exception.

Connecticut is one of only three states with statewide fire codes that have deviated from the model codes by limiting extinguishers in buildings equipped with quick response sprinklers. Older versions of the International Fire Code (IFC) included a similar exception as Connecticut's and only required extinguishers in hazardous areas in buildings equipped with quick response sprinklers. Since 2006, however, more than 20 states have gone the other way and moved to amend their codes to require extinguishers throughout most buildings. In 2012, the International Fire Code was amended at the suggestion of the National Association of State Fire Marshals (NASFM) to require extinguishers in occupancies regardless of the presence of sprinklers. NASFM, and other supporters of the exception's removal, rightly argued that exempting occupancies from fire extinguisher requirements can leave those buildings without a proper firefighting tool for small, controllable fires. The ICC agreed with

FIRE EQUIPMENT MANUFACTURERS' ASSOCIATION

Executive Director: **THOMAS ASSOCIATES, INC.**

this rationale and removed the exception in the last two versions (2012 and 2015) of the IFC. As the state of Connecticut bases its building and fire codes on these national model codes, we respectfully request that the 2020 Building and Fire Safety Codes not to deviate from the national model codes by limiting portable extinguishers from being required throughout buildings.

Connecticut is not unique in the decision to base the building and fire codes on these national model codes, as most jurisdictions do the same. The reasons are relatively simple: by utilizing a national consensus process the requirements of the ICC model codes are well vetted by a cross-section of regulators and industries. This results in appropriate safety provisions for the vast majority of jurisdictions, based upon national consensus processes. Amendments that weaken the model codes upon their state adoption should be carefully considered and only made through deliberate, well-reasoned processes, resulting in changes that only make the model codes safer for the residents of Connecticut.

With FEMA representing an international group of leading fire protection manufacturers, we are continuously committed to developing complete and balanced fire protection plans that will save lives and reduce property damage. Further, given our more than a decade's worth of experience with the issue, we have been able to curate the following detailed account for the model codes' requirements for portable fire extinguishers.

- If there is any question as to whether the citizenry in the United States is acting early to extinguish incipient fires, the report of the U.S. Consumer Products Safety Commission should put those doubts to rest. According to their report, only 5-10 percent of fires are reported to fire departments in the U.S. We submit that, since people are, in fact, extinguishing small fires in their incipient stage on a very regular basis, the code should provide for the proper tools to do so - that is, maintain the requirements for portable extinguishers. According to this report, people use portable extinguishers on 371,000 residential fires in the U.S. annually. In this same report, the agency stated that extinguishers were effective in 80 percent of the cases where they were used. The entire 234 page report, published in 2009, can be found at: <https://www.cpsc.gov/PageFiles/105297/UnreportedResidentialFires.pdf>

Some of these fires are extinguished using fire extinguishers; others are being extinguished with makeshift means. Extinguishers are the appropriate tool and designed for use on incipient fires. Providing portable fire extinguishers in facilities greatly enhances safety, including the safety of those who choose to extinguish a fire in its incipient phase; extinguishers should be available in all buildings.

- An NFPA report on fires in sprinklered buildings published in 2010 states that in fires reported in buildings equipped with sprinkler systems, the fire didn't grow large enough to activate the sprinklers in 65 percent of the cases (page 11). The fires cited in this report were large enough to be reported to the fire department; the sprinkler systems were operational and would have activated if the fire had grown larger, but were extinguished or otherwise mitigated prior to sprinkler activation. This report verifies that people are intervening when a fire is small, saving the property owner(s) substantial sums of money by putting the fire out before it grows larger, doing more damage and before sprinklers activate, while protecting the lives of building occupants. You can see that report here: http://www.tvsfpe.org/_images/us_experience_with_sprinklers.pdf

- Where cost is a consideration, portable fire extinguishers are, without a doubt, one of the most cost effective layers of fire protection available. A life cycle cost analysis was conducted in 2014 by Richard Bukowski, P.E, then working for RJA. In that study, the actual cost of portable extinguishers in several facilities was used to determine the real-world cost of these devices. Using 12 health care facilities, the costs of initial purchase, installation, monthly and annual maintenance, as well as all associated maintenance required by NFPA-10 (the standard referenced in ICC Codes) were compiled and analyzed. According to this study, the actual costs of portable extinguishers in these facilities ranged from \$.015 (one and one half cent) to \$.04 (four cents) per square foot per year. His study also states that, if a facility were able to utilize the minimum number of extinguishers required by the Codes based upon coverage of an area, the costs would be between \$.005 (one half cent) and \$.01 (one cent) per square foot per year. This report can be found at:
<http://www.femalifesafety.org/docs/006GRCAtt01RJAFinalReport011714.pdf>
- Finally, the question of whether a person needs to be trained in order to use a portable extinguisher has been mentioned. While we encourage training those who may utilize portable extinguishers, there is substantial evidence that people without training can and do use extinguishers safely and effectively. Specifically, Worcester Polytechnic Institute and Eastern Kentucky University conducted a study titled “Ordinary People and Fire Extinguisher Effectiveness”. In that study of 276 untrained persons, over 90 percent operated the extinguisher effectively on a simulated fire, with 98% successfully pulling the pin, squeezing the trigger, and discharging the agent. 74% used proper techniques including aiming at the base of the fire and using a sweeping motion. This study dispels any doubt that extinguishers can be effective in the hands of novice users.
<http://www.femalifesafety.org/docs/WPIStudyFinal.pdf>

In conclusion, FEMA would respectfully request that when drafting 2020 Building and Fire Safety Codes, the Codes Amendment Subcommittee should maintain the model codes level of fire safety and not insert the exception into Section 906.1. Thank you for your consideration to this letter. Please do not hesitate to contact the FEMA office with any questions.

Sincerely,

FEMA Government Relations Committee



DEPARTMENT OF ADMINISTRATIVE SERVICES

PROPOSED CHANGE OF THE CONNECTICUT STATE BUILDING CODE AND FIRE SAFETY CODE

DATE SUBMITTED: 4/22/19

CODE INFORMATION

Proposed change to: [X] Building Code [X] Fire Safety Code
Code section(s): Connecticut Fire Safety Code Section 3103.9
Connecticut Building Code Section 3103.5.9

PROPONENT INFORMATION

Name: Josh Hughes Representing: American Rental Association
Telephone: 8603054395 Email:
Address: 34 Lexington Rd West Hartford CT 06119
Street Address Town State Zip Code

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):
Wind criteria for design of ballasting of tents erected for a period of less than 180 days.

Proposed text change, addition or deletion (attach additional information as needed):
See attachment.

Supporting data and documents (attach additional information as needed)
See attachment.

[X] This Proposal is original material. (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)

[] This Comment is not original material, its source (if known) is as follows: (such as material / code development proposal from a prior development cycle or proposal submitted to model code committee etc.)

[] I would like to make an in-person presentation of my proposal.

Release

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Proponent's Signature [Handwritten Signature]

Josh Hughes
Printed Name

PLEASE EMAIL (PREFERRED) TO DAS.CodesStandards@CT.GOV OR MAIL OR FAX (SEE BELOW)

Department of Administrative Services
Office of the State Building Inspector
450 Columbus Boulevard, Suite 1303
Hartford, CT 06103
Tel: 860-713-5900 Fax: 860-713-7410
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PROPOSED CHANGE TO THE CONNECTICUT BUILDING AND FIRE SAFETY CODE SECTIONS 3103.5.9
3103.9 respectfully.

Proposed text addition

Ballasts for tents erected for a period less than 180 days shall be designed for a wind speed of 45 mph. Ballasts shall be determined by an approved engineering analysis. A warning system shall be installed to alert tent occupants to evacuate the tent at a 35 mph wind speed and an evacuation plan shall be submitted to the building official.

This proposal is original material

There is no wind speed code provision for tents erected for less than 180 days. The design of tents is excluded from the Connecticut State Building Code, per Section 3103.4. The Connecticut Fire Safety Code Section 3103.9 does not provide a design wind speed for tents. A consensus of tent installers indicates that they provide warnings to evacuate a tent at a 35 mph wind speed. We propose using 45 mph as a design basis for the ballast and a 35 mph wind speed for evacuation. A warning system would consist of posting a placard warning occupants to evacuate the tent at a 35 mph wind speed and installing a wind sensor that would alert occupants to evacuate at the 35 mph wind speed. An evacuation plan would be submitted by the event administrator to the building official.



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: April 25, 2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): 1111.1 Signs**PROPONENT INFORMATION**Name: Bruce J. Spiewak, AIARepresenting: Bruce J. Spiewak, AIA, Co.Telephone: 203-931-9945 x 0Email: bruces@conncode.comAddress: 375 Morgan Lane, Unit #405 West Haven CT 06516

Street Address

Town

State

Zip Code

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

Amend Section 1111.1 to include the same changes as we accepted for the 2018 CSBC.

Proposed text change, addition or deletion (attach additional information as needed):

See attached. Also, consider raising the minimum height of 60 inches due to SUV blockage.

Supporting data and documents (attach additional information as needed)

To coordinate with CGS and to allow for line of vision past very popular high SUV's.

This Proposal is original material. (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)

This Comment is not original material, its source (if known) is as follows: (such as material / code development proposal from a prior development cycle or proposal submitted to model code committee etc.)
Prior code amendments by CT with an additional comment.

I would like to make an in-person presentation of my proposal.

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Proponent's Signature

Bruce J. Spiewak

Printed Name

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12/29/16

(Amd) **1111.1 Signs.** Required *accessible* elements shall be identified by the International Symbol of Accessibility at the following locations:

1. Accessible parking spaces as required by Section 1106. Pursuant to subsection (h) of section 14-253a of the Connecticut General Statutes, such spaces shall be designated by above-grade signs with white lettering against a blue background and shall bear the words “RESERVED Parking Permit Required” and “Violators will be fined” in addition to the International Symbol of Accessibility. When such a sign is replaced, repaired or erected, it shall indicate the minimum fine for a violation of subsection (l) of section 14-253a of the Connecticut General Statutes. Such indicator may be in the form of a notice affixed to such sign. Newly installed signs shall be 60 inches (1525 mm) minimum above the floor or ground of the parking space, measured to the bottom of the sign.

2. *Accessible* passenger loading zones.

3. *Accessible* rooms where multiple single-user toilet or bathing rooms are clustered at a single location.

4. *Accessible* entrances where not all entrances are *accessible*.

5. *Accessible* check-out aisles where not all aisles are *accessible*. The sign, where provided, shall be above the check-out aisle in the same location as the check-out aisle number or type of check-out identification.

6. Family or assisted-use toilet and bathing rooms and single occupancy toilet rooms.

7. *Accessible* dressing, fitting and locker rooms where not all such rooms are *accessible*.

8. *Accessible* areas of refuge required by Section 1009.9.

9. Exterior areas for assisted rescue in accordance with Section 1009.9.

10. In recreational facilities, lockers that are required to be *accessible* in accordance with Section 1109.9.

11. *Accessible* portable toilet and bathing units.

12. *Accessible means of egress stairways*.

13. *Accessible* grade level *exits* required by Section 1013.1.1.

(Add) **1111.5 Interior signage.** Interior signs, when provided, that designate permanent rooms and spaces shall be raised text characters and Braille, designed and located in accordance with ICC/ANSI A117.1. Mounting location for signage shall be such that any person approaching the signage will not encounter protruding objects, or stand within the swing of any door.



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**

DATE SUBMITTED: April 25, 2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): International Energy Conservation Code
Under Chapter 3 - General Requirements**PROPONENT INFORMATION**Name: Leo F SmithRepresenting: Connecticut Chapter of the
International Dark-Sky AssociationTelephone: 860-668-4000Email: leo.smith@darksky.orgAddress: 1060 Mapleton Avenue Suffield CT 06078
Street Address Town State Zip Code**PROPOSAL INFORMATION**Description of change and reason for change (attach additional information as needed):
New Subsection C302.3 - To Minimize Potential Harmful Health and Environmental Effects
from Blue-Wavelength Exterior Lighting - See Attached

Proposed text change, addition or deletion (attach additional information as needed):

NEW Section C302.3: All Exterior luminaires with a rated output in excess of 2,600 lumens
(See Attached)

Supporting data and documents (attach additional information as needed)

See attached American Medical Association Report from June 2016 **This Proposal is original material.** (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.) **This Comment is not original material, its source (if known) is as follows:** (such as material / code development proposal from a prior development cycle or proposal submitted to model code committee etc.) **I would like to make an in-person presentation of my proposal.****Release**

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PropONENT'S Signature

Leo F Smith

Printed Name

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12/29/16

Description of Change: New Section 302.3 to IECC

ADD Section 302.3 Limitations on Harmful Light.

All LED exterior luminaires rated by the manufacturer in excess of 2,600 delivered lumens, shall be limited to a maximum rated Correlated Color Temperature of 3000K (Kelvin).

Reason for Proposed Change

LED luminaires, if uncoated, contain high levels of blue-wavelength emissions which are harmful to both the ecology and human health.

With phosphor coating, the blue-wavelength emissions can be suppressed. Manufacturers offer alternatives to LEDs with high levels of blue-wavelength emission. Lower levels of blue-wavelength emissions are available readily on the market at no additional cost to the buyer.

The Correlated Color Temperature is usually the best indicator of the amount of blue-wavelength emissions in an LED. A Correlated Color Temperature (CCT) of 3000K (Kelvin) is usually described as “Warm White” in the lighting industry.

In June of 2016, the American Medical Association issued a report on LED lighting, and recommended using a maximum of 3000K CCT.

Blue-wavelength emissions are shorter, and thus also result in an increase in light pollution.

Additional Supporting Data

Partial List of Cities Adopting 3000K CCT maximums for LEDs in Response to AMA Recommendations

- **New York City**
- **Chicago**
- **San Francisco**
- **Los Angeles - 2700K Residential, 3000K Commercial**
- **San Diego**
- **Tucson**
- **Phoenix**
- **Toronto**
- **Montreal**
- **Davis**

Utility - EverSource - Policy on LEDs with Maximum 3000K CCT

Prior to the June 2016 AMA report on the hazards of blue wavelength light, Eversource used 4000K CCT only. In September, 2016, three months after the AMA published its report, EverSource changed its policy, in direct response to the AMA report.

EverSource's new policy makes 3000K CCT the default choice for all EverSource LED streetlight installations and replacements.

American Medical Association

REPORT OF THE COUNCIL ON SCIENCE AND PUBLIC HEALTH

CSAPH Report 2-A-16

Subject: Human and Environmental Effects of Light Emitting Diode (LED) Community Lighting

Presented by: Louis J. Kraus, MD, Chair

Referred to: Reference Committee E
(Theodore Zanker, MD, Chair)

1 INTRODUCTION

2
3 With the advent of highly efficient and bright light emitting diode (LED) lighting, strong economic
4 arguments exist to overhaul the street lighting of U.S. roadways.¹⁻³ Valid and compelling reasons
5 driving the conversion from conventional lighting include the inherent energy efficiency and longer
6 lamp life of LED lighting, leading to savings in energy use and reduced operating costs, including
7 taxes and maintenance, as well as lower air pollution burden from reduced reliance on fossil-based
8 carbon fuels.

9
10 Not all LED light is optimal, however, when used as street lighting. Improper design of the lighting
11 fixture can result in glare, creating a road hazard condition.^{4,5} LED lighting also is available in
12 various color correlated temperatures. Many early designs of white LED lighting generated a color
13 spectrum with excessive blue wavelength. This feature further contributes to disability glare, i.e.,
14 visual impairment due to stray light, as blue wavelengths are associated with more scattering in the
15 human eye, and sufficiently intense blue spectrum damages retinas.^{6,7} The excessive blue spectrum
16 also is environmentally disruptive for many nocturnal species. Accordingly, significant human and
17 environmental concerns are associated with short wavelength (blue) LED emission. Currently,
18 approximately 10% of existing U.S. street lighting has been converted to solid state LED
19 technology, with efforts underway to accelerate this conversion. The Council is undertaking this
20 report to assist in advising communities on selecting among LED lighting options in order to
21 minimize potentially harmful human health and environmental effects.

22 23 METHODS

24
25 English language reports published between 2005 and 2016 were selected from a search of the
26 PubMed and Google Scholar databases using the MeSH terms “light,” “lighting methods,”
27 “color,” “photoc stimulation,” and “adverse effects,” in combination with “circadian
28 rhythm/physiology/radiation effects,” “radiation dosage/effects,” “sleep/physiology,” “ecosystem,”
29 “environment,” and “environmental monitoring.” Additional searches using the text terms “LED”
30 and “community,” “street,” and “roadway lighting” were conducted. Additional information and
31 perspective were supplied by recognized experts in the field.

32 33 ADVANTAGES AND DISADVANTAGES OF LED STREET LIGHTS

34
35 The main reason for converting to LED street lighting is energy efficiency; LED lighting can
36 reduce energy consumption by up to 50% compared with conventional high pressure sodium (HPS)

1 lighting. LED lighting has no warm up requirement with a rapid “turn on and off” at full intensity.
2 In the event of a power outage, LED lights can turn on instantly when power is restored, as
3 opposed to sodium-based lighting requiring prolonged warm up periods. LED lighting also has the
4 inherent capability to be dimmed or tuned, so that during off peak usage times (e.g., 1 to 5 AM),
5 further energy savings can be achieved by reducing illumination levels. LED lighting also has a
6 much longer lifetime (15 to 20 years, or 50,000 hours), reducing maintenance costs by decreasing
7 the frequency of fixture or bulb replacement. That lifespan exceeds that of conventional HPS
8 lighting by 2-4 times. Also, LED lighting has no mercury or lead, and does not release any toxic
9 substances if damaged, unlike mercury or HPS lighting. The light output is very consistent across
10 cold or warm temperature gradients. LED lights also do not require any internal reflectors or glass
11 covers, allowing higher efficiency as well, if designed properly.^{8,9}

12
13 Despite the benefits of LED lighting, some potential disadvantages are apparent. The initial cost is
14 higher than conventional lighting; several years of energy savings may be required to recoup that
15 initial expense.¹⁰ The spectral characteristics of LED lighting also can be problematic. LED
16 lighting is inherently narrow bandwidth, with "white" being obtained by adding phosphor coating
17 layers to a high energy (such as blue) LED. These phosphor layers can wear with time leading to a
18 higher spectral response than was designed or intended. Manufacturers address this problem with
19 more resistant coatings, blocking filters, or use of lower color temperature LEDs. With proper
20 design, higher spectral responses can be minimized. LED lighting does not tend to abruptly “burn
21 out,” rather it dims slowly over many years. An LED fixture generally needs to be replaced after it
22 has dimmed by 30% from initial specifications, usually after about 15 to 20 years.^{1,11}

23
24 Depending on the design, a large amount blue light is emitted from some LEDs that appear white
25 to the naked eye. The excess blue and green emissions from some LEDs lead to increased light
26 pollution, as these wavelengths scatter more within the eye and have detrimental environmental
27 and glare effects. LED’s light emissions are characterized by their correlated color temperature
28 (CCT) index.^{12,13} The first generation of LED outdoor lighting and units that are still widely being
29 installed are “4000K” LED units. This nomenclature (Kelvin scale) reflects the equivalent color of
30 a heated metal object to that temperature. The LEDs are cool to the touch and the nomenclature has
31 nothing to do with the operating temperature of the LED itself. By comparison, the CCT associated
32 with daylight light levels is equivalent to 6500K, and high pressure sodium lighting (the current
33 standard) has a CCT of 2100K. Twenty-nine percent of the spectrum of 4000K LED lighting is
34 emitted as blue light, which the human eye perceives as a harsh white color. Due to the point-
35 source nature of LED lighting, studies have shown that this intense blue point source leads to
36 discomfort and disability glare.¹⁴

37
38 More recently engineered LED lighting is now available at 3000K or lower. At 3000K, the human
39 eye still perceives the light as “white,” but it is slightly warmer in tone, and has about 21% of its
40 emission in the blue-appearing part of the spectrum. This emission is still very blue for the
41 nighttime environment, but is a significant improvement over the 4000K lighting because it
42 reduces discomfort and disability glare. Because of different coatings, the energy efficiency of
43 3000K lighting is only 3% less than 4000K, but the light is more pleasing to humans and has less
44 of an impact on wildlife.

45 *Glare*

46
47
48 Disability glare is defined by the Department of Transportation (DOT) as the following:

49
50 “Disability glare occurs when the introduction of stray light into the eye reduces the ability to
51 resolve spatial detail. It is an objective impairment in visual performance.”

1 Classic models of this type of glare attribute the deleterious effects to intraocular light scatter in the
2 eye. Scattering produces a veiling luminance over the retina, which effectively reduces the contrast
3 of stimulus images formed on the retina. The disabling effect of the veiling luminance has serious
4 implications for nighttime driving visibility.¹⁵

5
6 Although LED lighting is cost efficient and inherently directional, it paradoxically can lead to
7 worse glare than conventional lighting. This glare can be greatly minimized by proper lighting
8 design and engineering. Glare can be magnified by improper color temperature of the LED, such as
9 blue-rich LED lighting. LEDs are very intense point sources that cause vision discomfort when
10 viewed by the human eye, especially by older drivers. This effect is magnified by higher color
11 temperature LEDs, because blue light scatters more within the human eye, leading to increased
12 disability glare.¹⁶

13
14 In addition to disability glare and its impact on drivers, many residents are unhappy with bright
15 LED lights. In many localities where 4000K and higher lighting has been installed, community
16 complaints of glare and a “prison atmosphere” by the high intensity blue-rich lighting are common.
17 Residents in Seattle, WA have demanded shielding, complaining they need heavy drapes to be
18 comfortable in their own homes at night.¹⁷ Residents in Davis, CA demanded and succeeded in
19 getting a complete replacement of the originally installed 4000K LED lights with the 3000K
20 version throughout the town at great expense.¹⁸ In Cambridge, MA, 4000K lighting with dimming
21 controls was installed to mitigate the harsh blue-rich lighting late at night. Even in places with a
22 high level of ambient nighttime lighting, such as Queens in New York City, many complaints were
23 made about the harshness and glare from 4000K lighting.¹⁹ In contrast, 3000K lighting has been
24 much better received by citizens in general.

25 26 *Unshielded LED Lighting*

27
28 Unshielded LED lighting causes significant discomfort from glare. A French government report
29 published in 2013 stated that due to the point source nature of LED lighting, the luminance level of
30 unshielded LED lighting is sufficiently high to cause visual discomfort regardless of the position,
31 as long as it is in the field of vision. As the emission surfaces of LEDs are highly concentrated
32 point sources, the luminance of each individual source easily exceeds the level of visual
33 discomfort, in some cases by a factor of 1000.¹⁷

34
35 Discomfort and disability glare can decrease visual acuity, decreasing safety and creating a road
36 hazard. Various testing measures have been devised to determine and quantify the level of glare
37 and vision impairment by poorly designed LED lighting.²⁰ Lighting installations are typically
38 tested by measuring foot-candles per square meter on the ground. This is useful for determining the
39 efficiency and evenness of lighting installations. This method, however, does not take into account
40 the human biological response to the point source. It is well known that unshielded light sources
41 cause pupillary constriction, leading to worse nighttime vision between lighting fixtures and
42 causing a “veil of illuminance” beyond the lighting fixture. This leads to worse vision than if the
43 light never existed at all, defeating the purpose of the lighting fixture. Ideally LED lighting
44 installations should be tested in real life scenarios with effects on visual acuity evaluated in order to
45 ascertain the best designs for public safety.

46 47 *Proper Shielding*

48
49 With any LED lighting, proper attention should be paid to the design and engineering features.
50 LED lighting is inherently a bright point source and can cause eye fatigue and disability glare if it
51 is allowed to directly shine into human eyes from roadway lighting. This is mitigated by proper

1 design, shielding and installation ensuring that no light shines above 80 degrees from the
2 horizontal. Proper shielding also should be used to prevent light trespass into homes alongside the
3 road, a common cause of citizen complaints. Unlike current HPS street lighting, LEDs have the
4 ability to be controlled electronically and dimmed from a central location. Providing this additional
5 control increases the installation cost, but may be worthwhile because it increases long term energy
6 savings and minimizes detrimental human and environmental lighting effects. In environmentally
7 sensitive or rural areas where wildlife can be especially affected (e.g., near national parks or bio-
8 rich zones where nocturnal animals need such protection), strong consideration should be made for
9 lower emission LEDs (e.g., 3000K or lower lighting with effective shielding). Strong consideration
10 also should be given to the use of filters to block blue wavelengths (as used in Hawaii), or to the
11 use of inherent amber LEDs, such as those deployed in Quebec. Blue light scatters more widely
12 (the reason the daytime sky is “blue”), and unshielded blue-rich lighting that travels along the
13 horizontal plane increases glare and dramatically increases the nighttime sky glow caused by
14 excessive light pollution.

15 16 POTENTIAL HEALTH EFFECTS OF “WHITE” LED STREET LIGHTING

17
18 Much has been learned over the past decade about the potential adverse health effects of electric
19 light exposure, particularly at night.²¹⁻²⁵ The core concern is disruption of circadian rhythmicity.
20 With waning ambient light, and in the absence of electric lighting, humans begin the transition to
21 nighttime physiology at about dusk; melatonin blood concentrations rise, body temperature drops,
22 sleepiness grows, and hunger abates, along with several other responses.

23
24 A number of controlled laboratory studies have shown delays in the normal transition to nighttime
25 physiology from evening exposure to tablet computer screens, backlit e-readers, and room light
26 typical of residential settings.²⁶⁻²⁸ These effects are wavelength and intensity dependent,
27 implicating bright, short wavelength (blue) electric light sources as disrupting transition. These
28 effects are not seen with dimmer, longer wavelength light (as from wood fires or low wattage
29 incandescent bulbs). In human studies, a short-term detriment in sleep quality has been observed
30 after exposure to short wavelength light before bedtime. Although data are still emerging, some
31 evidence supports a long-term increase in the risk for cancer, diabetes, cardiovascular disease and
32 obesity from chronic sleep disruption or shiftwork and associated with exposure to brighter light
33 sources in the evening or night.^{25,29}

34
35 Electric lights differ in terms of their circadian impact.³⁰ Understanding the neuroscience of
36 circadian light perception can help optimize the design of electric lighting to minimize circadian
37 disruption and improve visual effectiveness. White LED streetlights are currently being marketed
38 to cities and towns throughout the country in the name of energy efficiency and long term cost
39 savings, but such lights have a spectrum containing a strong spike at the wavelength that most
40 effectively suppresses melatonin during the night. It is estimated that a “white” LED lamp is at
41 least 5 times more powerful in influencing circadian physiology than a high pressure sodium light
42 based on melatonin suppression.³¹ Recent large surveys found that brighter residential nighttime
43 lighting is associated with reduced sleep time, dissatisfaction with sleep quality, nighttime
44 awakenings, excessive sleepiness, impaired daytime functioning, and obesity.^{29,32} Thus, white LED
45 street lighting patterns also could contribute to the risk of chronic disease in the populations of
46 cities in which they have been installed. Measurements at street level from white LED street lamps
47 are needed to more accurately assess the potential circadian impact of evening/nighttime exposure
48 to these lights.

1 ENVIRONMENTAL EFFECTS OF LED LIGHTING

2
3 The detrimental effects of inefficient lighting are not limited to humans; 60% of animals are
4 nocturnal and are potentially adversely affected by exposure to nighttime electrical lighting. Many
5 birds navigate by the moon and star reflections at night; excessive nighttime lighting can lead to
6 reflections on glass high rise towers and other objects, leading to confusion, collisions and
7 death.³³ Many insects need a dark environment to procreate, the most obvious example being
8 lightning bugs that cannot “see” each other when light pollution is pronounced. Other
9 environmentally beneficial insects are attracted to blue-rich lighting, circling under them until they
10 are exhausted and die.^{34,35} Unshielded lighting on beach areas has led to a massive drop in turtle
11 populations as hatchlings are disoriented by electrical light and sky glow, preventing them from
12 reaching the water safely.³⁵⁻³⁷ Excessive outdoor lighting diverts the hatchlings inland to their
13 demise. Even bridge lighting that is “too blue” has been shown to inhibit upstream migration of
14 certain fish species such as salmon returning to spawn. One such overly lit bridge in Washington
15 State now is shut off during salmon spawning season.

