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### International Energy Conservation Code

- **Scope**
  - Buildings
  - Building sites
  - Associated systems and equipment
- **Intent**
  - Regulate design and construction
  - Effective use and conservation of energy
  - Over useful life of each building

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### Responsibilities

- **Design professionals / designers**
  - Develop construction documents that comply
  - Provide compliance documentation
- **Building officials**
  - Agree construction documents comply
  - Inspect as built conditions for compliance
- **Contractors**
  - Complete project in compliance with code

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R103.2 Information on Construction Documents

- **Insulation material and their R-values**
- **Fenestration U-factors** and SHGCs
- **Area-weighted U-factor** and SHGC calculations
- **Mechanical system design criteria**
- **Mechanical and service water heating system and equipment types, sizes and efficiencies**
- **Equipment and system controls**
- **Duct sealing, duct and pipe insulation and location**
- **Air sealing details**
- **Thermal envelope depiction**

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R401.2 Residential Energy Efficiency

- New construction must comply with **one** of
  - Sections R401 through R404
  - Simulated performance alternate **and** "mandatory" provisions of sections R401 through R404
  - Energy Rating Index (ERI) approach in section R406
- Existing buildings covered in Chapter 5

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R502 Additions – Existing Buildings

- **Prescriptive compliance**
  - **New envelope assemblies**
    - Connecticut amendment for visual inspection
      - Building tightness
      - Insulation installation
    - Exception for conversion to condition space
  - **Heating, cooling and duct systems**
    - Exception for testing of <40' new duct extensions
  - **New service hot water systems**
  - **New Lighting systems**

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### R503 Alterations – Existing Buildings

- Altered building envelope assembly compliance
  - Insulation criteria or U-factor alternative
  - Specific insulation requirements
  - Fenestration U-factor requirements
  - Fenestration air leakage rate
  - Exceptions:
    - Storm windows over existing fenestration
    - Existing cavities exposed during construction
    - Existing cavities not exposed
    - Roof recover
    - Roofs without cavity insulation exposed during reroofing

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### R503 Alterations – Existing Buildings

- Compliance with IECC
  - New heating, cooling and duct systems
  - New service hot water systems
  - New lighting systems
- Change in space conditioning
  - Brought into full compliance

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### R401.3 Certificate

- Predominate insulation R-value
  - Ceiling / roof
  - Walls
  - Foundation
- Fenestration U-factor and SHGC
- Results of required duct system air leakage testing
- Results of building envelope air leakage testing
- Types and efficiencies of equipment

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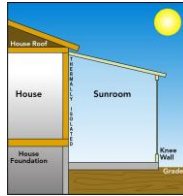
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R402 Sunrooms

- R402.2.13 Sunroom insulation
  - Code requirements or
  - Exception for thermally isolated sunrooms
- R402.3.5 Sunroom fenestration
  - Code requirements or
  - Exception for thermally isolated sunrooms



Thermal Isolation (definition). Physical and space conditioning separation from conditioned spaces). The conditioned space(s) shall be controlled as separate zones for heating and cooling or conditioned by separate equipment.

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R402.4 Air Leakage

Table R402.4.1.1

- General requirements
- Ceiling/attic
- Walls
- Windows, skylights & doors
- Rim joists
- Floors (including above garage and cantilevered floors)
- Crawlspace walls
- Shafts, penetrations
- Narrow cavities
- Garage separation
- Recessed lighting
- Plumbing and wiring
- Showers/tub on exterior wall
- Electrical/phone box on exterior walls
- HVAC register boots
- Concealed sprinklers

STRATEGY	MINIMUM PERFORMANCE REQUIREMENTS	CONSTRUCTION INSTALLATION DETAILS
General requirements	Construction shall be in accordance with applicable codes. The construction shall be a continuous barrier without gaps, joints, or penetrations. The barrier shall be tested in accordance with the requirements of Section R402.4.1.2. The barrier shall be tested in accordance with the requirements of Section R402.4.1.2.	See applicable code requirements for testing and performance. Test results shall be reported to the authority having jurisdiction.
Ceiling/attic	The ceiling shall be tested in accordance with the requirements of Section R402.4.1.2.	The ceiling shall be tested in accordance with the requirements of Section R402.4.1.2.
Walls	The walls shall be tested in accordance with the requirements of Section R402.4.1.2.	The walls shall be tested in accordance with the requirements of Section R402.4.1.2.
Windows, skylights & doors	The windows, skylights and doors shall be tested in accordance with the requirements of Section R402.4.1.2.	The windows, skylights and doors shall be tested in accordance with the requirements of Section R402.4.1.2.
Rim joists	The rim joists shall be tested in accordance with the requirements of Section R402.4.1.2.	The rim joists shall be tested in accordance with the requirements of Section R402.4.1.2.
Floors (including above garage and cantilevered floors)	The floors shall be tested in accordance with the requirements of Section R402.4.1.2.	The floors shall be tested in accordance with the requirements of Section R402.4.1.2.
Crawlspace walls	The crawlspace walls shall be tested in accordance with the requirements of Section R402.4.1.2.	The crawlspace walls shall be tested in accordance with the requirements of Section R402.4.1.2.
Shafts, penetrations	Shafts and penetrations shall be tested in accordance with the requirements of Section R402.4.1.2.	Shafts and penetrations shall be tested in accordance with the requirements of Section R402.4.1.2.
Narrow cavities	Narrow cavities shall be tested in accordance with the requirements of Section R402.4.1.2.	Narrow cavities shall be tested in accordance with the requirements of Section R402.4.1.2.
Garage separation	Garage separation shall be tested in accordance with the requirements of Section R402.4.1.2.	Garage separation shall be tested in accordance with the requirements of Section R402.4.1.2.
Recessed lighting	Recessed lighting shall be tested in accordance with the requirements of Section R402.4.1.2.	Recessed lighting shall be tested in accordance with the requirements of Section R402.4.1.2.
Plumbing and wiring	Plumbing and wiring shall be tested in accordance with the requirements of Section R402.4.1.2.	Plumbing and wiring shall be tested in accordance with the requirements of Section R402.4.1.2.
Showers/tub on exterior wall	Showers and tubs on exterior walls shall be tested in accordance with the requirements of Section R402.4.1.2.	Showers and tubs on exterior walls shall be tested in accordance with the requirements of Section R402.4.1.2.
Electrical/phone box on exterior walls	Electrical and phone boxes on exterior walls shall be tested in accordance with the requirements of Section R402.4.1.2.	Electrical and phone boxes on exterior walls shall be tested in accordance with the requirements of Section R402.4.1.2.
HVAC register boots	HVAC register boots shall be tested in accordance with the requirements of Section R402.4.1.2.	HVAC register boots shall be tested in accordance with the requirements of Section R402.4.1.2.
Concealed sprinklers	Concealed sprinklers shall be tested in accordance with the requirements of Section R402.4.1.2.	Concealed sprinklers shall be tested in accordance with the requirements of Section R402.4.1.2.

