

## **2018 Connecticut State Building Code**

Summary of changes in response to the May 21, 2018, Legislative Commissioners' Office memorandum

### **Substantive Concerns:**

1. [On page 15] In section 113.2.1, no change was made. The "each" refers to the members and the areas of expertise are listed with an "or." Each of the four must have five years of experience in one of the areas. The decades-old provision has never caused confusion for any municipality.
2. [On pages 20-21] The definitions referenced on these pages were changed to not conflict with the provisions of the Connecticut General Statutes.
3. [On page 42] In section 1025.6, "serving an occupant load greater than 30" was deleted.
4. [On page 140] In sections R313.1 and R313.1.1, corresponding changes were made.

### **Inconsistent references to CT state codes:**

Changes were made on the pages indicated, except as follows:

On pages 82, 83, 93, 113, 121, 122, 128, and 162 the references are to the Connecticut State Building Code (or other Connecticut code), in general, not limited to the 2018 edition.

### **Inconsistent placement of reference to Connecticut General Statutes:**

The references were made consistent as indicated.

### **Inconsistent phrasing of deleted provisions:**

Deleted provisions were phrased consistently, either marked as "delete section" or "delete section in its entirety" to indicate the deletion of every subsection within the indicated section.

### **Inconsistent use of italics for terms:**

No changes were made. The use of italics is consistent and deliberate. The Preface of every ICC code (in this case on pages vi and ix of the 2015 International Fire Code) explains that "selected terms set forth in Chapter 2, Definitions, are italicized where they appear in code text. Such terms are not italicized where the definition set forth in Chapter 2 does not impart the intended meaning in the use of the term. The terms selected have definitions that the user should read carefully to better understand the code."

### **Additional technical corrections:**

Technical corrections were made throughout, as indicated, except as follows:

Page 86, 93, and 161: The zip code for NFPA was not changed as the address and zip code used are from the underlying model code and are what appear on the inside back cover of every NFPA code book and on the NFPA web site on its "ordering and payment questions and support" page.

Page 131 and 168: In section R301.2.1.1, "2015" was not inserted as the reference is as appears in the underlying code.

**Seek clarification:**

Page 9: In section 105.5, “at least” was not inserted. The language as written appears in the model code language in this model code and the International Existing Building Code and the International Residential Code. The amendment adds the exception.

Page 11: In section 107.7, the list was renumbered for consistency with the underlying model code.

Page 13: In section 111.1, no change was made as the provision has appeared in previous versions of the code and is found in other sections of the 2018 code.

Page 14: In section 113.1, the reference was changed.

Page 15: In section 113.1, the reference was changed.

Page 19: In the definition for “foster care facilities,” the word “foster” was not inserted as the only change made to the definition from the model code was the age of the children.

Page 22: In section 308.6.4, “persons” was changed to “children.”

Page 30: In section 903.2.8, no change was made. This is a list of exceptions not related to each other.

Page 33: In section 908.7, “replace with” was changed to “refer to.”

Page 48: In section 1109.8.1, the reference was changed.

Page 52: In section 1704.2.5.1, paragraph 3 was rewritten for clarity.

Page 75: In section 502.2, the reference was changed.

Page 80: In section 402.6, the reference was not changed as that is how it appears throughout the model code.

Page 104: No additional changes were made. The attachment only indicates technical corrections on this page.

Page 105: No additional changes were made. The attachment only indicates technical corrections on this page.

Page 107: In section R402.14, “or installed” was inserted.

Page 116: In sections 700.7 and 701.7, no change was made. The references are not supposed to be the same.

Page 122: In section R104.10.3, the provision from section R104.10.4 concerning section R104.10.1 was inserted for consistency. The provision details time frames and other requirements of the exemption process.

Page 123: In section R105.1.1, “in fee” was deleted. A corresponding change was made on page 9, in section 105.3.3; on page 88, in section 106.4; and on page 96, in section 106.1.3

Page 126: In section R110.1, no change was made as “conform to code” has no meaning in code language. “Complies with the provisions” is correct and consistent with code language.

Page 128: In section R112.2.1, in the first sentence, “each” was replaced with “one” for accuracy.

Page 133: In sections R301.2.1.4.2 and R301.2.1.4.3, no change was made. There is no “A.”

Page 134: Section R301.9 was rewritten to acknowledge that the terms used in the statute are not terms used, defined, or recognized by the code. Changing the code section to only use the statute’s terminology would render the section obsolete and unenforceable.

Page 145: In section R326.3, the definition of “spa” was added.

Page 148: In section R326.6.4, “appendix” was changed to “chapter.”

Page 152: In section N1101.10.1.1.1, “or installed” was inserted.

DEPARTMENT OF ADMINISTRATIVE SERVICES

# 2018 Connecticut State Building Code

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CONSTRUCTION SERVICES**  
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Legislative Resubmission

June 21, 2018

**TABLE OF CONTENTS**  
**2018 STATE BUILDING CODE**

Introduction and adopted model codes	1
Amendments to the 2015 International Building Code	3
Amendments to ICC A117.1-2009	76
Amendments to the 2015 International Existing Building Code	78
Amendments to the 2015 International Plumbing Code	88
Amendments to the 2015 International Mechanical Code	96
Amendments to the 2015 International Energy Conservation Code	104
Amendments to the 2017 NFPA 70, National Electrical Code	112
Amendments to the 2015 International Residential Code	120

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## INTRODUCTION

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### Adopted and Referenced Publications

Pursuant to section 29-252 of the Connecticut General Statute the following national model codes, as amended herein, are adopted and shall be known as the 2018 Connecticut State Building Code:

- 2015 International Building Code
- 2009 ICC/ANSI A117.1 Accessible and Usable Buildings and Facilities
- 2015 International Existing Building Code
- 2015 International Plumbing Code
- 2015 International Mechanical Code
- 2015 International Energy Conservation Code
- 2017 NFPA 70, National Electrical Code, of the National Fire Protection Association Inc.
- 2015 International Residential Code of the International Code Council, Inc.

Copies of the International Codes may be obtained from the International Code Council, Inc., 4051 West Flossmoor Road., Country Club Hills, IL 60478-5795 (website: [www.iccsafe.org](http://www.iccsafe.org)).

Copies of the 2017 NFPA 70, National Electrical Code, may be obtained from the National Fire Protection Association Inc., 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02169-7471 (website: [www.nfpa.org](http://www.nfpa.org)).

Copies of the 2018 Connecticut State Building Code document may be downloaded from the website: [www.portal.ct.gov/DAS](http://www.portal.ct.gov/DAS).

The requirements of the 2018 Connecticut State Building Code shall apply to all work for which a *permit* application was made on or after the date of adoption.

### As used in this document, these annotations have the following meaning:

**Add:** A section or subsection preceded by (Add) indicates the addition of this section or subsection to the adopted referenced standard.

**Amd:** A section or subsection preceded by (Amd) indicates the substitution of this section or subsection in the adopted referenced standard.

**Del:** A section or subsection preceded by (Del) indicates the deletion of this section or subsection from the adopted referenced standard.

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## AMENDMENTS TO THE 2015 INTERNATIONAL BUILDING CODE

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### CHAPTER 1 – SCOPE AND APPLICATION

(Amd) **101.1 Title.** The 2015 International Building Code as amended in this section shall be known as the 2015 International Building Code portion of the 2018 Connecticut State Building Code.

(Add) **101.1.1 Statutes.** Pursuant to sections 29-252a and 29-253 of the Connecticut General Statutes, respectively, this code shall be the building code for all towns, cities and boroughs and all state agencies.

(Amd) **101.2 Scope.** The provisions of this code shall apply to the construction, *alteration*, movement, enlargement, replacement, *repair*, equipment, use and occupancy, location, maintenance, removal and demolition of every *building* or structure or any appurtenances connected or attached to such *buildings* or structures.

**Exception:** Detached one- and two-family *dwelling*s and multiple single-family *dwelling*s (*townhouses*) not more than three stories above grade plane in height with a separate *means of egress* and their accessory structures not more than three stories above grade plane in height, shall comply with the 2015 International Residential Code portion of the 2018 Connecticut State Building Code.

(Amd) **101.2.1 Appendices.** The provisions of Appendices C, H, I and N shall be incorporated into the requirements of this code.

(Amd) **101.4.1 Gas.** The International Fuel Gas Code is not adopted by the State of Connecticut. Any references to the International Fuel Gas Code within the body of this code shall be considered references to requirements of NFPA 2, Hydrogen Technologies Code, NFPA 54, National Fuel Gas Code and NFPA 58, Liquefied Petroleum Gas Code, as adopted in the 2018 Connecticut State Fire Safety and the Connecticut State Fire Prevention Codes. These requirements apply to liquid petroleum storage systems, gas piping systems extending from the point of delivery to the inlet connections of appliances, the installation and operation of residential and commercial gas appliances and related accessories as covered by this code.

(Amd) **101.4.3 Plumbing.** The provisions of the International Plumbing Code shall apply to the installation, *alterations*, *repairs* and replacement of plumbing systems (including equipment, appliances, fixtures, fittings and appurtenances) where such systems are connected to a water or sewage system and to all aspects of a medical gas system. The International Private Sewage Disposal Code is not adopted by the State of Connecticut. Any reference to the International Private Sewage Disposal Code within the body of this code shall be deemed a reference to the regulations adopted pursuant to section 19a-36 of the Connecticut General Statutes, known as the Public Health Code.

(Amd) **101.4.4 Property maintenance.** The International Property Maintenance Code is not adopted by the State of Connecticut. Property maintenance shall be in accordance with the requirements of this code and the applicable provisions of the 2018 Connecticut State Fire Safety Code and the 2018 Connecticut State Fire Prevention Code. All references to the International Property Maintenance Code found within the body of the model document shall be considered null and void.

(Add) **101.4.5.1 Connecticut State Fire Safety Code.** References to the International Fire Code within the body of the model document shall be considered to be references to the 2018 Connecticut State Fire Safety Code.

(Add) **101.4.8 Electrical.** The provisions of the 2017 NFPA 70, National Electrical Code, shall apply to the installation of electrical systems, including *alterations, repairs*, replacement, equipment, appliances, fixtures, fittings and appurtenances thereto.

(Add) **101.4.9 Oil-burning equipment, piping and storage.** In addition to the requirements of this code, the installation of oil burners, equipment, and appliances used in conjunction therewith, including tanks, piping, pumps, control devices and accessories shall comply with NFPA 31 as adopted in the 2018 Connecticut State Fire Safety and Connecticut State Fire Prevention Codes.

(Amd) **102.6 Existing structures.** The legal use and occupancy of any *building* or structure existing on the date of adoption of this code shall be permitted to continue without change, except as otherwise specifically provided in this code, the 2015 International Existing Building Code portion of the 2018 Connecticut State Building Code or the 2018 Connecticut State Fire Safety Code.

(Amd) **102.6.1 Buildings not previously occupied.** A *building* or portion of a *building* that has not been previously occupied or used for its intended purpose in accordance with the laws in existence at the time of its completion shall be permitted to comply with the provisions of the laws in existence at the time of its original *permit* unless such *permit* has expired. Subsequent *permits* shall comply with the International Building Code or International Residential Code, as applicable, for new construction.

(Amd) **102.6.2 Buildings previously occupied.** The legal use and occupancy of any *building* existing on the date of adoption of this code shall be permitted to continue without change, except as specifically provided in this code or the 2018 Connecticut State Fire Safety Code.

(Add) **102.6.3 Demolition of Structures.** The demolition of structures shall be regulated in accordance with the provisions of Section 3303 of this code.