16
17 Recognizing the detrimental effects of light pollution on nocturnal species, U.S. national parks
18 have adopted best lighting practices and now require minimal and shielded lighting. Light pollution
19 along the borders of national parks leads to detrimental effects on the local bio-environment. For
20 example, the glow of Miami, FL extends throughout the Everglades National Park. Proper
21 shielding and proper color temperature of the lighting installations can greatly minimize these types
22 of harmful effects on our environment.

23
24 CONCLUSION

25
26 Current AMA Policy supports efforts to reduce light pollution. Specific to street lighting, Policy H-
27 135.932 supports the implementation of technologies to reduce glare from roadway lighting. Thus,
28 the Council recommends that communities considering conversion to energy efficient LED street
29 lighting use lower CCT lights that will minimize potential health and environmental effects. The
30 Council previously reviewed the adverse health effects of nighttime lighting, and concluded that
31 pervasive use of nighttime lighting disrupts various biological processes, creating potentially
32 harmful health effects related to disability glare and sleep disturbance.²⁵

33
34 RECOMMENDATIONS

35
36 The Council on Science and Public Health recommends that the following statements be adopted,
37 and the remainder of the report filed.

- 38
39 1. That our American Medical Association (AMA) support the proper conversion to community-
40 based Light Emitting Diode (LED) lighting, which reduces energy consumption and decreases
41 the use of fossil fuels. (New HOD Policy)
- 42
43 2. That our AMA encourage minimizing and controlling blue-rich environmental lighting by
44 using the lowest emission of blue light possible to reduce glare. (New HOD Policy)
- 45
46 3. That our AMA encourage the use of 3000K or lower lighting for outdoor installations such as
47 roadways. All LED lighting should be properly shielded to minimize glare and detrimental
48 human and environmental effects, and consideration should be given to utilize the ability of
49 LED lighting to be dimmed for off-peak time periods. (New HOD Policy)

Fiscal Note: Less than \$500

REFERENCES

1. Municipal Solid State Street Lighting Consortium. <http://www1.eere.energy.gov/buildings/ssl/consortium.html>. Accessed April 4, 2016.
2. Illuminating Engineering Society RP-8 – Guide to Roadway Lighting. <http://www.ies.org/> 2014. Accessed April 4, 2016.
3. LED Lighting Facts–A Program of the United States Department of Energy. <http://www.lightingfacts.com>. Accessed April 5, 2016.
4. Lin Y, Liu Y, Sun Y, Zhu X, Lai J, Heynderickz I. Model predicting discomfort glare caused by LED road lights. *Opt Express*. 2014;22(15):18056-71.
5. Gibbons RB, Edwards CJ. A review of disability and discomfort glare research and future direction. 18th Biennial TRB Visibility Symposium, College Station TX, United States, April 17-19, 2007.
6. Shang YM, Wang GS, Sliney D, Yang CH, Lee LL. White light–emitting diodes (LEDs) at domestic lighting levels and retinal injury in a rat model. *Environ Health Perspect* . 2014;122(3):269-76.
7. Lougheed T. Hidden blue hazard? LED lighting and retinal damage in rats, *Environ Health Perspect*. 2014;122(3):A81.
8. A Municipal Guide for Converting to LED Street Lighting, (<http://www1.eere.energy.gov/buildings/ssl/consortium.html>) 10/13/2013.
9. In depth: Advantages of LED Lighting. <http://energy.ltgovernors.com/in-depth-advantages-of-led-lighting.html>. Accessed April 5, 2016.
10. Silverman H. How LED Streetlights Work. HowStuffWorks.com. June 22, 2009. <http://science.howstuffworks.com/environmental/green-tech/sustainable/led-streetlight.htm>. Accessed April 7, 2016.
11. Jin H, Jin S, Chen L, Cen S, Yuan K. Research on the lighting performance of LED street lights with different color temperatures. *IEEE Photonics Journal*. 2015;24(6):975-78. <http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=7328247>. Accessed April 7, 2016.
12. Morris N. LED there be light. Nick Morris predicts a bright future for LEDs. *Electrooptics.com*. <http://www.electrooptics.com/features/junjul06/junjul06leds.html>. Accessed April 7, 2016.
13. Mills MP. The LED illumination revolution. *Forbes Magazine*. February 27, 2008. http://www.forbes.com/2008/02/27/incandescent-led-cfl-pf-guru_in_mm_0227energy_inl.html. Accessed April 5, 2016.

14. Opinion of the French Agency for Food, Environmental and Occupational Health & Safety , October 19, 2010. <https://web.archive.org/web/20140429161553/http://www.anses.fr/Documents/AP2008sa0408EN.pdf>
15. U.S. Department of Transportation, Federal Highway Administration, 2005.
16. Sweater-Hickcox K, Narendran N, Bullough JD, Freyssinier JP. Effect of different coloured luminous surrounds on LED discomfort glare perception. *Lighting Research Technology*. 2013;45(4):464-75. <http://lrt.sagepub.com/content/45/4/464>. Accessed April 5, 2016.
17. Scigliano E. Seattle's new LED-lit streets Blinded by the lights. *Crosscut*. March 18, 2013. <http://crosscut.com/2013/03/streetlights-seattle-led/>. Accessed April 6, 2016.
18. Davis will spend \$350,000 to replace LED lights after neighbor complaints. CBS Local, Sacramento; October 21, 2014. <http://sacramento.suntimes.com/sac-news/7/138/6000/davis-will-spend-350000-to-replace-led-lights-after-neighbor-complaints>.
19. Chaban M. LED streetlights in Brooklyn are saving energy but exhausting residents. *NY Times*; March 23, 2015. http://www.nytimes.com/2015/03/24/nyregion/new-led-streetlights-shine-too-brightly-for-some-in-brooklyn.html?_r=0. Accessed April 5, 2016.
20. Vos JJ. On the cause of disability glare and its dependence on glare angle, age and ocular pigmentation. *Clin Exp Optom*. 2003;86(6):363-70.
21. Stevens RG, Brainard GC, Blask DE, Lockley, SW, Motta, ME. Breast cancer and circadian disruption from electric lighting in the modern world. *CA Cancer J Clin*. 2014;64:207-18.
22. Evans JA, Davidson AJ. Health consequences of circadian disruption in humans and animal models. *Prog Mol Biol Transl Sci*. 2013;119:283-323.
23. Wright KP Jr, McHill AW, Birks BR, Griffin BR, Rusterholz T, Chinoy ED. Entrainment of the human circadian clock to the natural light-dark cycle. *Curr Biol*. 2013;23:1554-8.
24. Energy Savings Estimates of Light Emitting Diodes in Niche Lighting Applications. Building Technologies Program, Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy. January 2011. http://apps1.eere.energy.gov/buildings/publications/pdfs/ssl/nichefinalreport_january2011.pdf. Accessed April 7, 2016.
25. Council on Science and Public Health Report 4. Light pollution. Adverse effects of nighttime lighting. American Medical Association, Annual Meeting, Chicago, IL. 2012.
26. Cajochen C, Frey S, Anders D, et al. Evening exposure to a light-emitting diodes (LED)-backlit computer screen affects circadian physiology and cognitive performance. *J Appl Physiol*. 2011;110:1432-8.
27. Chang AM, Aeschbach D, Duffy JF, Czeisler CA. Evening use of light-emitting eReaders negatively affects sleep, circadian timing, and next-morning alertness. *Proc Natl Acad Sci USA*. 2015;112:1232-7.

28. Gooley JJ, Chamberlain K, Smith KA, et al. Exposure to room light before bedtime suppresses melatonin onset and shortens melatonin duration in humans. *J Clin Endocrinol Metab.* 2011;96:E463-72.
29. Koo YS, Song JY, Joo EY, et al. Outdoor artificial light at night, obesity, and sleep health: Cross-sectional analysis in the KoGES study. *Chronobiol Int.* 2016;33(3):301-14.
30. Lucas RJ, Peirson SN, Berson DM, et al. Measuring and using light in the melanopsin age. *Trends Neurosci.* 2014;37:1-9.
31. Falchi F, Cinzano P, Elvidge CD, Keith DM, Haim A. Limiting the impact of light pollution on human health, environment and stellar visibility. *J Environ Manage.* 2011;92:2714-22.
32. Ohayon M, Malesi C. Sleep deprivation/insomnia and exposure to street lights in the American general population. American Academy of Neurology Annual Meeting, April 15-21, 2016. Vancouver, BC.
33. Pawson SM, Bader MK. Led lighting increases the ecological impact of light pollution irrespective of color temperature. *Ecological Applications.* 2014;24:1561-68.
34. Gaston K, Davies T, Bennie J, Hopkins J. Reducing the ecological consequences of night-time light pollution: Options and developments. *J Appl Ecol.* 2012;49(6):1256–66.
35. Salmon M. Protecting sea turtles from artificial night lighting at Florida’s oceanic beaches. In: Rich C, Longcore T (eds.). *Ecological Consequences of Artificial Night Lighting.* 2006:141-68. Island Press, Washington, DC.
36. Rusenko KW, Mann JL, Albury R, Moriarty JE, Carter HL. Is the wavelength of city glow getting shorter? Parks with no beachfront lights record adult aversion and hatchling disorientations in 2004. Kalb H, Rohde A, Gayheart K, Shanker, K, compilers. 2008. *Proceedings of the Twenty-fifth Annual Symposium on Sea Turtle Biology and Conservation*, NOAA Technical Memorandum NMFS-SEFSC-582, 204pp. <http://www.nmfs.noaa.gov/pr/pdfs/species/turtlesymposium2005.pdf>
37. Rusenko KW, Newman R, Mott C, et al. Using GIS to determine the effect of sky glow on nesting sea turtles over a ten year period. Jones TT, Wallace BP, compilers. 2012. *Proceedings of the Thirty-first Annual Symposium on Sea Turtle Biology and Conservation.* NOAA Technical Memorandum NOAA NMFS-SEFSC-631:32p.

Acknowledgement: The Council thanks George Brainard, PhD (Thomas Jefferson University); Richard Stevens, PhD (University Connecticut Health Center); and Mario Motta, MD (CSAPH, Tufts Medical School) for their contributions in preparing the initial draft of this report, and the commentary by Travis Longcore, PhD, on the ecological impact of nighttime electrical lighting.



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/26/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): C401.2 Application**PROPONENT INFORMATION**Name: Gayathri VijayakumarRepresenting: SWATelephone: 203-857-0200 x 223Email: gayathri@swinter.comAddress: 61 Washington StreetNorwalkCT06854*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

Offer an OPTION to units in MF (4 stories and greater) to instead comply with R406

Proposed text change, addition or deletion (attach additional information as needed):

See attached.

Supporting data and documents (attach additional information as needed)

This Proposal is original material. (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)

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Proponent's Signature

Gayathri Vijayakumar

Printed Name

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12/29/16



April 26, 2019

This CT code change proposal seeks to introduce a voluntary alternative to the commercial code compliance path for dwelling units in Group R-2 buildings (ie. apartments in buildings 4 story and greater). This proposal permits them to instead comply with R406 (ERI Compliance Path) in the residential chapter. The non-apartment spaces of the building would still follow the commercial provisions. Section R406 includes all the mandatory items that a low-rise multifamily building is required to comply with, including envelope and requirements for air-leakage tests and duct leakage tests. This creates a level playing field for all multifamily, regardless of height. This option is now available due to changes in the scope of ANSI/RESNET/ICC 301-2019, which now offers the ERI to dwelling and sleeping units in any height building, while the 2014 edition of that standard was limited to 3 stories and less.

This change is also proposed for the 2021 IECC, which are under consideration now.

Current 2018 IECC, Chapter 4 [CE]

C401.2 Application. Commercial buildings shall comply with one of the following:

1. The requirements of ANSI/ASHRAE/IESNA 90.1.
2. The requirements of Sections C402 through C405 and C408. In addition, commercial buildings shall comply with Section C406 and tenant spaces shall comply with Section C406.1.1.
3. The requirements of Sections C402.5, C403.2, C403.3 through C403.3.2, C403.4 through 403.4.2.3, C403.5.5, C403.7, C403.8.1 through C403.8.4, C403.10.1 through C403.10.3, C403.11, C403.12, C404, C405, C407 and C408. The building energy cost shall be equal to or less than 85 percent of the standard reference design building.

Proposed edits to 2018 IECC, Chapter 4 [CE]

C401.2 Application. Commercial buildings shall comply with one of the following:

1. The requirements of ANSI/ASHRAE/IESNA 90.1.
2. The requirements of Sections C402 through C405 and C408. In addition, commercial buildings shall comply with Section C406 and tenant spaces shall comply with Section C406.1.1. Exception: Dwelling units and sleeping units in Group R-2 buildings shall be deemed to be in compliance with this chapter provided they comply with Section R406.
3. The requirements of Sections C402.5, C403.2, C403.3 through C403.3.2, C403.4 through 403.4.2.3, C403.5.5, C403.7, C403.8.1 through C403.8.4, C403.10.1 through C403.10.3, C403.11, C403.12, C404, C405, C407 and C408. The building energy cost shall be equal to or less than 85 percent of the standard reference design building.

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DEPARTMENT OF ADMINISTRATIVE SERVICES

PROPOSED CHANGE OF THE CONNECTICUT STATE BUILDING CODE AND FIRE SAFETY CODE

DATE SUBMITTED: 4/26/2019

CODE INFORMATION

Proposed change to: [X] Building Code [] Fire Safety Code

Code section(s): R406.3 Energy Rating Index

Chapter 6 [RE] Referenced Standards

PROPONENT INFORMATION

Name: Gayathri Vijayakumar

Representing: SWA

Telephone: 203-857-0200 x 223

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PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed): Update the standard reference for calculating the ERI & align with HERS index

Proposed text change, addition or deletion (attach additional information as needed): See attached.

Supporting data and documents (attach additional information as needed)

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Proponent's Signature

Gayathri Vijayakumar Printed Name

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April 26, 2019

This CT code change proposal seeks to update the current reference for calculating the ERI to the 2019 edition of that ANSI/RESNET/ICC standard and to remove an addition that was made to R406.3 during the last ICC code hearings in 2016 that has led to an inconsistency between the ERI and the HERS index. These changes are also proposed for the 2021 IECC, which are under consideration now.

Current 2018 IECC, Chapter 4 [RE]

R406.3 Energy Rating Index. The Energy Rating Index (ERI) shall be determined in accordance with RESNET/ICC 301 except for buildings covered by the International Residential Code, the ERI Reference Design Ventilation rate shall be in accordance with Equation 4-1.

Ventilation rate, CFM = $(0.01 \times \text{total square foot area of house}) + [7.5 \times (\text{number of bedrooms} + 1)]$
(Equation 4-1)

Proposed edits to 2018 IECC

R406.3 Energy Rating Index. The Energy Rating Index (ERI) shall be determined in accordance with ANSI/RESNET/ICC 301, ~~except for buildings covered by the International Residential Code, the ERI Reference Design Ventilation rate shall be in accordance with Equation 4-1.~~

~~Ventilation rate, CFM = $(0.01 \times \text{total square foot area of house}) + [7.5 \times (\text{number of bedrooms} + 1)]$
(Equation 4-1)~~

Simultaneously, update the referenced standard from the 2014 edition to the current 2019 edition.

Current 2018 IECC, Chapter 6 [RE] REFERENCED STANDARDS

ANSI/RESNET/ICC 301—2014: Standard for the Calculation and Labeling of the Energy Performance of Low-rise Residential Buildings using an Energy Rating Index First Published March 7, 2014—
Republished January 2016

R406.3

Proposed edits to 2018 IECC

ANSI/RESNET/ICC 301—2014⁹: Standard for the Calculation and Labeling of the Energy Performance of Dwelling and Sleeping Units ~~Low-rise Residential Buildings~~ using an Energy Rating Index First Published March 7, 2014—Republished January 2016

R406.3

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DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/26/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): R403.3.3 Duct testing (Mandatory)Chapter 6 [RE] Referenced Standards**PROPONENT INFORMATION**Name: Gayathri VijayakumarRepresenting: SWATelephone: 203-857-0200 x 223Email: gayathri@swinter.comAddress: 61 Washington StreetNorwalkCT06854*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

Same change per the current CT amendments; to identify a standard for this test

Proposed text change, addition or deletion (attach additional information as needed):

See attached.

Supporting data and documents (attach additional information as needed)

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12/29/16



April 26, 2019

This code change proposal seeks to retain and update the reference to a specific standard for duct leakage testing that was part of the current CT amendments when adopting 2015 IECC.

Current 2018 IECC, Chapter 4 [RE]

R403.3.3 Duct testing (Mandatory). Ducts shall be pressure tested to determine air leakage by one of the following methods:

Proposed edits to 2018 IECC (same as current CT amendment when 2015 IECC was adopted)

R403.3.3 Duct testing (Mandatory). Ducts shall be pressure tested in accordance with ANSI/RESNET/ICC 380 to determine air leakage by one of the following methods:

Simultaneously, update the referenced standard from the 2016 edition to the current 2019 edition.

Current 2018 IECC, Chapter 6 [RE] REFERENCED STANDARDS

ANSI/RESNET/ICC 380—2016: Standard for Testing Airtightness for Building Enclosures, Airtightness of Heating and Cooling Air Distribution Systems and Airflow of Mechanical Ventilation Systems—
Republished January 2016

R402.4.1.2

Proposed edits to 2018 IECC

ANSI/RESNET/ICC 380—201~~6~~⁹: Standard for Testing Airtightness ~~for of~~ Building, Dwelling Unit, and Sleeping Unit Enclosures; Airtightness of Heating and Cooling Air Distribution Systems; and Airflow of Mechanical Ventilation Systems—~~Republished January 2016~~

R402.4.1.2, R403.3.3

A handwritten signature in black ink, reading 'Gayathri Vijayakumar'.

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DEPARTMENT OF ADMINISTRATIVE SERVICES

PROPOSED CHANGE OF THE CONNECTICUT STATE BUILDING CODE AND FIRE SAFETY CODE

DATE SUBMITTED: 4/26/2019

CODE INFORMATION

Proposed change to: [X] Building Code [] Fire Safety Code
Code section(s): C402.5 Air Leakage - thermal envelope (Mandatory)

PROPONENT INFORMATION

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Telephone: 203-857-0200 x 223 Email: gayathri@swinter.com
Address: 61 Washington Street Norwalk CT 06854

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):
REQUIRE testing & offer OPTION to units in MF (4 stories and greater) to comply with R402.4
Proposed text change, addition or deletion (attach additional information as needed):
See attached.

Supporting data and documents (attach additional information as needed)

- [X] This Proposal is original material. (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)
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April 26, 2019

Similar to proposals being submitted for the 2021 IECC, this CT code change proposal seeks to require whole-building air leakage tests for commercial buildings and includes an alternate option for dwelling units in Group R-2 buildings (ie. apartments in buildings 4 story and greater) to instead comply with R402.4 (Air Leakage) in the residential chapter.

Current 2018 IECC, Chapter 4 [CE]

C402.5 Air leakage—thermal envelope (Mandatory). The thermal envelope of buildings shall comply with Sections C402.5.1 through C402.5.8, or the *building thermal envelope* shall be tested in accordance with ASTM E 779 at a pressure differential of 0.3 inch water gauge (75 Pa) or an equivalent method approved by the code official and deemed to comply with the provisions of this section when the tested air leakage rate of the building thermal envelope is not greater than 0.40 cfm/ft² (2.0 L/s • m²). Where compliance is based on such testing, the building shall also comply with Sections C402.5.5, C402.5.6 and C402.5.7.

Proposed edits to 2018 IECC, Chapter 4 [CE]

C402.5 Air leakage—thermal envelope (Mandatory). The thermal envelope of buildings shall comply with Sections C402.5.1 through C402.5.8, ~~or~~ the *building thermal envelope* shall be tested in accordance with ASTM E 779 at a pressure differential of 0.3 inch water gauge (75 Pa) or an equivalent method approved by the code official and deemed to comply with the provisions of this section when the tested air leakage rate of the building thermal envelope is not greater than 0.40 cfm/ft² (2.0 L/s • m²). ~~Where compliance is based on such testing, the building shall also comply with Sections C402.5.5, C402.5.6 and C402.5.7.~~

Exception: Dwelling units and sleeping units in Group R-2 buildings shall be deemed to be in compliance with this test provided they comply with Section R402.4.

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Proposed RECA Amendment to CT State Building Code and Residential Code

Eliminate weaker air leakage exception for small dwelling units

R402.4.1.2 Testing. The *building or dwelling unit* shall be tested and verified as having an air leakage rate of not exceeding three air changes per hour. Testing shall be conducted in accordance with ANSI/RESNET/ICC 380, ASTM E 779 or ASTM E 1827 and reported at a pressure of 0.2 inches w.g. (50 Pa). Where required by the code official, testing shall be conducted by an *approved* third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the *building thermal envelope*.

During testing:

1. Exterior windows and doors, *fireplace* and stove doors shall be closed, but not sealed, beyond the intended weather stripping or other *infiltration* control measures.
2. *Dampers*, including exhaust, intake, makeup air, backdraft and flue *dampers*, shall be closed, but not sealed beyond intended *infiltration* control measures.
3. Interior doors, if installed at the time of the test, shall be open.
4. Exterior or interior terminations for continuous ventilation systems shall be closed and sealed.
5. Heating and cooling systems, if installed at the time of the test, shall be turned off.
6. Supply and return registers, if installed at the time of the test, shall be fully open.

Exception: ~~Low-rise attached *dwelling unit buildings* in climate zone 5: For *dwelling units* greater than 850 square feet of floor area, the air leakage threshold shall be set at five air changes per hour. For *dwelling units* less than or equal to 850 square feet of floor area, the air leakage threshold shall be set at 6.5 air changes per hour. Testing shall be conducted with a blower door, unguarded, at a pressure of 0.2 inches w.g. (50 Pa). If guarded blower door testing (a test with one or more adjacent units pressurized, which should eliminate any leakage between units) is being performed, this exception is not allowed and the standard testing requirements of Section 402.4.1.2 apply. Where required by the code official, testing shall be conducted by an *approved* third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope. For *buildings* with more than 7 units, a sampling protocol is allowed by an *approved* third party. The sampling protocol requires the first seven units to be tested without any failures. Upon successful testing of those initial seven units, remaining units can be sampled at a rate of 1 in 7. If any sampled unit fails compliance with the maximum allowed air leakage rate, two additional units in the same sample set must be tested. If additional failures occur, all units in the sample set must be tested. In addition, all units in the next~~

sample set must be tested for compliance before sampling of further units can be continued.

(Amd) **N1102.4.1.2 (R402.4.1.2) Testing.** The *building* or *dwelling unit* shall be tested and verified as having an air leakage rate of not exceeding three air changes per hour. Testing shall be conducted in accordance with ANSI/RESNET/ICC 380, ASTM E 779 or ASTM E 1827 and reported at a pressure of 0.2 inches w.g. (50 Pa). Where required by the code official, testing shall be conducted by an *approved* third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the *building thermal envelope*.

During testing:

1. Exterior windows and doors, *fireplace* and stove doors shall be closed, but not sealed, beyond the intended weather stripping or other *infiltration* control measures.
2. *Dampers*, including exhaust, intake, makeup air, backdraft and flue *dampers*, shall be closed, but not sealed beyond intended *infiltration* control measures.
3. Interior doors, if installed at the time of the test, shall be open.
4. Exterior or interior terminations for continuous ventilation systems shall be closed and sealed.
5. Heating and cooling systems, if installed at the time of the test, shall be turned off.
6. Supply and return registers, if installed at the time of the test, shall be fully open.

Exception: ~~Low-rise attached *dwelling unit buildings* in *climate zone 5*: For *dwelling units* greater than 850 square feet of floor area, the air leakage threshold shall be set at five air changes per hour. For *dwelling units* less than or equal to 850 square feet of floor area, the air leakage threshold shall be set at 6.5 air changes per hour. Testing shall be conducted with a blower door, unguarded, at a pressure of 0.2 inches w.g. (50 Pa). If guarded blower door testing (a test with one or more adjacent units pressurized, which should eliminate any leakage between units) is being performed, this exception is not allowed and the standard testing requirements of Section 402.4.1.2 apply. Where required by the code official, testing shall be conducted by an *approved* third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope. For *buildings* with more than 7 units, a sampling protocol is allowed by an *approved* third party.~~

~~The sampling protocol requires the first seven units to be tested without any failures. Upon successful testing of those initial seven units, remaining units can be sampled at a rate of 1 in 7. If any sampled unit fails compliance with the maximum allowed air leakage rate, two additional units in the same sample set must be tested. If additional failures occur, all units in the sample set must be tested. In addition, all units in the next~~

~~sample set must be tested for compliance before sampling of further units can be continued.~~

Reason

This proposal will update Connecticut's envelope air leakage test requirement to be consistent with the 2018 IECC. Since the 2012 edition, the IECC has required all new homes in Connecticut's climate zone to be tested for air leakage, and to show an air leakage rate of no higher than 3 ACH50. In the previous code update, Connecticut adopted an exception that weakens the code in two ways. First, it allows smaller dwelling units to meet weaker requirements for air leakage (and use more energy); and second, it allows sampling in buildings with more than 7 units. Neither of these exceptions is part of the IECC, and we believe these exceptions leave significant energy savings on the table.

A tighter building thermal envelope provides a range of benefits to homeowners:

- Increased energy savings, by keeping the conditioned air inside the thermal envelope.
- Improved comfort, through reduced drafts.
- Improved air quality, by keeping out dust, car exhaust, insects, and other pollutants out of the home.

While we can appreciate that smaller units can be more challenging to seal, the current exception allows these units to be extremely inefficient. Moreover, in cases where these units can demonstrate levels of air leakage lower than the 5 or 6.5 ACH50, an artificial trade-off "credit" is created, which can be used in the performance path or ERI to reduce the efficiency of other measures in the building.

If Connecticut intends to retain a higher allowance for air leakage for certain building units, we urge the state to set the trade-off baseline at 3 ACH50 and to require builders to demonstrate an equivalent level of energy savings through other measures. By setting the baseline at 5 or 6.5, the state is setting an extremely low bar for energy savings in these small units.

We are also concerned about the practice of sampling, even in multifamily buildings. Without an objective test for air leakage in every dwelling unit, the efficiency of the unit could vary substantially. For example, a recent DOE Residential Field Study in Kentucky found tested air leakage rates as low as .51 ACH50 and as high as 20.0 ACH50. A home with a 0.51 ACH50 leakage rate needs mechanical ventilation to maintain adequate fresh air for occupants, and a home with 20.0 ACH50 leakage rate needs to be substantially tightened to avoid wasting energy and to maintain comfort – but without a test, a homeowner would not know why their home is not performing as expected.

A tighter thermal envelope provides better comfort for homeowners and helps ensure better heating and cooling system operation. It saves energy by eliminating unnecessary leakage of conditioned air through the thermal envelope. And when combined with adequate mechanical ventilation, it helps protect occupant health and safety by controlling the quality of the air

entering the home. Testing air leakage in every home and dwelling unit is common-sense consumer protection that will provide energy conservation benefits over the lifetime of the home.

Connecticut utilities offer a number of robust incentives for energy efficient building. To continue to maintain amendments that cause the State Energy Code to fall short of the model energy codes is incongruent with utility and other state incentives for energy efficiency and a reduction of greenhouse gas emissions. We do not believe that meeting these requirements will result in a substantial cost increase or will curtail construction within the state.



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: April 26, 2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): R403.3.4**PROPONENT INFORMATION**Name: Eric LaceyRepresenting: Responsible Energy CodesTelephone: 202-339-6366Email: eric@reca-codes.comAddress: 1850 M Street, NW, Suite 610 Washington DC 20036
Street Address *Town* *State* *Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

This proposal would improve duct tightness from 8cfm/100 sq.ft. of conditioned floor area to 4

Proposed text change, addition or deletion (attach additional information as needed):

See attached change and reason statement.

Supporting data and documents (attach additional information as needed)

See attached change and reason statement.

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Proponent's Signature

Eric Lacey

Printed Name

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12/29/16

Proposed RECA Amendment to CT State Building Code and Residential Code

Make duct tightness requirement consistent with 2018 IECC

(Amd) **R403.3.4 Duct leakage (Prescriptive).** The total leakage of the *ducts*, where measured in accordance with Section R403.3.3, shall be as follows:

1. Rough-in test: The total leakage shall be less than or equal to 4 8 cubic feet per minute (226.5 L/min) per 100 square feet (9.29 m²) of *conditioned floor area* where the air handler is installed at the time of the test. Where the air handler is not installed at the time of the test, the total leakage shall be less than or equal to 3 cubic feet per minute (84.95 L/min) per 100 square feet (9.29 m²) of *conditioned floor area*.
2. Postconstruction test: Total leakage shall be less than or equal to 4 8 cubic feet per minute (226.5 L/min) per 100 square feet (9.29 m²) of *conditioned floor area*.