R402.4 Air Leakage

- R402.4.1.2 Testing
  - Conducted at any time after creation of all penetrations
  - Verified ≤3 air changes per hour (ach) @2" wg
    - Connecticut amendment for unguarded tests
      - ≤5 ach for multi-family
      - ≤6.5 ach for multi-family ≤850 sq. ft.
  - Signed written report

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### R403 Residential Systems

- R403.1 Controls
  - ≥1 thermostat for each separate system
  - Programmable thermostat for primary system
  - Heat pump supplementary control
- R403.2 Boiler outdoor temperature setback
- R403.3.1 Duct insulation
- R403.3.5 Building cavities
- R403.3.2 Sealing

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### R403 Residential Systems

- R403.3.3 Duct testing
- R403.3.4 Duct leakage
  - Rough-in test: total leakage
    - ≤8 cfm per 100 sq. ft across entire system
    - ≤3 cfm per 100 sq. ft if air handler not installed
  - Postconstruction test: total leakage
    - ≤8 cfm per 100 sq. ft across entire system
- R403.4 Pipe insulation

(Red indicates Connecticut amendment)

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### R403.5 Service Hot Water Systems

- R403.5.1 Circulating hot water systems
  - R403.5.1.1 Circulation systems
  - R403.5.1.2 Heat trace system
- R403.5.3 Demand recirculation systems
- R403.5.3 Pipe insulation: ≥R-3 on piping
  - ≥3/4"
  - Serving more than 1 dwelling unit
  - Located outside conditioned space
  - From water heater to distribution manifold
  - Located under floor slab
  - Buried in piping
  - In recirculating system other than demand recirculation

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## R403.6 Mechanical Ventilation

### • R403.6.1 Whole-house fan efficiency

Mechanical Ventilation System Fan Efficiency			
Fan Location	Air Flow Rate Minimum (cfm)	Minimum Efficacy (cfm/watt)	Air Flow Rate Maximum (cfm)
Range hoods	Any	2.8	Any
In-line fan	Any	2.8	Any
Bathroom, utility room	10	1.4	<90
Bathroom, utility room	90	2.8	Any

Exception: Fans with electronically commutated motors integral to tested and listed HVAC equipment.

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## R403 Residential Systems

- R403.7 Heating and cooling equipment sizing
  - Sized in accordance with ACCA Manual S
  - Based on loads calculated in accordance with ACCA Manual J
- R403.8 Systems serving multiple dwelling units
  - Comply with sections C403 and C404 of IECC

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## R406 Energy Rating Index (ERI)

### Compliance:

- Meet mandatory requirements in sections R401.2 and R403.5.3
- ERI **≤61** for rated design
  - Meet ERI of 61 without use of renewable credits (Red indicates Connecticut amendment)
- Verified by approved agency
- Compliance report
  - Identification of residential project
  - Inspection checklist with results for both reference design and rated design along with all inputs
  - Name of individual completing the report
  - Name and version of compliance software tool

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### Residential Documents at Completion

- Certificate posted on wall in approved location
- Blower door test results
- Duct tightness test results, if required
- Equipment and systems maintenance instructions

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### Sample Residential Project




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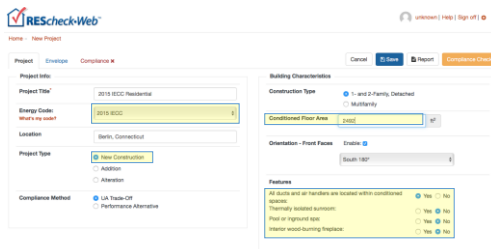
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### REScheck Inputs for Sample Project




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### REScheck for Sample Project

Generated by REScheck-Web Software

#### Compliance Certificate

Project: 2015 IECC Residential

Envelope Assemblies

Assembly	U-Value	U-Value Limit	Compliance
Roof (Flat)	0.05	0.05	Pass
Roof (Slope 2:12)	0.05	0.05	Pass
Walls (Exterior)	0.09	0.09	Pass
Walls (Interior)	0.09	0.09	Pass
Floors (Above Grade)	0.05	0.05	Pass
Floors (Below Grade)	0.09	0.09	Pass
Windows	0.25	0.25	Pass
Doors	0.18	0.18	Pass

Compliance Statement: The proposed building design described here is consistent with the building plans, specifications, and other calculations submitted with the permit application. The proposed building has been designed to meet the 2015 IECC requirements in REScheck-Web and to comply with the mandatory requirements listed in the REScheck Inspection Checklist.

Name - Title Signature Date

The proposed building has been designed to meet the 2015 IECC requirements in REScheck-Web and to comply with mandatory requirements listed in the REScheck Inspection Checklist.

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### REScheck for Sample Project

REScheck Software Version : REScheck-Web

#### Inspection Checklist

Energy Code: 2015 IECC

Requirements: 97.0% were addressed directly in the REScheck software

Text in the "Comments/Assumptions" column is provided by the user in the REScheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is denoted in a separate table, a reference to that table is provided.