(Del) **SECTION 103 – DEPARTMENT OF BUILDING SAFETY.** Delete Section 103 in its entirety and replace with the following:

(Add) **SECTION 103 – ENFORCEMENT AGENCY**

(Add) **103.1 Creation of enforcement agency.** Each town, city and borough shall create an agency whose function is to enforce the provisions of this code. The official in charge thereof shall be known as the *building official*.

(Add) **103.2 Appointment.** Pursuant to section 29-260 of the Connecticut General Statutes, the chief executive officer of any town, city or borough shall appoint an officer to administer this code, and this officer shall be known as the *building official* and referred to herein as the *building official*, local *building official* or code official.

(Add) **103.3 Employees.** In accordance with the prescribed procedures and regulations of the town, city or borough, and with the concurrence of the appointing authority, the *building official* shall have the authority to appoint an assistant *building official*, related technical officers, inspectors, plan examiners and other employees. Such employees shall have the powers as regulated by the town, city or borough, and by the State of Connecticut.

(Add) **103.4 Restriction of employees.** An official or employee connected with the agency created to enforce the provisions of this code pursuant to Section 103.1, except one whose only connection with it is that of a member of the board of appeals established under the provisions of Section 113, shall not be engaged in or directly or indirectly connected with the furnishing of labor, materials or appliances for the construction, *addition, alteration, repair* or maintenance of a *building* located in the town, city or borough in which such official or employee is employed, or the preparation of *construction documents* therefor, unless that person is the *owner* of the *building*. Such officer or employee shall not engage in any work that conflicts with official duties or with the interests of the agency.

(Amd) **104.1 General.** The *building official* is hereby authorized and directed to enforce the provisions of this code. The *building official* shall have the authority to adopt policies and procedures to clarify the application of its provisions. Such policies and procedures shall comply with the intent and purpose of this code. Such policies and procedures shall not have the effect of waiving requirements specifically provided for in this code, nor shall they have the effect of establishing requirements in excess of those set forth in this code.

(Add) **104.1.1 Rule making authority.** Pursuant to subsection (a) of section 29-252 of the Connecticut General Statutes, 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 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.

(Amd) **104.6 Right of entry.** Pursuant to subsection (d) of section 29-261 of the Connecticut General Statutes, the *building official* or his assistant shall have the right of entry to such *buildings* or structures, except single-family residences, for the proper performance of his duties between the hours of nine a.m. and five p.m., except that in the case of an emergency, he shall have the right of entry at any time, if such entry is necessary in the interest of public safety. Pursuant to section 29-393 of the Connecticut General Statutes, on receipt of information from the local fire marshal or from any other authentic source that any *building* in his *jurisdiction*, due to lack of *exit* facilities, fire, deterioration, catastrophe or other cause, is in such condition as to be a hazard to any person or persons, the *building official* or his assistant shall immediately make an inspection.

(Del) **104.10 Modifications.** Delete section and subsection and replace with the following:

(Add) **104.10 Modifications.** Modifications, variations, or exemptions from and approval of equivalent or alternative compliance with the requirements of this code shall be in accordance with the provisions of Sections 104.10.1 to 104.10.6, inclusive.

(Add) **104.10.1 State Building Code.** Pursuant to subsection (b) of section 29-254 of the Connecticut General Statutes, the State Building Inspector may grant modifications, variations or exemptions from, or approve equivalent or alternative compliance with, the State Building Code where strict compliance with the State Building Code would entail practical difficulty or unnecessary hardship, or is otherwise adjudged unwarranted, provided the intent of the law shall be observed and public welfare and safety be assured. Any person aggrieved by any decision of the State Building Inspector may appeal to the Codes and Standards Committee not later than 30 days after mailing of the decision.

(Add) **104.10.1.1 Action on application.** The application for modification, variation, exemption from or approval of equivalent or alternative compliance with the requirements of the State Building Code shall be made on a form supplied by the State Building Inspector, which shall be submitted by the applicant to the *building official*. Pursuant to subsection (b) of section 29-254 of the Connecticut General Statutes, any such application received by a *building official* shall be forwarded to the State Building Inspector within 15 business days of receipt by such *building official*. The application shall include the *building official's* comments on the merits of the application, and shall be signed by the *building official*.

(Add) **104.10.1.2 Records.** The application for modification, variation, exemption or approval of equivalent or alternative compliance and the decision of the State Building Inspector shall be in writing and shall be officially recorded with the application for a building *permit* in the permanent records of the building department.

(Add) **104.10.2 Accessibility exemption.** Pursuant to subsection (b) of section 29-269 of the Connecticut General Statutes, any variation of or exemption from any provisions relating to accessibility to, use of and egress from, *buildings* and structures as required herein shall be permitted only when approved by the State Building Inspector. Pursuant to subsection (b) of section 29-269 of the Connecticut General Statutes, any person aggrieved by the decision of the State Building Inspector may appeal to the Codes and Standards Committee within 30 days after such decision has been rendered.

(Add) **104.10.3 Historic structures exemption.** Pursuant to section 29-259 of the Connecticut General Statutes, exemptions may be granted to the provisions of this code for historic structures as defined by section 10-410 of the Connecticut General Statutes, which have been classified as such in the State Register of Historic Places as long as the provisions of subsection (b) of section 29-259 of the Connecticut General Statutes are adhered to and provided that such exemptions shall not affect the safe design, use or construction of such property.

(Add) **104.10.4 Urban homesteading property exemption.** Pursuant to section 29-259 of the Connecticut General Statutes, exemptions may be granted to the provisions of this code for property acquired by an urban homesteading agency, pursuant to section 8-169r of the Connecticut General Statutes, and transferred to a qualified applicant pursuant to section 8-169s of the Connecticut General Statutes, provided such exemptions shall not affect the safe design, use or construction of such property. Exemptions shall be granted in accordance with Section 104.10.1 of this code.

(Add) **104.10.5 Elevators and escalators.** Pursuant to section 29-192 of the Connecticut General Statutes, the State Building Inspector may approve variations or exemptions from, or equivalent or alternate compliance with regulations governing elevators and escalators where strict compliance with such provisions would cause practical difficulty or unnecessary hardship. Any person aggrieved by the decision of the State Building Inspector may appeal to the Commissioner of Administrative Services or such commissioner's designee not later than 30 days after notice of such decision has been rendered.

(Add) **104.10.6 Lift and limited use/limited application elevator approval.** Lifts and limited use, limited access elevators shall not be part of a required *accessible* path unless approved in accordance with the provisions of Section 1109.8 of this code.

(Amd) **105.1 Required.** Any *owner* or *owner's* authorized agent who intends to construct, enlarge, alter, *repair*, move, demolish or change the occupancy of a *building* or structure, or to move a *lot line* that will affect any existing *building* or structure, or to erect, install, enlarge, alter, *repair*, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be performed, shall first make application to the *building official* and obtain the required *permit*.

(Add) **105.1.3 Connecticut State Fire Safety Code abatement.** Where conflicts exist between the requirements of this code and the requirements of a Connecticut State Fire Safety Code abatement order issued in writing by the local fire marshal with respect to an existing *building*, the requirements of that portion of the Connecticut State Fire Safety Code that regulates existing *buildings* shall take precedence.

**Exceptions:**

1. New *fire protection systems* shall meet the requirements of Chapter 9 of this code.
2. Electrical work shall meet the requirements of the NFPA 70, National Electrical Code.
3. Structural, plumbing and mechanical work shall conform to the requirements of this code.

(Amd) **105.2 Work exempt from permit.** Exemption from the *permit* requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws, statutes, regulations or ordinances of the *jurisdiction*. *Permits* shall not be required for the following:

**Building:**

1. One-story detached accessory structures used as tool and storage sheds, playhouses and similar uses, provided the floor area is not greater than 200 square feet (18.58 m<sup>2</sup>).
2. Fences, other than *swimming pool* barriers, not over 7 feet (2134 mm) high.
3. Oil derricks.
4. Retaining walls that are not higher than 3 feet (914 mm) measured from finished grade at the bottom of the wall to finished grade at the top of the wall, unless supporting a surcharge or impounding Class I, II or III-A liquids.
5. Water tanks supported directly upon grade if the capacity does not exceed 5,000 gallons (18 927 L) and the ratio of height to diameter or width does not exceed 2 to 1.
6. Sidewalks, driveways and on-grade *concrete* or *masonry* patios not more than 30 inches (762 mm) above adjacent grade and not over any basement or *story* below and which are not part of an *accessible route*.
7. Painting, papering, tiling, carpeting, cabinets, countertops and similar finish work not involving structural changes or *alterations*.

8. Temporary motion picture, television and theater *stage* sets and scenery.
9. Prefabricated *swimming pools* accessory to a Use Group R-3 occupancy, as applicable in Section 101.2, which are equal to or less than 24 inches (610 mm) deep, do not exceed 5,000 gallons (18 927 L) capacity and are installed entirely above ground.
10. Shade cloth structures constructed for nursery or agricultural purposes and not including service systems.
11. Swings and other playground equipment.
12. Window awnings in Group R-3 and U occupancies, supported by an *exterior wall* that do not project more than 54 inches (1372 mm) from the *exterior wall* and do not require additional support.
13. Nonfixed and movable fixtures, cases, racks, counters and partitions not higher than 5 feet 9 inches (1753 mm) and not containing any electrical, plumbing or mechanical equipment.
14. Portable *grandstands* or bleachers providing seating for fewer than 100 persons when located outside of a *building*.

**Electrical:**

1. Minor *repairs* and maintenance work, including replacement of lamps and fuses or the connection of *approved* portable electrical equipment to *approved* permanently installed receptacles.
2. Electrical equipment used solely for radio and television transmissions, but a *permit* is required for equipment and wiring for power supply and for the installation of towers and antennas.
3. Temporary testing systems required for the testing or servicing of electrical equipment or apparatus.

**Gas:**

1. Portable heating or cooking appliances with a self-contained fuel supply.
2. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.
3. Portable fuel cell appliances that are not connected to a fixed piping system and are not interconnected to a power grid.

**Mechanical:**

1. Portable heating appliances with a self-contained fuel supply.
2. Portable ventilation appliances.
3. Portable cooling units.
4. Steam, hot or chilled water piping within any heating or cooling equipment regulated by this code.
5. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.
6. Portable evaporative coolers.
7. Self-contained refrigeration systems containing 10 pounds (4.54 kg) or less of refrigerant or that are actuated by motors of 1 horsepower (0.75kW) or less.
8. Portable fuel cell appliances that are not connected to a fixed piping system and are not interconnected to a power grid.

**Plumbing:**

1. The stopping of leaks in drains, water, soil, waste or vent pipe; provided, however, that if any concealed trap, drain pipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered new work and a *permit* shall be obtained and inspection made as provided in this code.
2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures, and the removal and reinstallation of water closets, provided such *repairs* do not involve or require the replacement or rearrangement of valves, pipes or fixtures.

(Add) **105.2.4 State agency exemptions.** Pursuant to section 29-252a of the Connecticut General Statutes, a state agency shall not be required to obtain a building *permit* from a local *building official*. A state agency shall obtain a building *permit* for construction work defined in section 29-252a of the Connecticut General Statutes from the State Building Inspector.

**Exception:** Pursuant to sections 29-401 to 29-415, inclusive, of the Connecticut General Statutes state agencies shall obtain demolition *permits* from the local *building official*.

(Add) **105.2.5 Federal agency exemptions.** A federal agency performing construction on federally owned land or on leased land totally under the control of the federal government shall not be required to obtain a building *permit* or a demolition *permit* from the local *building official*.