(Amd) **N1103.3.4 (R403.3.4) Duct leakage (Prescriptive).** The total leakage of the ducts, where measured in accordance with Section N1103.3.3, shall be as follows:

1. Rough-in test: Total leakage shall be less than or equal to 4 8 cubic feet per minute (226.5 L/min) per 100 square feet (9.29 m²) of *conditioned floor area* where the air handler is installed at the time of the test. Where the air handler is not installed at the time of the test, the total leakage shall be less than or equal to 3 cubic feet per minute (85 L/min) per 100 square feet (9.29 m²) of *conditioned floor area*.

Exceptions:

1. The total leakage test is not required for ducts and air handlers located entirely within the building thermal envelope.
2. Where ducts from an existing heating and cooling system are extended to an *addition* or are extended due to an *alteration*, duct systems with less than 40 linear feet (12.19 m) in unconditioned spaces shall not be required to be tested in accordance with Section 403.2.2.
3. Post-construction test: Total leakage shall be less than or equal to 4 8 cubic feet per minute (226.5L/min) per 100 square feet (9.29 m²) of *conditioned floor area*.

Reason

This proposal would update Connecticut's residential duct testing requirements to be consistent with the 2018 IECC. The IECC has required all new residential duct systems to be tested to 4 cfm/100 sq.ft. since the 2012 edition, but Connecticut currently allows double that amount of leakage. Duct tightness will save homeowners a substantial amount of energy (and money), and efficient ducts will improve comfort by helping the HVAC system deliver conditioned air to the intended rooms. More comfortable occupants are far less likely to adjust the thermostat (and waste additional energy) in order to stay comfortable.

Although most energy modeling software does not capture the occupant-level impact of poorly-sealed ducts, anyone who has lived or worked in a building with leaky ducts understands that discomfort can lead occupants to adjust the thermostat. The energy impact of adjusting

the thermostat is huge. The following table shows the increased energy use that results from adjusting the thermostat up or down a single degree in a code-compliant house in Connecticut's climate zone.

Increased Energy Use Resulting from Thermostat Adjustment	
Measure	5
+1 Degree Heating	4.7%
-1 Degree Cooling	1.8%

Obviously, if an uncomfortable occupant adjusts the thermostat 2 or 3 degrees, the impact will be far higher, and could essentially negate many of the efficiency gains made by Connecticut over the last decade.

Connecticut utilities offer a number of robust incentives for energy efficient building. To continue to maintain amendments that cause the State Energy Code to fall short of the model energy codes is incongruent with utility and other state incentives for energy efficiency and a reduction of greenhouse gas emissions. We do not believe that meeting these requirements will result in a substantial cost increase or will curtail construction within the state.

In sum, we believe the improved duct tightness requirement of the 2018 IECC is both reasonable and achievable, and we urge Connecticut to adopt this requirement as published in the 2018 IECC.



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: April 26, 2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): R406.2**PROPONENT INFORMATION**Name: Eric LaceyRepresenting: Responsible Energy CodesTelephone: 202-339-6366Email: eric@reca-codes.comAddress: 1850 M Street, NW, Suite 610 Washington DC 20036
Street Address Town State Zip Code**PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

This proposal would incorporate important clarifications included in the 2018 IECC regarding

Proposed text change, addition or deletion (attach additional information as needed):

See attached change and reason statement.

Supporting data and documents (attach additional information as needed)

See attached change and reason statement.

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Proponent's Signature

Eric Lacey

Printed Name

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12/29/16

Proposed RECA Amendment to CT State Building Code and Residential Code

Add 2018 IECC enhanced thermal envelope backstop to ERI where on-site power production is included in calculation.

R406.2 Mandatory requirements. Compliance with this section requires that the provisions identified in Sections R401 through R404 indicated as “Mandatory” and Section R403.5.3 be met. The building thermal envelope shall be greater than or equal to levels of efficiency and Solar Heat Gain Coefficients in Table 402.1.1 or 402.1.3 of the 2009 International Energy Conservation Code. Where on-site renewable energy is included for compliance using the ERI analysis of Section R406.4, the building shall meet the mandatory requirements of Section R406.2, and the building thermal envelope shall be greater than or equal to the levels of efficiency and SHGC in Table R402.1.2 or Table R402.1.4 of the 2015 International Energy Conservation Code.

N1106.2 (R406.2) Mandatory requirements. Compliance with this section requires that the provisions identified in Sections R401 through R404 indicated as “Mandatory” and Section R403.5.3 be met. The building thermal envelope shall be greater than or equal to levels of efficiency and Solar Heat Gain Coefficients in Table 402.1.1 or 402.1.3 of the 2009 International Energy Conservation Code. Where on-site renewable energy is included for compliance using the ERI analysis of Section R406.4, the building shall meet the mandatory requirements of Section R406.2, and the building thermal envelope shall be greater than or equal to the levels of efficiency and SHGC in Table R402.1.2 or Table R402.1.4 of the 2015 International Energy Conservation Code.

Reason

This proposal incorporates important language that was added to a footnote in Table R406.4 in the 2018 IECC. Because Connecticut deleted that table, we urge the state to incorporate the footnote language into section R406.2 (N1106.2).

This language clarifies that where on-site renewable energy is incorporated into an ERI calculation, the thermal envelope must meet or exceed the requirements of the 2015 IECC. This was part of a broad compromise in the 2018 IECC that included the National Association of Homebuilders, the Leading Builders of America, the Energy Efficient Codes Coalition, the Natural Resources Defense Council, the Solar Energy Industries Association, and many other critical stakeholders. Without this clarification, the Energy Rating Index could be misinterpreted by code users, and homes could be built without adequate levels of permanent thermal envelope components.

We recognize that Connecticut already does not permit the use of on-site power production to be used to achieve the 61 ERI in the current code. However, this proposal will help eliminate

the risk that any home with on-site power production will be built to a weaker level of efficiency than what is required by Connecticut's current State Building Code.



DEPARTMENT OF ADMINISTRATIVE SERVICES

PROPOSED CHANGE OF THE CONNECTICUT STATE BUILDING CODE AND FIRE SAFETY CODE

DATE SUBMITTED: 04/25/19

CODE INFORMATION

Proposed change to: [X] Building Code [] Fire Safety Code
Code section(s): R403.1.6 Foundation anchorage of interior walls

PROPONENT INFORMATION

Name: Alan Hanbury Representing: Home Bldrs/Remodelrs of Centrl CT
Telephone: 860-666-1537 Email: aehjcgr@aol.com
Address: 132 Forest Dr. Newington CT 06111

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):
This amendment provides an exception to the requirement for attaching bottom plates of braced wall panels SEE ATTAC

Proposed text change, addition or deletion (attach additional information as needed):
See Attached

Supporting data and documents (attach additional information as needed)
See Attached

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Proponent's Signature Alan Hanbury Printed Name

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11. Foundation Anchorage

This amendment provides an exception to the requirement for attaching bottom plates of braced wall panels on the interior of a dwelling to foundations with anchor bolts. The exception applies in low-wind, low-seismic areas where gypsum board is used as the bracing method for the interior wall in question.

Revise as follows:

R403.1.6 Foundation anchorage. Wood sill plates and wood walls supported directly on continuous foundations shall be anchored to the foundation in accordance with this section.

Cold-formed steel framing shall be anchored directly to the foundation or fastened to wood sill plates anchored to the foundation. Anchorage of cold-formed steel framing and sill plates supporting cold-formed steel framing shall be in accordance with this section and Section R505.3.1 or R603.3.1.

Wood sole plates at all exterior walls on monolithic slabs, wood sole plates of *braced wall panels* at building interiors on monolithic slabs and all wood sill plates shall be anchored to the foundation with minimum 1/2-inch diameter (12.7 mm) anchor bolts spaced a maximum of 6 feet (1829 mm) on center or *approved* anchors or anchor straps spaced as required to provide equivalent anchorage to 1/2-inch-diameter (12.7 mm) anchor bolts. Bolts shall extend a minimum of 7 inches (178 mm) into concrete or grouted cells of concrete masonry units. The bolts shall be located in the middle third of the width of the plate. A nut and washer shall be tightened on each anchor bolt. There shall be a minimum of two bolts per plate section with one bolt located not more than 12 inches (305 mm) or less than seven bolt diameters from each end of the plate section. Interior bearing wall sole plates on monolithic slab foundations that are not part of a *braced wall panel* shall be positively anchored with approved fasteners. Sill plates and sole plates shall be protected against decay and termites where required by Sections R317 and R318.

Exceptions:

1. Walls 24 inches (610 mm) total length or shorter connecting offset braced wall panels shall be anchored to the foundation with a minimum of one anchor bolt located in the center third of the plate section and shall be attached to adjacent braced wall panels at corners as shown in Item 9 of Table R602.3(1).
2. Connection of walls 12 inches (305 mm) total length or shorter connecting offset braced wall panels to the foundation without anchor bolts shall be permitted. The wall shall be attached to adjacent braced wall panels at corners as shown in Item 9 of Table R602.3(1).
3. Where the basic wind speed in accordance with Figure R301.2(4)A does not exceed 115 miles per hour (51 m/s), the seismic design category is A or B and Method GB in accordance with Section R602.10 is used for a *braced wall line* on the interior of the dwelling, anchor bolts shall not be required for the wood sole plates of the *braced wall panels*. Positive anchorage with approved fasteners shall be provided.

Reason:

This amendment revises the language for anchorage of light-frame wood stud walls to the foundations of the house. As currently stated, the provisions require anchor bolts for the portions of a wall on the interior of a dwelling that are designated as braced wall panels for a braced wall line passing through the dwelling. To provide the required 7-inch embedment depth, a thickened slab or other continuous footing would be necessary. Chapters 4 and 6 of the IRC do not explicitly require a continuous foundation in these locations in low-wind, low-seismic areas, and they are not traditionally provided. If interpreted and enforced by plan reviewers and inspectors in these areas, disputes and project delays will result and/or home owners will incur significant additional construction costs.

The ICC Ad-Hoc Committee on Wall Bracing revised this section during the 2007/2008 code cycle with the intent of ensuring that sufficient anchorage is provided along braced wall lines inside a dwelling to transfer lateral loads to either monolithic (thickened) slab foundations or continuous footings. While NAHB agrees that providing a continuous load path is important, the new language is overly broad in its application and not technically justified for many common conditions. The typical bracing method used for braced wall lines on the interior of a one- or two-story dwelling in a low-wind, low-seismic area is Method GB, consistent with

the use of gypsum board as the typical interior wall finish material. The allowable shear capacity for Method GB when used on both sides of a braced wall is 200plf (pounds per linear foot). The standard fastener schedule, Table R602.3(1), specifies 3-16d nails at 16" spacing for fastening the bottom plate of a braced wall panel on the interior of a dwelling to floor framing below (such as a raised floor system over a crawlspace or pier-and-beam foundation). This standard nailing provides a 200plf allowable capacity, as would many typical post-installed anchors (e.g. wedge or expansion anchors) that are short enough to be installed in just a slab-on-grade without the need for thickened footings, or even power-actuated fasteners. 1/2" diameter anchor bolts at 6-foot spacing are not necessary for the proper anchorage of these walls.

The proposed amendment provides an exception to the requirement that an interior wall that also used as part of a braced wall line be fastened to a slab-on-grade with anchor bolts, rather than other methods of making a "positive connection" such as wedge or expansion anchors, power fasteners, or concrete nails. The exception is limited to areas of low wind and low seismic hazards and to walls braced using gypsum board, with its lower allowable shear capacity.

[Return to Residential](#)



DEPARTMENT OF ADMINISTRATIVE SERVICES

PROPOSED CHANGE OF THE CONNECTICUT STATE BUILDING CODE AND FIRE SAFETY CODE

DATE SUBMITTED: 4/25/19

CODE INFORMATION

Proposed change to: [X] Building Code [] Fire Safety Code

Code section(s): IECC N1102.4.1.2

PROPONENT INFORMATION

Name: Alan Hanbury

Representing: Home Blders/Remodelers of Cntrl C

Telephone: 860-666-1537

Email: aehjcgr@aol.com

Address: 132 Forest Dr. Newington CT 06111

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

Amendment modifies requirement for 3 ACH to 5 ACH in climate zones 1-8

Proposed text change, addition or deletion (attach additional information as needed):

Attached

Supporting data and documents (attach additional information as needed)

Attached

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Alan Hanbury

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E1. Air Leakage Rate Correction (climate zones 1-8)

This amendment modifies the requirements from 3 Air Changes per Hour (ACH) to 5 ACH in climate zones 1 through 8.

Revise as follows:

R402.4.1.2 Testing. The building or dwelling unit shall be tested and verified as having an air leakage rate not exceeding five air changes per hour in Climate Zones 1 ~~and 2, and three air changes per hour in Climate Zones 3~~ through 8. Testing shall be conducted in accordance with RESNET/ICC 380, ASTM E 779 or ASTM E 1827 and reported at a pressure of 0.2 inch w.g. (50 Pascals). Where required by the *code official*, testing shall be conducted by an *approved* third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the *code official*. Testing shall be performed at any time after creation of all penetrations of the *building thermal envelope*.

Table R405.5.2 (1)
SPECIFICATIONS FOR THE STANDARD REFERENCE DESIGN AND PROPOSED DESIGNS

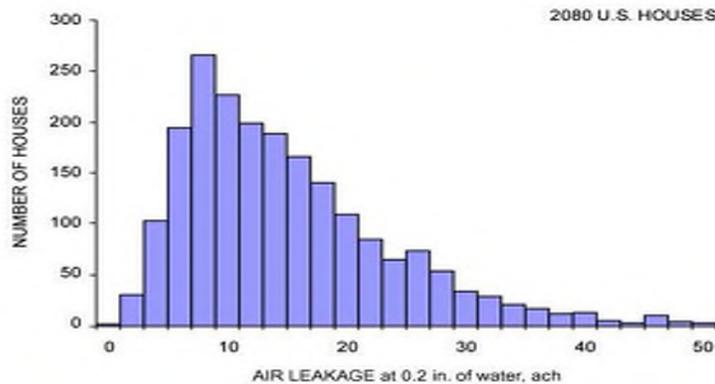
BUILDING COMPONENT	STANDARD REFERENCE DESIGN	PROPOSED DESIGN
Air exchange rate	<p>Air leakage rate of 5 air changes per hour in Climate Zones 1 and 2, and 3 air changes per hour in Climate Zones 3 through 8 at a pressure of 0.2 inches w.g (50 Pa). The mechanical ventilation rate shall be in addition to the air leakage rate and the same as in the proposed design, but no greater than $0.01 \times CFA + 7.5 \times (Nbr + 1)$</p> <p>where: <i>CFA</i> = conditioned floor area <i>Nbr</i> = number of bedrooms Energy recovery shall not be assumed for mechanical ventilation.</p>	<p>For residences that are not tested, the same air leakage rate as the standard reference design. For tested residences, the measured air exchange rate^a.</p> <p>The mechanical ventilation rated shall be in addition to the air leakage rate and shall be as proposed.</p>

Footnotes remain unchanged

Reason:

Building tightness is an important part of an energy-efficient and comfortable house. However, 3 air changes (ACH) per hour at 50 Pascals is an extremely low target tightness, especially for smaller homes. The ASHRAE Handbook of Fundamentals shows that around 8% of U.S. homes achieve 3 ACH or less, 13% achieve 4 and less than 23% achieve 5. The proposed 5 ACH while still an aggressive tightness level will provide a tight, comfortable, energy-efficient home.

2013 ASHRAE Handbook—Fundamentals



[Return to IECC](#)



DEPARTMENT OF ADMINISTRATIVE SERVICES

PROPOSED CHANGE OF THE CONNECTICUT STATE BUILDING CODE AND FIRE SAFETY CODE

DATE SUBMITTED: 4/25/19

CODE INFORMATION

Proposed change to: [X] Building Code [] Fire Safety Code

Code section(s): R402.4.1.2 Testing

PROPONENT INFORMATION

Name: Alan Hanbury

Representing: Home Blders/Remodelers of Cntrl C

Telephone: 860-666-1537

Email: aehjcgr@aol.com

Address: 132 Forest Dr. Newington CT 06111

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

Amendment modifies requirement for 3 ACH to 5 ACH in climate zones 1-8

Proposed text change, addition or deletion (attach additional information as needed):

Attached

Supporting data and documents (attach additional information as needed)

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Alan Hanbury

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12. Air Leakage Rate Correction (Climate Zones 1-8)

This amendment modifies the requirement from 3 air changes per hour (ACH) to 5 ACH in climate zones 1-8.

Revise as follows:

N1102.4.1.2 (R402.4.1.2) Testing. The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding five air changes per hour in Climate Zones 1 ~~and 2, and three air changes per hour in Climate Zones 3~~ through 8. Testing shall be conducted in accordance with RESNET/ICC 380, ASTM E 779 or ASTM E 1827 and reported at a pressure of 0.2 inches w.g. (50 Pascals). Where required by the *code official*, testing shall be conducted by an *approved* third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the *code official*. Testing shall be performed at any time after creation of all penetrations of the *building thermal envelope*.

**Table N1105.5.2 (1) [R405.5.2 (1)]
SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS**

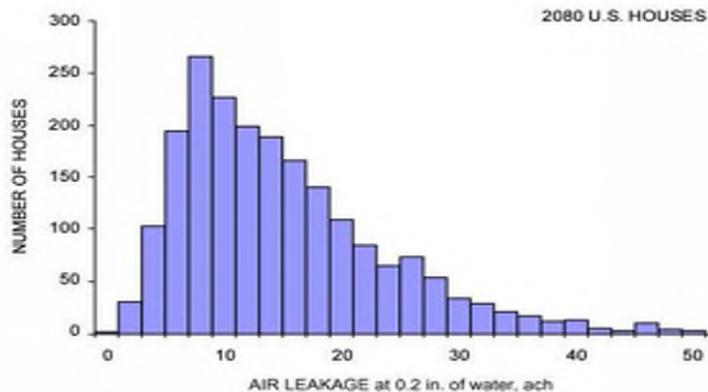
BUILDING COMPONENT	STANDARD REFERENCE DESIGN	PROPOSED DESIGN
Air exchange rate	<p>Air leakage rate of 5 air changes per hour in Climate Zones 1 and 2, and 3 air changes per hour in Climate Zones 3 through 8 at a pressure of 0.2 inches w.g (50 Pa). The mechanical ventilation rate shall be in addition to the air leakage rate and the same as in the proposed design, but no greater than $0.01 \times CFA +$</p> <p>$7.5 \times (Nbr + 1)$</p> <p>where:</p> <p><i>CFA</i> = conditioned floor area</p> <p><i>Nbr</i> = number of bedrooms</p> <p>Energy recovery shall not be assumed for mechanical ventilation.</p>	<p>For residences that are not tested, the same air leakage rate as the standard reference design. For tested residences, the measured air exchange rate^a.</p> <p>The mechanical ventilation rated shall be in addition to the air leakage rate and shall be as proposed.</p>

Footnotes remain unchanged

Reason:

Building tightness is an important part of an energy-efficient and comfortable house. However, 3 air changes (ACH) per hour at 50 Pascals is an extremely low target tightness, especially for smaller homes. The ASHRAE Handbook of Fundamentals shows that around 8% of U.S. homes achieve 3 ACH or less, 13% achieve 4 and less than 23% achieve 5. The proposed 5 ACH while still an aggressive tightness level will provide a tight, comfortable, energy-efficient home.

2013 ASHRAE Handbook—Fundamentals



[Return to Residential](#)



DEPARTMENT OF ADMINISTRATIVE SERVICES

PROPOSED CHANGE OF THE CONNECTICUT STATE BUILDING CODE AND FIRE SAFETY CODE

DATE SUBMITTED: 4/25/19

CODE INFORMATION

Proposed change to: [X] Building Code [] Fire Safety Code

Code section(s): R905.1.1

PROPONENT INFORMATION

Name: Alan Hanbury

Representing: HBRA of Central CT

Telephone: 860-666-1537

Email: aehjcgr@aol.com

Address: 109 Stamm Rd. Newington CT 06111

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

Remove 2018 SBC Amend. for 905.1.1 Underlayment. Let language remain in the 2018IRC

Proposed text change, addition or deletion (attach additional information as needed):

Attached

Supporting data and documents (attach additional information as needed)

Attached

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Proponent's Signature

Alan Hanbury

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ROOF ASSEMBLIES

Overflow drains shall discharge to an *approved* location and shall not be connected to roof drain lines.

SECTION R904 MATERIALS

R904.1 Scope. The requirements set forth in this section shall apply to the application of roof covering materials specified herein. Roof assemblies shall be applied in accordance with this chapter and the manufacturer's installation instructions. Installation of roof assemblies shall comply with the applicable provisions of Section R905.

R904.2 Compatibility of materials. Roof assemblies shall be of materials that are compatible with each other and with the building or structure to which the materials are applied.

R904.3 Material specifications and physical characteristics. Roof covering materials shall conform to the applicable standards listed in this chapter.

R904.4 Product identification. Roof covering materials shall be delivered in packages bearing the manufacturer's identifying marks and *approved* testing agency labels required. Bulk shipments of materials shall be accompanied by the same information issued in the form of a certificate or on a bill of lading by the manufacturer.

SECTION R905 REQUIREMENTS FOR ROOF COVERINGS

R905.1 Roof covering application. Roof coverings shall be applied in accordance with the applicable provisions of this section and the manufacturer's installation instructions. Unless otherwise specified in this section, roof coverings shall be installed to resist the component and cladding loads

specified in Table R301.2(2), adjusted for height and exposure in accordance with Table R301.2(3).

R905.1.1 Underlayment. Underlayment for asphalt shingles, clay and concrete tile, metal roof shingles, mineral-surfaced roll roofing, slate and slate-type shingles, wood shingles, wood shakes and metal roof panels shall conform to the applicable standards listed in this chapter. Underlayment materials required to comply with ASTM D 226, D 1970, D 4869 and D 6757 shall bear a label indicating compliance to the standard designation and, if applicable, type classification indicated in Table R905.1.1(1). Underlayment shall be applied in accordance with Table R905.1.1(2). Underlayment shall be attached in accordance with Table R905.1.1(3).

Exceptions:

1. As an alternative, self-adhering polymer-modified bitumen underlayment complying with ASTM D 1970 installed in accordance with both the underlayment manufacturer's and roof covering manufacturer's instructions for the deck material, roof ventilation configuration and climate exposure for the roof covering to be installed, shall be permitted.
2. As an alternative, a minimum 4-inch-wide (102 mm) strip of self-adhering polymer-modified bitumen membrane complying with ASTM D 1970, installed in accordance with the manufacturer's instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment for the applicable roof covering for maximum ultimate design wind speeds, V_{ult} , less than 140 miles per hour shall be applied over the entire roof over the 4-inch-wide (102 mm) membrane strips.

TABLE R905.1.1(1)
UNDERLAYMENT TYPES

ROOF COVERING	SECTION	MAXIMUM ULTIMATE DESIGN WIND SPEED, $V_{ult} < 140$ MPH	MAXIMUM ULTIMATE DESIGN WIND SPEED, $V_{ult} \geq 140$ MPH
Asphalt shingles	R905.2	ASTM D 226 Type I ASTM D 4869 Type I, II, III or IV ASTM D 6757	ASTM D 226 Type II ASTM D 4869 Type IV ASTM D 6757
Clay and concrete tile	R905.3	ASTM D 226 Type II ASTM D 2626 Type I ASTM D 6380 Class M mineral-surfaced roll roofing	ASTM D 226 Type II ASTM D 2626 Type I ASTM D 6380 Class M mineral-surfaced roll roofing
Metal roof shingles	R905.4	ASTM D 226 Type I or II ASTM D 4869 Type I, II, III or IV	ASTM D 226 Type II ASTM D 4869 Type IV
Mineral-surfaced roll roofing	R905.5	ASTM D 226 Type I or II ASTM D 4869 Type I, II, III or IV	ASTM D 226 Type II ASTM D 4869 Type IV
Slate and slate-type shingles	R905.6	ASTM D 226 Type I ASTM D 4869 Type I, II, III or IV	ASTM D 226 Type II ASTM D 4869 Type IV
Wood shingles	R905.7	ASTM D 226 Type I or II ASTM D 4869 Type I, II, III or IV	ASTM D 226 Type II ASTM D 4869 Type IV
Wood shakes	R905.8	ASTM D 226 Type I or II ASTM D 4869 Type I, II, III or IV	ASTM D 226 Type II ASTM D 4869 Type IV
Metal panels	R905.10	Manufacturer's instructions	ASTM D 226 Type II ASTM D 4869 Type IV

CHAPTER 8 – ROOF-CEILING CONSTRUCTION

(Amd) **R802.5 Allowable rafter spans.** Spans for rafters *shall* be in accordance with Tables R802.5.1(1) through R802.5.1(8). For ground snow *loads* other than those cited in Tables 802.5.1(3) through 802.5.1(8), spans for rafters may be determined using linear interpolation. For other *grades* and species and for other loading conditions, refer to the AWC STJR. The span of each rafter *shall* be measured along the horizontal projection of the rafter.

(Amd) **R802.10.2.1 Applicability limits.** The provisions of this section *shall* control the design of truss roof framing when snow controls for *buildings*, not greater than 60 feet (18 288 mm) in length perpendicular to the joist, rafter or truss span, not greater than 36 feet (10 973 mm) in width parallel to the joist, rafter or truss span, not more than three stories above grade plane in height with each *story* not greater than 10 feet (3048 mm) high, and roof slopes not smaller than 3:12 (25-percent slope) or greater than 12:12 (100-percent slope). Truss roof framing constructed in accordance with the provisions of this section *shall* be limited to *sites* subjected to a maximum design wind speed of 140 miles per hour (63 m/s), Exposure B or C, and a maximum ground snow *load* of 70 psf (3352 Pa). For consistent loading of all truss types, roof snow *load* is to be computed as: $1.0 p_g$.

CHAPTER 9 – ROOF ASSEMBLIES

(Amd) **R905.1.1 Underlayment.** *Underlayment* for asphalt shingles, clay and *concrete* tile, metal roof shingles, mineral-surfaced roll roofing, slate and slate-type shingles, wood shingles, wood shakes and *metal roof panels* *shall* conform to the applicable standards listed in this chapter. *Underlayment* materials required to comply with ASTM D 226, D 1970, D 4869 and D 6757 *shall* bear a label indicating compliance to the standard designation and, if applicable, type classification indicated in Table R905.1.1(1). **A minimum 4-inch-wide (102 mm) strip of self-adhering polymer-modified bitumen membrane complying with ASTM D 1970, installed in accordance with the manufacturer's instructions for the deck material, shall be applied over all joints in the roof decking.** *Underlayment* *shall* be applied over the entire roof and over the 4-inch-wide (102 mm) membrane strips and *shall* be applied in accordance with Table R905.1.1(2). *Underlayment* *shall* be attached in accordance with Table R905.1.1(3).

Exceptions:

1. As an alternative, self-adhering polymer-modified bitumen *underlayment* complying with ASTM D 1970 installed in accordance with both the *underlayment* manufacturer's and roof covering manufacturer's instructions for the deck material, roof *ventilation* configuration and climate exposure for the roof covering to be installed, *shall* be permitted.
2. The 4-inch-wide (102 mm) strips of self-adhering polymer-modified-bitumen membrane are not required for roofs sheathed with lumber having a nominal width of less than 3 feet (914 mm).

R903.4 Roof drainage. Unless roofs are sloped to drain over roof edges, roof drains shall be installed at each low point of the roof.

R903.4.1 Secondary (emergency overflow) drains or scuppers. Where roof drains are required, secondary emergency overflow roof drains or scuppers shall be provided where the roof perimeter construction extends above the roof in such a manner that water will be entrapped if the primary drains allow buildup for any reason. Overflow drains having the same size as the roof drains shall be installed with the inlet flow line located 2 inches (51 mm) above the low point of the roof, or overflow scuppers having three times the size of the roof drains and having a minimum opening height of 4 inches (102 mm) shall be installed in the adjacent parapet walls with the inlet flow located 2 inches (51 mm) above the low point of the roof served. The installation and sizing of overflow drains, leaders and conductors shall comply with Sections 1106 and 1108 of the *International Plumbing Code*, as applicable.