Section & Item ID	Pre-Inspection/Plan Review	Plans Verified Value	Field Verified Value	Compliant?	Comments/Assumptions
103.1 103.2 103.3 103.4 103.5 103.6 103.7 103.8 103.9 103.10 103.11 103.12 103.13 103.14 103.15 103.16 103.17 103.18 103.19 103.20 103.21 103.22 103.23 103.24 103.25 103.26 103.27 103.28 103.29 103.30 103.31 103.32 103.33 103.34 103.35 103.36 103.37 103.38 103.39 103.40 103.41 103.42 103.43 103.44 103.45 103.46 103.47 103.48 103.49 103.50 103.51 103.52 103.53 103.54 103.55 103.56 103.57 103.58 103.59 103.60 103.61 103.62 103.63 103.64 103.65 103.66 103.67 103.68 103.69 103.70 103.71 103.72 103.73 103.74 103.75 103.76 103.77 103.78 103.79 103.80 103.81 103.82 103.83 103.84 103.85 103.86 103.87 103.88 103.89 103.90 103.91 103.92 103.93 103.94 103.95 103.96 103.97 103.98 103.99 104.00	Construction drawings and documentation demonstrate energy code compliance for the building envelope. Thermal envelope represented on construction documents.			<input checked="" type="checkbox"/> Complete <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
103.1 103.2 103.3 103.4 103.5 103.6 103.7 103.8 103.9 103.10 103.11 103.12 103.13 103.14 103.15 103.16 103.17 103.18 103.19 103.20 103.21 103.22 103.23 103.24 103.25 103.26 103.27 103.28 103.29 103.30 103.31 103.32 103.33 103.34 103.35 103.36 103.37 103.38 103.39 103.40 103.41 103.42 103.43 103.44 103.45 103.46 103.47 103.48 103.49 103.50 103.51 103.52 103.53 103.54 103.55 103.56 103.57 103.58 103.59 103.60 103.61 103.62 103.63 103.64 103.65 103.66 103.67 103.68 103.69 103.70 103.71 103.72 103.73 103.74 103.75 103.76 103.77 103.78 103.79 103.80 103.81 103.82 103.83 103.84 103.85 103.86 103.87 103.88 103.89 103.90 103.91 103.92 103.93 103.94 103.95 103.96 103.97 103.98 103.99 104.00	Construction drawings and documentation demonstrate energy code compliance for lighting and mechanical systems. Systems serving multifamily dwelling units must demonstrate compliance with the IECC Commercial Provisions.			<input checked="" type="checkbox"/> Complete <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
403.1 403.2 403.3 403.4 403.5 403.6 403.7 403.8 403.9 403.10 403.11 403.12 403.13 403.14 403.15 403.16 403.17 403.18 403.19 403.20 403.21 403.22 403.23 403.24 403.25 403.26 403.27 403.28 403.29 403.30 403.31 403.32 403.33 403.34 403.35 403.36 403.37 403.38 403.39 403.40 403.41 403.42 403.43 403.44 403.45 403.46 403.47 403.48 403.49 403.50 403.51 403.52 403.53 403.54 403.55 403.56 403.57 403.58 403.59 403.60 403.61 403.62 403.63 403.64 403.65 403.66 403.67 403.68 403.69 403.70 403.71 403.72 403.73 403.74 403.75 403.76 403.77 403.78 403.79 403.80 403.81 403.82 403.83 403.84 403.85 403.86 403.87 403.88 403.89 403.90 403.91 403.92 403.93 403.94 403.95 403.96 403.97 403.98 403.99 404.00	Heating and cooling equipment is sized per ACCA Manual S based on loads calculated per ACCA Manual J or other methods approved by the code official.	Heating: Bluhf_... Cooling: Bluhf_...	Heating: Bluhf_... Cooling: Bluhf_...	<input checked="" type="checkbox"/> Complete <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

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### REScheck for Sample Project

MECHANICAL AND WATER HEATING (HVAC)

2015 IECC: Heat systems have loads of not less than 10,000 Btu/h for boilers and 5,000 Btu/h for heat pumps.

Requirement resolution:  
 Requirement will be met.  
 All ducts and air handlers are located within conditioned spaces.  
 Please reference page(s) / section(s):

2015 IECC: Ducts are pressure tested to determine air leakage with either, "rough-in" test. Total leakage measured with a joint manufacturer's or transfer enclosure if installed at time of test. Pass/constructor test: Total leakage measured with a pressure manufacturer's or transfer enclosure.

Requirement resolution:  
 Requirement will be met.  
 All ducts and air handlers are located within conditioned spaces.  
 Please reference page(s) / section(s):

2015 IECC: All HVAC equipment has been tested for air leakage in accordance with the code requirements.

Requirement resolution:  
 Requirement will be met.  
 Requirement is not applicable.  
 Please reference page(s) / section(s):

2015 IECC: All HVAC equipment has been tested for air leakage in accordance with the code requirements.

Requirement resolution:  
 Requirement will be met.  
 Requirement is not applicable.  
 Please reference page(s) / section(s):

2015 IECC: All HVAC equipment has been tested for air leakage in accordance with the code requirements.

Requirement resolution:  
 Requirement will be met.  
 Requirement is not applicable.  
 Please reference page(s) / section(s):

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### REScheck for Sample Project

Section # & Req. ID	Foundation Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.1.1 [FO4] ⓘ	Conditioned basement wall insulation R-value. Where interior insulation is used, verification may need to occur during foundation inspection. Not required in warm-humid locations in Climate Zone 3.	R: _____ R: _____	R: _____ R: _____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values
303.2 [FO5] ⓘ	Conditioned basement wall insulation installed per manufacturer's instructions.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
402.2.9 [FO5] ⓘ	Conditioned basement wall insulation depth of burial or distance from top of wall.	_____ ft	_____ ft	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values
303.2.1 [FO11] ⓘ	A protective covering is installed to protect exposed exterior insulation and extends a minimum of 6 in. below grade.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement is not applicable.
403.9 [FO12] ⓘ	Snow- and ice-melting system controls installed.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement is not applicable.