(Amd) **105.3.1 Action on application.** Pursuant to section 29-263 of the Connecticut General Statutes, the *building official* shall examine or cause to be examined applications for *permits* and amendments thereto within 30 days after filing and either issue or deny a *permit* within such 30-day period. If the application or *construction documents* do not conform to the requirements of this code and pertinent laws, the *building official* shall reject such application in writing, stating the reasons therefor. If the *building official* is satisfied that the proposed work conforms to the requirements of this code and applicable laws, the *building official* shall issue a *permit* therefor as soon as practicable. In order to meet the 30-day requirement set forth herein, *construction documents* shall be submitted by the applicant to both the *building official* and the local fire marshal, concurrently.

(Add) **105.3.1.1 Zoning approval.** Pursuant to subsection (f) of section 8-3 of the Connecticut General Statutes, no building *permit* shall be issued, in whole or in part, for a *building*, use or structure subject to the zoning regulations of a municipality without certification in writing by the official charged with the enforcement of such regulations that such *building*, use or structure is in conformity with such regulations or is a valid nonconforming use under such regulations.

(Add) **105.3.1.2 Fire marshal approval.** Pursuant to section 29-163 of the Connecticut General Statutes, no building *permit* for a *building*, structure or use subject to the requirements of the Connecticut State Fire Safety Code shall be issued in whole or in part without certification in writing from the local fire marshal that the *construction documents* for such *building*, structure or use are in substantial compliance with the requirements of the Connecticut State Fire Safety Code.

(Add) **105.3.3 By whom application is made.** Pursuant to section 29-263 of the Connecticut General Statutes, application for a *permit* shall be made by the *owner* or by an authorized agent. If the authorized agent is a licensed contractor, the provisions of section 20-338b of the Connecticut General Statutes shall be followed. The full names and addresses of the *owner*, agent and the responsible officers, if the *owner* or agent is a corporate body, shall be stated in the application.

(Add) **105.3.4 Permit issuance to a home improvement contractor.** No *permit* shall be issued to a contractor who is required to be registered pursuant to chapter 400 of the Connecticut General Statutes, for work to be performed by such contractor, unless the name, business address and Department of Consumer Protection registration number of such contractor is clearly marked on the *permit* application, and the contractor has presented such contractor's certificate of registration as a home improvement contractor.

(Amd) **105.5 Expiration of permit.** Every *permit* issued shall become invalid unless the work on the *site* authorized by such *permit* is commenced within 180 days after its issuance, or if the work authorized by such *permit* is suspended or abandoned for a period of 180 days after the time the work is commenced. The *building official* is authorized to grant, in writing, one or more extensions of time, for periods of not more than 180 days each. The extensions shall be requested in writing and justifiable cause shall be demonstrated.

**Exception:** The *building official* may specify an expiration date of not less than 30 days, nor more than 180 days, for commencement of work under *permits* issued to abate unsafe conditions pursuant to Section 116 of this code. Work performed under such *permits* shall be completed as expeditiously as possible.

(Amd) **107.2.2 Fire sprinkler system shop drawings.** Shop drawings for fire sprinkler system(s) shall be submitted to indicate conformance to this code and the *construction documents* and shall be *approved* prior to the start of system installation. Shop drawings shall contain all information as required by the referenced installation standards in Chapter 9. Pursuant to section 29-263a of the Connecticut General Statutes, such documents shall be accompanied by evidence of licensure as a fire sprinkler layout technician in accordance with section 20-304a of the Connecticut General Statutes or a professional engineer licensed in accordance with chapter 391 of the Connecticut General Statutes.

(Add) **107.2.5.2 Private sewage disposal system.** The *site* plan shall indicate the location of a private sewage disposal system where a public sewer is not available. Private sewage disposal systems shall be designed and installed in accordance with the requirements of the Public Health Code adopted under authority of section 19a-36 of the Connecticut General Statutes. All technical and soil data required by the Public Health Code shall be submitted with the *site* plan. Approval of such systems shall be by the local authority having *jurisdiction*. When such approval is required by the local authority having *jurisdiction*, written proof of such approval shall be submitted to the *building official* prior to issuance of a building *permit*.

(Amd) **107.3.4.1 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 submittal* 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*.

(Amd) **107.5 Retention of construction documents.** The *building official* shall retain one set of *approved construction documents* for a period as set forth in the records/disposition schedule adopted pursuant to chapter 188 of the Connecticut General Statutes.

**Exception:** Pursuant to subsection (e) of section 29-261 of the Connecticut General Statutes, upon receipt of a written request signed by the *owner of plans and specifications* on file for a single-family *dwelling* or *out-building*, the *building official* shall immediately return the original *plans and specifications* to the *owner* after a certificate of occupancy is issued with respect to the *plans and specifications*.

(Add) **107.6 Additional requirements.** Pursuant to section 29-276c of the Connecticut General Statutes, the *plans and specifications* for any proposed structure or *addition* classified as (1) assembly, educational, institutional, high hazard, *transient* residential, which includes *hotels*, motels, rooming or boarding houses, dormitories or similar *buildings*, other than residential *buildings* designed to be occupied by one or more families, without limitation as to size or number of stories; (2) business, factory and industrial, mercantile, moderate and low hazard storage, having three stories or more or exceeding 30,000 square feet total gross area; and (3) nontransient residential *dwellings* having more than 16 units or 24,000 square feet total gross area per *building*, shall be sealed by a licensed architect or professional engineer as defined by the statutory requirements of the professional registration laws of the State of Connecticut, and acting within the scope of their practice. Such architect or engineer shall be responsible for the review of shop drawings and the observation of construction. In the event such architect or engineer is unable to fulfill his or her review responsibilities, an additional architect or engineer shall be retained and the local *building official* shall be informed, in writing, of such retainer. If fabricated structural load-bearing members or assemblies are used in such construction, the licensed professional engineer responsible for the design of such members or assemblies shall be responsible for the implementation of the design by reviewing the fabrication process to ensure conformance with the design specifications and parameters. The additional requirements set forth in this subsection shall not apply to *alterations*, *repairs*, relocation or *change of occupancy* to any existing *building*.

(Add) **107.7 Threshold limits.** Pursuant to section 29-276b of the Connecticut General Statutes, this section shall apply to any proposed structure or *addition* thereto that exceeds one or more of the following threshold limits:

1. Having four stories;
2. 60 feet in height;
3. With a clear span of 150 feet in width;

4. Containing 150,000 square feet of total *gross floor area*;  
**Exception:** For Group S (Storage) the limit shall be 250,000 total gross square feet.
5. With an occupancy of 1,000 persons;
6. Group I (Institutional) use with 150 beds or persons;
7. Group R-1 (Residential) *hotels* or motels with 200 rooms in a single structure;
8. Group R-2 (Residential) multi-family with 100 *dwelling units* in a single structure;
9. Group S (Storage) parking structures with 1,000 cars.

Threshold limits shall not apply to *alterations, repairs* or *change of occupancy* to any existing *building*.

(Add) **107.7.1 Requirements for proposed structures or additions that exceed the threshold limits.** Pursuant to section 29-276b of the Connecticut General Statutes, if a proposed structure or *addition* to an *existing structure* will exceed any threshold limit set forth in Section 107.7 of this code, the *building official* of the municipality in which the structure or *addition* will be located shall require that an independent structural engineering consultant review the structural plans and design specifications of the structure or *addition* to be constructed to determine compliance with the requirements of this code to the extent necessary to assure the stability and integrity of the primary structural support systems of such structure or *addition*. Any modifications of *approved* structural plans or design specifications shall require revised structural plans, revised design specifications, supplementary structural sketches and/or shop drawings to the extent necessary to determine compliance with the requirements of this code and shall be reviewed by such consultant. Any *deferred submittals* that relate to the primary structural support systems shall be reviewed by such consultant. Any fees relative to such review requirements shall be paid by the *owner* of the proposed building project.

If a structure or *addition* exceeds the threshold limit, the architect of record, professional engineer of record responsible for the design of the structure or *addition* and the general contractor shall sign a statement of professional opinion 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 professional engineer responsible for the design of such members or assemblies shall sign a statement of professional opinion affirming that the completed fabrication is in substantial compliance with the *approved* design specifications.

The *building official* of the municipality in which the structure or *addition* will be located shall satisfy himself that each architect, professional engineer, including each professional engineer responsible for the design of fabricated structural load-bearing members or assemblies, general contractor and major subcontractor involved in the project holds a license to engage in the work or occupation for which the appropriate building *permit* has been issued.

(Add) **107.8 Lift slab construction.** Pursuant to subsection (b) of section 29-276a of the Connecticut General Statutes, any *building* designed to be constructed utilizing the lift-slab method of construction shall be classified as exceeding the “threshold limit” and shall be subject to the provisions of Sections 107.7.1 of this code and construction thereof shall comply with the provisions of 29 CFR 1926 and section 31-372-107-1926 of the Regulations of Connecticut State Agencies.

(Amd) **108.1 General.** The *building official* may issue a *permit* for temporary structures and temporary uses. Such *permits* shall be limited as to time of service, but shall not be permitted for more than 180 days. The *building official* may grant a single 180-day extension for demonstrated cause.

**Exception:** *Tents*, canopies and other membrane structures erected for a period of fewer than 180 days shall comply with Section 3103 of this code.

(Amd) **108.3 Temporary power.** The *building official* is authorized to give permission to temporarily supply utilities before an installation has been fully completed and the final certificate of approval has been issued. The part covered by the temporary certificate shall comply with the requirements specified for temporary lighting, heat or power in this code and in NFPA 70, National Electrical Code, portion of the Connecticut State Building Code.

(Amd) **109.2 Schedule of permit fees.** Each municipality shall establish a schedule of fees for each construction document review, building *permit*, certificate of approval and certificate of occupancy. A schedule of adopted fees shall be posted in the building department for public view.

(Del) **109.4 Work commencing before permit issuance.** Delete without substitution.

(Add) **110.1.1 Posting of required inspections.** A schedule of required inspections shall be compiled by the *building official*. The schedule shall be posted in the building department for public view.

(Add) **110.3.8.1 Electrical inspections.** Required electrical inspections shall include installations of temporary services prior to activation; installation of underground piping and conductors after trenches are excavated and bedded and before backfill is put in place; rough inspections of installed wiring and components after the roof, framing, *fireblocking* and bracing are complete and prior to concealment; and final inspection after all work required by the *permit* is complete.

(Add) **110.6.1 Notification of inspection results.** Notification as to passage or failure, in whole or in part, of any required inspection shall be made in writing by the *building official* or his duly authorized representative and shall be left at the job *site* or delivered to the *permit* holder. It shall be the duty of the *permit* holder to ascertain the results of required inspections.

(Amd) **111.1 Use and occupancy.** Pursuant to subsection (a) of section 29-265 of the Connecticut General Statutes, no *building* or structure erected or altered in any municipality after October 1, 1970, shall be occupied or used, in whole or in part, until a certificate of occupancy has been issued by the *building official*, certifying that such *building* or structure or work performed pursuant to the building *permit* substantially complies with the provisions of this code. Nothing in the code shall require the removal, *alteration* or abandonment of, or prevent the continuance of the use and occupancy of, any single-family *dwelling* but within six years of the date of occupancy of such *dwelling* after substantial completion of construction of, *alteration* to or *addition* to such *dwelling*, or of a *building* lawfully existing on October 1, 1945, except as may be necessary for the safety of life or property. The use of a *building* or premises shall not be deemed to have changed because of a temporary vacancy or change of ownership or tenancy.

**Exceptions:**

1. Work for which a certificate of approval is issued in accordance with Section 111.6.
2. A certificate of occupancy is not required for work exempt from *permit* requirements under Section 105.2.