Overflow drains shall discharge to an *approved* location and shall not be connected to roof drain lines.

SECTION R904 MATERIALS

R904.1 Scope. The requirements set forth in this section shall apply to the application of roof covering materials specified herein. Roof assemblies shall be applied in accordance with this chapter and the manufacturer's installation instructions. Installation of roof assemblies shall comply with the applicable provisions of Section R905.

R904.2 Compatibility of materials. Roof assemblies shall be of materials that are compatible with each other and with the building or structure to which the materials are applied.

R904.3 Material specifications and physical characteristics. Roof covering materials shall conform to the applicable standards listed in this chapter.

R904.4 Product identification. Roof covering materials shall be delivered in packages bearing the manufacturer's identifying marks and *approved* testing agency labels required. Bulk shipments of materials shall be accompanied by the same information issued in the form of a certificate or on a bill of lading by the manufacturer.

SECTION R905 REQUIREMENTS FOR ROOF COVERINGS

R905.1 Roof covering application. Roof coverings shall be applied in accordance with the applicable provisions of this section and the manufacturer's installation instructions. Unless otherwise specified in this section, roof coverings shall be installed to resist the component and cladding loads

specified in Table R301.2(2), adjusted for height and exposure in accordance with Table R301.2(3).

R905.1.1 Underlayment. *Underlayment* for asphalt shingles, clay and concrete tile, metal roof shingles, mineral-surfaced roll roofing, slate and slate-type shingles, wood shingles, wood shakes, metal roof panels and *photovoltaic shingles* shall conform to the applicable standards listed in this chapter. *Underlayment* materials required to comply with ASTM D226, D1970, D4869 and D6757 shall bear a label indicating compliance to the standard designation and, if applicable, type classification indicated in Table R905.1.1(1). *Underlayment* shall be applied in accordance with Table R905.1.1(2). *Underlayment* shall be attached in accordance with Table R905.1.1(3).

Exceptions:

1. As an alternative, self-adhering polymer-modified bitumen *underlayment* complying with ASTM D1970 installed in accordance with both the *underlayment* manufacturer's and roof covering manufacturer's instructions for the deck material, roof ventilation configuration and climate exposure for the roof covering to be installed, shall be permitted.
2. As an alternative, a minimum 4-inch-wide (102 mm) strip of self-adhering polymer-modified bitumen membrane complying with ASTM D1970, installed in accordance with the *manufacturer's installation instructions* for the deck material, shall be applied over all joints in the roof decking. An *approved underlayment* for the applicable roof covering for maximum ultimate design wind speeds, V_{ult} , less than 140 miles per hour shall be applied over the entire roof over the 4-inch-wide (102 mm) membrane strips.
3. As an alternative, two layers of *underlayment* complying with ASTM D226 Type II or ASTM D4869 Type III or Type IV shall be permitted to be installed as follows in 3.1–3.4:
 - 3.1. Apply a 19-inch-wide (483 mm) strip of *underlayment* parallel with the eave. Starting at the eave, apply 36-inch-wide (914 mm) strips of *underlayment* felt, overlapping successive sheets 19 inches (483 mm). End laps shall be 4 inches (102 mm) and shall be offset by 6 feet (1829 mm).
 - 3.2. The *underlayment* shall be attached with corrosion-resistant fasteners in a grid pattern of 12 inches (305 mm) between side laps with a 6-inch (152 mm) spacing at side and end laps.



DEPARTMENT OF ADMINISTRATIVE SERVICES

PROPOSED CHANGE OF THE CONNECTICUT STATE BUILDING CODE AND FIRE SAFETY CODE

DATE SUBMITTED: 4/29/2019

CODE INFORMATION

Proposed change to: [X] Building Code [] Fire Safety Code

Code section(s): IBC Chapter 1, Section 105.3

PROPONENT INFORMATION

Name: Thomas A. DiBlasi

Representing: ACEC/CT Structural Engineers Coalition

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Email: TomD@DiBlasi-Engrs.com

Address: 500 Purdy Hill Road, Monroe, CT, 06468

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):
Items 8, 10 and 11, are required for a permit but are cited in other sections. To minimize the possibility that they will be overlooked (as they often are), they should be cited in this section as well.
Item 9 was added as it was felt that the applicant should identify if the building or structure is a threshold structure as this triggers other requirements.

Proposed text change, addition or deletion (attach additional information as needed):
Application for Permit. To obtain a permit, the applicant shall first file an application therefor in writing on a form furnished by the department of building safety for that purpose. Such application shall:
1. Identify and describe the work to be covered by the permit for which application is made.
2. Describe the land on which the proposed work is to be done by legal description, street address or similar description that will readily identify and definitely locate the proposed building or work.
3. Indicate the use and occupancy for which the proposed work is intended.
4. Be accompanied by construction documents and other information as required in Section 107.
5. State the valuation of the proposed work.
6. Be signed by the applicant, or the applicant's authorized agent.
7. Give such other data and information as required by the building official.
8. Be accompanied by a statement of special inspections as required by Section 1704.3.
9. Identify if the structure or addition exceeds the threshold limits cited in Section 107.7.
10. Identify a design professional in responsible charge as required by Section 107.3.4.
11. Identify deferred submittals, including deferred submittal schedule, as required by Section 107.3.4.1.

Supporting data and documents (attach additional information as needed):

- This Proposal is original material.** (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)
 - This Comment is not original material, its source (if known) is as follows:** (such as material / code development proposal from a prior development cycle or proposal submitted to model code committee etc.)
-
- I would like to make an in-person presentation of my proposal.**

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Thomas A. DiBlasi

Proponent's Signature

Printed Name

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12/29/16



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IBC Chapter 1, 107.3.4.1 (as modified in 2018 CSBC)**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.comAddress: 500 Purdy Hill RoadMonroeCT06468*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

Amended to align with changes that were added to 2015 IBC. Definition of "deferred submittal" had been added to Chapter 2. This was missed during 2016 CSBC development

Proposed text change, addition or deletion (attach additional information as needed):

~~Deferred submittals. For the purposes of this section, deferred submittals are defined as those portions of the design that are not submitted at the time of application and that are to be submitted to the building official within a specified period.~~

~~Any deferred~~ *Deferral of any submittal items* shall have the prior approval of the building official. The registered design professional in responsible charge shall list the deferred submittals on the construction documents for review by the building official.

Documents for deferred submittal items shall be submitted to the registered design professional in responsible charge who shall review them and forward them to the building official with a notation indicating that the deferred submittal documents have been reviewed and found to be in general conformance to the design of the building. The deferred submittal items shall not be installed until the deferred submittal documents have been approved by the building official.

Documents for deferred submittals that relate to the primary structural support systems of buildings or structures that exceed the threshold limit set forth in Section 107.7 of this code shall also be submitted to the independent structural engineering consultant by the registered design professional in responsible charge. Such deferred submittal items shall not be installed until the deferred submittal documents have been reviewed and found to be in general conformance to the design of the building by the independent structural engineering consultant and approved by the building official.

Supporting data and documents (attach additional information as needed):

- This Proposal is original material.** (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)
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DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IBC Chapter 1, Section 111.1.4.1**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.comAddress: 500 Purdy Hill RoadMonroeCT06468*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

The requirements for these statements of professional opinion are contained within other sections of the Building Code; however, as they address requirements for a certificate of occupancy, they should also be cited in this section. Since they are not cited in this section, they are sometimes overlooked.

Proposed text change, addition or deletion (attach additional information as needed):

Add new section:

Threshold Structures. *No certificate of occupancy shall be issued for a proposed structure or addition that exceeds the threshold limits cited in Section 107.7 until the building official has been provided with statements of professional opinion signed by the architect of record, professional engineer of record responsible for the design of the structure or addition and the general contractor, affirming that the completed construction is in substantial compliance with the approved plans and design specifications. If fabricated structural load-bearing members or assemblies are used in the construction, the building official shall be provided with statement(s) of professional opinion signed by the professional engineer(s) responsible for the design of such members or assemblies, affirming that the completed fabrication is in substantial compliance with the approved design specifications.*

Supporting data and documents (attach additional information as needed):

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12/29/16



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**

DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IBC Chapter 1, Section 111.1.5**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.comAddress: 500 Purdy Hill RoadMonroeCT06468*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

These requirements are contained within other sections of the Building Code; however, as they address requirements for a certificate of occupancy, they should also be cited in this section. Since they are not cited in this section, they are sometimes overlooked.

Proposed text change, addition or deletion (attach additional information as needed):

Special Inspections. *No certificate of occupancy shall be issued for a proposed structure or addition until the building official has been provided with final report of inspections documenting completion of special inspections required per Section 1704.2 and correction of any discrepancies noted in the inspections.*

Supporting data and documents (attach additional information as needed):

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12/29/16



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IBC Chapter 2, Section 202.1**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.com
 Address: 500 Purdy Hill Road Monroe CT 06468
Street Address Town State Zip Code
PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

This is a requirement per the CGS. While the statute does not reference soil and concrete testing, these are the testing/inspection services covered by NVLAP. Thus, if a testing agency is inspecting structural steel, there is no practical need for NVLAP certification. While most Connecticut labs have this certification (due to the CGS requirement), few other states require NVLAP certification. As such, if steel inspections are to be conducted at an out-of-state fabrication shop (which is not uncommon), it may be difficult to find a NVLAP-certified firm local to that shop. To require NVLAP certification for the testing/inspection of anything other than concrete or soils serves no practical purpose.

Proposed text change, addition or deletion (attach additional information as needed):

APPROVED AGENCY. An established and recognized agency regularly engaged in conducting tests or furnishing inspection services, when such agency has been approved. Officials certified in accordance with the provisions of section 29-298 of the Connecticut General Statutes, and employed by the jurisdiction in which the building or structure is being constructed, shall be considered an approved agency for the portions of this code also regulated by the Connecticut State Fire Safety Code. Pursuant to subsection (d)(1) of section 29-276b of the Connecticut General Statutes, Approved Agencies conducting tests or furnishing inspection services of soils or concrete must be certified under the National Voluntary Laboratory Accreditation Program of the National Institute of Standards and Technology.

Supporting data and documents (attach additional information as needed):

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DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IBC Chapter 2, Section 202.1**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.comAddress: 500 Purdy Hill RoadMonroeCT06468*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

Significant confusion has arisen in hurricane-prone regions in trying to determine windborne debris regions because the term "coastal mean high waterline" is not a mapped or defined term. Due to this lack of definition, some jurisdictions have incorrectly interpreted areas within 1 mile of the mean high waterline along narrow inland tidal waterways to be in windborne debris regions. The primary intent behind paragraph No. 1, is that within one mile of the coast, hurricane wind speeds will be governed by the wind speed over the open water, i.e. an Exposure Category D rather than an inland Exposure Category C situation on which the basic wind speed and paragraph No. 2 are based. This CCP clarifies that the waterline has to be classified as an Exposure D in order for paragraph No. 1 to apply. It also deletes the word "coastal" since wind speed increases could occur at large inland waterways in hurricane-prone regions as well. Also, NOAA maintains a database of the "mean high waterline" values in the US, which can be used in conjunction with this definition.

The amendments to the last paragraph are to address oversights that occurred in the 2018 IBC when separate wind speed maps for Risk Category III and IV structures were added (these were formerly combined). This amendment coincides with ASCE 7-16.

Proposed text change, addition or deletion (attach additional information as needed):

Delete Existing amendment and replace with the following amended version of IBC 2018:

WINDBORNE DEBRIS REGION. Areas within hurricane-prone regions located:

1. Within 1 mile (1.61 km) of the ~~coastal~~ mean high-water line where an Exposure D condition exists upwind at the waterline and the basic design wind speed, V, is 130 mph (58 m/s) or greater; or
2. In areas where the basic design wind speed is 140 mph (63.6 m/s) or greater.

For Risk Category II buildings and structures and Risk Category III buildings and structures, except health care facilities, the windborne debris region shall be based on the basic design wind speeds for Risk Category II, Figure 1609.3.(1). For Risk Category III health care facilities, the windborne debris region shall be based on the basic design wind speeds for

Risk Category III. For Risk Category IV buildings and structures and Risk Category III health care facilities, the windborne debris region shall be based on the basic design wind speeds for Risk Category IV Figure 1609

Supporting data and documents (attach additional information as needed):

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NCSEA Code Change Proposal to 2021 IBC

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Proponent’s Signature

Printed Name

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DEPARTMENT OF ADMINISTRATIVE SERVICES

PROPOSED CHANGE OF THE CONNECTICUT STATE BUILDING CODE AND FIRE SAFETY CODE

DATE SUBMITTED: 4/29/2019

CODE INFORMATION

Proposed change to: [X] Building Code [] Fire Safety Code

Code section(s): IBC Chapter 16, Section 1602.1

PROPONENT INFORMATION

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Town

State

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PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed): Definition in nomenclature section should reference the CSBC appendix, not the figures that are deleted.

Proposed text change, addition or deletion (attach additional information as needed): V = Basic design wind speeds, miles per hour (mph) (km/hr), determined from Appendix XX Figures 1609.3(1) through 1609.3(8) or ASCE 7.

Supporting data and documents (attach additional information as needed):

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Proponent's Signature

Thomas A. DiBlasi

Printed Name

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12/29/16



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**

DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IBC Chapter 16, Section 1603.1.3 (as amended in 2018 CSBC)**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.comAddress: 500 Purdy Hill RoadMonroeCT06468*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

Added slope factors to coincide with IBC 2018. Also minor editorial changes.

Existing roofs criteria modified to reflect the anticipated addition of Section 1608.4.

Proposed text change, addition or deletion (attach additional information as needed):

Roof snow load data. The ground snow load, P_g , shall be indicated. In areas where the ground snow load, P_g , exceeds 10 pounds per square foot (psf) (0.479 kN/m

2), the following additional information shall also be provided, regardless of whether snow loads govern the design of the roof:

1. Flat-roof snow load, P_f .
2. Snow exposure factor, C_e .
3. Snow load importance factor, I_s .
4. Thermal factor, C_t .
5. Slope factor(s), C_s .
- ~~5.~~ Drift surcharge load(s) loads, P_d .
- ~~6.~~ Width of snow drift(s) drifts, w .

~~7.~~ Existing roofs. Confirmation that existing adjacent lower roofs have been evaluated for increased snow loads and/or owners of existing adjacent lower roofs have been advised of the potential for increased snow loads as required by Section 1608.4 7.12 of ASCE 7.

Supporting data and documents (attach additional information as needed):

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12/29/16



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IBC Chapter 16, Section 1603.1.3**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.comAddress: 500 Purdy Hill RoadMonroeCT06468*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

When shallow foundations are utilized, the basis for the bearing value should be cited (e.g. footings bearing on sand, rock, hardpan, compacted fill, etc.).

When deep foundations are utilized, the design capacities should be cited.

Proposed text change, addition or deletion (attach additional information as needed):

Geotechnical information. The following geotechnical information, as applicable, design load-bearing values of soils shall be shown on the construction documents:-;

1. Design load-bearing values of soils and required bearing layer.
2. Design capacities (axial, including uplift, and lateral) and required bearing layer for deep foundations.

Supporting data and documents (attach additional information as needed):

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DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IBC Chapter 16, Section 1608.1.1 (as amended in 2018 CSBC)**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.comAddress: 500 Purdy Hill RoadMonroeCT06468*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

There was some confusion with the application of this provision in one municipality. This amendment coupled with the addition of Section 1608.1.3 seeks to alleviate this problem.

Proposed text change, addition or deletion (attach additional information as needed):

Flat roof snow loads. The flat roof snow load, p_f , shall be calculated in accordance with Section 7.3 of ASCE-7. The calculated value of p_f shall not be less than 30 pounds per square foot and shall be used in the calculation of sloped roof snow loads in accordance with Section 7.4. ~~The calculated value of p_f without the 30 pounds per square foot minimum requirement shall be used to determine partial loading effects, unbalanced snow loads, snow drifting loads, roof projections and parapets, and snow sliding loads in accordance with Sections 7.5, 7.6, 7.7, 7.8 and 7.9 of ASCE 7.~~

Supporting data and documents (attach additional information as needed):

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12/29/16



DEPARTMENT OF ADMINISTRATIVE SERVICES

PROPOSED CHANGE OF THE CONNECTICUT STATE BUILDING CODE AND FIRE SAFETY CODE

DATE SUBMITTED: 4/29/2019

CODE INFORMATION

Proposed change to: [X] Building Code [] Fire Safety Code

Code section(s): IBC Chapter 16, Section 1608.1.3

PROPONENT INFORMATION

Name: Thomas A. DiBlasi

Representing: ACEC/CT Structural Engineers Coalition

Telephone: 203-452-1331 x108

Email: TomD@DiBlasi-Engrs.com

Address: 500 Purdy Hill Road, Monroe, CT, 06468

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed): This section was extracted from CT 1608.1.1 and moved to a separate section in attempt to alleviate confusion that existed in one municipality.

Proposed text change, addition or deletion (attach additional information as needed): Partial loading, unbalanced roof snow loads, drifts on lower roofs, roof projections and parapets, and snow sliding. Calculations for partial loading, unbalanced roof snow loads, drifts on lower roofs, roof projections and parapets, and snow sliding, shall be in accordance with Sections 7.5, 7.6, 7.7, 7.8 and 7.9, of ASCE 7, without the 30 pounds per square foot minimum requirement of p_f stipulated in Sections 1608.1.1 and 1608.1.2.

Supporting data and documents (attach additional information as needed):

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12/29/16



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IBC Chapter 16, Section 1608.4**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.com
 Address: 500 Purdy Hill Road Monroe CT 06468
Street Address Town State Zip Code
PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

This is a parallel requirement to IEBC Section 303.2. This addresses situations where a new building may create a snow drifting condition on an adjacent existing building.

Proposed text change, addition or deletion (attach additional information as needed):

Add section:

Snow loads on adjacent buildings. *Where a new structure or addition is constructed within 20 feet (6.1 m) of an existing building and changes the potential snow drift effects on the existing building, the roof of the existing building shall be evaluated for increased snow loads in accordance with Section 7.12 of ASCE 7.*

Supporting data and documents (attach additional information as needed):

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DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**

DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IBC Chapter 16, Section 1609.3 (as amended in 2018 CSBC)**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.comAddress: 500 Purdy Hill RoadMonroeCT06468*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

Amend to coincide with revised nomenclature of 2018 IBC.

Proposed text change, addition or deletion (attach additional information as needed):

Basic design Design wind speed. The *basic ultimate* design wind speed, V_{ult} , in mph, for the determination of the wind loads shall be determined by Appendix XX. When required, the *allowable stress nominal* design wind speed, V_{asd} , shall be determined by Appendix XX.

Supporting data and documents (attach additional information as needed):

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**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IBC Chapter 16, Section 1610.1.1**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.comAddress: 500 Purdy Hill RoadMonroeCT06468*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

ASCE 7 specifically indicates that seismic lateral earth pressures need to be considered for Seismic Design Categories D through F; however, it does not specifically note that these earth pressures can be neglected in the lower Seismic Design Categories. This has led to confusion in the past. Attached is an email from the Seismic Subcommittee Co-Chair of ASCE 7 who has affirmed that seismic lateral earth pressures need not be considered for the lower Seismic Design Categories. The addition of this section will alleviate the confusion.

Proposed text change, addition or deletion (attach additional information as needed):

Add section:

Seismic Lateral Earth Pressure. *Seismic lateral earth pressure loads on basement walls and retaining for structures in Seismic Design Categories D through F shall be in accordance with ASCE 7. Seismic lateral earth pressure loads on basement and retaining walls in Seismic Design Categories A through C need not be considered.*

Supporting data and documents (attach additional information as needed):

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12/29/16

Thomas DiBlasi

From: Thomas DiBlasi
Sent: Tuesday, March 19, 2019 10:33 AM
To: Thomas Bronson (thomasb@bvhis.com)
Subject: FW: Seismic Question

Tom:

Please see the email exchange below pertaining to the need (or lack thereof) to consider soil seismic loads in the design of basement and retaining walls in SDC C or lower.

FYI – Greg Soules was the vice chair for the ASCE 7-16 Seismic Subcommittee and Tom Heausler is the chair of the Seismic Subcommittee of NCSEA’s Code Advisory Committee.

To eliminate the confusion, I am thinking about adding something to the CT amendments indication that these seismic lateral earth pressures need not be considered in SDC A, B and C structures. Let me know what you think.

Best regards,

Tom

Thomas A. DiBlasi, P.E.*, SECB
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500 Purdy Hill Road
Monroe Connecticut 06468-1661
(203) 452-1331 x108 FAX (203) 268-8103
Cell (203) 988-2523

* Licensed Professional Engineer
in CT, FL, MA, MD, ME, MS, NC,
NH, NJ, NY, PA, RI, VA, and VT

From: Soules, Greg J <Greg.Soules@mcdermott.com>
Sent: Monday, March 18, 2019 11:00 PM
To: Thomas Heausler <tfhse@aol.com>; Thomas DiBlasi <tomd@dibiasi-engrs.com>
Subject: Re: Seismic Question

Tom,

Seismic earth pressure is not particularly significant in SDC B and C. Therefore, ASCE 7 does not require seismic earth pressures be determined for retaining/basement wall design in SDC B and C.

Greg

J. G. (Greg) Soules, P.E., S.E.
Senior Principal Structural Engineer
CB&I Storage Tank Solutions

From: Thomas Heausler <tfhse@aol.com>
Sent: Monday, March 18, 2019 7:59 PM
To: 'Thomas DiBlasi'
Cc: Soules, Greg J
Subject: RE: Seismic Question

Thomas:

Intentional or not, I read ASCE 7 and IBC 2018 as having no stated requirement for lateral seismic earth pressures in SDC B,C for basement walls. Only in D,E,F and quantified via the geotechnical report required in D,E,F.

Curiously, ASCE 7-05 mentioned SDC B, C as follows:
15.6.1 Earth-Retaining Structures. This section applies to all earth-retaining structures assigned to Seismic Design Category D, E, or F. The lateral earth pressures due to earthquake ground motions shall be determined in accordance with Section 11.8.3 for Seismic Design Categories B, C, D, E, and F with a geotechnical analysis prepared by a registered design professional.

But as you read it, you can see it is contradictory between first and second sentences. To rectify, reference to B,C was deleted in ASCE 7-10 and ASCE 7-16.

I believe that it is logical for a seismic load to be considered in B,C, but I do not have a usable resource or methodology to quantify it (other than a geotechnical report). Also, probability of load combinations should be considered, e.g. max soil lateral load with a 1.6 load factor occurring at same point in time as design earthquake.

If a geotechnical report provides a seismic pressure, for B,C then I would apply it. If geotechnical report is silent on B,C seismic soil pressure, then I don't think you are negligent to ignore it.

Those are some thoughts, maybe not a solution to your question, though.

Greg Soules, Chapter 15 Committee chair may have some insight (copied).

Regards,

Thomas F. Heausler, PE, SE
Structural Engineer
4301 W 126th Terr
Leawood, KS 66209
(913) 963-1180 TFHSE@aol.com

-----Original Message-----

From: Thomas DiBlasi [<mailto:tomd@diblasi-engrs.com>]
Sent: Monday, March 18, 2019 11:06 AM

To: 'Thomas F. Heausler' <TFHSE@aol.com>

Subject: Seismic Question

Tom:

I hope all is well. I was hoping I might be able to pick your brain a bit.

We are in the process of adopting the 2018 IBC in Connecticut. During one of our local Code Advisory Committee meetings, some discussion arose regarding when seismic lateral earth pressure must be included in the building design.

Per ASCE 7, Section 11.8.3, geotechnical reports are to include seismic lateral earth pressures on basement and retaining walls for SDC D through F.

ASCE 7, Section 15.6.1, addresses seismic lateral earth pressures in earth-retaining structures for SDC D through F.

In Connecticut, the majority of our structures fall into SDC B with some falling into SDC C and A. On rare occasions, we might encounter a SDC D. Most geotechnical reports that we receive identify a seismic lateral earth pressure, regardless of the SDC. Some of the committee members are questioning if, in these lower SDCs, the intent of ASCE 7 is for us to even consider seismic lateral earth pressures in our building designs.

Any insight that you could provide would be much appreciated.

Best regards,

Tom
Thomas A. DiBlasi, PE*, SECB

* Licensed Professional Engineer
in CT, FL, MA, MD, ME, MS, NC,
NH, NJ, NY, PA, RI, VA, and VT



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IBC Chapter 16, Section 1611.1 – OPTION 1**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.com
 Address: 500 Purdy Hill Road Monroe CT 06468
Street Address Town State Zip Code
PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

As with snow loads, seismic loads and wind loads, the purpose for this proposed amendment is to provide consistency rather than requiring the interpolation between contour lines on a map where Connecticut is the size of a fingernail.

Proposed text change, addition or deletion (attach additional information as needed):

Design rain loads. Each portion of a roof shall be designed to sustain the load of rainwater that will accumulate on it if the primary drainage system for that portion is blocked plus the uniform load caused by water that rises above the inlet of the secondary drainage system at its design flow. The design rainfall shall be based on the 100-year hourly rainfall rate and shall be 3.0 inches per hour indicated in Figure 1611.1 or on other rainfall rates determined from approved local weather data.

 $R = 5.2 (d_s + d_h) \dots\dots\dots$

Supporting data and documents (attach additional information as needed):

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Thomas A. DiBlasi

Proponent's Signature

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12/29/16



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**

DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IBC Chapter 16, Section 1611.1 – OPTION 2**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.com

Address: <u>500 Purdy Hill Road</u>	<u>Monroe</u>	<u>CT</u>	<u>06468</u>
<small>Street Address</small>	<small>Town</small>	<small>State</small>	<small>Zip Code</small>

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

As with snow loads, seismic loads and wind loads, the purpose for this proposed amendment is to provide consistency rather than requiring the interpolation between contour lines on a map where Connecticut is the size of a fingernail.

Proposed text change, addition or deletion (attach additional information as needed):

Design rain loads. Each portion of a roof shall be designed to sustain the load of rainwater that will accumulate on it if the primary drainage system for that portion is blocked plus the uniform load caused by water that rises above the inlet of the secondary drainage system at its design flow. The design rainfall shall be based on the 100-year hourly rainfall rate and shall be 3.0 inches per hour in Fairfield, New Haven and Litchfield counties and shall be 2.75 inches per hour in all other counties indicated in Figure 1611.1 or on other rainfall rates determined from approved local weather data.

$$R = 5.2 (d_s + d_h) \dots\dots\dots$$

Supporting data and documents (attach additional information as needed):

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DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**

DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IBC Chapter 17, Section 1705.2.4**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.comAddress: 500 Purdy Hill RoadMonroeCT06468*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

This is the same amendment that is being proposed to wood truss bracing inspections in Section 1705.5.2. The changes will better capture the conditions where truss bracing becomes more critical.

Proposed text change, addition or deletion (attach additional information as needed):

Cold-formed steel trusses. Where a cold-formed steel truss *has an overall height of 60 inches (1,524 mm) clear span is 30 feet (9,144 mm) or greater*, the special inspector shall verify that the permanent individual truss member restraint/bracing is installed in accordance with the approved truss submittal package. Where a cold-formed steel truss clear span is 60 feet (18,288 mm) or greater, the special inspector shall verify that the temporary installation restraint/bracing and the permanent individual truss member restraint/bracing are installed in accordance with the approved truss submittal package.

Supporting data and documents (attach additional information as needed):

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Thomas A. DiBlasi

Proponent's Signature

Printed Name

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12/29/16



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IBC Chapter 17, Section 1705.5.2 (as amended in 2018 CSBC)**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.comAddress: 500 Purdy Hill RoadMonroeCT06468*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

The use of truss height as the trigger for bracing inspections versus truss span is rational as it directly addresses the primary concern: the length of the web members. If a mono-pitch truss with an 8:12 pitch and a 29' span were utilized, it would have a maximum height of 19'-4", requiring the use of piggy-back trusses and having very special bracing requirements. Under the 30' span trigger, such a truss would not be subject to special inspections under the current CSBC.

The proposal was originally submitted by NCSEA for incorporation into the 2018 IBC, and it was initially approved by the structural subcommittee; however, it was subsequently withdrawn due to opposition that had developed from code enforcement officials in larger building departments who felt that such inspections should be performed by their staff.