Additional Comments/Assumptions:

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### REScheck for Sample Project

Section # & Req. ID	Framing / Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.1.1, 402.1.4 [FR1] ⓘ	Door U-factor.	U: _____	U: _____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values
402.1.1, 402.3.1, 402.5 [FR2] ⓘ	Glazing U-factor (area-weighted average).	U: _____	U: _____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values
303.1.3 [FR4] ⓘ	U-factors of fenestration products are determined in accordance with the NFRC test procedure or taken from the default table.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
402.4.1.1 [FR5] ⓘ	Air barrier and thermal barrier installed per manufacturer's instructions.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
402.4.3 [FR20] ⓘ	Fenestration that is not site built is listed and labeled as meeting AAMA (WMA) CSA 101.5, 204/40 or has infiltration rates per NFRC 400 that do not exceed code limits.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

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### REScheck for Sample Project

403.3.1 [FR12] ⓘ	Supply and return ducts in attics insulated $\geq$ R-8 where duct is $\geq$ 3 inches in diameter and $\geq$ R-6 where $<$ 3 inches. Supply and return ducts in other portions of the building insulated $\geq$ R-6 for diameter $\geq$ 3 inches and R-4.2 for $<$ 3 inches in diameter.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Ducts located completely inside the building envelope.
403.3.5 [FR15] ⓘ	Building cavities are not used as ducts or plenums.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
403.4 [FR17] ⓘ	HVAC piping conveying fluids above 105 F or chilled fluids below 55 F are insulated to 2R-3.	R: _____	R: _____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
403.4.1 [FR14] ⓘ	Protection of insulation on HVAC piping.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
403.5.3 [FR18] ⓘ	Hot water pipes are insulated to 2R-3.	R: _____	R: _____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
403.6 [FR19] ⓘ	Automatic or gravity dampers are installed on all outdoor air intakes and exhausts.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

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REScheck for Sample Project

402.2.4 [113]	Attic access hatch and door insulation $\geq$ R value of the adjacent assembly.	R=	R=	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
402.4.1.2 [117]	Blower door test @ 50 Pa. $\leq$ 5 ach in Climate Zones 1-2, and $\leq$ 3 ach in Climate Zones 3-8.	ACH 50 =	ACH 50 =	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
403.3.4 [142]	Duct tightness test result of $\leq$ 4 cfm/100 R2 across the system or $\leq$ 3 cfm/100 R2 without air handler @ 25 Pa. For rough-in tests, verification may need to occur during framing inspection.	cfm/100 R2	cfm/100 R2	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: All ducts and air handlers are located within conditioned space.
403.3.3 [127]	Ducts are pressure tested to determine air leakage with either: Rough-in test: Total leakage measured with a pressure differential of 0.1 inch w.g. across the system including the manufacturer's air handler enclosure if installed at time of test. Postconstruction test: Total leakage measured with a pressure differential of 0.1 inch w.g. across the entire system including the manufacturer's air handler enclosure.	cfm/100 R2	cfm/100 R2	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: All ducts and air handlers are located within conditioned space.
403.3.2.1 [124]	Air handler leakage designated by manufacturer at $\leq$ 2% of design air flow.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable	Requirement will be met.

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REScheck for Sample Project

Section # & Req ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
401.3 [117]	Compliance certificate posted.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
303.3 [118]	Manufacturer manuals for mechanical and water heating systems have been provided.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

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Commercial Provisions

- Chapter 3 General Requirements
- Chapter 5 Existing Buildings
  - C501 General
  - C502 Additions
  - C503 Alterations
  - C504 Repairs
  - C505 Change of occupancy or use
- Chapter 4 Commercial Energy Efficiency

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### C401.2 Energy Efficiency Application

- New building shall comply with **one** of:
  1. ANSI/ASHRAE/IESNA Standard 90.1-2013  
(with Normative Appendix G Excerpt published in June 2015)
  2. IECC envelope, mechanical systems, service water heating, electrical power and lighting systems requirements **AND** one additional efficiency option
  3. IECC Total Building Performance where proposed building energy cost  $\leq$  85% of standard reference design building

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### C406 Additional Efficiency Package Option

- Building complies with **at least one** of
  1. More efficient HVAC performance
  2. Reduced lighting power density
  3. Enhanced digital lighting control
  4. On-site supply of renewable energy
  5. Dedicated outdoor air system
  6. Reduced energy use in service water heating for defined building types
- Individual tenant spaces comply with:
  - 1, 2, 3, 5 or 6 above
  - Unless entire building complies with 4 above

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### C103.2 Information on Construction Documents

- Insulation material and their R-values
- Fenestration U-factors and SHGCs
- Area-weighted U-factor and SHGC calculations
- Mechanical system design criteria
- Equipment types, sizes and efficiencies
- Economizer description
- Equipment and system controls
- Fan motor horsepower (hp) and controls
- Duct sealing, duct and pipe insulation and location
- Lighting fixture schedule with wattage and control narrative
- Location of daylight zones on floor plans
- Air sealing details
- Building thermal envelope depiction on drawings

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## Compliance Documentation

- **Critical for commercial projects**
  - Multiple compliance paths
  - Requirements imposed by envelope design decisions
- **Options**
  - COMcheck
  - AIA sample documents
  - Standard forms
  - Developed by individual design professionals

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## C302.1 General Requirements

- **Connecticut amendment**
  - C302.1 Light pollution control
    - Exterior lighting from building service
    - Full cutoff luminaires

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## C502 Additions – Existing Buildings

- **Compliance**
  - Addition alone complies with
    - IECC or
    - ASHRAE/IESNA Standard 90.1-2013
  - Existing building & addition (as single building) complies with
    - IECC or
    - ASHRAE/IESNA Standard 90.1-2013
- **Unaltered portions of existing building or building system not required to comply**

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### C502.2 Additions - Existing Buildings

- Prescriptive compliance
  - C502.2.1 Vertical fenestration
    - Total building fenestration area with addition complies
    - Total building fenestration area with addition's fenestration area exceeds maximum allowed
      - Addition alone complies
      - Total building performance method for total building

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### C502.2 Additions - Existing Buildings

- Prescriptive compliance
  - C502.2.2 Skylight area
    - Total fenestration area with new skylight area complies
    - Total building skylight area exceeds maximum allowed
      - Addition alone complies
      - Total building performance method for total building

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### C502.2 Additions - Existing Buildings

- Prescriptive compliance
  - C502.2.3 Building mechanical system
  - C502.2.4 Service water-heating systems
  - C502.2.6 Lighting power and systems
    - Addition alone complies
    - Existing building & addition complies as single building

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### C503 Alterations – Existing Buildings