(Add) **111.1.1 State agency.** Pursuant to section 29-252a of the Connecticut General Statutes, state agencies shall not be required to obtain a certificate of occupancy from a local *building official*. State agencies shall obtain a certificate of occupancy for construction work as described in section 29-252a of the Connecticut General Statutes from the State Building Inspector.

(Add) **111.1.2 Zoning approval.** Pursuant to subsection (f) of section 8-3 of the Connecticut General Statutes, no certificate of occupancy shall be issued for a *building*, use or structure subject to the zoning regulations of a municipality without certification in writing by the official charged with the enforcement of such regulations that such *building*, use or structure is in conformity with such regulations or is a valid nonconforming use under such regulations.

(Add) **111.1.3 Fire marshal approval.** No certificate of occupancy or certificate of approval for a *building*, structure or use subject to the requirements of the Connecticut State Fire Safety Code shall be issued without certification in writing from the local fire marshal that the *building*, structure or use is in substantial compliance with the requirements of the Connecticut State Fire Safety Code.

(Add) **111.1.4 Statement of professional opinion.** Pursuant to section 29-276c of the Connecticut General Statutes, no certificate of occupancy shall be issued for a proposed structure or *addition to buildings* classified as (1) assembly, educational, institutional, high hazard, *transient* residential, which includes *hotels*, motels, rooming or boarding houses, dormitories or similar *buildings*, other than residential *buildings* designed to be occupied by one or more families, without limitation as to size or number of stories; (2) business, factory and industrial, mercantile, moderate and low hazard storage, having three stories or more or exceeding 30,000 square feet total gross area; and (3) nontransient residential *dwellings* having more than 16 units or 24,000 square feet total gross area per *building*, until the *building official* has been provided with a statement signed by the architect or professional engineer and the general contractor stating that the completed structure or *addition* is in substantial compliance with the *approved* plans on file.

(Amd) **111.3 Temporary occupancy.** The *building official* may issue a temporary certificate of occupancy before the completion of the entire work covered by the *permit*, provided such portion or portions shall be occupied safely prior to full completion of the *building* or structure without endangering life or public welfare. Any occupancy permitted to continue during completion of the work shall be discontinued within 30 days after completion of the work unless a certificate of occupancy is issued by the *building official*.

(Add) **111.5 Partial occupancy.** The *building official* may issue a partial certificate of occupancy for a portion of the *building* or structure when, in the *building official's* opinion, the portion of the *building* to be occupied is in substantial compliance with the requirements of this code and no unsafe conditions exist in the portion of the *building* not covered by the partial certificate of occupancy.

(Add) **111.6 Certificate of approval.** The *building official* shall issue a certificate of approval indicating substantial compliance with the requirements of this code for all completed work that requires a building *permit* but does not require a certificate of occupancy. Such work shall include, but not be limited to: fences greater than 7 feet in height; retaining walls greater than 3 feet in height; decks; garages; *swimming pools*; basements and attics converted to *habitable space*; electrical, plumbing, and mechanical *repairs* or *alterations*. No certificate of approval shall be issued for work subject to the zoning regulations of a municipality without certification in writing by the official charged with the enforcement of such regulations that the work is in conformity with such regulations or is a valid nonconforming use under such regulations.

(Add) **111.7 Prefabricated assemblies.** A certificate of approval by an *approved agency* shall be furnished with every prefabricated assembly, including modular housing, except where all elements of the assembly are readily accessible for inspection at the *site*. Placement of prefabricated assemblies and the connections to public utilities and private water and septic systems at the building *site*, as well as any *site*-built or installed components or equipment, shall be inspected by the *building official* to determine compliance with this code. A final inspection shall be provided in accordance with Section 110.3.10.

(Del) **SECTION 113 - BOARD OF APPEALS.** Delete this section in its entirety and replace with the following:

(Add) **SECTION 113 – MEANS OF APPEAL.**

(Add) **113.1 Appeal from decision of building official.** Pursuant to subsection (b) of section 29-266 of the Connecticut General Statutes, when the *building official* rejects or refuses to approve the mode or manner of construction proposed to be followed or the materials to be used in the erection or *alteration* of a *building* or structure, or when it is claimed that the provisions of the code do not apply or that an equally good or more desirable form of construction can be employed in a specific case, or when it is claimed that the true intent and meaning of the code has been misconstrued or wrongly interpreted or when the *building official* issues a written order under subsection (c) of section 29-261 of the Connecticut General Statutes, the *owner* of such *building* or structure, whether already erected or to be erected, or his authorized agent may appeal in writing from the decision of the *building official* to the municipal board of appeals. A person, other than such *owner*, who claims to be aggrieved by any decision of the *building official* may, by himself or his authorized agent, appeal in writing from the decision of the *building official* to the municipal board of appeals as provided by subsection (b) of section 29-266 of the Connecticut General Statutes.

(Add) **113.1.1 Absence of municipal board of appeals.** In the absence of a municipal board of appeals, the provisions of subsection (c) of section 29-266 of the Connecticut General Statutes shall be followed.

(Add) **113.1.2 State Building Inspector review.** Pursuant to subsection (d) of section 29-252 of the Connecticut General Statutes, the State Building Inspector or his designee shall review a decision by a local *building official* or municipal board of appeals, when he has reason to believe that such official or board has misconstrued or misinterpreted any provision of the State Building Code.

(Add) **113.2 Appointment of municipal board of appeals.** Pursuant to subsection (a) of section 29-266 of the Connecticut General Statutes, a municipal board of appeals consisting of five members shall be appointed.

(Add) **113.2.1 Qualifications.** One member of the municipal board of appeals shall be appointed from the general public. The other four members shall have at least five years of experience each in *building* design, *building* construction or supervision of *building* construction.

(Add) **113.2.2 Chairperson.** The board shall annually select one of its members to serve as chairperson.

(Add) **113.3 Notice of meeting.** Each appeal under this subsection shall be heard in the municipality for which the *building official* serves within five days, exclusive of Saturdays, Sundays and legal holidays, after the date of receipt of the appeal.

(Add) **113.4 Determination of aggrievement.** Upon receipt of an appeal from a person other than the *owner* or his agent, the board of appeals shall first determine whether such person has a right to appeal.

(Add) **113.5 Appointment of a panel.** Upon receipt of an appeal from an *owner* or his agent, or approval of an appeal by a person other than the *owner* or his agent, the chairperson of the municipal board of appeals shall appoint a panel of not less than three members of such board to hear such appeal.

(Add) **113.6 Rendering of decisions.** The panel shall, upon majority vote of its members, affirm, modify or reverse the decision of the *building official* in a written decision upon the appeal and file such decision with the *building official* from whom such appeal has been taken not later than five days, exclusive of Saturdays, Sundays and legal holidays, following the day of the hearing thereon. A copy of the decision shall be mailed, prior to such filing, to the party taking the appeal.

(Add) **113.7 Appeal to the Codes and Standards Committee.** Any person aggrieved by the decision of a municipal board of appeals may appeal to the Codes and Standards Committee within 14 days after the filing of the decision with the *building official* in accordance with the provisions of section 29-266 of the Connecticut General Statutes.

(Add) **113.8 Court review.** Any person aggrieved by any ruling of the Codes and Standards Committee may appeal to the Superior Court for the judicial district where such *building* or structure has been or is being erected.

(Add) **114.2.1 Written notice.** The notice of violation shall be in writing and shall be given to the *owner* of the property involved, or to the *owner's* agent or to the person doing the work.

(Amd) **114.4 Violation penalties.** Pursuant to section 29-254a of the Connecticut General Statutes, any person who violates any provision of this code shall be fined not less than two hundred nor more than one thousand dollars or imprisoned not more than six months or both.

(Amd) **115.3 Unlawful continuance.** Any person who shall continue any work in or about the structure after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe conditions, shall be liable for penalties in accordance with Section 114.4.

(Add) **116.6 Unsafe equipment.** Equipment deemed unsafe by the *building official* or his authorized representative shall not be operated after the date stated in the notice unless the required *repairs* or changes have been made and the equipment has been *approved*, or unless an extension of time has been secured from the *building official* or his authorized representative in writing.

(Add) **116.6.1 Authority to seal equipment.** In the case of emergency, the *building official* or his authorized representative may seal out of service immediately any unsafe device or equipment regulated by this code.

(Add) **116.6.2 Unlawful to remove seal.** Any device or equipment sealed out of service by the *building official* or his authorized representative shall be plainly identified as out of service by such official and shall indicate the reason for such sealing. The identification shall not be tampered with, defaced or removed except by the *building official* or his authorized representative.

(Add) **116.7 Hazardous Conditions.** Pursuant to the provisions of section 29-393 of the Connecticut General Statutes, on receipt of information from the local fire marshal or from any other authentic source that any *building* in his *jurisdiction*, due to lack of *exit* facilities, fire, deterioration, catastrophe or other cause, is in such condition as to be a hazard to any person or persons, the *building official* shall immediately make an inspection by himself or by his assistant, and may make orders for additional *exit* facilities or the *repair* or *alteration* of the *building* if the same is susceptible to *repair* or both or for the removal of such *building* or any portion thereof if any such order is necessary in the interests of public safety. Any *building official* shall have the right of entry into all *buildings* for the performance of his duties between the hours of nine o'clock a.m. and five o'clock p.m., in the interests of public safety.

(Add) **116.7.1 Penalty.** Pursuant to the provisions of section 29-394 of the Connecticut General Statutes, any person who, by himself or his agent, fails to comply with the written order of a building inspector for the provision of additional *exit* facilities in a *building*, the *repair* or *alteration* of a *building* or the removal of a *building* or any portion thereof, shall be fined not less than two hundred nor more than one thousand dollars or imprisoned not more than six months, or both.

#### (Add) **SECTION 117 – EMERGENCY MEASURES**

(Add) **117.1 Imminent danger.** When, in the opinion of the *building official*, there is imminent danger of failure or collapse of a *building* or structure or any part thereof which endangers human life, or when any *building* or structure or part thereof has fallen and human life is endangered by the occupation of the *building* or structure, the *building official* is hereby authorized and empowered to order and require the occupants to vacate the same forthwith. The *building official* shall post, or cause to be posted at each entrance to such *building* or structure a notice reading as follows: "This structure is unsafe and its occupancy has been prohibited by the building official." It shall be unlawful for any person to enter such premises except upon permission granted by the *building official* for the purposes of making the required *repairs* or of demolishing the premises. The posted identification shall not be defaced or removed except by the *building official* or his authorized representative.

(Add) **117.2 Temporary safeguards.** When, in the opinion of the *building official*, there is imminent danger to human life due to an unsafe condition, the *building official* shall cause the necessary work to be done to render such *building* or structure temporarily safe, whether or not the legal procedure described in Section 116 has been instituted.

(Add) **117.3 Temporary closings.** When necessary for public safety, the *building official* shall temporarily close *buildings* and structures and close, or order the authority having *jurisdiction* to close, sidewalks, streets, *public ways* and places adjacent to unsafe structures, and prohibit the same from being used.

(Add) **117.4 Emergency work.** When imminent danger or an unsafe condition requiring immediate action exists and the *owner* of the *building* or structure cannot be located, or refuses or is unable to expeditiously render the premises safe, the *building official* shall order the employment of the necessary labor and materials to perform the required work as expeditiously as possible. Such work shall include that required, in the *building official's* sole opinion, to make the premises temporarily safe, up to and including demolition.