Proposed text change, addition or deletion (attach additional information as needed):

Metal-plate-connected wood trusses. Where a truss *has an overall height of 60 inches (1,524 mm)* clear span is ~~30 feet (9,144 mm)~~ or greater, the special inspector shall verify that the permanent individual truss member restraint/bracing is installed in accordance with the approved truss submittal package. Where a truss clear span is 60 feet (18,288 mm) or greater, the special inspector shall verify that the temporary installation restraint/bracing and the permanent individual truss member restraint/bracing are installed in accordance with the approved truss submittal package.

Supporting data and documents (attach additional information as needed):

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DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IBC Chapter 16, Figure 1611.1**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.comAddress: 500 Purdy Hill RoadMonroeCT06468*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

Figure is not required as rain intensity is specified in proposed amendment to Section 1611.1.

Proposed text change, addition or deletion (attach additional information as needed):

Delete figures (rain intensity maps)

Supporting data and documents (attach additional information as needed):

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DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IBC Chapter 17, Table 1705.2.5.5**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.comAddress: 500 Purdy Hill RoadMonroeCT06468*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

Change to chart of inspections contingent upon acceptance of proposed change to CT 1705.2.4.

Proposed text change, addition or deletion (attach additional information as needed):

5. Inspect Cold-Formed Steel Trusses

- a. Temporary installation restraint/bracing for truss spanning 60 feet or more
- b. Permanent individual truss member restraint/ bracing for trusses ~~spanning 30 feet or more~~ with an overall height of 60 inches or greater

Supporting data and documents (attach additional information as needed):

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DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IBC Chapter 17, Table 1705.5**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.comAddress: 500 Purdy Hill RoadMonroeCT06468*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

Change to chart of inspections contingent upon acceptance of proposed change to CT 1705.5.2.

Proposed text change, addition or deletion (attach additional information as needed):

5. Inspect Metal-Plate-Connected Wood Trusses

- a. Temporary installation restraint/bracing for truss spanning 60 feet or more
- b. Permanent individual truss member restraint/ bracing for trusses ~~spanning 30 feet or more~~ with an overall height of 60 inches or greater
- c. Multi-ply truss connections

Supporting data and documents (attach additional information as needed):

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DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**

DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IEBC Chapter 13, Section 303.2**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.comAddress: 500 Purdy Hill RoadMonroeCT06468*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

Snow drift can potentially occur when one structure is 20' or less from an adjacent structure per ASCE 7. As less than 5% of the Building Departments in Connecticut have copies of ASCE 7, they would not know this. Likewise, they would not be able to refer to ASCE 7, Section 7.12. A copy of ASCE 7, Section 7.12 is attached.

Proposed text change, addition or deletion (attach additional information as needed):

Snow loads on adjacent buildings. Where an alteration or addition *is constructed within 20 feet (6.1 m) of an existing building and* changes the potential snow drift effects on ~~an~~ *the* adjacent building, the ~~code official is authorized to enforce~~ *roof of the existing building shall be evaluated for increased snow loads in accordance with* Section 7.12 of ASCE 7.

Supporting data and documents (attach additional information as needed):

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ASCE 7-16, Section 7.12

7.12 EXISTING ROOFS

Existing roofs shall be evaluated for increased snow loads caused by additions or alterations. Owners or agents for owners of an existing lower roof shall be advised of the potential for increased snow loads where a higher roof is constructed within 20 ft (6.1 m). See footnote to Table 7.3-1 and Section 7.7.2.



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IEBC Chapter 5, Section 503.12**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.comAddress: 500 Purdy Hill RoadMonroeCT06468*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

While the outcome of this code requirement would be desirable, the implementation of this requirement would be both invasive and costly, particularly with structures for which the structural construction documents are not available. It would impact the overwhelming majority of re-roofing projects in the State. It is counterintuitive to many other provisions in the Building Code as its punitive nature would discourage building owners from embarking on re-roofing projects that would otherwise enhance the integrity of the building envelope. This could result in water penetration which can trigger other problems such as mold; it would also inhibit the upgrading of roof insulation to increase energy efficiency.

Connecticut is not the only State affected by this provision. Massachusetts modified their Building Code to restrict the diaphragm assessment/upgrade to complete (100%) roof replacements for Risk Category IV structures where the ultimate design wind speed exceeds 150 mph. The proponents of this proposal felt that the Massachusetts changes were a bit too extreme.

Proposed text change, addition or deletion (attach additional information as needed):

Roof diaphragms resisting wind loads in high-wind regions. Where the intended alteration requires a permit for reroofing and involves removal of roofing materials from more than 50 percent of the roof diaphragm of a building or section of a building located where the ultimate design wind speed is greater than 115 mph (51 m/s) in accordance with Figure 1609.3(1) of the International Building Code or in a special wind region as defined in Section 1609 of the International Building Code, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to-wall connections shall be evaluated for the wind loads specified in Section 1609 of the International Building Code, including wind uplift. If the diaphragms and connections in their current condition are not capable of resisting 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in Section 1609 of the International Building Code.

Exceptions:

1. Buildings or structures assigned to Risk Categories I or II.
2. Risk Category III buildings and structures, except health care facilities.

Supporting data and documents (attach additional information as needed):

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DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IEBC Chapter 7, Section 706.3.2**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.comAddress: 500 Purdy Hill RoadMonroeCT06468*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

While the outcome of the requirement would be desirable, the implementation of this requirement would be both invasive and costly, particularly with structures for which the structural construction documents are not available. It would impact the overwhelming majority of re-roofing projects in the State. It is counterintuitive to many other provisions in the Building Code as its punitive nature would discourage building owners from embarking on re-roofing projects that would otherwise enhance the integrity of the building envelope. This could result in water penetration which can trigger other problems such as mold; it would also inhibit the upgrading of roof insulation to increase energy efficiency.

Connecticut is not the only State affected by this provision. Massachusetts modified their Building Code to restrict the diaphragm assessment/upgrade to complete (100%) roof replacements for Risk Category IV structures where the ultimate design wind speed exceeds 150 mph. The proponents of this proposal felt that the Massachusetts changes were a bit too extreme.

Proposed text change, addition or deletion (attach additional information as needed):

Roof diaphragms resisting wind loads in high-wind regions. Where the intended alteration requires a permit for reroofing and involves removal of roofing materials from more than 50 percent of the roof diaphragm of a building or section of a building located where the ultimate design wind speed is greater than 115 mph (51 m/s) in accordance with Figure 1609.3(1) of the International Building Code or in a special wind region as defined in Section 1609 of the International Building Code, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to-wall connections shall be evaluated for the wind loads specified in Section 1609 of the International Building Code, including wind uplift. If the diaphragms and connections in their current condition are not capable of resisting 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in Section 1609 of the International Building Code.

Exceptions:

1. Buildings or structures assigned to Risk Categories I or II.
2. Risk Category III buildings and structures, except health care facilities.

Supporting data and documents (attach additional information as needed):

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DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IRC Chapter 2, Section R202.1**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.comAddress: 500 Purdy Hill RoadMonroeCT06468*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

Significant confusion has arisen in hurricane-prone regions in trying to determine windborne debris regions because the term "coastal mean high waterline" is not a mapped or defined term. Due to this lack of definition, some jurisdictions have incorrectly interpreted areas within 1 mile of the mean high waterline along narrow inland tidal waterways to be in windborne debris regions. The primary intent behind paragraph No. 1, is that within one mile of the coast, hurricane wind speeds will be governed by the wind speed over the open water, i.e. an Exposure Category D rather than an inland Exposure Category C situation on which the basic wind speed and paragraph No. 2 are based. This CCP clarifies that the waterline has to be classified as an Exposure D in order for paragraph No. 1 to apply. It also deletes the word "coastal" since wind speed increases could occur at large inland waterways in hurricane-prone regions as well. Also, NOAA maintains a database of the "mean high waterline" values in the US, which can be used in conjunction with this definition.

Proposed text change, addition or deletion (attach additional information as needed):

Delete Existing amendment and replace with the following amended version of IRC 2018:

WINDBORNE DEBRIS REGION. Areas within hurricane-prone regions located in accordance with one of the following:

1. Within 1 mile (1.61 km) of the ~~coastal~~ mean high-water line where an Exposure D condition exists upwind at the waterline and the ultimate design wind speed, V_{ult} , is 130 mph (58 m/s) or greater; or
2. In areas where the ultimate design wind speed, V_{ult} , is 140 mph (63.6 m/s) or greater; ~~or Hawaii.~~

Supporting data and documents (attach additional information as needed):

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[NCSEA Code Change Proposal to 2021 IRC](#)

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[Thomas A. DiBlasi](#)

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DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IRC Chapter 3, Section R301.1.3**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.comAddress: 500 Purdy Hill RoadMonroeCT06468*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

Building Departments in the Connecticut do not have structural engineers on staff. If a component of a structure is outside the bounds of the prescriptive requirements the IRC, most Building Officials lack the expertise to assess non-prescriptive structural designs. This would allow them to require that the design of such non-prescriptive components be certified by a registered design professional. It should be emphasized that this certification is limited to the non-prescriptive components only; it is not requiring that the design of the entire structure be certified by a registered design professional.

Proposed text change, addition or deletion (attach additional information as needed):

Engineered design. Where a building of otherwise conventional construction contains structural elements exceeding the limits of Section R301 or otherwise not conforming to this code, these elements shall be designed in accordance with accepted engineering practice. The extent of such design need only demonstrate compliance of nonconventional elements with other applicable provisions and shall be compatible with the performance of the conventional framed system. Engineered design in accordance with the International Building Code is permitted for buildings and structures, and parts thereof, included in the scope of this code. Engineered design shall be certified by a registered design professional.

Supporting data and documents (attach additional information as needed):

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DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**

DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IRC Chapter 4, Section R404.4**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.comAddress: 500 Purdy Hill RoadMonroeCT06468*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

Section 404.1.3.2.2, which pertains to foundation walls that support buildings, specifically references this section. As such, the last sentence makes no sense. ICC acknowledges this is a problem; however, it is not a simple errata correction on their end. See attached email from ICC.

Proposed text change, addition or deletion (attach additional information as needed):

Retaining walls. Retaining walls that are not laterally supported at the top and that retain in excess of 48 inches (1219 mm) of unbalanced fill, or retaining walls exceeding 24 inches (610 mm) in height that resist lateral loads in addition to soil, shall be designed in accordance with accepted engineering practice to ensure stability against overturning, sliding, excessive foundation pressure and water uplift. Retaining walls shall be designed for a safety factor of 1.5 against lateral sliding and overturning. ~~This section shall not apply to foundation walls supporting buildings.~~

Supporting data and documents (attach additional information as needed):

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12/29/16

Thomas DiBlasi

From: Kimberly Paarlberg <kpaarlberg@iccsafe.org>
Sent: Friday, March 29, 2019 4:47 PM
To: Thomas DiBlasi
Cc: Allan Bilka; Lawrence Novak
Subject: RE: IRC Possible Errata

Follow Up Flag: Follow up
Flag Status: Completed

Tom,

Thanks for pointing this out to us. We will post an errata to the 2015 and 2018 IRC for the reference to Section R404.1.3.2.2 to reference R404.1.1. However, while the reference to Section R404.4 may not be needed, we cannot take that out as an errata since the section still exists. I will talk to our manager to see what our options are short of a code change to remove that reference.

Best regards,

Kimberly Paarlberg, RA
International Code Council
Codes and Standards, Senior Staff Architect
5332 Woodfield Drive, Carmel, IN
888-422-7233, Ext. 4306

From: Lawrence Novak
Sent: Wednesday, March 20, 2019 2:13 PM
To: Allan Bilka; Kimberly Paarlberg
Subject: FW: IRC Possible Errata

Allan and Kim,

Tom DiBlasi was at the IAC meeting on Tuesday and he mentioned the possible errata for the IRC noted in the email below.

What are your thoughts?

Best Regards

Larry Novak

Lawrence C. Novak, SE, F.SEI, CERT, LEED AP
Chief Structural Engineer
Codes and Standards Development
International Code Council
Cell: 312-513-7504

Direct: 888-ICC-SAFE (422-7233) Ext. 4405

LNovak@iccsafe.org



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From: Thomas DiBlasi <tomd@dibiasi-engrs.com>

Sent: Wednesday, March 20, 2019 12:40 PM

To: Lawrence Novak <lnovak@ICCSafe.ORG>

Subject: IRC Possible Errata

Larry:

It was good to see you yesterday.

As I had mentioned, I came upon an issue in the 2015 IRC that I suspect was an error; this has been carried through to the 2018 IRC. I had submitted the errata form (see below) but never received any feedback. As nothing had been published in the errata, I was not sure if my interpretation was incorrect or if this slipped through the cracks. As it is difficult sometimes to follow the typed description in the errata form, I have attached a table with some commentary expressing my concerns.

If you could pass this on to the appropriate party, that would be much appreciated.

Best regards,

Tom

Thomas A. DiBlasi, PE*, SECB

DiBlasi Associates, P.C.

500 Purdy Hill Road

Monroe Connecticut 06468-1661

(203) 452-1331 x108 FAX (203) 268-8103

Cell (203) 988-2523

* Licensed Professional Engineer

in CT, FL, MA, MD, ME, MS, NC,

NH, NJ, NY, PA, RI, VA, and VT

From: ICC <websupport@iccsafe.org>

Sent: Tuesday, April 17, 2018 12:36 PM

To: Thomas DiBlasi <tomd@dibiasi-engrs.com>

Subject: ICC Confirmation:



Hi Thomas A. DiBlasi, Your request has been received. We will get back to you soon.

Details:

Category

2015 International Codes

Code Group

International Residential Code

Code Edition

2015

Chapter

Chapter 4

Section/Table/Figure

R404.1.3.2.2; R404.4

Errata Description

R404.1.3.2.2 - Subparagraph 1: The last sentence in this subparagraph references design per Sections R404.1.4 and R404.4.

1. I believe R404.1.1 (Design Required) should be referenced instead of R404.1.4. This would coincide with the 2012 IRC; the Design Required section was moved in the 2015 IRC. Section R404.1.4 pertains only to Seismic Design Category D.

2. A sentence was added to Section R404.4 indicating, "This section shall not apply to foundation walls supporting buildings." As Section R404.1.3.2.2 pertains to concrete stem walls supporting light frame construction, what is the point of referencing a section that states that it is not applicable to such walls?

Full Name

Thomas A. DiBlasi

Email

TomD@DiBlasi-Engrs.com

Company/Jurisdiction

DiBlasi Associates, P.C.

Phone #

2034521331

Address

500 Purdy Hill Road

City

Monroe

State

Connecticut

Zip

06468

If you have any questions, please contact:

Renee Testroet

International Code Council

Central Regional Office

4051 Flossmoor Road



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/29/2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): IRC Chapter 4, Section R404.6.1**PROPONENT INFORMATION**Name: Thomas A. DiBlasiRepresenting: ACEC/CT Structural Engineers CoalitionTelephone: 203-452-1331 x108Email: TomD@DiBlasi-Engrs.com
 Address: 500 Purdy Hill Road Monroe CT 06468
Street Address Town State Zip Code
PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

Deep foundations require inspections that are outside the expertise of the typical Building Official. As they need to be designed per the requirements of the IBC, they should likewise be inspected per the requirements of the IBC.

Proposed text change, addition or deletion (attach additional information as needed):

Special inspections of deep foundations shall be performed in accordance with Sections 1705.7 through 1705.9, as applicable, of the 2018 International Building Code portion of the 2020 Connecticut State Building Code.

Supporting data and documents (attach additional information as needed):

- This Proposal is original material.** (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)
- This Comment is not original material, its source (if known) is as follows:** (such as material / code development proposal from a prior development cycle or proposal submitted to model code committee etc.)
-
- I would like to make an in-person presentation of my proposal.**

Release:

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Proponent's Signature

Thomas A. DiBlasi
Printed Name

PLEASE EMAIL (PREFERRED) TO DAS.CodesStandards@CT.GOV OR MAIL OR FAX (SEE BELOW)
 Department of Administrative Services

Office of the State Building Inspector
450 Columbus Boulevard, Suite 1303
Hartford, CT 06103
Tel: 860-713-5900 Fax: 860-713-7410
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DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/29/19**CODE INFORMATION**

Proposed change to: Building Code Fire Safety Code
Code section(s): 107 - Inspections

PROPONENT INFORMATION

Name: Michael Muszynski Representing: CT Conference of Municipalities
Telephone: 203-500-7556 Email: mmuszynski@ccm-ct.org
Address: 545 Long Wharf Drive New Haven CT 06511
Street Address Town State Zip Code

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

Amend local fire marshal inspection frequency (see attached for more information)

Proposed text change, addition or deletion (attach additional information as needed):

Supporting data and documents (attach additional information as needed)

This Proposal is original material. (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)

This Comment is not original material, its source (if known) is as follows: (such as material / code development proposal from a prior development cycle or proposal submitted to model code committee etc.)

I would like to make an in-person presentation of my proposal.

Release

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Proponent's Signature

Michael Muszynski
Printed Name

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Office of the State Building Inspector
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The Connecticut Conference of Municipalities (CCM) is Connecticut's statewide association of towns and cities and the voice of local government - your partners in governing Connecticut. Our members represent 100% of Connecticut's population.

CCM encourages the Codes and Standards Committee to review and make reasonable changings to the State Fire Code in providing relief to local fire marshals by amending the frequency rate in which local fire marshal conduct their inspections.

Rationale: Fire marshals throughout the state, predominately in the bigger cities, are burdened with inspections on an annual basis. These officials are often asked to do more with less as municipal aid continues to be uncertain. A thorough review and change should occur that would enable local fire marshals the flexibility to inspect residential and other dwellings based on building type, occupancy and fire suppression capability. The suggested change would reduce administrative burdens and liability risks for municipalities.



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: April 30, 2019**CODE INFORMATION**

Proposed change to: Building Code Fire Safety Code
 Code section(s): Residential: New Section Proposed in Chapter 3
Commercial: New Section Proposed in Chapter 4

PROPONENT INFORMATION

Name: Emily Lewis O'Brien Representing: CT EV Coalition, Acadia Ctr
 Telephone: 860-246-7121 x207 Email: elewis@acadiacenter.org
 Address: 21 Oak Street, Suite 202 Hartford CT 06420
Street Address Town State Zip Code

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

See attached

Proposed text change, addition or deletion (attach additional information as needed):

See attached for additions to Residential and Commercial codes.

Supporting data and documents (attach additional information as needed)

See attached

- This Proposal is original material.** (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)
- This Comment is not original material, its source (if known) is as follows:** (such as material / code development proposal from a prior development cycle or proposal submitted to model code committee etc.)
See attached for EV Ready Code requirements from around the U.S.
- I would like to make an in-person presentation of my proposal.**

Release

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Emily Lewis O'Brien
 Proponent's Signature

Emily Lewis O'Brien
 Printed Name

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EV-Ready Building Code Amendments

Supporting Information

April 30, 2019

Description of Change:

Pursuant to Conn. Gen. Stat. Sec. 29-252(a), this proposed change would require electric circuits capable of supporting electric vehicle charging in any newly constructed residential garage.

Proposed Text Change:

The proposed changes are additions to the 2018 International Residential Code and Commercial Provisions of the International Energy Conservation Code portion of the 2018 State Building Code.

Residential

SECTION R327. ELECTRIC VEHICLE CHARGING

R327.1 Electric vehicle charging. *In addition to the one 125-volt receptacle outlet required for each car space by NEC Section 210.52(G)(1.), every new garage or carport that is accessory to a one- or two-family dwelling or townhouse shall include at least one of the following for each dwelling unit, installed in accordance with the requirements of Article 625 of the Electrical Code:*

1. *A Level 2 (240-volt, 40 ampere) electric vehicle charging receptacle outlet, or*
2. *Upgraded wiring to accommodate the future installation of a Level 2 (240-volt, 40 ampere) electric vehicle charging receptacle outlet¹*

Commercial

Add new definitions as follows:

Electric Vehicle Supply Equipment (EVSE). *The conductors, including the ungrounded, grounded, and equipment grounding conductors, and the Electric Vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the Electric Vehicle.*

EV Capable Space. *Electrical panel capacity and space to support a minimum 40-ampere, 208/240-volt branch circuit for each EV parking space, and the installation of raceways, both*

¹ Based on [Electric Vehicle Charging Requirements and Boulder County Building Codes](#) (Colorado). Additional examples of model EV Ready language are included in Appendix A.

underground and surface mounted, to support the EVSE. EV Ready Space. A designated parking space which is provided with one 40-ampere, 208/240-volt dedicated branch circuit for EVSE servicing Electric Vehicles. The circuit shall terminate in a suitable termination point such as a receptacle, junction box, or an EVSE, and be located in close proximity to the proposed location of the EV parking spaces.

Add new text as follows:

C405.10. Electric Vehicle (EV) charging for new construction. New construction shall facilitate future installation and use of Electric Vehicle Supply Equipment (EVSE) in accordance with the National Electrical Code (NFPA 70).

C405.10.1. New commercial buildings. EV Ready Spaces and EV Capable Spaces shall be provided in accordance with Table C405.10.2. When the calculation of percent served results in a fractional parking space, the applicant shall round up to the next whole number. The service panel or sub panel circuit directory shall identify the space(s) reserved to support EV charging as “EV Capable” or “EV Ready”. The raceway location shall be permanently and visibly marked as “EV Capable”.

Table C405.10.1. EV Ready Space and EV Capable Space Requirements

Total Number of Parking Spaces	Minimum Number of EV Ready Spaces	Minimum Number of EV Capable Spaces
1	1	-
2-10	2	-
11-15	2	3
16-19	2	4
21-25	2	5
26+	2	20% of all parking spaces

C405.10.2. Identification. Construction documents shall indicate the raceway termination point and proposed location of future EV spaces and EV chargers. Construction documents shall also provide information on amperage of future EVSE, raceway method(s), wiring schematics and electrical load calculations to verify that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EV spaces at the full rated amperage of the EVSE.

Supporting Documentation:

EV drivers “charge where they park,” with over 90% of EV charging taking place at home and at workplaces, with the remaining 10% at a variety of commercial locations.² Connecticut needs a cost-effective way to prepare for this new paradigm and to meet its commitment to deploy 155,000 EVs by 2025.

“EV Ready” requirements will make it cheaper and easier to drive and ride electric in Connecticut. Including “EV Ready” requirements in the state building code will save money for property owners and future-proof Connecticut businesses, workplaces, retail properties, and homes. The costs to install EV charging stations at an EV Ready parking spot are much lower than if the parking spot needs to be retrofitted. Several studies estimate that installing EV Ready parking spaces at the time of construction can be 75% less expensive than post-construction installations.³

The Connecticut General Assembly recognized the importance of EV-Ready building codes in 2013 when it passed Public Act 13-298. This Act specified that any updates to the Connecticut building code made after July 8, 2013 would include “provisions for electric circuits capable of supporting electric vehicle charging in any newly constructed residential garage” (see full text in Appendix B). The Department of Administrative Services did not comply with this law when new codes were published in October 2016 and October 2018; EV-Ready provisions were not included. It is critical for the 2020 update that EV-Ready building codes are adopted to comply with P.A. 13-298. This important step will remove a barrier to EV adoption and thus help the state to reach its climate and transportation commitments.

Transportation currently accounts for about 40% of Connecticut’s greenhouse gas (GHG) emissions, and is the largest single source of other air pollutants in the country, imposing a major barrier to improving Connecticut’s air quality.⁴ Helping CT residents, especially those residents most-impacted by pollution, transition to cars and public transit that do not rely on dirty fuels is critical to stopping further damage to the climate and creating healthier communities. In Connecticut, electric vehicles (EVs) reduce greenhouse gas emissions about

² See e.g. presentation from Idaho National Labs:

<https://avt.inl.gov/sites/default/files/pdf/EVProj/WorkplaceChargingApril2015SAEWC.pdf>

³ Pike, E. et al. “Driving Plug-in Electric Vehicle Adoption with Green Building Codes,” 2018 ACEEE Summer Study on Energy Efficiency in

Buildings: [https://aceee.org/files/proceedings/2018/node_modules/pdfjs-dist-viewermin/build/minified/web/viewer.html?file=../../../../../assets/attachments/0194_0286_000432.pdf#search="pike"](https://aceee.org/files/proceedings/2018/node_modules/pdfjs-dist-viewermin/build/minified/web/viewer.html?file=../../../../../assets/attachments/0194_0286_000432.pdf#search=)

⁴ For GHG emissions data by sector for Connecticut, see U.S. EIA data available online:

<https://www.eia.gov/environment/emissions/state/>.

Connecticut must reduce GHG emissions to levels set in law; targets exist for 2020, 2030, and 2050. See Conn. Gen. Stat. §22a-200a.

75% compared to gasoline vehicles.⁵ The American Lung Association estimates that shifting to zero emission vehicles, including EVs, will save Connecticut \$1.3 billion in health and climate savings, including reducing premature deaths, heart attacks, and lost work days.⁶ The transition to electric vehicles will also create economic development opportunities for the state.⁷

But Connecticut has a long way to go before coming close to putting the approximately 500,000 zero emission vehicles on the road by 2030 needed in order to meet the mandate in Public Act 18-80 to reduce economy-wide GHG-emissions 45% from 2001 levels by 2030.⁸ As emphasized by the Northeast States for Coordinated Air Use Management (NESCAUM), “[r]equiring new construction to be EV[]-ready is a proactive measure states can take that can have far-reaching long-term positive impacts on growth of the EV market.⁹

Proponents of the Amendment:

Emily Lewis O’Brien
Policy Analyst
Acadia Center

Pete O’Connor
Policy Specialist
Plug In America

Leah Schmalz
Chief Program Officer
Connecticut Fund for the Environment

Peter Millman
Eastern CT Green Action

Sam Dynowski
State Director
Sierra Club – Connecticut Chapter

John Humphries
Executive Director
CT Round Table on Climate and Jobs

Kevin George Miller
Director, Public Policy
ChargePoint

Bruce Becker
EV Club of Connecticut

⁵ See Acadia Center’s EnergyVision 2030 analysis: 2030.acadiacenter.org/transportation/

⁶American Lung Association, *Clean Air Future: Health and Climate Benefits of Zero Emission Vehicles* (Oct. 2016), available at <http://www.lung.org/local-content/california/documents/2016zeroemissions.pdf>.

⁷A study of economic impacts of EV deployment in California, for example, showed that zero emission vehicles (ZEVs) are a catalyst for growth. In California alone, the ZEV market will create 100,000 additional jobs across all economic sectors by 2030. See David Roland-Holst, University of California Berkeley, *Plug-in Electric Vehicle Deployment in California, An Economic Assessment* (Sept. 2012), available at https://are.berkeley.edu/~dwrh/CERES_Web/Docs/ETC_PEV_RH_Final120920.pdf. Similar modeling should be done in Connecticut.

⁸ Governor’s Council on Climate Change, *Building a Low Carbon Future for Connecticut: Achieving a 45% GHG Reduction by 2030* (released Dec. 18, 2018), at 28, available at

https://www.ct.gov/deep/lib/deep/climatechange/publications/building_a_low_carbon_future_for_ct_gc3_recommendations.pdf

⁹NESCAUM, *Northeast Corridor Regional Strategy for Electric Vehicle Charging Infrastructure, 2018-2021*, available at <http://www.nescaum.org/documents/northeast-regional-charging-strategy-2018.pdf/view>.