- Alterations comply with
  - IECC or
  - ASHRAE/IESNA Standard 90.1-2013
- Altered building no less conforming
- Exceptions:
  - Storm windows installed over existing fenestration
  - Surface-applied window film on existing single-pane fenestration
  - Existing cavities exposed during construction filled with insulation
  - Construction where cavity is not exposed
  - Roof recover
  - Air barrier for roof recover & roof replacement & no other part of envelope
  - Replace <50% luminaires in space without increasing installed interior lighting power

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### C503 Alterations – Existing Buildings

- C503.3.1 Roof replacement where
  - Roof assembly part of thermal envelope
  - Insulation entirely above roof deck
- C503.3.2 Vertical fenestration
  - Total building fenestration area complies
  - Total building fenestration area exceeds maximum
    - Space adjacent to new fenestration complies
    - Total building performance method for total building

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### C503 Alterations – Existing Buildings

- C503.3.3 Skylight area
  - Total building skylight area complies
  - Total building skylight area exceeds maximum
    - Space adjacent to new skylight complies
    - Total building performance method for total building

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### C503 Alterations – Existing Buildings

- C503.4 Heating and cooling systems
  - New systems comply
  - Economizers for new systems in alteration
- C503.5 Service hot water systems
  - New systems comply
- C503.6 Lighting systems
  - Installed as part of alteration comply
    - Replaces ≥10% luminaires in space or
    - Increases installed interior lighting power

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### C503 Alterations – Existing Buildings

- Space converted to conditioned space must fully comply
- Change of occupancy or use comply where
  - Results in increased energy demand
  - Change in interior lighting building/ space type

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### C402.1.3 Thermal Envelope

- Insulation Component (R-value-based method)
  - R-value of insulation in framing cavity
  - R-value of continuous insulation

Continuous insulation (ci): Insulation that is continuous across all structural members without thermal bridges other than fasteners and service openings. It is installed on the interior or exterior or is integral to any opaque surface of the building envelope

Yellow indicates change from 2012 IECC

Table C402.1.3			
Opaque Thermal Envelope Insulation Requirements	Climate Zone		Group
	All Other	R	
<b>Roofs</b>			
Insulation in roof above Deck	R-30ci	R-30ci	
Metal Buildings (without thermal blocks)	R-199 or 111ci	R-199 or 111ci	
Attic and Other	R-38	R-49	
<b>Walls Above Grade</b>			
Mass	R-11.4ci	R-13.3ci	
Metal Buildings	R-139 or 13ci	R-139 or 13ci	
Metal Framed	R-139 or 7.5ci	R-139 or 7.5ci	
Wood Framed and Other	R-139 or 3.8ci	R-139 or 7.5ci or R-209 or 3.8ci	
<b>Walls Below Grade</b>			
Below-grade wall	R-7.5ci	R-7.5ci	
<b>Floors</b>			
Mass	R-10ci	R-12.5ci	
Joist/Framing	R-30	R-30	
<b>Slab-on-Grade Floors</b>			
Unheated Slabs	R-10 or R24 <sup>ci</sup> below	R-10 or R24 <sup>ci</sup> below	
Heated Slabs	R-15 or R6 <sup>ci</sup> below	R-15 or R6 <sup>ci</sup> below	
<b>Opaque Floors</b>			
Nonswinging	R-4.75	R-4.75	

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### C402.1.3 Thermal Envelope

- Assembly U-factor, C-factor or F-factor-based method
  - Determination for cold-formed steel walls table
  - Assembly values in appendix A of Standard 90.1
- Component performance alternative

Yellow indicates change from 2012 IECC

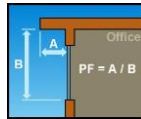
Climate Zone	All Other	Group R
<b>Roofs</b>		
Insulation@entry@above@deck	U-0.032	U-0.032
Metal@buildings	U-0.035	U-0.035
Attic@n@other	U-0.027	U-0.021
<b>Walls,@above@Grade</b>		
Mass	U-0.090	U-0.080
Metal@buildings	U-0.052	U-0.052
Metal@framed	U-0.064	U-0.064
Wood@framed@n@other	U-0.064	U-0.064
<b>Walls,@Below@Grade</b>		
Below-grade@wall	C-0.119	C-0.119
<b>Floors</b>		
Mass	U-0.074	U-0.064
Joist@framing	U-0.033	U-0.033
<b>Slab-on-Grade@Floors</b>		
Unheated@slabs	F-0.54	F-0.54
Heated@slabs	F-0.65	F-0.65
<b>Opaque@Doors</b>		
Swinging	U-0.37	U-0.37

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### C402.1.3 Thermal Envelope

#### Fenestration

Building Envelope Fenestration Requirements		
Climate Zone 5		
Vertical Fenestration U-factor		
Fixed Fenestration	0.38	
Operable Fenestration	0.45	
Entrance Doors	0.77	
Vertical Fenestration SHGC		
Orientation	SEW	N
PF < 0.2	0.40	0.53
0.2 ≤ PF < 0.5	0.48	0.58
PF ≥ 0.5	0.64	0.64
Skylights		
U-factor	0.50	
SHGC	0.40	



Yellow indicates change from 2012 IECC

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### C402.4.1 Fenestration

- **Maximum area**
  - ≤30% gross above-grade wall area
  - ≤3% gross roof area
- **Maximum area with daylight responsive controls**
  - ≤40% gross above grade wall area
    - Net floor area in daylight zone
      - ≥50% for buildings ≤2 stories
      - ≥25% for buildings ≥3 stories
    - Visible transmittance ≥0.44
  - ≤5% gross roof area

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### C402.4 Fenestration

- **Minimum skylight area**
  - Above enclosed spaces
    - >2,500 sq. ft.
    - >15 ft. ceiling height over  $\geq 75\%$  floor area
    - Minimum daylight zone area
    - For defined spaces
- **Multilevel lighting controls**
- **>90% haze factor for defined spaces**

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### C402.5.1 Air Leakage

- **Air barriers**
  - Continuous throughout envelope
- **Air barrier construction**
  - Continuous for all assemblies
  - Continuous across all joints and transitions
  - Seal joints and seams
  - Seal penetrations