(Add) **117.5 Costs of emergency work.** Costs incurred in the performance of emergency *repairs* or demolition under the order of the *building official* shall be paid from the treasury of the town, city or borough in which the *building* or structure is located on approval of the *building official*. The legal counsel of the town, city or borough shall institute appropriate action against the *owner* of the premises where the unsafe *building* or structure is or was located.

## (Add) **SECTION 118 – VACANT BUILDINGS**

(Add) **118.1 General.** Temporarily unoccupied *buildings*, structures, premises or portions thereof, including tenant spaces, shall be safeguarded and maintained in accordance with this section.

(Add) **118.1.1 Abandoned premises.** *Buildings*, structures and premises for which an *owner* cannot be identified or located by dispatch of a certificate of mailing to the last known or registered address, which persistently or repeatedly become unprotected or unsecured; which have been occupied by unauthorized persons or for illegal purposes; or which present a danger of structural collapse or fire spread to adjacent properties shall be considered abandoned, declared unsafe and abated or demolished in accordance with this code.

(Add) **118.2 Safeguarding vacant premises.** Temporarily unoccupied *buildings*, structures, premises or portions thereof shall be secured and protected in accordance with this section.

(Add) **118.2.1 Security.** Exterior openings and interior openings accessible to other tenants or unauthorized persons shall be boarded, locked, blocked or otherwise protected to prevent entry by unauthorized individuals.

(Add) **118.2.2 Fire protection.** Fire alarm, sprinkler and standpipe systems shall be maintained in an operable condition at all times.

### **Exceptions:**

1. When the premises have been cleared of all combustible materials and debris and, in the opinion of the code official, the type of construction, *fire separation distance* and security of the premises do not create a fire hazard.
2. Where *buildings* will not be heated and *fire protection systems* will be exposed to freezing temperatures, fire alarm and sprinkler systems may be placed out of service and standpipes may be maintained as dry systems (without an automatic water supply) provided the *building* has no contents or storage, and windows, doors and other openings are secured to prohibit entry by unauthorized persons.

(Add) **118.2.3 Fire separation.** Fire-resistance-rated partitions, *fire barriers* and *fire walls* separating vacant tenant spaces from the remainder of the *building* shall be maintained.



(Add) **118.3 Removal of combustibles.** Persons owning, or in charge or control of, a vacant *building* or portion thereof, shall remove all accumulations of combustible materials and flammable or combustible waste or rubbish from such space. The premises shall be maintained clear of waste or *hazardous materials*.

**Exceptions:**

1. *Buildings* or portions of *buildings* undergoing *additions, alterations, repairs or change of occupancy* under a valid *permit* in accordance with this code.
2. Seasonally occupied *buildings*.

(Add) **118.4 Removal of hazardous materials.** Persons owning, or in charge or control of, a vacant *building* or portion thereof, shall remove all accumulations of *hazardous materials* as defined by this code.

## CHAPTER 2 – DEFINITIONS

(Amd) **201.3 Terms defined in other codes.** Where terms are not defined in this code and are defined in other codes adopted as portions of the Connecticut State Building Code, such terms shall have the meanings ascribed to them as in those codes.

(Add) **202.1 Definitions.** Add or amend the following definitions:

(Amd) **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.

(Add) **COMPLEX.** For application of accessibility requirements, this term means any group of *buildings* located on a single parcel of land or on contiguous parcels of land or any *building* or group of *buildings* that are subdivided into separate occupancies and planned, financed, constructed or promoted by common management for the purpose of sale or lease of the entire *complex* or any subdivision thereof, except any single-family detached *dwelling*.

(Amd) **FABRICATED ITEM.** Structural, load-bearing or lateral load-resisting members or assemblies consisting of materials assembled prior to installation in a *building* or structure, or subjected to operations such as heat treatment, thermal cutting, cold working or reforming after manufacture and prior to installation in a *building* or structure. Materials produced in accordance with standards referenced by this code, such as rolled structural steel shapes, steel-reinforcing bars, *masonry units*, *wood structural panels* and structural composite lumber, or in accordance with a referenced standard that provides requirements for quality control done under the supervision of a third-party quality control agency, shall not be considered "*fabricated items*."

(Amd) **FOSTER CARE FACILITIES.** Facilities that provide care to more than three children, 3 years of age or younger.

(Add) **GROUP R-1 BED AND BREAKFAST ESTABLISHMENT.** A *building* that does not qualify as a one- or two-family *dwelling unit* in accordance with Section 101.2 and that contains only: The *owner's dwelling unit* and *guest rooms* without permanent provisions for cooking, with a total *building occupant load* of not more than 16 persons (see Section 310.3.1).

(Add) **GUEST ROOM.** A space in a Group R-1 structure providing sleeping accommodations in one room, or in a series of closely associated rooms.

(Add) **HOTEL.** Any *building* containing six or more *guest rooms*, intended or designed to be used, or which are used, rented or hired out to be occupied or which are occupied for sleeping purposes by guests.

(Amd) **HURRICANE-PRONE REGIONS.** Areas within municipalities as tabulated in Appendix N.

(Del) **LODGING HOUSE.** Delete section.

(Add) **PLANS AND SPECIFICATIONS.** See *construction documents*.

(Amd) **REGISTERED DESIGN PROFESSIONAL.** An individual who is registered or licensed by the Department of Consumer Protection pursuant to chapters 390, 391, 396 or 396a of Connecticut General Statutes to practice their respective design profession and acting within the scope of his or her license and practice discipline.

(Add) **SPA, EXERCISE (Also known as a swim spa).** Variants of a spa in which the design and construction includes specific features and equipment to produce a water flow intended to allow recreational physical activity including, but not limited to, swimming in place. *Exercise spas* can include peripheral jetted seats intended for water therapy, heater, circulation and filtration system, or can be a separate distinct portion of a combination *spa/exercise spa* and can have separate controls. These spas are of a design and size such that they have an unobstructed volume of water large enough to allow the 99<sup>th</sup> Percentile Man as specified in APSP 16 to swim or exercise in place.

(Amd) **SPECIAL AMUSEMENT BUILDING.** A *special amusement building* is any temporary or permanent *building* or portion thereof that is occupied for amusement, entertainment or education purposes and that contains a device or system that conveys passengers or provides a walkway along, around or over a course in any direction so arranged that the *means of egress* path is not readily apparent due to visual or audio distractions or is intentionally confounded or is not readily available because of the nature of the attraction or mode of conveyance through the *building* or structure.

**Exception:** Children's play structures that do not exceed 10 feet in height and do not have an aggregate horizontal projection in excess of 300 square feet.

(Add) **STORY.** For application of accessibility requirements, this term means that part of a *building* comprised between a floor and the floor or roof next above.

(Add) **STREET FLOOR.** For application of accessibility requirements, this term means the floor nearest the *level of exit discharge*.

(Add) **SWIMMING POOL.** Any structure intended for swimming, recreational bathing or wading that contains water over 24 inches (610 mm) deep. This includes in-ground, above-ground and on-ground pools; hot tubs, spas and fixed-in-place wading pools.

(Add) **TECHNICALLY INFEASIBLE.** An *alteration* of a *building* or a *facility* that has little likelihood of being accomplished because the existing structural conditions require the removal or *alteration* of a load-bearing member that is an essential part of the structural frame, or because other physical or *site* constraints prohibit modification or addition of elements, spaces or features that are in full and strict compliance with the minimum requirements for new construction and that are necessary to provide accessibility. Pursuant to subsection (b) of section 29-269 of the Connecticut General Statutes, the determination of technical infeasibility shall be made by the State Building Inspector.

(Amd) **TYPE B UNIT.** A *dwelling unit* or *sleeping unit* designed and constructed for accessibility in accordance with this code and the provisions for *Type B units* in ICC/ANSI A117.1, as amended.

(Amd) **WIND-BORNE DEBRIS REGION.** Areas within municipalities or portions thereof as tabulated in Appendix N.

### CHAPTER 3 – USE AND OCCUPANCY CLASSIFICATION

(Amd) **305.2 Group E, Day care facilities.** This group includes *buildings* and structures or portions thereof occupied by more than six children 3 years of age or older who receive educational, supervision or *personal care services* for fewer than 24 hours per day.

(Amd) **305.2.2 Six or fewer children.** A *facility* having six or fewer children receiving such day care shall be classified as part of the primary occupancy.

(Amd) **305.2.3 Six or fewer children in a dwelling unit.** As defined in subsection (a)(3) of section 19a-77 of the Connecticut General Statutes, a family child care home that accommodates six or fewer children of any age shall be classified as Group R-3 or shall comply with the International Residential Code in accordance with Section 101.2. During the regular school year, a maximum of three additional children who are in school full-time, 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.

(Add) **307.5.1 Consumer fireworks, Class 1.4G.** Sparklers and fountain display items permitted to be sold in Connecticut shall be exempt from the requirements of an H-3 occupancy under the following circumstances:

1. The total amount on display and in storage in any single *control area* complies with the maximum allowable quantities as listed in Table 307.1(1) of this code, or;
2. The new or existing retail store or retail sales *facility* complies with the provisions of NFPA 1124 for new stores and facilities as herein amended.

(Add) **307.5.2** The provisions of NFPA 1124 are amended for use in Connecticut as follows:

(Amd) NFPA 1124, **7.3.7 Storage Rooms.** Storage rooms containing consumer *fireworks*, regardless of size, in a new or existing permanent store shall be protected with an automatic sprinkler system installed in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems, or separated from the retail sales area by a *fire barrier* having a *fire resistance* rating of not less than 1 hour. The quantity of *fireworks* permitted in storage shall not exceed 3,600 cubic feet, including packaging. Such storage shall be segregated into areas of 1,200 cubic feet or less, separated by a minimum of 4 feet of clear space.

(Amd) NFPA 1124, **7.5.3 Storage Rooms.** Storage rooms containing consumer *fireworks*, regardless of size, in a new or existing permanent store shall be protected with an automatic sprinkler system installed in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems, or separated from the retail sales area by a *fire barrier* having a *fire resistance* rating of not less than 1 hour. The quantity of *fireworks* permitted in storage shall not exceed 3,600 cubic feet, including packaging. Such storage shall be segregated into areas of 1,200 cubic feet or less, separated by a minimum of 4 feet of clear space.

(Amd) **308.3.3 Four to 16 persons receiving care.** A *facility* housing not fewer than four and not more than 16 persons receiving *custodial care* shall be classified as R-4.

(Amd) **308.3.4 Three or fewer persons receiving care.** A *facility* with three or fewer persons receiving *custodial care* shall be classified as Group R-3 or shall comply with the International Residential Code.

(Amd) **308.4 Group I-2.** Institutional Group I-2 occupancy shall include *buildings* and structures used for *medical care* on a *24-hour basis* for more than three persons who are *incapable of self-preservation*. This group shall include, but not be limited to, the following:

- Foster care facilities
- Detoxification facilities*
- Hospitals
- Nursing homes*
- Psychiatric hospitals

(Amd) **308.4.2 Three or fewer persons receiving care.** A *facility* with three or fewer persons receiving *medical care* shall be classified as Group R-3 or shall comply with the International Residential Code provided an automatic sprinkler system is installed in accordance with Section 903.3.1.3 or Section P2904 of the International Residential Code.

(Add) **308.4.3 Alternative compliance for small I-2 homes.** See Section 407.13 for alternative compliance provisions for Group I-2 homes serving four to six persons who are *incapable of self-preservation*.

(Amd) **308.5 Group I-3.** Institutional Group I-3 occupancy shall include *buildings* and structures that are inhabited by more than three persons who are under restraint or security. A Group I-3 *facility* is occupied by persons who are generally *incapable of self-preservation* due to security measures not under the occupants' control. This group shall include, but not be limited to, the following:

- Correctional centers
- Detention centers
- Jails
- Prerelease centers
- Prisons
- Reformatories

*Buildings* of Group I-3 shall be classified as one of the occupancy conditions indicated in Sections 308.5.1 to 308.5.5, inclusive (see Section 408.1).