For more information:

Emily Lewis, Senior Policy Analyst, Acadia Center, elewis@acadiacenter.org, 860-246-7121 x207

Melissa Schlag, Connecticut Fund for the Environment/Save the Sound, mschlag@ctenvironment.org, 860-398-0569

Appendix A



North America EV Ready Building Codes

Sample of EV Ready Building Codes

State/city	Multi-family	Nonresidential	Single Family	EVSE Installation Requirements
Atlanta, GA	20% of parking spaces must be EV ready	20% of parking spaces must be EV ready	yes, 40 amp 240 Volt	NA
State-wide Mandatory CALGreen	panel capacity & installation of inaccessible raceways required at 3% of parking spaces (plus conduit if only one space) - MF dwellings with 16 or less units exempt	panel capacity and conduit at 4% of spaces required for buildings with 10 or more parking spaces	panel capacity & conduit for one parking space at SF/dual family housing	NA
State-wide Voluntary CALGreen	same as mandatory, but percentage increased to 6%	8% (Tier 1) or 10% (Tier 2) with an applicability threshold as low as one parking space	install complete EV charging circuit	NA
San Francisco, CA	10% of spaces have full circuit, additional 10% of spaces have panel capacity, inaccessible conduit required for all spaces without a full circuit	10% of spaces have full circuit, additional 10% of spaces have panel capacity & inaccessible conduit	NA	NA
Oakland, CA	10% of spaces have full circuit, additional 10% of spaces have panel capacity, inaccessible conduit required for all spaces without a full circuit	10% of spaces have full circuit, additional 10% of spaces have panel capacity & inaccessible conduit	panel capacity & conduit for one parking space at SF/dual family housing	NA
New York, NY	enclosed lots must install 1-inch raceway sufficient to serve 20% of parking spaces and must provide room to install panel 3.1 kW electrical panel capacity for each space; open lots must have 3.1 kW electrical panel capacity and 1 inch raceway/ capacity for 11.5 kVA sufficient to serve 20% of parking spaces		NA	NA
Boulder, CO	10% of spaces must have 120 V and 240V EV charging circuits for buildings with more than 25 parking spaces	120 V and 240V EV charging circuits for 10% of spaces at buildings with more than 25 parking spaces	240 V AND 120 V EV charging circuit and outlet for SF homes and townhouses (new homes and garage conversions to living space)	at least two spaces with dual port charger for new multi-family and commercial buildings with >25 parking spaces; also R-1 and R-2 buildings must have EVSE at 1% of spaces and at least 2
Ontario, Canada	under consideration	20% full circuits; remaining spaces must be designed to support EVSE installation	200 amp minimum main panel capacity, empty conduit, outlet box	20% of spaces in non-residential buildings must have EVSE
Vancouver, Canada	40 amp electric circuit for 20% of spaces, space in electrical room to install panel capacity to serve all parking spaces	40 amp electric circuit for 10% of spaces	40 amp electric circuit, or conduit only if circuit would cause panel to exceed 200 amp	NA
Palo Alto, CA	one full circuit per unit, 25% of guest spaces	25% conduit only or EVSE ready	full circuit, or 50 amps panel capacity and conduit (increased)	5% of spaces for non-residential and MF guest parking

© 2018 ChargePoint, Inc. | EV Ready Buildings

Appendix B

Sec. 29-252. (Formerly Sec. 19-395). State Building Code: Adoption, revision and amendments. State Building Inspector: Appointment; interpretations of code.

Appeal. (a) As used in this subsection, “geotechnical” means any geological condition, such as soil and subsurface soil condition, which may affect the structural characteristics of a building

or structure. The State Building Inspector and the Codes and Standards Committee shall, jointly, with the approval of the Commissioner of Administrative Services, adopt and administer a State Building Code based on a nationally recognized model building code for the purpose of regulating the design, construction and use of buildings or structures to be erected and the alteration of buildings or structures already erected and make such amendments thereto as they, from time to time, deem necessary or desirable. Such amendments shall be limited to administrative matters, geotechnical and weather-related portions of said code, amendments to said code necessitated by a provision of the general statutes and any other matter which, based on substantial evidence, necessitates an amendment to said code. The code shall be revised not later than January 1, 2005, and thereafter as deemed necessary to incorporate any subsequent revisions to the code not later than eighteen months following the date of first publication of such subsequent revisions to the code. The purpose of said Building Code shall also include, but not be limited to, promoting and ensuring that such buildings and structures are designed and constructed in such a manner as to conserve energy and, wherever practicable, facilitate the use of renewable energy resources, including provisions for electric circuits capable of supporting electric vehicle charging in any newly constructed residential garage in any code adopted after July 8, 2013. Said Building Code includes any code, rule or regulation incorporated therein by reference.



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: April 29, 2019**CODE INFORMATION**

Proposed change to: Building Code Fire Safety Code
 Code section(s): NFPA 96 complete vs IMC - Sections 506-509 Commercial Hoods
NFPA 96 complete vs IBC ch 28 / IMC Sec 506-509 Hoods

PROPONENT INFORMATION

Name: Janet Morgan FM/Gary Testa BO Representing: Town of Woodbury FM/BO
 Telephone: 203.263.3120 Email: Jmorgan@woodburyct.org
 Address: 25 Quassuk Road Woodbury CT 06798
Street Address Town State Zip Code

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

We are requesting the State Fire/ Building Code use NFPA 96 for commercial (see attached)

Proposed text change, addition or deletion (attach additional information as needed):

Supporting data and documents (attach additional information as needed)

See attached

- This Proposal is original material.** (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)
- This Comment is not original material, its source (if known) is as follows:** (such as material / code development proposal from a prior development cycle or proposal submitted to model code committee etc.)
- I would like to make an in-person presentation of my proposal.**

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 Proponent's Signature

 Janet Morgan / Gary Testa
 Printed Name
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Department of Administrative Services
 Office of the State Building Inspector
 450 Columbus Boulevard, Suite 1303
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 Tel: 860-713-5900 Fax: 860-713-7410
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We are requesting the State Fire/ Building Code use NFPA 96 for Ventilation Control and Fire Protection of Commercial Cooking Operations vs the IMC.

There are several key areas that would make the use of this code safer for all parties.

- NFPA 96 deals with clearance reductions, in detail that assists with proper installations, much better than the IMC.
- NFPA 96 deals clearly with clearance integrity
- NFPA 96 is a much clearer, concise and detailed document when dealing with hood all aspects of hoods.
- Both building and fire codes integrated together so we both follow the same code requirements it would be much easier if we followed NFPA 96 on hoods from installation right through to yearly inspections and maintenance.

Thank you for your consideration.

April 27, 2019

Joseph Cassidy, PE
State Building Inspector
DAS Construction Services
Office of the State Building Inspector
450 Columbus Boulevard, Suite 1303
Hartford, CT, 06103

Dear Mr. Cassidy,

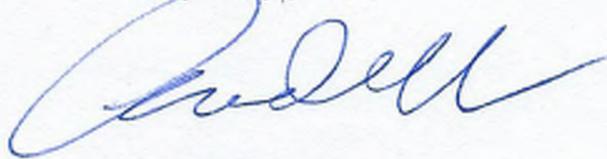
I am writing in support of the Codes and Standards Code Adoption Subcommittee's review concerning the reinstatement of the additional swing-down grab bar in all accessible public bathrooms, as part of the proposed 2020 CT State Building Code.

For 15 years, my wife has been paralyzed on her right side from a stroke. Confined to a wheelchair, she relies on grab bars in public bathrooms to assist her in rising from her chair, pivoting on her good left leg and sitting down on the water closet. When the water closet is in the right-hand corner of the bathroom, she uses the 42" side wall grab bar to help her stand, pivot to her right and sit down. However, when the water closet is in the left-hand corner, the side wall grab bar is of no use to her because she cannot pivot to her left to sit down. In the past, when using public bathrooms built prior to the adoption of the 2016 CSBC, and containing a swing-down grab bar, she could use a water closet in either corner.

Back in the 90's when Stan Koslowski and the folks at the Office of Protection and Advocacy proposed the swing down grab bar, they opined that although only 20% of the population had some kind of disability, 5% of that 20% were confined to wheel chairs, and some percentage of them could benefit from having grab bars on both sides of the water closet. Granted it is not a large population, but the swing down grab bar is needed just as much today as it was back then, maybe even more so with the aging of the baby boomers.

My wife and I greatly appreciate the consideration the subcommittee is giving to this issue, and I'm sure there are and will be many more people who will benefit from the reinstatement of the swing down grab bar.

Very truly yours,



Andrew Rizzo



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: 4/24/19**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): R310.1 Emergency escape and rescue openings required**PROPONENT INFORMATION**Name: William Ferrigno

Representing: _____

Telephone: 860-677-7040Email: bill@sunlightconstruction.comAddress: P.O. Box 748AvonCT06001

Street Address

Town

State

Zip Code

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

Revert back to 2016 SBC that require emergency openiongs where there are habitable spaces

Proposed text change, addition or deletion (attach additional information as needed):

attached

Supporting data and documents (attach additional information as needed)

attached

- This Proposal is original material.** (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)
- This Comment is not original material, its source (if known) is as follows:** (such as material / code development proposal from a prior development cycle or proposal submitted to model code committee etc.)
- I would like to make an in-person presentation of my proposal.**

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Proponent's Signature

William Ferrigno

Printed Name

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Department of Administrative Services
Office of the State Building Inspector
450 Columbus Boulevard, Suite 1303
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12/29/16

Sunlight

Construction Inc.

P.O. Box 748
Avon, Connecticut 06001

v: 860.677.7040

f: 860.677.2837

www.sunlightconstruction.com



via email

April 30, 2019

Mr. Joseph Cassidy, State Building Inspector

Dear Joe:

Please consider this letter as additional information in support of the request to change the building code and revert back to the condition that emergency openings in basements be required only in cases where habitable space is being finished in a basement.

There are numerous reasons why hatchways, or other emergency egress systems are problematic. First, there are a number of homeowners who view hatchways as a security threat. In my business, I have had many customers specifically request that their home be built without a hatchway, or other basement egress, specifically to avoid an additional point of entry into their home.

Additionally, it is very difficult to design added penetrations to the basement of a building on narrow lots, given the proximity of other features, such as patios, air conditioners, etc. It is also difficult to maintain correct drainage around a hatchway, given the close proximity of other structures.

Finally, not to be overlooked, is the financial burden that is placed on the buyer of the property. Affordability of a home is a constant struggle, especially in Connecticut. A buyer should not be compelled to spend the additional \$3,000-\$5,000 that is the cost associated with these assemblies.

Thank you for your consideration of this request.

Very truly yours,

William A. Ferrigno

R310.1.1 Minimum opening area. All emergency escape and rescue openings shall have a minimum net clear opening of 5.7 square feet (0.530 m²).

Exception: *Grade* floor openings shall have a minimum net clear opening of 5 square feet (0.465 m²).

R310.1.2 Minimum opening height. The minimum net clear opening height shall be 24 inches (610 mm).

R310.1.3 Minimum opening width. The minimum net clear opening width shall be 20 inches (508 mm).

R310.1.4 Operational constraints. Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys, tools or special knowledge.

R310.2 Window wells. The minimum horizontal area of the window well shall be 9 square feet (0.9 m²), with a minimum horizontal projection and width of 36 inches (914 mm). The area of the window well shall allow the emergency escape and rescue opening to be fully opened.

Exception: The ladder or steps required by Section R310.2.1 shall be permitted to encroach a maximum of 6 inches (152 mm) into the required dimensions of the window well.

R310.2.1 Ladder and steps. Window wells with a vertical depth greater than 44 inches (1118 mm) shall be equipped with a permanently affixed ladder or steps usable with the window in the fully open position. Ladders or steps required by this section shall not be required to comply with Sections R311.7 and R311.8. Ladders or rungs shall have an inside width of at least 12 inches (305 mm), shall project at least 3 inches (76 mm) from the wall and shall be spaced not more than 18 inches (457 mm) on center vertically for the full height of the window well.

R310.2.2 Drainage. Window wells shall be designed for proper drainage by connecting to the building's foundation drainage system required by Section R405.1 or by an approved alternative method.

Exception: A drainage system for window wells is not required when the foundation is on well-drained soil or sand-gravel mixture soils according to the United Soil Classification System, Group I Soils, as detailed in Table R405.1.

R310.3 Bulkhead enclosures. Bulkhead enclosures shall provide direct access to the *basement*. The bulkhead enclosure with the door panels in the fully open position shall provide the minimum net clear opening required by Section R310.1.1. Bulkhead enclosures shall also comply with Section R311.7.8.2.

R310.4 Bars, grilles, covers and screens. Bars, grilles, covers, screens or similar devices are permitted to be placed over emergency escape and rescue openings, bulkhead enclosures, or window wells that serve such openings, provided the minimum net clear opening size complies with Sections R310.1.1 to R310.1.3, and such devices shall be releasable or removable from the inside without the use of a key, tool, special knowledge or force greater than that which is required for normal operation of the escape and rescue opening.

R310.5 Emergency escape windows under decks and porches. Emergency escape windows are allowed to be installed under decks and porches provided the location of the deck allows the emergency escape window to be fully opened and provides a path not less than 36 inches (914 mm) in height to a *yard* or court.

SECTION R311 MEANS OF EGRESS

R311.1 Means of egress. All *dwellings* shall be provided with a means of egress as provided in this section. The means of egress shall provide a continuous and unobstructed path of vertical and horizontal egress travel from all portions of the *dwelling* to the exterior of the *dwelling* at the required egress door without requiring travel through a garage.

R311.2 Egress door. At least one egress door shall be provided for each *dwelling* unit. The egress door shall be side-hinged, and shall provide a minimum clear width of 32 inches (813 mm) when measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). The minimum clear height of the door opening shall not be less than 78 inches (1981 mm) in height measured from the top of the threshold to the bottom of the stop. Other doors shall not be required to comply with these minimum dimensions. Egress doors shall be readily openable from inside the *dwelling* without the use of a key or special knowledge or effort.

R311.3 Floors and landings at exterior doors. There shall be a landing or floor on each side of each exterior door. The width of each landing shall not be less than the door served. Every landing shall have a minimum dimension of 36 inches (914 mm) measured in the direction of travel. Exterior landings shall be permitted to have a slope not to exceed 1/4 unit vertical in 12 units horizontal (2-percent).

Exception: Exterior balconies less than 60 square feet (5.6 m²) and only accessible from a door are permitted to have a landing less than 36 inches (914 mm) measured in the direction of travel.

R311.3.1 Floor elevations at the required egress doors. Landings or finished floors at the required egress door shall not be more than 1 1/2 inches (38 mm) lower than the top of the threshold.

Exception: The landing or floor on the exterior side shall not be more than 7/8 inches (196 mm) below the top of the threshold provided the door does not swing over the landing or floor.

Where exterior landings or floors serving the required egress door are not at *grade*, they shall be provided with access to *grade* by means of a ramp in accordance with Section R311.8 or a stairway in accordance with Section R311.7.

R311.3.2 Floor elevations for other exterior doors. Doors other than the required egress door shall be provided with landings or floors not more than 7/8 inches (196 mm) below the top of the threshold.

Exception: A landing is not required where a stairway of two or fewer risers is located on the exterior side of

BUILDING PLANNING

R308.6.4 Screens with multiple glazing. When the inboard pane is fully tempered, heat-strengthened or wired glass, a retaining screen meeting the requirements of Section R308.6.7 shall be installed below the glass, except for either condition listed in Section R308.6.5. All other panes in the multiple glazing may be of any type listed in Section R308.6.2.

R308.6.5 Screens not required. Screens shall not be required when fully tempered glass is used as single glazing or the inboard pane in multiple glazing and either of the following conditions are met:

1. Glass area 16 square feet (1.49 m²) or less. Highest point of glass not more than 12 feet (3658 mm) above a walking surface or other accessible area, nominal glass thickness not more than $\frac{3}{16}$ inch (4.8 mm), and (for multiple glazing only) the other pane or panes fully tempered, laminated or wired glass.
2. Glass area greater than 16 square feet (1.49 m²). Glass sloped 30 degrees (0.52 rad) or less from vertical, and highest point of glass not more than 10 feet (3048 mm) above a walking surface or other accessible area.

R308.6.6 Glass in greenhouses. Any glazing material is permitted to be installed without screening in the sloped areas of greenhouses, provided the greenhouse height at the ridge does not exceed 20 feet (6096 mm) above *grade*.

R308.6.7 Screen characteristics. The screen and its fastenings shall be capable of supporting twice the weight of the glazing, be firmly and substantially fastened to the framing members, and have a mesh opening of no more than 1 inch by 1 inch (25 mm by 25 mm).

R308.6.8 Curbs for skylights. All unit skylights installed in a roof with a pitch flatter than three units vertical in 12 units horizontal (25-percent slope) shall be mounted on a curb extending at least 4 inches (102 mm) above the plane of the roof unless otherwise specified in the manufacturer's installation instructions.

R308.6.9 Testing and labeling. Unit skylights and tubular daylighting devices shall be tested by an *approved* independent laboratory, and bear a *label* identifying manufacturer, performance *grade* rating and *approved* inspection agency to indicate compliance with the requirements of AAMA/WDMA/CSA 101/I.S.2/A440.

SECTION R309 GARAGES AND CARPORTS

R309.1 Floor surface. Garage floor surfaces shall be of *approved* noncombustible material.

The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.

R309.2 Carports. Carports shall be open on at least two sides. Carport floor surfaces shall be of *approved* noncombustible material. Carports not open on at least two sides shall

be considered a garage and shall comply with the provisions of this section for garages.

Exception: Asphalt surfaces shall be permitted at ground level in carports.

The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.

R309.3 Flood hazard areas. For buildings located in flood hazard areas as established by Table R301.2(1), garage floors shall be:

1. Elevated to or above the design flood elevation as determined in Section R322; or
2. Located below the design flood elevation provided they are at or above *grade* on at least one side, are used solely for parking, building access or storage, meet the requirements of Section R322 and are otherwise constructed in accordance with this code.

R309.4 Automatic garage door openers. Automatic garage door openers, if provided, shall be listed and labeled in accordance with UL 325.

R309.5 Fire sprinklers. Private garages shall be protected by fire sprinklers where the garage wall has been designed based on Table R302.1(2), Footnote a. Sprinklers in garages shall be connected to an automatic sprinkler system that complies with Section P2904. Garage sprinklers shall be residential sprinklers or quick-response sprinklers, designed to provide a density of 0.05 gpm/ft². Garage doors shall not be considered obstructions with respect to sprinkler placement.

SECTION R310 EMERGENCY ESCAPE AND RESCUE OPENINGS

R310.1 Emergency escape and rescue required. *Basements*, habitable attics and every sleeping room shall have at least one operable emergency escape and rescue opening. Where *basements* contain one or more sleeping rooms, emergency egress and rescue openings shall be required in each sleeping room. Where emergency escape and rescue openings are provided they shall have a sill height of not more than 44 inches (1118 mm) measured from the finished floor to the bottom of the clear opening. Where a door opening having a threshold below the adjacent ground elevation serves as an emergency escape and rescue opening and is provided with a bulkhead enclosure, the bulkhead enclosure shall comply with Section R310.3. The net clear opening dimensions required by this section shall be obtained by the normal operation of the emergency escape and rescue opening from the inside. Emergency escape and rescue openings with a finished sill height below the adjacent ground elevation shall be provided with a window well in accordance with Section R310.2. Emergency escape and rescue openings shall open directly into a public way, or to a *yard* or court that opens to a public way.

Exception: *Basements* used only to house mechanical equipment and not exceeding total floor area of 200 square feet (18.58 m²).

(Amd) **R305.1.1 Basements.** Portions of basements that do not contain habitable space, hallways, bathrooms, toilet rooms and laundry rooms shall have a ceiling height of not less than 6 feet 8 inches (2032 mm).

Exceptions:

1. Beams, girders, ducts or other obstructions may project to within 6 feet 4 inches (1931 mm) of the finished floor.
2. Ceiling height in existing basements being converted to habitable space shall not be less than 6 feet 10 inches clear except under beams, girders, pipes, ducts or other obstructions where the clear height shall be a minimum of 6 feet 4 inches.

(Amd) **R309.1 Floor surfaces.** Garage floor surfaces shall be of approved noncombustible material. The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to an approved drain or toward the main vehicle entry doorway.

Exception: Detached garages that are separated from the dwelling by a minimum distance of 10 feet.

(Amd) **R310.1 Emergency escape and rescue openings required.** Habitable spaces located within basements, and habitable spaces within attics, and every sleeping room within the dwelling shall have at least one operable emergency escape and rescue opening. Where basements and attics contain one or more sleeping rooms, emergency egress and rescue openings shall be required in each sleeping room, but shall not be required in adjoining habitable areas of the basement or attic. Where emergency escape and rescue openings are provided, they shall have a sill height of not more than 44 inches measured from the finished floor to the bottom of the clear opening. Where a door opening having a threshold below the adjacent ground elevation serves as an emergency escape and rescue opening and is provided with a bulkhead enclosure, the bulkhead enclosure shall comply with Section R310.3. The net clear opening dimensions required by this Section shall be obtained by the normal operation of the emergency escape and rescue opening from the inside. Emergency escape and rescue openings with a finished sill height below the adjacent ground elevation shall be provided with a window well in accordance with Section R310.2. Emergency escape and rescue openings shall open directly into a public way, or to a yard or court that opens to a public way.

Exceptions:

1. Habitable basements without sleeping rooms are not required to have emergency escape and rescue openings when they are provided with two remote, code-compliant stairways.
2. In existing buildings, basements and attics being converted to habitable space without sleeping rooms are not required to have emergency escape and rescue openings.
3. The 44-inch maximum sill height shall be permitted to be measured vertically above a fixed, permanent platform, step or steps whose minimum width shall equal or exceed the operable width of the opening and shall be centered on such opening and which shall comply with Sections R311.7.5.1 and R311.7.5.2. Glazing in windows complying with this exception shall not be subject to the provisions of Section R308.4.6 or R308.4.7.

R310.5 Dwelling additions. Where *dwelling additions* occur that contain sleeping rooms, an emergency escape and rescue opening shall be provided in each new sleeping room. Where *dwelling additions* occur that have *basements*, an emergency escape and rescue opening shall be provided in the new *basement*.

Exceptions:

1. An emergency escape and rescue opening is not required in a new *basement* that contains a sleeping room with an emergency escape and rescue opening.
2. An emergency escape and rescue opening is not required in a new *basement* where there is an emergency escape and rescue opening in an existing *basement* that is accessible from the new *basement*.

R310.6 Alterations or repairs of existing basements. An emergency escape and rescue opening is not required where existing *basements* undergo alterations or repairs.

Exception: New sleeping rooms created in an existing *basement* shall be provided with emergency escape and rescue openings in accordance with Section R310.1.

SECTION R311 MEANS OF EGRESS

R311.1 Means of egress. *Dwellings* shall be provided with a means of egress in accordance with this section. The means of egress shall provide a continuous and unobstructed path of vertical and horizontal egress travel from all portions of the *dwelling* to the required egress door without requiring travel through a garage. The required egress door shall open directly into a public way or to a *yard* or court that opens to a public way.

R311.2 Egress door. Not less than one egress door shall be provided for each *dwelling* unit. The egress door shall be side-hinged, and shall provide a clear width of not less than 32 inches (813 mm) where measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). The clear height of the door opening shall be not less than 78 inches (1981 mm) in height measured from the top of the threshold to the bottom of the stop. Other doors shall not be required to comply with these minimum dimensions. Egress doors shall be readily openable from inside the *dwelling* without the use of a key or special knowledge or effort.

R311.3 Floors and landings at exterior doors. There shall be a landing or floor on each side of each exterior door. The width of each landing shall be not less than the door served. Every landing shall have a dimension of not less than 36 inches (914 mm) measured in the direction of travel. The slope at exterior landings shall not exceed $\frac{1}{4}$ unit vertical in 12 units horizontal (2 percent).

Exception: Exterior balconies less than 60 square feet (5.6 m²) and only accessible from a door are permitted to have a landing less than 36 inches (914 mm) measured in the direction of travel.

R311.3.1 Floor elevations at the required egress doors. Landings or finished floors at the required egress door shall be not more than $1\frac{1}{2}$ inches (38 mm) lower than the top of the threshold.

Exception: The landing or floor on the exterior side shall be not more than $7\frac{3}{4}$ inches (196 mm) below the top of the threshold provided the door does not swing over the landing or floor.

Where exterior landings or floors serving the required egress door are not at *grade*, they shall be provided with access to *grade* by means of a ramp in accordance with Section R311.8 or a stairway in accordance with Section R311.7.

R311.3.2 Floor elevations for other exterior doors. Doors other than the required egress door shall be provided with landings or floors not more than $7\frac{3}{4}$ inches (196 mm) below the top of the threshold.

Exception: A top landing is not required where a stairway of not more than two risers is located on the exterior side of the door, provided that the door does not swing over the stairway.

R311.3.3 Storm and screen doors. Storm and screen doors shall be permitted to swing over exterior stairs and landings.

R311.4 Vertical egress. Egress from habitable levels including habitable attics and *basements* not provided with an egress door in accordance with Section R311.2 shall be by a ramp in accordance with Section R311.8 or a stairway in accordance with Section R311.7.

R311.5 Construction.

R311.5.1 Attachment. Exterior landings, decks, balconies, stairs and similar facilities shall be positively anchored to the primary structure to resist both vertical and lateral forces or shall be designed to be self-supporting. Attachment shall not be accomplished by use of toenails or nails subject to withdrawal.

R311.6 Hallways. The width of a hallway shall be not less than 3 feet (914 mm).

R311.7 Stairways.

R311.7.1 Width. Stairways shall be not less than 36 inches (914 mm) in clear width at all points above the permitted handrail height and below the required headroom height. Handrails shall not project more than $4\frac{1}{2}$ inches (114 mm) on either side of the stairway and the clear width of the stairway at and below the handrail height, including treads and landings, shall be not less than $31\frac{1}{2}$ inches (787 mm) where a handrail is installed on one side and 27 inches (698 mm) where handrails are provided on both sides.

Exception: The width of spiral stairways shall be in accordance with Section R311.7.10.1.

R311.7.2 Headroom. The headroom in stairways shall be not less than 6 feet 8 inches (2032 mm) measured vertically from the sloped line adjoining the tread nosing or

SECTION R310

EMERGENCY ESCAPE AND RESCUE OPENINGS

R310.1 Emergency escape and rescue opening required. *Basements, habitable attics and every sleeping room shall have not less than one operable emergency escape and rescue opening.* Where *basements* contain one or more sleeping rooms, an emergency escape and rescue opening shall be required in each sleeping room. Emergency escape and rescue openings shall open directly into a public way, or to a yard or court that opens to a public way.

Exception: Storm shelters and *basements* used only to house mechanical *equipment* not exceeding a total floor area of 200 square feet (18.58 m²).

R310.1.1 Operational constraints and opening control devices. Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys, tools or special knowledge. Window opening control devices complying with ASTM F 2090 shall be permitted for use on windows serving as a required emergency escape and rescue opening.

R310.2 Emergency escape and rescue openings. Emergency escape and rescue openings shall have minimum dimensions as specified in this section.

R310.2.1 Minimum opening area. Emergency and escape rescue openings shall have a net clear opening of not less than 5.7 square feet (0.530 m²). The net clear opening dimensions required by this section shall be obtained by the normal operation of the emergency escape and rescue opening from the inside. The net clear height opening shall be not less than 24 inches (610 mm) and the net clear width shall be not less than 20 inches (508 mm).

Exception: *Grade floor or below grade* openings shall have a net clear opening of not less than 5 square feet (0.465 m²).

R310.2.2 Window sill height. Where a window is provided as the emergency escape and rescue opening, it shall have a sill height of not more than 44 inches (1118 mm) above the floor; where the sill height is below *grade*, it shall be provided with a window well in accordance with Section R310.2.3.

R310.2.3 Window wells. The horizontal area of the window well shall be not less than 9 square feet (0.9 m²), with a horizontal projection and width of not less than 36 inches (914 mm). The area of the window well shall allow the emergency escape and rescue opening to be fully opened.

Exception: The ladder or steps required by Section R310.2.3.1 shall be permitted to encroach not more than 6 inches (152 mm) into the required dimensions of the window well.

R310.2.3.1 Ladder and steps. Window wells with a vertical depth greater than 44 inches (1118 mm) shall be equipped with a permanently affixed ladder or steps usable with the window in the fully open position. Ladders or steps required by this section shall not be

required to comply with Sections R311.7 and R311.8. Ladders or rungs shall have an inside width of not less than 12 inches (305 mm), shall project not less than 3 inches (76 mm) from the wall and shall be spaced not more than 18 inches (457 mm) on center vertically for the full height of the window well.

R310.2.3.2 Drainage. Window wells shall be designed for proper drainage by connecting to the building's foundation drainage system required by Section R405.1 or by an approved alternative method.

Exception: A drainage system for window wells is not required where the foundation is on well-drained soil or sand-gravel mixture soils in accordance with the United Soil Classification System, Group I Soils, as detailed in Table R405.1.

R310.2.4 Emergency escape and rescue openings under decks and porches. Emergency escape and rescue openings shall be permitted to be installed under decks and porches provided that the location of the deck allows the emergency escape and rescue openings to be fully opened and provides a path not less than 36 inches (914 mm) in height to a yard or court.