Table C402.5.2	
Maximum Air Infiltration Rate for Fenestration Assemblies	
Fenestration Assembly	Max Rate (cfm/sf)
Windows	0.20
Sliding doors	0.20
Swinging doors	0.20
Skylights - with condensation weepage openings	0.30
Skylights - all others	0.20
Curtain walls	0.06
Storefront glazing	0.06
Commercial glazed swinging entrance doors	1.00
Revolving doors	1.00
Garage doors	0.40
Rolling doors	1.00
High-speed doors	1.30

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### C403.2 Mechanical Systems

- **C403.2.1 Calculation of heating and cooling loads**
  - Per ASHRAE Standard 183
  - All loads based on project design
  - Account for energy recovery
- **C403.2.2 Equipment and system sizing**
  - Output capacity  $\leq$  calculated loads

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## C403.2 Mechanical Systems

- **Controls**

- Thermostatic
- Automatic start / stop / setback
- Shutoff damper
- Zone isolation
- Boiler outdoor temperature setback
- Airflow control
  - $\geq 65,000$  Btu/h for DX cooling
  - $\geq 1/4$  hp for chilled water and evaporative cooling
- Compressor staging
  - Minimum number based on capacity

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## C403.2 Ventilation

- **C403.2.6.1 Demand Control Ventilation**
  - Spaces  $> 500$  sq. ft. and
  - Average occupant load  $\geq 25$  people per 1,000 sq. ft.
  - Defined systems
- **C403.2.6.2 Enclosed parking garage ventilation**
  - Automobiles operating under own power
  - Automatic fan control
- **C403.2.7 Energy recovery ventilation systems**
- **C403.2.8 Kitchen exhaust systems**

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## C403.2 Mechanical Systems

- **HVAC equipment performance requirements**
- **Refrigeration equipment performance**
  - **Efficiencies for**
    - Commercial refrigeration
    - Commercial refrigerators and freezers
  - **Requirements for**
    - Walk-in coolers
    - Walk-in freezers
    - Refrigerated warehouse coolers
    - Refrigerated warehouse freezers
    - Refrigerated display cases
    - Refrigeration system condensers and compressors

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### C403.3 Economizers

Air or water economizer on each cooling system

• Exception:

- Individual fan cooling units <54,000 Btu/h meeting **one**
  - Direct expansion coils
  - Chilled water system capacity less units with air economizer
    - 1,320,000 Btu/h for local water-cooled system
    - 1,720,000 Btu/h for air-cooled system or district system
- Total capacity of all-fan units without economizer
  - 20% total supply capacity in building or
  - 300,000 Btu/h
- <5× capacity chilled water system serving residential

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### C403.3 Economizers

• Fault Detection and Diagnostics

- Required for (when equipped with economizer)
  - Direct-expansion air-cooled unitary units
  - Variable refrigerant flow units
- Fault detection capabilities
  - Air temperature sensor failure/fault
  - Not economizing when unit should be
  - Economizing when unit should not be
  - Dampers not modulating
  - Excess outdoor air

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### C404 Service Water Heating

- C404.2 Equipment performance efficiency tables
- C404.2.1 High input-rated systems
- C404.3 Heat traps
- C404.4 Pipe insulation
- C404.5 Efficient heated water supply piping
  - C404.5.1 Maximum allowable pipe length
    - From nearest source to termination of fixture supply pipe
  - C404.5.2 Maximum allowable pipe volume

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### C404 Service Water Heating

- C404.6.1 Circulation system controls
- C404.6.2 Heat trace system controls
- C404.6.3 Controls for hot water storage
- C404.7 Demand recirculation controls
- C404.9 Pools and permanent spas
  - C404.9.1 Heaters
  - C404.9.2 Time switches
  - C404.9.3 Covers
- C404.10 Portable spas

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### C405.2 Lighting System Controls

- C405.2.1 Occupant sensor control required spaces
  1. Classrooms/lecture/training rooms
  2. Conference/meeting/multipurpose rooms
  3. Copy/print rooms
  4. Lounges
  5. Employee lunch and break rooms
  6. Private offices
  7. Restrooms
  8. Storage rooms
  9. Janitorial closets
  10. Locker rooms
  11. Other spaces ≤300 ft<sup>2</sup> enclosed by floor-to-ceiling height partitions
  12. Warehouses
- C405.2.1.1 Occupant sensor control functions
- C405.2.1.2 Occupant sensor control functions in warehouse

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### C405.2 Lighting System Controls

- C405.2.2 Time-switch controls
  - In each area without occupant sensor control
  - Manual control for light-reduction
- C405.2.2.2 Light reduction control
- C405.2.3 Daylight-responsive controls
  - >150 watts of general lighting within daylight zone
  - Sidelight zones
  - Toplight zones

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## C405.2 Lighting System Controls

- C405.2.5 Exterior lighting controls
  1. Automatic off based on available daylight
  2. Automatic off for facade or landscape lighting
    - Dusk to dawn and
    - Set opening and closing time
  3. Automatic lighting power reduction (not covered in 2)
    - From not later than midnight to 6 am
    - From 1 hour after closing to 1 hour before opening
    - After no activity detected after 15 minutes

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## C405.4 Interior Lighting Power

Connected lighting power ≤ Lighting power allowance

- C405.4.1 Total connected interior lighting power
  - Sum of all interior lighting equipment in watts
- C405.4.2 Total interior lighting power allowance
  - Building area method or
  - Space-by-space method

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## C405.5.1 Exterior Building Lighting Power

- Total exterior lighting power allowance
  - Base site allowance
  - Lighting zones
  - Illuminated and permitted individual areas
  - Tradeable surfaces
  - Nontradeable surfaces
  - Exceptions
    - Specialized lighting associated with transportation
    - Advertising and directional signage
    - Integral to equipment or instrumentation
    - Theatrical purposes
    - Athletic playing areas
    - Temporary lighting
    - Industrial production, material handling, transportation sites and associated storage areas
    - Theme elements in theme/ amusement parks
    - Used to highlight features of public monuments, historic landmarks or buildings