(Amd) **308.6 Institutional Group I-4, day care facilities.** Institutional Group I-4 occupancy shall include *buildings* and structures occupied by more than six persons of any age who receive *custodial care* for fewer than 24 hours per day by persons other than parents or guardians, relatives by blood, marriage or adoption, and in a place other than the home of the person cared for. This group shall include, but not be limited to, the following:

- Adult day care
- Child day care

(Amd) **308.6.1 Classification as Group E.** A child day care *facility* that provides care for more than six but no more than 100 children 3 years or less of age, where the rooms in which the children are cared for are located on the *level of exit discharge* serving such rooms and each of these child care rooms has an *exit* door directly to the exterior, shall be classified as Group E.

(Amd) **308.6.3 Six or fewer persons receiving care in other than a dwelling unit.** A *facility* having six or fewer persons receiving *custodial care* in other than a *dwelling unit* shall be classified as part of the primary occupancy.

(Amd) **308.6.4 Six or fewer children of any age receiving care in a dwelling unit.** As defined in section 19a-77 of the Connecticut General Statutes, a family child care home that accommodates six or fewer children of any age shall be classified as Group R-3 or shall comply with the International Residential Code. 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.

(Amd) **310.2 Definitions.** The following terms are defined in Chapter 2:

**BOARDING HOUSE.**

**CONGREGATE LIVING FACILITIES.**

**DORMITORY.**

**GROUP HOME.**

**GROUP R-1 BED AND BREAKFAST ESTABLISHMENT**

**GUEST ROOM.**

**HOTEL.**

**PERSONAL CARE SERVICE.**

**TRANSIENT.**

(Amd) **310.3 Residential Group R-1.** Residential Group R-1 occupancies containing *sleeping units* where the occupants are primarily *transient* in nature, including:

- Bed and breakfast establishments
- Boarding houses (transient)* with more than 10 occupants
- Congregate living facilities (transient)* with more than 10 occupants
- Hotels (transient)*
- Motels (transient)*

(Add) **310.3.1 Group R-1 bed and breakfast establishments.** A *building* that the *owner* occupies or that is adjacent to a *building* that the *owner* occupies as his/her primary place of residence, has a total *building occupant load* of not more than 16 persons including the *owner-occupants*, and has no provisions for cooking or warming food in the *guest rooms*. A *Group R-1 bed and breakfast establishment* shall not be permitted within a mixed-use *building*.

(Add) **310.3.1.1 Kitchens in Group R-1 bed and breakfast establishments.** Kitchens in *Group R-1 bed and breakfast establishments* shall be separated by ½-hour rated fire separation assemblies.

**Exceptions:**

1. Fire separation assemblies shall not be required when the kitchen is protected by a limited-area sprinkler system.
2. Fire separation assemblies shall not be required when the kitchen is equipped with a *listed* residential range top extinguisher unit or an *approved* commercial kitchen hood with a *listed, approved* automatic fire suppression system.
3. The structural members supporting the rated assemblies shall not be required to be fire-resistance rated.

(Amd) **310.4 Residential Group R-2.** Residential Group R-2 occupancies containing *sleeping units* or more than two *dwelling units* where the occupants are primarily permanent in nature, including:

Apartment houses  
*Boarding houses* with more than six occupants  
*Congregate living facilities* with more than six occupants  
Convents  
*Dormitories*  
Fraternities and sororities  
*Hotels*  
*Live/work units*  
Monasteries  
Motels  
Vacation timeshare properties

(Amd) **310.5 Residential Group R-3.** Residential Group R-3 occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:

*Buildings* that do not contain more than two *dwelling units*, with not more than six lodgers or boarders per *dwelling unit*  
*Boarding houses* with six or fewer occupants where *personal care services* are not provided  
Care facilities in accordance with Section 308.3.4, 308.4.2, or 308.6.4  
*Congregate living facilities* with six or fewer occupants where *personal care services* are not provided

(Del) **310.5.1 Care facilities within a dwelling unit.** Delete section.

(Del) **310.5.2 Lodging houses.** Delete section.

(Amd) **310.6 Residential Group R-4.** Residential Group R-4 occupancy shall include *buildings*, structures or portions thereof for more than 3 but not more than 16 occupants, excluding staff, who reside on a *24-hour basis* in a supervised residential environment and receive *custodial care*. *Buildings* of Group R-4 shall be classified as one of the occupancy conditions specified in Section 310.6.1 or 310.6.2. The persons receiving care are capable of self-preservation. This group shall include, but not be limited to, the following:

- Alcohol and drug centers
- Assisted living facilities
- Congregate care facilities
- Group homes*
- Halfway houses
- Residential board and care *custodial care* facilities
- Social rehabilitation facilities

Group R-4 occupancies shall meet the requirements for construction as defined for Group R-3, except as otherwise provided for in this code.

## CHAPTER 4 – SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

(Amd) **403.3.3 Secondary water supply.** An automatic secondary on-site water supply having a capacity not less than the hydraulically calculated sprinkler demand, including the hose stream requirement, shall be provided for *high-rise buildings* assigned to *Seismic Design Category D, E or F* as determined by Section 1613. An additional fire pump shall not be required for the secondary water supply unless needed to provide the minimum design intake pressure at the suction side of the fire pump supplying the *automatic sprinkler system*. The secondary water supply shall have a duration of not less than 30 minutes.

(Add) **404.1.2 Exception.** The provisions of Section 404 shall not apply to vertical openings in Group R-1 bed and breakfast establishments.

(Amd) **406.3.4.1 Dwelling unit separation.** The *private garage* shall be separated from the *dwelling unit* and its *attic* area by means of Type X *gypsum board*, not less than 5/8-inch (15.9 mm) in thickness, applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than a 5/8-inch (15.9 mm) Type X *gypsum board* or equivalent and 5/8-inch (15.9 mm) Type X *gypsum board* applied to structures supporting the separation from habitable rooms above the garage. Door openings between a *private garage* and the *dwelling unit* shall be equipped with either solid wood doors or solid or honeycomb core steel doors not less than 1<sup>3</sup>/<sub>8</sub> inches (34.9 mm) in thickness, or doors in compliance with Section 716.5.3 with a *fire protection rating* of not less than 20 minutes. Doors shall be *self-closing* and self-latching.

(Add) **407.11 Laboratories.** In addition to other requirements of this code, laboratories employing quantities of flammable, combustible or *hazardous materials* that exceed exempt amounts shall be protected in accordance with NFPA 99.

(Add) **407.12 Medical gas systems.** Medical gas systems shall comply with Chapter 12 of the International Plumbing Code and Section 5306 of the International Fire Code.

(Add) **407.13 Small I-2 homes.** Group I-2 homes that serve four to six persons who are *incapable of self-preservation* and comply with the specific requirements of Section 407.13.1 shall be permitted to utilize the alternate compliance for the required items listed in Section 407.13.2. Other applicable provisions of the code not addressed in Section 407.13.2 shall also apply.

(Add) **407.13.1 Specific requirements.** Small Group I-2 homes shall comply with 407.13.1.1 through 407.13.1.11.

(Add) **407.13.1.1 Separation of sleeping area.** The sleeping area and its hallway shall be separated from other *habitable spaces* such as living areas and kitchens by a smoke partition in accordance with Section 710 and the doorway to the sleeping area hallway from such spaces shall have a minimum 20-minute *fire resistance* rating and be *self-closing* or automatic-closing.

(Add) **407.13.1.2 Sleeping room walls.** All client sleeping room walls separating the sleeping rooms from the hallways and other habitable or *occupiable spaces* of the *building* shall be constructed as smoke partitions in accordance with Section 710.

(Add) **407.13.1.3 Means of escape.** In addition to the *means of egress* requirements of Chapter 10, the following two requirements shall also be met:

1. All client sleeping rooms shall have an *emergency escape and rescue opening* in accordance with Section 1030.
2. One door shall open directly to the exterior at the *level of exit discharge* from the sleeping area hallway or a client sleeping room.

(Add) **407.13.1.4 Size of doors.** The minimum width of all door openings shall provide a clear width of 34 inches (863 mm). Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad).

(Add) **407.13.1.5 Door latches.** Every door latch to closets, storage areas, and other similar spaces or such areas shall be such that the clients can open the door from inside the space or area.

(Add) **407.13.1.6 Client sleeping room and bathroom doors.** Client sleeping room and bathroom door locks shall be designed to allow the opening of the locked door from the outside by an opening device *readily accessible* by staff in an emergency.

(Add) **407.13.1.7 Fire alarm and detection systems.** Fire alarm and detection systems shall be installed in accordance with Section 907.2.6.

(Add) **407.13.1.8 Detection.** Smoke detection shall be provided in all sleeping rooms, sleeping room hallways and common spaces except kitchens and bathrooms.

(Add) **407.13.1.9 Carbon monoxide detectors.** Carbon monoxide detectors shall be provided in accordance with Section 915.



(Add) **407.13.1.10 Attic space access.** An opening not less than 36 inches by 36 inches (914 mm by 914 mm) shall be provided to any *attic* area having a clear height of over 30 inches (762 mm). Clear headroom of not less than 30 inches (762 mm) shall be provided at the *attic* space at or above the opening.

**Exception:** In conversions of a single family home, a rough framed opening of 30 inches by 22 inches (762 mm by 559 mm) shall be permitted from a hallway or other *readily accessible* location.

(Add) **407.13.1.11 Standby power.** Standby power shall be provided for small I-2 homes in accordance with Section 2702.

(Add) **407.13.2 Alternate compliance.** Where the requirements of Section 407.13.1 are satisfied, small Group I-2 homes shall be permitted to comply with 407.13.2.1 through 407.13.2.3.

(Add) **407.13.2.1 Height, area and construction type.** Height and area shall comply with Chapter 5 and the requirements of Chapter 6, except as provided in Section 407.13.2.1.1.

(Add) **407.13.2.1.1 Type VB construction.** Type VB construction is permitted for a one *story building* not more than 4500 square feet in area where the unoccupied *attic* space is protected by automatic sprinklers or provided with heat detection in the *attic* connected to the *building* fire alarm system.

(Add) **407.13.2.2 Automatic fire sprinkler system.** *Buildings* shall be equipped with a NFPA 13R sprinkler system or a NFPA 13D sprinkler system with a 30-minute water supply. All storage, habitable and occupiable rooms as well as kitchens and closets shall be sprinklered. Sprinkler valves shall be electrically supervised and connected to the *building* fire alarm system.

**Exception:** Attached unheated garages used only for storage provided it is separated from the remainder of the structure by 1-hour fire resistive construction with any openings protected by 45-minute opening protectives. The garage shall also be provided with heat detection connected to the *building* fire alarm system.

(Add) **407.13.3 Exterior ramps.** Exterior *ramps* in accordance with Section 1027 shall be permitted for small I-2 homes.

(Del) **410.3.6 Scenery.** Delete section.

(Add) **422.6 Laboratories.** In addition to other requirements of this code, laboratories employing quantities of flammable, combustible or *hazardous materials* that exceed exempt amounts shall be protected in accordance with NFPA 99.

(Add) **422.7 Medical gas systems.** Medical gas systems shall comply with Chapter 12 of the International Plumbing Code and Section 5306 of the International Fire Code.

(Amd) **424.5 Area limits.** Children's play structures greater than 300 square feet (28 m<sup>2</sup>) in area shall comply with Section 411.