R310.3 Emergency escape and rescue doors. Where a door is provided as the required emergency escape and rescue opening, it shall be permitted to be a side-hinged door or a slider. Where the opening is below the adjacent ground elevation, it shall be provided with a bulkhead enclosure.

R310.3.1 Minimum door opening size. The minimum net clear height opening for any door that serves as an emergency and escape rescue opening shall be in accordance with Section R310.2.1.

R310.3.2 Bulkhead enclosures. Bulkhead enclosures shall provide direct access from the *basement*. The bulkhead enclosure shall provide the minimum net clear opening equal to the door in the fully open position.

R310.3.2.1 Drainage. Bulkhead enclosures shall be designed for proper drainage by connecting to the building's foundation drainage system required by Section R405.1 or by an approved alternative method.

Exception: A drainage system for bulkhead enclosures is not required where the foundation is on well-drained soil or sand-gravel mixture soils in accordance with the United Soil Classification System, Group I Soils, as detailed in Table R405.1.

R310.4 Bars, grilles, covers and screens. Bars, grilles, covers, screens or similar devices are permitted to be placed over emergency escape and rescue openings, bulkhead enclosures, or window wells that serve such openings, provided that the minimum net clear opening size complies with Sections R310.1.1 to R310.2.3, and such devices shall be releasable or removable from the inside without the use of a key, tool, special knowledge or force greater than that required for the normal operation of the escape and rescue opening.

(Amd) **R305.1 Minimum height.** *Habitable space, hallways and portions of basements containing these spaces shall have a ceiling height of not less than 7 feet (2134 mm). Bathrooms, toilet rooms and laundry rooms shall have a ceiling height of not less than 6 feet 8 inches (2032 mm).*

Exceptions:

1. For rooms with sloped ceilings, the required floor area of the room shall have a ceiling height of not less than 5 feet (1524 mm) and not less than 50 percent of the required floor area shall have a ceiling height of not less than 7 feet (2134 mm).
2. The ceiling height above bathroom and toilet room fixtures shall be such that the fixture is capable of being used for its intended purpose. A shower or tub equipped with a shower head shall have a ceiling height of not less than 6 feet 8 inches (2032 mm) above an area of not less than 30 inches (762 mm) by 30 inches (762 mm) at the showerhead.
3. Beams, girders, ducts or other obstructions in basements containing habitable space shall be permitted to project within 6 feet 4 inches (1931 mm) of the finished floor.
4. Ceiling height in existing basements being converted to habitable space shall not be less than 6 feet 8 inches (2032 mm) clear except under beams, girders, pipes, ducts or other obstructions where the clear height shall be a minimum of 6 feet 4 inches (1931 mm).

(Amd) **R305.1.1 Basements.** *Portions of basements that do not contain habitable space, hallways, bathrooms, toilet rooms and laundry rooms shall have a ceiling height of not less than 6 feet 6 inches (1981 mm).*

Exception: Beams, girders, ducts or other obstructions may project to within 6 feet 4 inches (1931 mm) of the finished floor.

(Amd) **R309.1 Floor surfaces.** *Garage floor surfaces shall be of approved noncombustible material. The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to an approved drain or toward the main vehicle entry doorway.*

Exception: Detached garages that are separated from the dwelling by a minimum distance of 10 feet (3048 mm).

(Amd) R310.1 Emergency escape and rescue openings required. *Basements, habitable attics and every sleeping room shall have not less than one operable emergency escape and rescue opening. Where basements and attics contain one or more sleeping rooms, emergency egress and rescue openings shall be required in each sleeping room, but shall not be required in adjoining habitable areas of the basement or attic. Emergency escape and rescue openings shall open directly into a public way, or to a yard or court that opens to a public way.*

Exceptions:

1. Habitable basements without sleeping rooms are not required to have emergency escape and rescue openings when they are provided with two remote, code-compliant stairways.
2. In existing buildings, basements and attics being converted to habitable space without sleeping rooms are not required to have emergency escape and rescue openings.

(Amd) **R310.2.1 Minimum opening area.** *Emergency escape and rescue openings shall have a net clear opening of not less than 5.7 square feet (0.530 m²). The net clear opening dimensions required by this section shall be obtained by the normal operation of the emergency escape and rescue opening from the inside. The net clear opening height shall be not less than 24 inches (610 mm) and the net clear opening width shall be not less than 20 inches (508 mm).*

Exceptions:

1. Grade floor or below grade openings shall have a net clear opening of not less than 5 square feet (0.465 m²)

From: Diane And Paul Duva <duvas4@gmail.com>
Sent: Thursday, May 02, 2019 2:38 PM
To: CodesStandards, DAS
Subject: Letter in Support of Proposed Code Change to Add C302.3 as Amendment to IECC

Dear Codes and Standards Committee Codes Amendment Subcommittee:

I am writing in support of the proposed change to create a new subsection C302.2 to the International Energy Conservation Code, for incorporation into the Connecticut State Building Code.

This proposed code change will limit exterior lighting above 2600 lumens to 3000 Kelvin color correlated temperature index (CCT). This proposed change is intended to reduce a significant amount of blue wavelength light emitted from LED lights.

The benefits of LED lighting for exterior lighting include environmental and economic benefits of reduced energy use, improved dimming and tuning functionality, and reduced maintenance costs by decreasing the frequency of fixture or lamp replacement. However, previous generations of LED exterior lighting commonly used 4000K units. Approximately one-third of the spectrum of 4000K LED lighting is emitted as blue light, which, due to the point source nature of LED lighting, leads to glare. (reference the Council on Science and Public Health Report 2-1-16, published by the American Medical Association in 2016 http://darksky.org/wp-content/uploads/bsk-pdf-manager/AMA_Report_2016_60.pdf)

In 2014, the International Dark-Sky Association revised its third-party certification for lighting that minimizes glare and light pollution to limit blue light emission by outdoor lighting by lowering the acceptable color temperature for approved lighting products to 3000K or below [up to 3220K actual measured value per ANSI C78.377] . The IDA has stated that future certification levels may be reduced to 2700K or lower. (reference <https://www.darksky.org/our-work/lighting/lighting-for-industry/fsa/>)

While newer LED lighting is now available at 3000K and is becoming the norm in Connecticut for new street lighting, and certifications may identify lower levels as recommendations, it is important to establish this 3000K limit as the reasonable standard for exterior lighting through the State Building Code.

Thank you for your consideration.

Sincerely,
Paul Duva



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: April 30, 2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): R312.1.1**PROPONENT INFORMATION**Name: Norton WheelerRepresenting: HBRA of ConnecticutTelephone: 860-608-3190Email: nortonw@mysticriverbuilding.comAddress: 67 New London TpkeMysticCT06355*Street Address**Town**State**Zip Code***PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

Guard Requirement - revise per attached document

Proposed text change, addition or deletion (attach additional information as needed):

See attached

Supporting data and documents (attach additional information as needed)

See attached

This Proposal is original material. (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)

This Comment is not original material, its source (if known) is as follows: (such as material / code development proposal from a prior development cycle or proposal submitted to model code committee etc.)
National Association of Home Builders (NAHB)

I would like to make an in-person presentation of my proposal.

Release

I hereby grant the State of Connecticut full rights to the use of this material without benefit to me, including, but not limited to, publication and reproduction rights.



Proponent's Signature

Norton Wheeler

Printed Name

PLEASE EMAIL (PREFERRED) TO DAS.CodesStandards@CT.GOV OR MAIL OR FAX (SEE BELOW)

*Department of Administrative Services
Office of the State Building Inspector
450 Columbus Boulevard, Suite 1303
Hartford, CT 06103
Tel: 860-713-5900 Fax: 860-713-7410
Affirmative Action/Equal Opportunity Employer*

12/29/16

5. Guard Requirement

This amendment reinstates the guard requirement only for those areas where the elevation difference from the walking edge to the ground directly below is more than 30 inches.

Revise as follows:

R312.1.1 Where required. Guards shall be located along open-sided walking surfaces of all decks, porches, balconies, including stairs, ramps and landings that are located more than 30 inches measured vertically to the floor or grade below. ~~at any point within 36 inches (914 mm) horizontally to the edge of the open side~~ Insect screening shall not be considered as a guard.

Reason:

This amendment retains the provisions of previous editions of the IRC, where guardrails were required when the elevation difference between the walking surface was greater than 30 inches to the floor or grade directly below. The 2018 IRC now requires a guardrail where the elevation difference is greater than 30 inches from the walking surface to a horizontal point 36 inches adjacent to the leading edge of the walking surface to the grade or floor below. This change will now require the building official to carry a four-foot level to conduct inspections.

The proponent of this change referred to work conducted and reports written by the ICC Code Technology Committee (CTC). At no time during the public hearings was any technical justification presented to substantiate the change requiring the building official to measure 36 inches away from the leading edge of the walking surface or tread to determine when a guardrail should or should not be required. After reviewing the many reports from the CTC website, it is still unclear from where the 36-inch requirement was derived. There are no studies that can support claims that this will have an effect on reducing possible injuries. While the proponent promotes this as a means for consistent enforcement of the guard requirements, there is no evidence of increased risk to the safety of the occupant if the current method of measuring from the edge of the walking surface to grade below is used.

[Return to Residential](#)



DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: April 30, 2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): R403.1.1**PROPONENT INFORMATION**Name: Norton WheelerRepresenting: HBRA of ConnecticutTelephone: 860-608-3190Email: nortonw@mysticriverbuilding.comAddress: 67 New London Tpke Mystic CT 06355
Street Address Town State Zip Code**PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

Footing Tables - revise per attached document

Proposed text change, addition or deletion (attach additional information as needed):

See attached

Supporting data and documents (attach additional information as needed)

See attached

- This Proposal is original material.** (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)
- This Comment is not original material, its source (if known) is as follows:** (such as material / code development proposal from a prior development cycle or proposal submitted to model code committee etc.)
National Association of Home Builders (NAHB)
- I would like to make an in-person presentation of my proposal.**

Release

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 Proponent's Signature

Norton Wheeler

 Printed Name
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12/29/16

6. Footing Tables

This amendment replaces the existing footing tables in the IRC with revised tables providing more reasonable footing widths, while still complying with accepted engineering practice and design standards

Revise as follows:

R403.1.1 Minimum size. The minimum width, W, and thickness, T, for concrete footings shall be in accordance with Tables R403.1(1) through R403.1(3) and Figure R403.1(1) or R403.1.3, as applicable, but not less than 12 inches in width and not less than 6 inches in depth. The footing width shall be based on the load-bearing value of the soil in accordance with Table R401.4.1. Footing projections, P, shall be not less than 2 inches (51 mm) and shall not exceed the thickness of the footing. Footing thickness and projection for fireplaces shall be in accordance with Section R1001.2. The size of footings supporting piers and columns shall be based on the tributary load and allowable soil pressure in accordance with Table R401.4.1. Footings for wood foundations shall be in accordance with the details set forth in Section R403.2, and Figures R403.1(2) and R403.1(3).

Modify Tables R403.1(1), R403.1(2) and R403.1(3) with the following:

TABLE R403.1(1)
MINIMUM WIDTH AND THICKNESS FOR CONCRETE FOOTINGS FOR LIGHT-FRAME CONSTRUCTION (inches)^{a,b,c,d}

SNOW LOAD OR ROOF LIVE LOAD	STORY AND TYPE OF STRUCTURE WITH LIGHT FRAME	LOAD-BEARING VALUE OF SOIL (psf)					
		1500	2000	2500	3000	3500	4000
20 psf	1 story—slab-on-grade	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story—with crawl space	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story—plus basement	15 ¹⁸ x 6	12 ¹⁴ x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story—slab-on-grade	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story—with crawl space	14 ¹⁶ x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story—plus basement	19 ²² x 6	14 ¹⁶ x 6	12 ¹³ x 6	12 x 6	12 x 6	12 x 6
	3 story—slab-on-grade	14 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	3 story—with crawl space	18 ¹⁹ x 6	14 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	3 story—plus basement	23 ²⁵ x 8	17 ¹⁹ x 6	14 ¹⁵ x 6	12 ¹³ x 6	12 x 6	12 x 6
30 psf	1 story—slab-on-grade	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story—with crawl space	12 ¹³ x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story—plus basement	15 ¹⁹ x 6	12 ¹⁴ x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story—slab-on-grade	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story—with crawl space	15 ¹⁷ x 6	12 ¹³ x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story—plus basement	19 ²³ x 6	14 ¹⁷ x 6	12 ¹⁴ x 6	12 x 6	12 x 6	12 x 6
	3 story—slab-on-grade	15 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	3 story—with crawl space	18 ²⁰ x 6	14 ¹⁵ x 6	12 x 6	12 x 6	12 x 6	12 x 6
	3 story—plus basement	23 ²⁶ x 8	17 ²⁰ x 6	14 ¹⁶ x 6	12 ¹³ x 6	12 x 6	12 x 6
50 psf	1 story—slab-on-grade	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story—with crawl space	13 ¹⁶ x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story—plus basement	17 ²¹ x 6	13 ¹⁶ x 6	12 ¹³ x 6	12 x 6	12 x 6	12 x 6
	2 story—slab-on-grade	13 ¹⁴ x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story—with crawl space	16 ¹⁹ x 6	12 ¹⁴ x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story—plus basement	21 ²⁵ x 7	15 ¹⁹ x 6	12 ¹⁵ x 6	12 x 6	12 x 6	12 x 6
	3 story—slab-on-grade	16 ¹⁷ x 6	12 ¹³ x 6	12 x 6	12 x 6	12 x 6	12 x 6
	3 story—with crawl space	20 ²² x 6	15 ¹⁷ x 6	12 ¹³ x 6	12 x 6	12 x 6	12 x 6
	3 story—plus basement	24 x 8 28 x 9	18 ²¹ x 6	15 ¹⁷ x 6	12 ¹⁴ x 6	12 x 6	12 x 6
70 psf	1 story—slab-on-grade	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story—with crawl space	14 ¹⁸ x 6	12 ¹³ x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story—plus basement	18 x 6 24 x 7	14 ¹⁸ x 6	12 ¹⁴ x 6	12 x 6	12 x 6	12 x 6
	2 story—slab-on-grade	14 ¹⁶ x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story—with crawl space	18 ²¹ x 6	13 ¹⁶ x 6	12 ¹³ x 6	12 x 6	12 x 6	12 x 6
	2 story—plus basement	22 x 7 27 x 9	17 ²⁰ x 6	13 ¹⁶ x 6	12 ¹⁴ x 6	12 x 6	12 x 6
	3 story—slab-on-grade	18 ¹⁹ x 6	13 ¹⁴ x 6	12 x 6	12 x 6	12 x 6	12 x 6
	3 story—with crawl space	21 ²⁵ x 7	16 ¹⁸ x 6	13 ¹⁵ x 6	12 x 6	12 x 6	12 x 6
	3 story—plus basement	26 x 9 30 x 10	19 ²³ x 6	15 ¹⁸ x 6	13 ¹⁵ x 6	12 ¹³ x 6	12 x 6

For SI: 1 inch = 25.4 mm, 1 plf = 14.6 N/m, 1 pound per square foot = 47.9 N/m².

a. ~~Interpolation allowed. Extrapolation is not allowed.~~

b. ~~Based on 32-foot wide house with load-bearing center wall that carries half of the tributary attic, and floor framing. For every 2 feet of adjustment to the width of the house, add or subtract 2 inches of footing width and 1 inch of footing thickness (but not less than 6 inches thick).~~

a. Linear interpolation of footing width is permitted between the soil bearing pressures in the table.

b. The table is based on the following conditions and loads: Building width: 32 feet; Wall height: 10 foot; Basement wall height: 10 foot; Dead loads: 20 psf roof and ceiling assembly, 10 psf floor assembly, 15 psf wall assembly
Live loads: Roof and ground snow loads as listed, 40 psf first floor, 30 psf second and third floor

c. Where the building width perpendicular to the wall footing is greater than 32 feet, the footing width shall be increased by 2 inches and footing depth shall be increased by 1 inch for every 4 feet of increase in building width.

d. Where the building width perpendicular to the wall footing is not greater than 32 feet, a 2 inch decrease in footing width and 1 inch decrease in footing depth is permitted for every 4 feet of decrease in bu

TABLE R403.1(2)
MINIMUM WIDTH AND THICKNESS FOR CONCRETE FOOTINGS FOR LIGHT-FRAME CONSTRUCTION
WITH BRICK VENEER (inches)^{a,b,c,d}

SNOW LOAD OR ROOF LIVE LOAD	STORY AND TYPE OF STRUCTURE WITH BRICK VENEER	LOAD-BEARING VALUE OF SOIL (psf)					
		1500	2000	2500	3000	3500	4000
20 psf	1 story—slab-on-grade	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story—with crawl space	13 ¹⁵ x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story—plus basement	18 ²¹ x 6	13 ¹⁵ x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story—slab-on-grade	16 ¹⁵ x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story—with crawl space	19 ²⁰ x 6	14 ¹⁵ x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story—plus basement	24 ²⁶ x 8	18 ²⁰ x 6	14 ¹⁶ x 6	12 ¹³ x 6	12 x 6	12 x 6
	3 story—slab-on-grade	22 ²⁰ x 6	16 ¹⁵ x 6	12 x 6	12 x 6	12 x 6	12 x 6
	3 story—with crawl space	25 x 9 ²⁶ x 8	19 x 6	15 x 6	13 x 6	12 x 6	12 x 6
	3 story—plus basement	30 ³² x 11	22 ²⁴ x 7	15 ¹⁹ x 6	15 ¹⁶ x 6	13 ¹⁴ x 6	12 x 6
30 psf	1 story—slab-on-grade	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story—with crawl space	13 ¹⁶ x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story—plus basement	18 ²² x 6	13 ¹⁶ x 6	12 ¹³ x 6	12 x 6	12 x 6	12 x 6
	2 story—slab-on-grade	16 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story—with crawl space	19 ²² x 6	15 ¹⁶ x 6	12 ¹³ x 6	12 x 6	12 x 6	12 x 6
	2 story—plus basement	24 x 8 ²⁷ x 9	18 ²¹ x 6	14 ¹⁶ x 6	12 ¹⁴ x 6	12 x 6	12 x 6
	3 story—slab-on-grade	22 x 7 ²¹ x 6	16 x 6	13 x 6	12 x 6	12 x 6	12 x 6
	3 story—with crawl space	25 x 9 ²⁷ x 8	19 ²⁰ x 6	15 ¹⁶ x 6	13 x 6	12 x 6	12 x 6
	3 story—plus basement	30 ³³ x 11	22 ²⁴ x 7	15 ²⁰ x 6	15 ¹⁶ x 6	13 ¹⁴ x 6	12 x 6
50 psf	1 story—slab-on-grade	12 ¹³ x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story—with crawl space	15 ¹⁸ x 6	12 ¹⁴ x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story—plus basement	19 x 6 ²⁴ x 7	15 ¹⁸ x 6	12 ¹⁴ x 6	12 x 6	12 x 6	12 x 6
	2 story—slab-on-grade	17 ¹⁸ x 6	13 ¹⁴ x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story—with crawl space	21 ²⁴ x 7	16 ¹⁸ x 6	13 ¹⁴ x 6	12 x 6	12 x 6	12 x 6
	2 story—plus basement	25 x 9 ²⁹ x 10	19 ²² x 6	15 ¹⁸ x 6	13 ¹⁵ x 6	12 ¹³ x 6	12 x 6
	3 story—slab-on-grade	23 ²⁷ x 7	17 ¹⁸ x 6	14 ¹³ x 6	12 x 6	12 x 6	12 x 6
	3 story—with crawl space	27 x 10 ²⁹ x 9	20 ²² x 6	16 ¹⁷ x 6	13 ¹⁴ x 6	12 x 6	12 x 6
	3 story—plus basement	31 ³⁵ x 12	24 ²⁶ x 8	16 ²¹ x 6	16 ¹⁷ x 6	13 ¹⁵ x 6	12 ¹³ x 6
70 psf	1 story—slab-on-grade	14 ¹⁵ x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story—with crawl space	16 ²⁰ x 6	12 ¹⁵ x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story—plus basement	21 x 7 ²⁶ x 8	16 ²⁰ x 6	13 ¹⁶ x 6	12 ¹³ x 6	12 x 6	12 x 6
	2 story—slab-on grade	19 ²⁰ x 6	14 ¹⁵ x 6	12 x 6	12 x 6	12 x 6	12 x 6
	2 story—with crawl space	22 x 7 ²⁶ x 8	17 ¹⁹ x 6	13 ¹⁵ x 6	12 ¹³ x 6	12 x 6	12 x 6
	2 story—plus basement	27 x 10 ³² x 11	20 x 6 ²⁴ x 7	16 ¹⁹ x 6	13 ¹⁶ x 6	12 ¹⁴ x 6	12 x 6
	3 story—slab-on-grade	25 x 9 ²⁶ x 8	19 x 6	15 x 6	12 ¹³ x 6	12 x 6	12 x 6
	3 story—with crawl space	28 x 10 ³¹ x 11	21 ²³ x 7	17 ¹⁹ x 6	14 ¹⁶ x 6	12 ¹³ x 6	12 x 6
	3 story—plus basement	33 ³⁷ x 13	25 ²⁸ x 9	17 ²² x 6	16 ¹⁸ x 6	14 ¹⁶ x 6	12 ¹⁴ x 6

For SI: 1 inch = 25.4 mm, 1 plf = 14.6 N/m, 1 pound per square foot = 47.9 N/m².

a. ~~Interpolation allowed. Extrapolation is not allowed.~~

b. ~~Based on 32-foot wide house with load-bearing center wall that carries half of the tributary attic, and floor framing. For every 2 feet of adjustment to the width of the house, add or subtract 2 inches of footing width and 1 inch of footing thickness (but~~

not less than 6 inches thick).

- a. Linear interpolation of footing width is permitted between the soil bearing pressures in the table.
 b. The table is based on the following conditions and loads: Building width: 32 feet; Wall height: 10 foot; Basement wall height: 10 foot; Dead loads: 20 psf roof and ceiling assembly, 10 psf floor assembly, 45 psf wall assembly
 Live loads: Roof and ground snow loads as listed, 40 psf first floor, 30 psf second and third floor
 c. Where the building width perpendicular to the wall footing is greater than 32 feet, the footing width shall be increased by 2 inches and footing depth shall be increased by 1 inch for every 4 feet of increase in building width.
 d. Where the building width perpendicular to the wall footing is not greater than 32 feet, a 2 inch decrease in footing width and 1 inch decrease in footing depth is permitted for every 4 feet of decrease in building width.

TABLE R403.1(3)
MINIMUM WIDTH AND THICKNESS FOR CONCRETE FOOTINGS WITH CAST-IN-PLACE CONCRETE OR
FULLY PARTIALLY-GROUTED CONCRETE MASONRY WALL CONSTRUCTION (inches)^{a,b,c,d}

SNOW LOAD OR ROOF LIVE LOAD	STORY AND TYPE OF STRUCTURE WITH CMU OR CONCRETE	LOAD-BEARING VALUE OF SOIL (psf)					
		1500	2000	2500	3000	3500	4000
20 psf	1 story—slab-on-grade	12 ¹⁴ x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story—with crawl space	14 ¹⁹ x 6	12 ¹⁴ x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story—plus basement	19 x 6 ²⁵ x 8	14 ¹⁹ x 6	12 ¹⁵ x 6	12 ¹³ x 6	12 x 6	12 x 6
	2 story—slab-on-grade	17 x 6 ²³ x 7	13 ¹⁸ x 6	12 ¹⁴ x 6	12 x 6	12 x 6	12 x 6
	2 story—with crawl space	21 x 7 ²⁹ x 9	16 ²² x 6	13 ¹⁷ x 6	12 ¹⁴ x 6	12 x 6	12 x 6
	2 story—plus basement	25 x 9 ³⁵ x 12	19 x 6 ²⁶ x 8	15 ²¹ x 6	13 ¹⁷ x 6	12 ¹⁵ x 6	12 ¹³ x 6
	3 story—slab-on-grade	24 x 8 ³² x 11	18 x 6 ²⁴ x 7	14 ¹⁹ x 6	12 ¹⁶ x 6	12 ¹⁴ x 6	12 x 6
	3 story—with crawl space	28 x 10 ³⁸ x 14	21 x 7 ²⁸ x 9	17 ²³ x 6	14 ¹⁹ x 6	12 ¹⁶ x 6	12 ¹⁴ x 6
	3 story—plus basement	32 x 12 ⁴³ x 17	24 x 8 ³³ x 11	19 ²⁶ x 8	16 ²² x 6	14 ¹⁹ x 6	12 ¹⁶ x 6
30 psf	1 story—slab-on-grade	12 ¹⁵ x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story—with crawl space	14 ²⁰ x 6	12 ¹⁵ x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story—plus basement	19 x 6 ²⁶ x 8	14 ²⁰ x 6	12 ¹⁶ x 6	12 ¹³ x 6	12 x 6	12 x 6
	2 story—slab-on-grade	17 x 6 ²⁴ x 7	13 ¹⁸ x 6	12 ¹⁵ x 6	12 x 6	12 x 6	12 x 6
	2 story—with crawl space	21 x 7 ³⁰ x 10	16 ²² x 6	13 ¹⁸ x 6	12 ¹⁵ x 6	12 ¹³ x 6	12 x 6
	2 story—plus basement	25 x 9 ³⁶ x 13	19 ²⁷ x 8	15 ²¹ x 6	13 ¹⁸ x 6	12 ¹⁵ x 6	12 ¹³ x 6
	3 story—slab-on-grade	12 x 8 ³³ x 12	18 x 6 ²⁵ x 7	15 ²⁰ x 6	12 ¹⁷ x 6	12 ¹⁴ x 6	12 x 6
	3 story—with crawl space	28 x 10 ³⁹ x 14	21 x 7 ²⁹ x 9	17 x 6 ²³ x 7	14 ¹⁹ x 6	12 ¹⁷ x 6	12 ¹⁴ x 6
	3 story—plus basement	32 x 12 ⁴⁴ x 17	24 x 8 ³³ x 12	19 x 6 ²⁷ x 8	16 ²² x 6	14 ¹⁹ x 6	12 ¹⁷ x 6
50 psf	1 story—slab-on-grade	13 ¹⁷ x 6	12 ¹³ x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story—with crawl space	16 ²² x 6	12 ¹⁷ x 6	12 ¹³ x 6	12 x 6	12 x 6	12 x 6
	1 story—plus basement	20 x 6 ²⁸ x 9	15 ²¹ x 6	12 ¹⁷ x 6	12 ¹⁴ x 6	12 x 6	12 x 6
	2 story—slab-on-grade	19 x 6 ²⁷ x 8	14 ²⁰ x 6	12 ¹⁶ x 6	12 ¹³ x 6	12 x 6	12 x 6
	2 story—with crawl space	23 x 8 ³² x 11	17 x 6 ²⁴ x 7	14 ¹⁹ x 6	12 ¹⁶ x 6	12 ¹⁴ x 6	12 x 6
	2 story—plus basement	27 x 10 ³⁸ x 14	20 x 6 ²⁸ x 9	16 ²³ x 6	13 ¹⁹ x 6	12 ¹⁶ x 6	12 ¹⁴ x 6
	3 story—slab-on-grade	13 x 9 ³⁵ x 13	19 x 6 ²⁷ x 8	15 ²¹ x 6	13 ¹⁸ x 6	12 ¹⁵ x 6	12 ¹³ x 6
	3 story—with crawl space	29 x 11 ⁴¹ x 15	22 x 7 ³¹ x 10	18 x 6 ²⁴ x 7	15 ²⁰ x 6	13 ¹⁷ x 6	12 ¹⁵ x 6
	3 story—plus basement	34 x 13 ⁴⁷ x 18	25 x 9 ³⁵ x 12	20 x 6 ²⁸ x 9	17 x 6 ²³ x 7	14 ²⁰ x 6	13 ¹⁷ x 6
70 psf	1 story—slab-on-grade	15 ¹⁹ x 6	12 ¹⁴ x 6	12 x 6	12 x 6	12 x 6	12 x 6
	1 story—with crawl space	17 x 6 ²⁵ x 7	13 ¹⁸ x 6	12 ¹⁵ x 6	12 x 6	12 x 6	12 x 6
	1 story—plus basement	22 x 7 ³⁰ x 10	16 ²³ x 6	13 ¹⁸ x 6	12 ¹⁵ x 6	12 ¹³ x 6	12 x 6
	2 story—slab-on-grade	20 x 6 ²⁹ x 9	15 ²² x 6	12 ¹⁷ x 6	12 ¹⁴ x 6	12 x 6	12 x 6
	2 story—with crawl space	24 x 8 ³⁴ x 12	18 x 6 ²⁶ x 8	14 ²¹ x 6	12 ¹⁷ x 6	12 ¹⁵ x 6	12 ¹³ x 6
	2 story—plus basement	28 x 10 ⁴⁰ x 15	21 x 7 ³⁰ x 10	17 x 6 ²⁴ x 7	14 ²⁰ x 6	12 ¹⁷ x 6	12 ¹⁵ x 6
	3 story—slab-on-grade	14 x 10 ³⁸ x 14	20 x 6 ²⁸ x 9	16 ²³ x 6	14 ¹⁹ x 6	12 ¹⁶ x 6	12 ¹⁴ x 6
	3 story—with crawl space	31 x 12 ⁴³ x 16	23 x 8 ³² x 11	18 x 6 ²⁶ x 8	15 ²¹ x 6	15 ¹⁸ x 6	12 ¹⁶ x 6
	3 story—plus basement	35 x 14 ⁴⁹ x 19	26 x 9 ³⁷ x 13	21 x 7 ²⁹ x 10	18 x 6 ²⁴ x 7	15 ²¹ x 6	13 ¹⁸ x 6

For SI: 1 inch = 25.4 mm, 1 plf = 14.6 N/m, 1 pound per square foot = 47.9 N/m².

a. Interpolation allowed. Extrapolation is not allowed.

b. Based on 32-foot wide house with load-bearing center wall that carries half of the tributary attic, and floor framing. For every 2 feet of adjustment to the width of the house, add or subtract 2 inches of footing width and 1 inch of footing thickness (but not less than 6 inches thick).