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## C405 Electrical Power

- C405.7 Electrical transformers
- C405.8 Electrical motors
- C405.9 Vertical & horizontal transportation
  - C405.9.1 Elevator cabs
    - $\geq 35$  lumens per watt for lamination in each cab
    - $\leq 0.33$  watts/cfm for ventilation fans
    - Controls to de-energize fans & lighting
  - C405.9.2 Escalators and moving walks
    - Automatic speed control
  - C405.9.2 Regenerative drive
    - For one-way down or reversible escalators

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## C408 System Commissioning

- C408.2 Mechanical & service water-heating
  - Indicated on construction documents
  - Prior to final inspection
    - Evidence of commissioning and completion
    - Documents to owner
    - Documents available to building official
  - Exceptions
    - Systems in buildings
      - $< 480,000$  Btu/h total cooling capacity and
      - $< 600,000$  Btu/h combined water & space heating capacity
    - Systems serving dwelling units & sleeping units

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## C408 System Commissioning

- C408.3.1 Lighting system functional testing
  - C408.3.1.1 Occupant sensor controls
  - C408.3.1.2 Time-switch controls
  - C408.3.1.3 Daylight responsive controls
- C408.3.2 Documentation requirements

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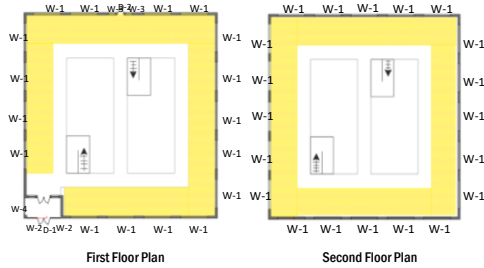
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### Sample Commercial Project



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### COMcheck Input for Sample Project

The screenshot shows the 'COMcheck-Web' interface for a '2015 IECC Sample Office' project. The 'INT. LIGHTING' tab is selected. A table titled 'Interior Lighting Method and Areas' is displayed, listing the following items:

Exterior Lighting Area	Area Description	Quantity	W/U
1	Main empty	40% of floor	
2	Workshop, 10' foot x 10'	100' of wall	
3	Parking area	33000 sq'	
4	Illuminated area of facade	2600 sq'	

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### COMcheck Input for Sample Project

The screenshot shows the 'COMcheck-Web' interface for the same project, with the 'MECHANICAL' tab selected. It displays a list of requirements and details for a 'Mechanical HVAC System'. The 'MECHANICAL HVAC System' details include:

- Compliance Choices:** Requirement is met.
- Requirements:**
  - 2015 IECC 603.1.1: Systems include optimum cost controls.
  - 2015 IECC 603.1.2: Fresh outdoor air systems and equipment installed with an outdoor airflow of 20 units.
  - 2015 IECC 603.1.3: Outdoor airflow (OA) water column heights or leakage testing required. Meet the requirements for design.
  - 2015 IECC 603.1.4: Heating and Cooling HVAC systems controls include:
    - 2015 IECC 603.1.4.1: VAV Box has been tested and proven.
    - 2015 IECC 603.1.4.2: VAV Box has been tested and proven.
- RECOMMENDATIONS:**
  - 2015 IECC 603.1.5: Fresh and outdoor air combinations being for systems 5000 cfm or smaller.
  - 2015 IECC 603.1.6: Exhaust airflow less than 10% of design.
  - 2015 IECC 603.1.7: Drive and operate controls in spaces continuously or are inspected when all other codes are inspected.
- Notes:**
  - 2015 IECC 603.1.8: Meet efficiency program/strategy.

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### COMcheck Report for Sample Project

#### Additional Efficiency Package

Reduced interior lighting power. Requirements are implicitly enforced within interior lighting allowance calculations.

#### Allowed Interior Lighting Power

A Area Category	B Floor Area (SF)	C Allowed Watts / SF	D Allowed Watts
1-Office	2000	0.74	1470
Total Allowed Watts =			1470

#### Proposed Interior Lighting Power

A Fixture ID - Descriptions / Lamp / Wattage Per Lamp / Ballast	B Lamp/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
1-Office Linear Fluorescent: 48" T8 32W (Super T8), Premium efficiency:	2	218	48	10460
Linear Fluorescent: 24" T8 17W, Premium efficiency:	2	70	28	1960
Linear Fluorescent: 24" T8 17W, Premium efficiency:	2	70	28	1960
Linear Fluorescent: 48" T8 32W (Super T8), Premium efficiency:	1	4	28	112
LED LED PAR 13W:	1	30	13	390
Total Proposed Watts =				14502

#### Interior Lighting PASSES: Design 2%, better than code

#### Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2015 IECC requirements in COMcheck Version COMcheck-Web and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

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### COMcheck Report for Sample Project

#### COMcheck Software Version COMcheck-Web

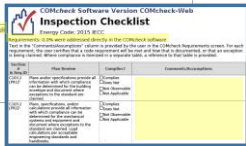
#### Inspection Checklist

#### Energy Code: 2015 IECC

Requirements: 100.0% were addressed directly in the COMcheck software.

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is deemed in a separate table, a reference to that table is provided.

Section # & Req. ID	Plan Review	Complies?	Comments/Assumptions
C103.2 (PR1)2	Plans and/or specifications provide all information with which compliance can be determined for the building envelope and document where exceptions to the standard are claimed.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C103.2 (PR1)2	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical, electrical, and plumbing systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.



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### COMcheck Report for Sample Project

C103.2 (PR1)2	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C103.2 (PR1)2	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the exterior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include exterior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C402.4.1 (PR10)1	The vertical fenestration area <= 30 percent of the gross above-grade wall area.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

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### COMcheck Report for Sample Project

Section # & Req.ID	Plan Review	Complies?	Comments/Acceptions
C402.4.1 [F111]†	The skylight area ≤ 3 percent of the gross roof area.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C402.4.2 [F114]†	In enclosed spaces > 2500 ft <sup>2</sup> directly under a roof with ceiling heights > 15 ft, and used as an office, lobby, atrium, concourse, corridor, storage, gymnasium/exercise center, convention center, automotive service, manufacturing, non-refrigerated warehouse, retail store, distribution/sorting area, transportation, or workshop, the following requirements apply: (a) the daylight zone under skylights is ≥ ½ the floor area; (b) the skylight area to daylight zone is ≥ 3 percent with a skylight VT ≥ 0.50, or a minimum skylight effective aperture ≥ 1 percent.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
C406 [F19]†	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: Plan Pages/Specifications