(Add) **SECTION 427 – GROUP E**

(Add) **427.1 Proximity to the level of exit discharge.** Proximity to the *level of exit discharge* shall be provided in accordance with Sections 427.1.1 and 427.1.2. For the purpose of this section, normally occupied includes such spaces as libraries, cafeterias, gymnasiums and multipurpose rooms. This does not include administrative offices, healthcare rooms nor special one-on-one rooms.

(Add) **427.1.1 Preschool, kindergarten and first grade.** Rooms normally occupied by preschool, kindergarten or first-grade students shall be located on a *level of exit discharge*.

**Exception:** Rooms located on levels other than a *level of exit discharge* shall be permitted to be normally occupied by preschool, kindergarten or first-grade students where such rooms are provided with an independent *stairway* or *ramp* directly from the room dedicated for use by the preschool, kindergarten or first-grade students.

(Add) **427.1.2 Second grade.** Rooms normally occupied by second-grade students shall be located not more than one *story* above a *level of exit discharge*.

**Exception:** Rooms located on levels other than one *story* above a *level of exit discharge* shall be permitted to be normally occupied by second-grade students where such rooms are provided with an independent *stairway* or *ramp* from the room dedicated for use by the second-grade students.

(Add) **427.2 Subdivision of building spaces.** Group E occupancies shall be subdivided into compartments by *smoke barriers* complying with Section 709 where one or both of the following conditions exist:

1. The maximum area of a compartment, including the aggregate area of all floors having a common atmosphere, exceeds 30,000 square feet (2787 m<sup>2</sup>).
2. The length or width of the occupancy exceeds 300 feet (91 m).

**Exceptions:**

1. Where all spaces normally subject to student occupancy have not less than one door opening directly to the outside or to an exterior or *exit access* balcony or *corridor* in accordance with Section 1021.
2. *Buildings* protected throughout by an *approved*, supervised automatic fire sprinkler in accordance with Section 903.3.1.1.

(Add) **427.2.1 Area of smoke compartments.** The area of any *smoke compartment* required by Section 427.2 shall not exceed 30,000 square feet (2787 m<sup>2</sup>) with no dimension exceeding 300 feet (91 m).

(Add) **427.3 Carbon monoxide detectors.** Pursuant to section 29-292 of the Connecticut General Statutes, carbon monoxide detection shall be provided as required by Section 915.

## CHAPTER 5 - GENERAL BUILDING HEIGHTS AND AREAS

(Add) **504.5 Group R-1 bed and breakfast establishments.** The height limitation for existing *buildings* of Type VB construction undergoing a *change of occupancy* from detached one- and two-family *dwelling*s to *Group R-1 bed and breakfast establishments* shall be increased by 5 feet from the value in Table 504.3 and one *story* from the value in Table 504.4 where 1-hour fire-resistance rated assemblies are constructed between the second and third floors. The structural members supporting the rated assemblies shall not be required to be fire-resistance rated.

(Amd) **Table 509 INCIDENTAL USES.** Add the following row after the last row:

Storage rooms over 100 square feet	1 hour or provide automatic fire-extinguishing system
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## CHAPTER 6 – TYPES OF CONSTRUCTION

(Amd) **602.3 Type III.** Type III construction is that type of construction in which the *exterior walls* are of noncombustible material and the interior *building elements* are of any material permitted by this code. *Fire-retardant-treated wood* framing and sheathing complying with Section 2303.2 shall be permitted within *exterior wall* assemblies of a 2-hour rating or less.

(Amd) **602.4.1 Fire-retardant-treated wood in exterior walls.** *Fire-retardant-treated wood* framing and sheathing complying with Section 2303.2 shall be permitted within *exterior wall* assemblies with a 2-hour rating or less.

## CHAPTER 7 – FIRE AND SMOKE PROTECTION FEATURES

(Add) **704.6.1 Connections.** Where non-fire-resistance-rated members attach to fire-resistance-rated members, the non-rated member shall be protected in the same manner as the rated member for a distance of not less than 12 inches (305 mm) from the point of connection.

(Amd) **708.1 General.** The following wall assemblies shall comply with this section.

1. Separation walls as required by Section 420.2 for Groups I-1, R-1, R-2 and R-3.  
**Exception:** *Group R-1 bed and breakfast establishments.*
2. Walls separating tenant spaces in covered and *open mall buildings* as required by Section 402.4.2.1.
3. *Corridor* walls as required by Section 1020.1.
4. Elevator lobby separation as required by Section 3006.2.
5. Egress balconies as required by Section 1019.2.

(Amd) **712.1.12 Unenclosed stairs and ramps.** Vertical floor openings created by unenclosed *stairs* or *ramps* in accordance with Section 1019.3 shall be permitted.

(Add) **720.1.1 Foamed-in-place insulating material.** Pursuant to section 29-277 of the Connecticut General Statutes, foamed-in-place insulating material, except urethane foam insulation or styrene foam insulation, shall not be sold or installed in this state on or after May 28, 2013, unless the manufacturer or supplier has certified to the State Building Inspector that the material complies with the provisions of that section.

## CHAPTER 9 – FIRE PROTECTION SYSTEMS

(Amd) **903.1.1 Alternative protection.** In any occupancy where the character of fuel for fire is such that extinguishment or control of fire is accomplished by a type of alternative automatic extinguishing system complying with Section 904, such system shall be permitted in lieu of an automatic sprinkler system, and shall be installed in accordance with the applicable standard and *approved* by the code official.

(Amd) **903.2.1.2 Group A-2.** An automatic sprinkler system shall be provided for *fire areas* containing Group A-2 occupancies and intervening floors of the *building* where one of the following conditions exists:

1. The *fire area* exceeds 5,000 square feet (464.5 m<sup>2</sup>).  
**Exception:** Existing restaurants in existing non-sprinklered *buildings* that were designated Use Group A-3 under a previous edition of the State Building Code that undergo *addition, alteration or change of occupancy* that results in an increase in the restaurant's *fire area* providing the proposed *fire area* does not exceed 12,000 square feet.
2. The *fire area* has an *occupant load* of 300 or more or where the *occupant load* exceeds 100 or more in the following assembly occupancies:
  - a. Dance halls
  - b. Discotheques
  - c. Nightclubs
  - d. Assembly occupancies with festival seating
3. The *fire area* is located on a floor other than a *level of exit discharge* serving such occupancies.

(Add) **903.2.3.1. Statutory requirements.** An automatic sprinkler system shall be installed in Group E occupancies pursuant to Section 29-315 of the Connecticut General Statutes.

(Amd) **903.2.7 Group M.** An automatic sprinkler system shall be provided throughout *buildings* containing a Group M occupancy where one of the following conditions exists:

1. A Group M *fire area* exceeds 12,000 square feet (1115 m<sup>2</sup>).
2. A Group M *fire area* is located more than three stories above *grade plane*.
3. The combined area of all Group M *fire areas* on all floors, including any *mezzanines*, exceeds 24,000 square feet (2230 m<sup>2</sup>).
4. A Group M occupancy used for the display and sale of upholstered furniture or mattresses exceeds 5,000 square feet (464 m<sup>2</sup>).
5. Throughout stories below the *level of exit discharge* where such stories have an area exceeding 2,500 square feet (232 m<sup>2</sup>) and are used for the sale, storage or handling of combustible goods or merchandise.

(Amd) **903.2.8 Group R.** An automatic sprinkler system installed in accordance with Section 903.3 shall be provided throughout all newly constructed *buildings* with a Group R *fire area* or in existing *buildings* that have a Group R *fire area* newly introduced by *change of occupancy*, occupancy group designation or by an *addition*.

**Exceptions:**

1. *Group R-1 bed and breakfast establishments.*
2. Existing *buildings* four stories or less in height undergoing a *change of occupancy* from a one- or two-family *building* or Group R-3 to Group R-2 containing not more than four *dwelling units* that does not involve an increase in height or area and where each *dwelling unit* has either:
  - 2.1 An *exit door* directly to the exterior at a *level of exit discharge*,
  - 2.2 Direct access to an exterior *stair* serving a maximum of two *dwelling units* on the same *story*, or
  - 2.3 Direct access to an interior *stair* serving only that *dwelling unit* and separated from all other portions of the *building* with 1-hour fire-resistance-rated *fire barriers*.
3. Existing *buildings* converted prior to June 15, 1994, from a one- or two-family *building* or Group R-3 to Group R-2 containing not more than four *dwelling units*.
4. Horizontal *additions* containing a newly introduced Group R occupancy that are added to existing *buildings* shall be required to have an automatic sprinkler system installed in the *addition* only if the *addition* is completely separated from the existing *building* by *fire barriers* with a minimum one-hour *fire-resistance rating*.
5. In a *building* with a maximum of two *dwelling units* where:
  - 5.1 Each *dwelling unit* has a direct independent *exit* to grade.
  - 5.2 The *exit(s)* and *dwelling units* are separated from any non-residential occupancy by a minimum 1-hour fire-resistive-rated separation.
  - 5.3 The non-residential occupancy is protected by an automatic fire detection and alarm system with notification in the *dwelling unit(s)*.

(Amd) **903.2.8.4 Care facilities.** An automatic sprinkler system in accordance with Section 903.3.1.3 shall be permitted in a Group R-4 care *facility* with 16 or fewer residents when all of the following conditions are met:

1. The *facility* is not in a *building* containing mixed occupancies,
2. The *building* in which the *facility* is located is limited to two stories above *grade plane* and 40 feet in height,
3. The automatic sprinkler system is provided with a minimum 30-minute water supply,
4. All habitable, enclosed usable areas and closets shall be sprinklered,
5. Facilities with more than eight residents shall be treated as two-family *dwelling units* with regard to water supply, and
6. The sprinkler system is provided with valve supervision by one of the following methods:
  - 6.1. A single *listed* control valve that shuts off both domestic and sprinkler system water supply and a separate valve that shuts off the domestic system only.
  - 6.2. Electrical supervision connected to the *facility's* fire alarm system.
  - 6.3. Valve closure that causes the sounding of an audible alarm throughout the premises.

(Add) **903.2.11.7 Additional statutory requirements.** Pursuant to section 29-315 of the Connecticut General Statutes, automatic fire extinguishing systems shall be installed in any *building* or structure to be built more than four stories tall and used for human occupancy and in other occupancies as required by the State Fire Marshal in the interest of safety because of special occupancy hazards.

(Amd) **903.3.1.1.1 Exempt locations.** Automatic sprinklers shall not be required in the following rooms or areas where such rooms or areas are protected with an *approved* automatic fire detection system in accordance with Section 907.2 that will respond to visible or invisible particles of combustion. Sprinklers shall not be omitted from any room merely because it is damp, of fire-resistance-rated construction or contains electrical equipment.

1. Generator and transformer rooms separated from the remainder of the *building* by walls and floor/ceiling assemblies having a fire-resistance-rating of not less than 2 hours.
2. Fire service access elevator machine rooms and machinery spaces.
3. Machine rooms, machinery spaces, control rooms and control spaces associated with occupant evacuation elevators designed in accordance with Section 3008.

(Add) **903.3.1.1.3 Vertical openings.** Closely spaced sprinklers and draft stops are not required around floor openings permitted to be unenclosed by this code unless the closely spaced sprinklers and draft stops are being utilized in lieu of an enclosure as specified by Section 712.1.3.1.

(Add) **903.3.5.3 Water authority approval.** Unless served by a private well of sufficient capacity or other *approved* source, domestic service shall be permitted to provide the water supply for the automatic sprinkler system only upon written approval of the water authority supplying such domestic service.

(Del) **903.5 Testing and maintenance.** Delete section.