- a. Linear interpolation of footing width is permitted between the soil bearing pressures in the table.
 b. The table is based on the following conditions and loads: Building width: 32 feet; Wall height: 10 foot; Basement wall height: 10 foot; Dead loads: 20 psf roof and ceiling assembly, 10 psf floor assembly, 55 psf wall assembly

Live loads: Roof and ground snow loads as listed, 40 psf first floor, 30 psf second and third floor

- c. Where the building width perpendicular to the wall footing is greater than 32 feet, the footing width shall be increased by 2 inches and footing depth shall be increased by 1 inch for every 4 feet of increase in building width.
- d. Where the building width perpendicular to the wall footing is not greater than 32 feet, a 2 inch decrease in footing width and 1 inch decrease in footing depth is permitted for every 4 feet of decrease in building width.

Reason:

Builders using the new footing tables introduced in the 2015 IRC have found the footing widths required by the table are significantly larger than those required by previous editions of Table R403.1, which dated back to the CABO codes. In many cases they were wider than an engineering analysis would suggest. A careful review of the calculations underlying the 2015 IRC tables found a number of cases where load assumptions and determinations were overly conservative, and a few cases where the calculations were actually unconservative. Problems with the assumptions and calculations included the following:

- *The original calculations apply the full ground snow load to the roof. The actual roof snow load per ASCE 7 is 70% of the ground snow load or 20 pounds per square foot, whichever is greater.*
- *The original calculations apply a 100 pound per square foot weight for above-grade concrete or masonry walls, representing a solid or fully-grouted 8" CMU wall. Such walls are more likely to be either 8" CMU with reinforcing @ 48" o.c. or 8" insulated concrete forms, both of which have a 55 pound per square foot weight.*
- *The original calculations use only the ASCE 7 load combination that applies a 0.75 factor for concurrent roof/snow and floor live loads, ignoring the load combinations that apply just the roof/attic LL, just the snow load, or just the total floor live loads.*
- *The original calculations are based on tributary width, yet Footnote #2 adds 2 inches of footing width for every 2 feet of additional **building width**. As a result of confusing building and tributary width, the footnote adds twice as much footing width as is necessary based on the loads!*

In addition, many engineers either ignore the weight of below-grade foundation walls and footings in calculations or use a reduced load to account for the difference between the density of the soil and the density of concrete or masonry used in the footings and walls. The justification is that existing soils, which generally have dry densities of 105 to 125 pounds per cubic foot, are being replaced by concrete or masonry materials with densities of 135 to 150 pounds per cubic foot. The assumption is that the additional weight of the foundation walls and footings is not sufficient to cause additional compression and settlement of the soil under footing bearing pressures to a degree that would harm the structure.

Other key changes in the revised code text and footing tables include:

- *The original footnote allowing footing width and depth to be adjusted is converted into two footnotes. One footnote requires an increase in footing width and depth when the building width perpendicular to a wall footing exceeds 32 feet. The second footnote permits, but does not require, a decrease in footing width and depth for a building width of 32 feet or narrower.*
- *The charging text is revised to clarify the minimum width of a footing shall not be less than 12 inches and depth shall not be less than 6 inches. Previously, the limitation on depth was buried in a footnote.*

These revised tables correct the inconsistencies in the load assumptions and calculations. In addition, the calculations for the revised tables apply a differential density of 50 pcf in lieu of the full density of concrete and masonry, recognizing common practice. The result is footing widths for one- and two-family dwellings that are more in line with historic practice, while still technically justified under engineering standards and accepted practices.

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DEPARTMENT OF ADMINISTRATIVE SERVICES

**PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE**
DATE SUBMITTED: April 30, 2019**CODE INFORMATION**Proposed change to: Building Code Fire Safety CodeCode section(s): R313**PROPONENT INFORMATION**Name: Norton WheelerRepresenting: HBRA of ConnecticutTelephone: 860-608-3190Email: nortonw@mysticriverbuilding.comAddress: 67 New London Tpke Mystic CT 06355
Street Address Town State Zip Code**PROPOSAL INFORMATION**

Description of change and reason for change (attach additional information as needed):

Residential Fire Sprinklers - delete Section 313 entirely per attached document

Proposed text change, addition or deletion (attach additional information as needed):

See attached

Supporting data and documents (attach additional information as needed)

See attached

- This Proposal is original material.** (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)
- This Comment is not original material, its source (if known) is as follows:** (such as material / code development proposal from a prior development cycle or proposal submitted to model code committee etc.)
National Association of Home Builders (NAHB)
- I would like to make an in-person presentation of my proposal.**

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Proponent's Signature

Norton Wheeler

Printed Name

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12/29/16

7. Residential Fire Sprinklers

This amendment would delete the mandatory requirement for residential sprinklers from the International Residential Code. A companion amendment titled Fire Separation Distance returns the fire separation distances between structures to those required before residential sprinklers became part of the IRC.

Revise as follows:

Delete Section R313 entirely

SECTION R313

AUTOMATIC FIRE SPRINKLER SYSTEMS

~~**R313.1 Townhouse automatic fire sprinkler systems.** An automatic residential fire sprinkler system shall be installed in townhouses.~~

~~**Exception:** An automatic residential fire sprinkler system shall not be required where additions or alterations are made to existing townhouses that do not have an automatic residential fire sprinkler system installed.~~

~~**R313.1.1 Design and installation.** Automatic residential fire sprinkler systems for townhouses shall be designed and installed in accordance with Section P2904 or NFPA 13D.~~

~~**R313.2 One- and two-family dwellings automatic fire systems.** An automatic residential fire sprinkler system shall be installed in one- and two-family dwellings.~~

~~**Exception:** An automatic residential fire sprinkler system shall not be required for additions or alterations to existing buildings that are not already provided with an automatic residential sprinkler system.~~

~~**R313.2.1 Design and installation.** Automatic residential fire sprinkler systems shall be designed and installed in accordance with Section P2904 or NFPA 13D.~~

Reason:

Since the inclusion of the mandatory requirement for residential sprinklers in the 2009 IRC, more than 42 states have amended or passed legislation removing the residential sprinkler mandate for new one- and two-family dwellings. Of those states, 27 prohibit communities from requiring fire sprinkler systems from being installed. It is important to note that the voluntary installation of residential sprinklers is still allowed.

*The median age of one- and two-family housing in the U.S. is 35 years, and that number continues to increase. These older homes are more likely to have outdated electrical systems, appliances, use space heaters or display other characteristics that lead to a greater risk of a fire starting. Newer homes have fire blocking, hardwired smoke alarms and egress windows installed to today's codes, all of which increase the chances of surviving a fire. **Even as homes built to today's residential code get older, they will continue to provide protection for families through their improved safety.***

While questions regarding construction code requirements intended to increase the safety of homes cannot, and should not, be decided solely on the issue of cost, it is reasonable to ask if there is a demonstrated state- or region-specific need for the requirement or if an acceptable level of safety can be achieved through other, less expensive means. The cost of an incremental increase in the margin of safety can be quite high.

Higher regulatory costs have real consequences for working American families. These regulations end up pushing the price of housing beyond the means of many teachers, police officers, firefighters and other middle-class workers. Every \$838 increase in construction costs adds an additional \$1,000 to the final price of the home, and in the U.S., over 150,000 households would no longer qualify for a mortgage based on that \$1,000 increase to a median-priced home. The average cost of a sprinkler system is \$6,000.

Mandating costly incremental increases in safety will only protect those who can afford them and will often decrease safety for those who cannot. Families who cannot qualify to purchase homes due to the increased costs from mandatory code requirements such as fire sprinklers will have to live in housing that is less safe, because that housing was built to less stringent code requirements.

[Return to Residential](#)

The Connecticut General Assembly

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Memorandum

To: Senator Paul Doyle
Representative Christie Carpino
Senator Kevin Kelly
Representative Susan Johnson

From: Shannon McCarthy and Christopher J. Cordima

Date: May 21, 2018

Subject: Proposed 2018 Connecticut State Building Code

The **2018 Connecticut State Building Code** was submitted on May 2, 2018 under section 29-252b of the general statutes which permits the State Building Inspector and Codes and Standards Committee within the Department of Administrative Services to use a process for its adoption that is different than the process required for the adoption of regulations under chapter 54 of the general statutes, the Uniform Administrative Procedure Act. **One of the requirements of said section 29-252b is that the State Building Inspector and committee create a code-making record and submit such record to the standing legislative regulation review committee. Such record is required to include all written and oral comments and the agency response for each comment.**

The record submitted by the agency with the proposed code contains none of the reasoning of the person submitting the comment and there is no posting of the actual written or oral comments received, either in what was submitted to the standing legislative regulation review committee or on the agency Internet web site. The agency response to the comments does not adequately explain what changes were made in reference to the comments. Also, the comments for all three

codes are referenced in one table, rather than a separate code-making record for each code, as would seem to be required by the statute.

Attached are the pages noted in the table below from the proposed **2018 Connecticut State Building Code**. You will find handwritten comments on the pages of the proposed code referenced that make recommendations for corrections or seek further clarification. In addition, four substantive concerns are noted below.

Substantive Concerns:

1. On page 15, Section 113.2.1 regarding qualifications of the members of the municipal board of appeals, states that "The other four members shall have at least five years of experience each in building design, building construction or supervision of building construction." It is unclear what "each" refers to and whether the members are required to have five years' experience in each area, or whether each member is required to have at least five years of experience in one of the areas.
2. On pages 20-21, Section 305.2.3 and on page 22 Section 308.6.4, repeat the definition for family child care homes contained in section 19a-77(a)(3) of the general statutes rather than referring to the definition. However, that section was amended in substitute House Bill 5169 of the 2018 regular session to add an additional exception to the maximum number of children during the summer months. While said bill has yet to be presented to the Governor, it passed both chambers and represents a possible conflict if enacted. The code only references the current exception, which applies during the school year and now conflicts with the amended statute. The provision should be changed to refer only to the maximum number of children permitted under section 19a-77(a)(3) of the general statutes rather than an actual number or repeating the language of the statute.
3. On page 42, in Section 1025.6, the provision summarizes the requirements of section 29-256d of the general statutes regarding luminous path marking systems in newly constructed and specified occupancies. However, the provision limits such requirements to where exit access corridors in such occupancies serve "an occupant load greater than 30" , which limitation is not contained in the underlying statute. This provision appears to exceed the agency's statutory authority and should be removed.
4. Section R313.1 of the 2015 International Residential Code, which is being incorporated but is not set forth in the agency submission since they are not amending it, requires automatic sprinklers to be installed in new townhouses. Section 29-315 of the general statutes lists the types of buildings required to have automatic fire extinguishing systems, or sprinklers. It does not include townhouses. This provision appears to exceed the agency's statutory authority,

particularly given the fact that legislation has been introduced in 2011, 2015 and 2016 to expand the types of buildings that require automatic sprinklers to include two-family residential buildings (which are similar to townhouses) and has been consistently rejected by the legislature. While subsection (e) of section 29-315 gives the State Fire Marshal the ability to require automatic sprinklers in other buildings "where they are required in the interest of safety because of special occupancy hazards", there is no evident special occupancy hazard concerning a townhouse.

Additional Comments:

LCO Comments/Corrections	Page Numbers of the Code
Inconsistent reference to CT State Codes (inconsistent use of Connecticut, State and 2018, respectively)	1, 3, 4, 31, 59, 64, 75, 77, 78, 80--85, 87--89, 93, 95, 96, 98, 99, 103--107, 111--113, 119--122, 125, 126, 128--130, 143, 150, 155, 156, 162
Inconsistent placement of reference to Connecticut General Statutes	1, 3, 9, 11, 13, 88, 96, 119, 124
Inconsistent phrasing of deleted provisions (Delete without substitution, delete in its entirety without substitution, Delete this section, Delete section X) No suggestion made, but agency should pick one consistent format.	4, 5, 12, 19, 26, 31, 51, 55, 75,78, 79, 87--89, 97, 104, 106, 107, 109, 113, 116, 120, 122, 126, 128, 132--134, 140, 141, 154, 156, 158
Inconsistent use of italics for terms	23, 49, 99, 107, 108, 109, 134, 136, 168
Additional Technical corrections	1, 5, 6, 9, 10, 11, 13, 15, 19, 21--27, 33, 36, 37, 40--43, 45, 46, 49, 50, 53, 54, 55, 64--67, 75, 76, 79, 86--90, 93, 96--98, 100, 103, 105, 107, 108, 111--115, 119, 120, 122, 123, 125, 129--132, 136, 137, 142, 145, 148, 150--156, 160--162, 168
Seek clarification	9, 11, 13--15, 19, 22, 30, 33, 48, 52, 75, 80, 104, 105, 107, 116, 122, 123, 126, 128, 133, 134, 145, 148, 152

Recommendation:

<p>Approval in whole with technical corrections with deletions with substitute pages Disapproval in whole or in part X Rejection without prejudice</p>
--

Statutes referenced in this memo:

Sec. 29-252b. Procedure for adoption and amendment of State Building Code. (a) For the purposes of this section, "proposed code" means a proposal by the State Building Inspector and the Codes and Standards Committee for a new State Building Code or for a change in, addition to or repeal of any provision of the State Building Code.

(b) Notwithstanding the provisions of chapter 54, the adoption of the State Building Code and any amendments thereto shall not be required to comply with the provisions of chapter 54, except as provided in this section.

(c) Prior to the adoption of the State Building Code and any amendments thereto, the State Building Inspector shall (1) post any proposed code, a statement of purpose for which the proposed code is proposed, a fiscal note associated with compliance with the proposed code prepared pursuant to section 4-168, and a regulatory flexibility analysis prepared pursuant to section 4-168a on the Internet web site of the Department of Administrative Services, (2) give notice electronically to the joint standing committee of the General Assembly having cognizance of matters relating to public safety and security, (3) give notice to any person who has requested the State Building Inspector for advance notice of its proposed code adoption proceedings, (4) provide for a public comment period of forty-five days following the posting of such proposed code, fiscal note and regulatory flexibility analysis, and (5) hold a public hearing on the proposed code not less than twenty nor more than thirty-five days after such posting.

(d) After the close of the public comment period, the State Building Inspector and the Codes and Standards Committee shall respond to each written and oral comment

respecting the proposed code received during the public comment period and at the public hearing. Such response shall include any change made to the proposed code if applicable, and the rationale for such change. The State Building Inspector shall post such response on the Internet web site of the Department of Administrative Services not later than thirty days after the close of the public comment period.

(e) The State Building Inspector and the Codes and Standards Committee shall create and maintain a code-making record for each proposed code, submit such code-making record electronically to the standing legislative regulation review committee and the joint standing committee of the General Assembly having cognizance of matters relating to public safety and security, and post such code-making record on the Internet web site of the Department of Administrative Services. Such code-making record shall include, but need not be limited to: (1) The final wording of the proposed code in a format consistent with a nationally recognized model building code, (2) the fiscal note prepared pursuant to subsection (c) of this section, (3) the regulatory flexibility analysis prepared pursuant to subsection (c) of this section, (4) all written and oral comments received during the public comment period, and (5) the response to such comments prepared pursuant to subsection (d) of this section.

(f) The standing legislative regulation review committee shall have not more than forty-five days from the date the code-making record is submitted to the committee pursuant to subsection (e) of this section to convene a meeting to approve, disapprove or reject without prejudice the proposed code, in whole or in part. If the proposed code is withdrawn, the State Building Inspector shall resubmit the proposed code and the committee shall have not more than forty-five days from the date of such resubmittal to convene a meeting to approve, disapprove or reject without prejudice the resubmitted proposed code. If the committee notifies the State Building Inspector in writing that it is waiving its right to convene a meeting or does not act on a proposed code or a resubmitted proposed code, as the case may be, within such forty-five-day period, the proposed code or resubmitted proposed code shall be deemed to be approved by the committee.

(g) If the committee disapproves a proposed code, in whole or in part, the committee shall notify the State Building Inspector of the disapproval and the reasons for the disapproval. The State Building Inspector shall not take any action to implement such disapproved code, except that the State Building Inspector may submit a substantively new proposed code in accordance with the provisions of this section, provided the

General Assembly may reverse such disapproval in accordance with the provisions of section 4-171.

(h) If the committee rejects a proposed code without prejudice, in whole or in part, the committee shall notify the State Building Inspector of the reasons for the rejection and the State Building Inspector shall resubmit the proposed code in revised form to the committee not later than thirty days after the date of rejection without prejudice. Each resubmission of the proposed code under this subsection shall include a summary of any revisions to the proposed code. The committee shall have not more than forty-five days after the receipt of the resubmittal to review and take action on such resubmitted proposed code in the same manner as provided in subsection (f) of this section.

(i) The State Building Code or any amendment thereto approved or deemed approved by the committee pursuant to subsection (f) of this section is effective and enforceable against any person or party upon its posting on the Internet web site of the Department of Administrative Services, except that: (1) If a later date is required by statute or specified in the code, the later date is the effective date, and (2) a code may not be effective before the effective date of the public act requiring or permitting the code. Such posting shall include a statement by the State Building Inspector certifying that the electronic copy of the code is a true and accurate copy of the code approved or deemed approved in accordance with subsection (f) of this section. The electronic copy of the State Building Code posted on the Internet web site of the Department of Administrative Services shall be the official version for all purposes, including all legal and administrative proceedings.

(j) No provision of the State Building Code or any amendment thereto adopted after May 31, 2016, is valid unless adopted in substantial compliance with the requirements of this section. A proceeding to contest any provision of the code on the ground of noncompliance with the requirements of this section shall be commenced within two years from the effective date of the code.

(k) The State Building Inspector shall advise the public concerning how to obtain a copy of the State Building Code and any amendments thereto.

Section 19a-77(a)(3), as amended by section 4 of substitute House Bill 5169 of the 2018 regular session:

(3) A "family child care home" which consists of a private family home caring for not

more than six children, including the provider's own children not in school full time, where the children are cared for not less than three or more than twelve hours during a twenty-four-hour period and where care is given on a regularly recurring basis except that care may be provided in excess of twelve hours but not more than seventy-two consecutive hours to accommodate a need for extended care or intermittent short-term overnight care. During the regular school year, a maximum of three additional children who are in school full time, including the provider's own children, shall be permitted, except that if the provider has more than three children who are in school full time, all of the provider's children shall be permitted. During the summer months when regular school is not in session, a maximum of three additional children who are otherwise enrolled in school full time, including the provider's own children, shall be permitted if there is an assistant or substitute staff member approved by the Commissioner of Early Childhood, pursuant to section 19a-87b, as amended by this act, present and assisting the provider, except that (A) if the provider has more than three such additional children who are the provider's own children, all of the provider's own children shall be permitted, and (B) such approved assistant or substitute staff member shall not be required if all of such additional children are the provider's own children;

Sec. 29-315. (Formerly Sec. 29-44c). Fire extinguishing system required for certain buildings. (a)(1) When any building is to be built having more than four stories and is to be used for human occupancy, such building shall have an automatic fire extinguishing system approved by the State Fire Marshal on each floor.

(2) When any building is (A) to be built as an educational occupancy, (B) eligible for a school building project grant pursuant to chapter 173, and (C) put out to bid on or after July 1, 2004, such building shall have an automatic fire extinguishing system approved by the State Fire Marshal on each floor. As used in this subsection, "educational occupancy" has the same meaning as provided in the Fire Safety Code.

(3) The State Fire Marshal and the State Building Inspector may jointly grant variations or exemptions from, or approve equivalent or alternate compliance with, the requirement in subdivision (2) of this subsection, where strict compliance with such requirement would entail practical difficulty or unnecessary hardship or is otherwise adjudged unwarranted, provided (A) any such variation or exemption or approved equivalent or alternate compliance shall, in the opinion of the State Fire Marshal and the State Building Inspector, secure the public safety, and (B) the municipality in which such educational occupancy is located complies with all other fire safety requirements

in the Fire Safety Code and the State Building Code with respect to such occupancy. If either the State Fire Marshal or the State Building Inspector determines that a variation or exemption from, or an equivalent or alternate compliance with, said subdivision (2) should not be permitted, no such variation or exemption, or equivalent or alternate compliance shall be granted or approved. Any determination made pursuant to this subdivision by the State Fire Marshal and the State Building Inspector shall be in writing. Any person aggrieved by any decision of the State Fire Marshal or the State Building Inspector, or both, may appeal to the Codes and Standards Committee no later than fourteen days after issuance of the decision. Any person aggrieved by any ruling of the Codes and Standards Committee may appeal to the superior court for the judicial district wherein such occupancy is located.

(b) Each hotel or motel having six or more guest rooms and providing sleeping accommodations for more than sixteen persons for which a building permit for new occupancy is issued on or after January 1, 1987, shall have an automatic fire extinguishing system installed on each floor in accordance with regulations adopted by the Commissioner of Administrative Services. Such regulations shall be incorporated into the State Fire Prevention Code.

(c) Not later than October 1, 1992, each hotel or motel having more than four stories shall have an automatic fire extinguishing system approved by the State Fire Marshal on each floor.

(d) (1) Not later than January 1, 1995, each residential building having more than four stories and occupied primarily by elderly persons shall have an automatic fire extinguishing system approved by the State Fire Marshal on each floor. Not later than January 1, 1994, the owner or manager of or agency responsible for such residential building shall submit plans for the installation of such system, signed and sealed by a licensed professional engineer, to the local fire marshal within whose jurisdiction such building is located or to the State Fire Marshal, as the case may be. For the purposes of this subsection, the phrase "occupied primarily by elderly persons" means that on October 1, 1993, or on the date of any inspection, if later, a minimum of eighty per cent of the dwelling units available for human occupancy in a residential building have at least one resident who has attained the age of sixty-five years.

(2) Each residential building having more than twelve living units and occupied primarily by elderly persons, as defined in subdivision (1) of this subsection, or

designed to be so occupied, for which a building permit for new occupancy is issued or which is substantially renovated on or after January 1, 1997, shall have an automatic fire extinguishing system approved by the State Fire Marshal on each floor.

(e) No building inspector shall grant a building permit unless a fire extinguishing system as required by subsection (a) or (b) of this section is included in the final, approved building plans and no fire marshal or building inspector shall permit occupancy of such a building unless such fire extinguishing system is installed and operable. **The State Fire Marshal may require fire extinguishing systems approved by him to be installed in other occupancies where they are required in the interest of safety because of special occupancy hazards.**

(f) (1) Not later than July 31, 2006, each chronic and convalescent nursing home or rest home with nursing supervision licensed pursuant to chapter 368v shall have a complete automatic fire extinguishing system approved by the State Fire Marshal installed throughout such chronic and convalescent nursing home or rest home with nursing supervision. Not later than July 1, 2004, the owner or authorized agent of each such home shall submit plans for the installation of such system, signed and sealed by a licensed professional engineer, to the local fire marshal and building official within whose jurisdiction such home is located or to the State Fire Marshal, as the case may be, and shall apply for a building permit for the installation of such system. The owner or authorized agent shall notify the Department of Public Health of such submission.

(2) On or before July 1, 2005, and quarterly thereafter, each chronic and convalescent nursing home or rest home with nursing supervision licensed pursuant to chapter 368v shall submit a report to the local fire marshal describing progress in installing the automatic fire extinguishing systems required under subsection (a) of this section. In preparing such report each such nursing home or rest home shall conduct a facility risk analysis. Such analysis shall include, but not be limited to, an analysis of the following factors: Type of construction, number of stories and residents, safeguards in the facility, types of patients, travel distance to exits and arrangement of means of egress. After review of the report, the local fire marshal may require the nursing home or rest home to implement alternative fire safety measures to reduce the level of risk to occupants before installation of automatic fire sprinklers is completed.

(g) Any person who fails to install an automatic fire extinguishing system in violation of any provision of this section shall be subject to a civil penalty of not more than one

thousand dollars for each day such violation continues. The Attorney General, upon request of the State Fire Marshal, shall institute a civil action to recover such penalty.



DEPARTMENT OF ADMINISTRATIVE SERVICES

PROPOSED CHANGE OF THE CONNECTICUT STATE BUILDING CODE AND FIRE SAFETY CODE

DATE SUBMITTED: MAY 7, 2019

CODE INFORMATION

Proposed change to: [X] Building Code [X] Fire Safety Code
Code section(s): SPECIFY NEW CODES NOT YET EXISTING FOR PROPOSAL INFORMATION LISTED BEI

PROPONENT INFORMATION

Name: MAUREEN MEZEREWKY Representing: CT BUILDING AND FIRE SAFETY C
Telephone: 203.735.7355 Email: MEZEREWKY@HOTMAIL.COM
Address: 13 WILLIAM STREET ANSONIA CT 06401
Street Address Town State Zip Code

PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):
PROPOSAL FOR ALL RESIDENTIAL APARTMENT BUILDINGS INCLUDING 3 UNITS OR MORE CONNECTED TO LC

Proposed text change, addition or deletion (attach additional information as needed):
DIRECT FIRE DEPARTMENT NOTIFICATION AND RESPONSE FOR ANY FIRE SETTING OFF THE MAIN BUILDING

Supporting data and documents (attach additional information as needed)
SPECIAL ATTENTION TO ANY APARTMENT BUILDING WITH PREVIOUS FIRE DESTROYING STRUCTURE IN PAR

- [X] This Proposal is original material. (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)
[] This Comment is not original material, its source (if known) is as follows: (such as material / code development proposal from a prior development cycle or proposal submitted to model code committee etc.)

[X] I would like to make an in-person presentation of my proposal.

Release

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Proponent's Signature

MAUREEN MEZEREWKY

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Text From Overfilled CCP Form Fields Pasted Here By OSBI:

SPECIFY NEW CODES NOT YET EXISTING FOR PROPOSAL INFORMATION LISTED BELOW.

PROPOSAL FOR ALL RESIDENTIAL APARTMENT BUILDINGS INCLUDING 3 UNITS OR MORE CONNECTED TO LOCAL FIRE DEPARTMENT FOR IMMEDIATE RESPONSE WITHOUT A THIRD PARTY NEEDED.

DIRECT FIRE DEPARTMENT NOTIFICATION AND RESPONSE FOR ANY FIRE SETTING OFF THE MAIN BUILDING ALARM TO APARTMENTS OF 3 UNITS OR MORE.

SPECIAL ATTENTION TO ANY APARTMENT BUILDING WITH PREVIOUS FIRE DESTROYING STRUCTURE IN PART OR IN WHOLE WITH ANY LOSS OF LIFE INCLUDING PETS TO BE REPORTED TO LOCAL FIRE DEPARTMENT AS SUCH FOR IMMEDIATE RESPONSE TO ALARM WITHOUT A THIRD PARTY NEEDED.