Additional Comments/Acceptions:

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### COMcheck Report for Sample Project

C408.2.1 [F128]†	Commissioning plan developed by registered design professional or approved agency.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.3.1 [F131]†	HVAC equipment has been tested to ensure proper operation.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.3.2 [F110]†	HVAC control systems have been tested to ensure proper operation, calibration and adjustment of controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.3.3 [F132]†	Economizers have been tested to ensure proper operation.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.4 [F129]†	Preliminary commissioning report completed and certified by registered design professional or approved agency.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

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### AIA CT Sample Documentation

**AIA Connecticut Web Page  
Committees Building Performance & Regulations**

<http://aiact.org/about-aia-connecticut/committees/building-performance-regulations/>

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### AIA CT Sample Documentation

See the instructions and disclaimer for this spreadsheet.		Commercial Change + CFI	Values Incorporated Into This Doc
	Element	Requirement	Design
<b>Section C401</b>			
<b>Application</b>			
Compliance with C402, C403, C404 and C405 AND at least one of		New construction	
Additional Efficiency Package Option (C406)			
1. More efficient HVAC performance			
2. Reduced lighting power density			
3. Enhanced lighting controls			
4. On-site renewable energy			
5. Provisions of dedicated outdoor air systems			
6. High-efficiency service water heating			
Compliance with C402, C403, C404 or C405	Addition Alteration	Existing building	
<b>Section C402</b>			
<b>Building envelope (Climate Zone 5A)</b>			
One-conditional category (nonresidential or residential)			
Gross roof area			
Total (new construction)			
Total (existing & addition/alteration as single building)			
Addition only			
Alteration only			
Roofs: Maximum assembly U-factor			
Minimum insulation R-value			
Walls: Above-grade maximum assembly U-factor			

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### AIA CT Sample Documentation

Total skylight area			
Total (new construction)			
Total (existing & addition/alteration as single building)			
Addition only			
Alteration only			
Skylight: percent of roof area			
Total (new construction)			
Total (existing & addition/alteration as single building)			
Addition only			
Alteration only			
Increased skylight area with automatic daylight responsive controls			
Required minimum skylight fenestration area with daylight responsive control			
Skylight:			
Maximum assembly U-factor			
Maximum assembly solar heat gain coefficient			
Visible transmittance (VT)			
Haze factor			

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### AIA CT Sample Documentation

Section C403			
<b>Building mechanical systems</b>			
Calculated load	Existing		
Equipment output capacity	Existing		
<b>HVAC equipment performance</b>			
Unitary air conditioners, electrically operated, minimum efficiency	Existing		
Condenser units, electrically operated, minimum efficiency	Existing		
Unitary and applied heat pumps, electrically operated, minimum			
Unitary and applied heat pumps, electrically operated, minimum			
Package terminal air conditioners	New		
Package terminal heat exchangers	Replacement		
Package terminal heat exchangers	Replacement		
Package terminal heat pumps	New		
Package terminal heat pumps	Replacement		
Single package vertical air conditioners cooling mode			
Single package vertical heat pumps			
Single package vertical heat pump (heating mode) minimum efficiency			

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### AIA CT Sample Documentation

System	Control	Control Method	Control Location	Control Authority
<b>HVAC system control</b>				
	Zone thermostatic control			
	Independent perimeter system thermostatic control			
	Control device for each humidification and/or dehumidification system			
	Heat pump supplementary electric resistance heat control			
	Setpoint overlap restriction (deadband)			
	Automatic off-hour setback and shutdown zone control			
	Automatic start control			
	Automatic damper closure control			
	Freeze protection system controls			
	Hot water boiler outdoor temperature setback control			
	Economizer Fault Detection and Diagnostics (FDD)			
	Ventilation system controls			
	Energy recovery ventilation systems			
	Kitchen exhaust systems			

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### AIA CT Sample Documentation

System	Control	Control Method	Control Location	Control Authority
<b>Section C415</b>				
<b>General power and lighting</b>				
	Class lighting floor area			
	Power lighting power allowance calculation (building area or space-by-space) method			
	Power lighting power allowance	Allowance		
	Control device for each lighting power device	Automatic		
	Additional interior lighting power (and with space-by-space method, with efficacy range, in building area)	Percentage range		
	Lighting controls			
	Occupant sensor controls in occupied spaces (automatic on or manual on or automatic on to 50% power / manual off)			
	Occupant sensor controls in warehouse aisles and open areas (automatically reduce lighting 50% when unoccupied)			
	Time-schedule controls in each area not provided with occupant sensor controls			
	Light-reduction controls in spaces with natural controls (50% power reduction with naturally available illumination)			
	Daylight-responsive controls			
	Special application controls			
	Emergency lighting controls			

Classrooms / lecture / training rooms  
Conference / meeting / multipurpose rooms  
Copy / print rooms  
Lounges  
Employee lunch & break  
Private offices  
Restrooms  
Storage rooms  
Janitorial closet  
Locker room  
by floor-to-ceiling height partitions

In sidelight daylight zones  
In toptight daylight zones

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### AIA CT Sample Documentation

System	Control	Control Method	Control Location	Control Authority
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Locker room  
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In sidelight daylight zones  
In toptight daylight zones

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### Commercial Documentation Summary

- Multiple compliance paths
  - Identify code for compliance
  - Identify triggered requirements
- Type of Documentation
  - Separate from construction documents
  - Incorporated into construction documents
- Requirements
  - Show numeric values and commitment
  - Show numeric values and non-numeric items

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### Use of OEDM Training Materials

Use of Office of Education and Data Management (OEDM) training materials must be approved in writing by the State of Connecticut, Department of Administrative Services' Office of Communications. In approving of such use, the State of Connecticut assumes no liability associated with such use, including, but not limited to, the user's dissemination of any inaccurate information or interpretation in connection with its use of these training materials. Use of the training materials is at the sole risk of the user, and the State's approval of the use does not constitute an endorsement of the user or its intended use.

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**Frederick F. Wajcs, P.E.**  
**Energy Code Consultant**

Phone: 860-644-5150  
 Email: wajcsff@cox.net

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