(Add) **905.2.1 Piping design.** The riser piping, supply piping and the water service piping shall be sized to maintain a residual pressure of at least 100 pounds per square inch (psi) at the topmost outlet of each riser while flowing the minimum quantities of water specified based upon a pressure of 150 psi available at the fire department connection.

**Exception:** In *buildings* equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or Section 903.3.1.2 and where the highest floor level is not more than 75 feet above the lowest level of fire department vehicle access, Class I standpipes shall have an automatic or manual-wet supply.

(Del) **905.3.4.1 Hose and cabinet.** Delete section.

(Del) **SECTION 906 - PORTABLE FIRE EXTINGUISHERS.** Delete this section in its entirety and replace with the following:

(Add) **SECTION 906 - PORTABLE FIRE EXTINGUISHERS.**

(Add) **906.1 Where required.** Portable fire extinguishers shall be provided in occupancies and locations as required by the 2018 Connecticut State Fire Prevention Code.

(Add) **906.2 Maintenance.** Portable fire extinguishers shall be maintained in accordance with the 2018 Connecticut State Fire Prevention Code.

(Amd) **907.1.1 Construction documents.** *Construction documents* for fire alarm systems shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and the 2018 Connecticut State Fire Safety Code as determined by the code official.

(Del) **907.2.7.1 Occupant notification.** Delete section.

(Amd) **907.2.8.2 Automatic smoke detection system.** An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.5 shall be installed throughout all interior *corridors* serving *sleeping units*.

**Exceptions:**

1. An automatic fire detection system is not required in *buildings* that do not have interior *corridors* serving *sleeping units* and where each *sleeping unit* has a *means of egress* door opening directly to an *exit access* that leads directly to an *exit*.
2. An automatic fire detection system is not required in *Group R-1 bed and breakfast establishments* (see Section 907.2.11.1.1.).

(Amd) **907.2.9.1 Manual fire alarm system.** A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group R-2 occupancies where:

1. Any *dwelling unit* or *sleeping unit* is located three or more stories above the lowest *level of exit discharge*;
2. Any *dwelling unit* or *sleeping unit* is located more than one *story* below the highest *level of exit discharge* of *exits* serving the *dwelling unit* or *sleeping unit*; or
3. The *building* contains more than 11 *dwelling units* or *sleeping units*.

**Exceptions:**

1. A fire alarm system is not required in *buildings* not more than two stories in height where all *dwelling units* or *sleeping units* and contiguous *attic* and *crawl* spaces are separated from each other and public or common areas by at least 1-hour *fire partitions* and each *dwelling unit* or *sleeping unit* has an *exit* directly to a *public way*, *egress exit*, *court* or *yard*.
2. *Manual fire alarm boxes* are not required where the *building* is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and the occupant notification appliances will automatically activate throughout the notification *zones* upon a sprinkler water flow.
3. A fire alarm system is not required in *buildings* that do not have interior *corridors* serving *dwelling units* or *sleeping units* and are protected by an *approved* automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, provided that *dwelling units* or *sleeping units* either have a *means of egress* door opening directly to an exterior *exit access* that leads directly to the *exits* or are served by open-ended *corridors* designed in accordance with Section 1026.6, Exception 4.

(Add) **907.2.11.1.1 Group R-1 bed and breakfast establishments.** An *approved* household fire warning system in accordance with the requirements of NFPA 72, consisting of a control unit with *smoke detectors*, a *manual fire alarm box* on each floor and occupant notification shall be installed in all *Group R-1 bed and breakfast establishments*. A *heat detector* shall be installed in the kitchen.

(Add) **907.2.11.2.1 Group R-4.** In Group R-4 occupancies, *single- or multiple-station smoke alarms* shall be installed in living rooms, dens, day rooms and similar spaces in addition to the locations required by Section 907.2.11.2.

(Add) **907.2.11.2.2 Group I-4 and Group E day care facilities.** *Single- or multiple-station smoke detectors* shall be installed and maintained in all day care facilities in the following locations:

1. On each *story* in front of doors to the *stairways*;
2. In the *corridors* of all floors occupied by the day care facilities; and
3. In lounges, recreation areas and sleeping rooms in the day care facilities.

**Exception:** Day care facilities housed in one room.

(Amd) **907.2.11.6 Power source.** Pursuant to section 29-292 of the Connecticut General Statutes, in new construction, required *smoke alarms* shall receive their primary power from the *building wiring* and shall be equipped with a battery backup. *Smoke alarms* with integral strobes not equipped with battery backup shall be connected to an emergency electrical system. *Smoke alarms* shall emit a signal when the batteries are low. Wiring shall be permanent and without a disconnecting switch other than as required for overcurrent protection.

(Amd) **907.6.6.1 Automatic telephone-dialing devices.** Automatic telephone-dialing devices used to transmit an emergency alarm shall comply with the requirements of subsection (c) of section 28-25b of the Connecticut General Statutes.

(Del) **907.6.6.2 Termination of monitoring service.** Delete section.

(Del) **907.8 Inspection, testing and maintenance.** Delete section.

(Del) **908.7 Carbon monoxide alarms.** Delete section and refer to Section 915.

(Add) **913.6 Electric fire pumps.** *Buildings* provided with standby electrical power for the purpose of continuing operations or occupancy shall provide standby power in accordance with Article 701 of NFPA 70, National Electrical Code, for any electric fire pump installed to provide an adequate water supply or minimum operating pressure to a required automatic sprinkler system. Such system shall be in accordance with Section 2702.2.17.

#### (Amd) **SECTION 915 - CARBON MONOXIDE DETECTION**

(Amd) **915.1 General.** Carbon monoxide detectors shall be installed in new *buildings* and occupancies in accordance with Sections 915.1 to 915.6, inclusive. When *alterations* or *additions* requiring a *permit* occur in existing *buildings*, carbon monoxide detection shall be provided in accordance with Section 915.7.

(Amd) **915.1.1 Where required.** Carbon monoxide detection shall be provided in Group I-1, I-2, I-4 and R occupancies and in Group E occupancies in the locations specified in Section 915.2 where any of the conditions in Sections 915.1.2 to 915.1.6, inclusive, exist.

(Amd) **915.1.2 Fuel-burning appliances and fuel-burning fireplaces.** Carbon monoxide detection shall be provided in *dwelling units* and *sleeping units* that contain a fuel-burning appliance or fuel-burning *fireplace*.



(Amd) **915.1.3 Forced-air furnaces.** Carbon monoxide detection shall be provided in *dwelling units* and *sleeping units* served by a fuel-burning, forced-air furnace.

**Exception:** Carbon monoxide detection shall not be required in *dwelling units* and *sleeping units* where carbon monoxide detection is provided in the first room or area served by each main duct leaving the furnace, and the carbon monoxide alarm signals are automatically transmitted to an *approved* location.

(Amd) **915.1.4 Fuel-burning appliances outside of dwelling units and sleeping units.** Carbon monoxide detection shall be provided in *dwelling units* and *sleeping units* located in *buildings* that contain fuel-burning appliances or fuel-burning *fireplaces*.

**Exceptions:**

1. Carbon monoxide detection shall not be required in *dwelling units* and *sleeping units* without communicating openings between the fuel-burning appliance or fuel-burning *fireplace* and the *dwelling unit* or *sleeping unit*.
2. Carbon monoxide detection shall not be required in *dwelling units* and *sleeping units* where a carbon monoxide detector is provided in one of the following locations:
  - 2.1. In an *approved* location between the fuel-burning appliance or fuel-burning *fireplace* and the *dwelling unit* or *sleeping unit*.
  - 2.2. On the ceiling of the room containing the fuel-burning appliance or fuel-burning *fireplace*.

(Amd) **915.1.5 Private garages.** Carbon monoxide detection shall be provided in *dwelling units* and *sleeping units* in *buildings* with attached *private garages*.

**Exceptions:**

1. Where there are no communicating openings between the *private garage* and the *dwelling unit* or *sleeping unit*.
2. In *dwelling units* and *sleeping units* located more than one *story* above or below a *private garage*.
3. Where the *private garage* connects to the *building* through an open-ended *corridor*.
4. Where carbon monoxide detection is provided in an *approved* location between openings to a *private garage* and *dwelling units* or *sleeping units*.

(Amd) **915.2.3 Group E occupancies.** Carbon monoxide detection system shall be provided in the locations specified in Section 915.2.3.1 and 915.2.3.2.

**Exception:** Group E rooms with cooking appliances, laboratories and maintenance spaces.

(Add) **915.2.3.1. Locations.** Carbon monoxide detectors shall be located as follows:

1. On the ceilings of rooms containing permanently installed fuel-burning heating equipment.
2. Centrally located within the first room or area served by the first air supply register by each main duct leaving a fuel-burning, forced-air furnace.

(Add) **915.2.3.2 Signage.** A sign shall be provided at all entrances to such rooms indicating that carbon monoxide detectors are located within the space.

(Add) **915.4.4 Interconnection of alarms.** Carbon monoxide alarms shall be interconnected in accordance with Section 9.6.4 of NFPA 720.

(Add) **915.5.4 Group E alarm notification.** Carbon monoxide detectors shall be connected to the *building* fire alarm signaling system as a separate *zone* or *zones*. Such alarms shall activate a supervisory signal at the main control unit and any remote annunciators. Such alarms shall not activate the *building* evacuation alarm.

(Amd) **915.6 Maintenance.** Carbon monoxide alarms and carbon monoxide detection systems shall be maintained in accordance with NFPA 720. Carbon monoxide alarms and carbon monoxide detectors that become inoperable, begin producing end-of-life signals or have reached the manufacturer's replacement date shall be replaced.

(Add) **915.7 Alterations and additions.** When *alterations* or *additions* requiring a *permit* occur to *buildings* with Group R-3 and R-4 occupancies and to *Group R-1 bed and breakfast establishments*, or when one or more sleeping rooms are added or created in such occupancies, the entire occupancy shall be provided with carbon monoxide detectors located as required for new construction. The carbon monoxide detectors shall have a power source in accordance with Section 915.4.1.

When *alterations* or *additions* requiring a *permit* occur to *buildings* with Group I-1, I-2, I-4, R-1 other than bed and breakfast establishments, R-2, and E, or when one or more sleeping rooms are added or created in such occupancies, only the work area shall be provided with carbon monoxide detectors located as required for new construction. The carbon monoxide detectors shall have a power source in accordance with Section 915.4.1. For the purpose of this section, work area is defined as: That portion or portions of a *building* consisting of all reconfigured spaces as indicated on the *construction documents*. Work area excludes other portions of the *building* where incidental work entailed by the intended work must be performed and portions of the *building* where work not initially intended by the *owner* is specifically required by this code.

**Exceptions:**

1. The carbon monoxide detectors may be battery operated or plug-in and are not required to be interconnected when other remodeling considerations do not require the removal of the appropriate wall or ceiling coverings to facilitate concealed interconnected wiring.
2. *Alterations* to the *exterior surfaces* of existing *buildings* including, but not limited to, re-roofing, re-siding, window replacement and the construction of decks without roofs, are exempt from the requirements of this section.
3. Carbon monoxide detectors shall not be required in *buildings* not containing a fuel-burning appliance, *fireplace* or attached garage.

(Del) **SECTION 916 - EMERGENCY RESPONDER RADIO COVERAGE.** Delete section.

## CHAPTER 10 – MEANS OF EGRESS

(Add) **1003.8 Security device.** Any security device or system that emits any medium that could obscure a *means of egress* in any *building*, structure or premises shall be prohibited.

(Amd) **1004.1.2 Areas without fixed seating.** The number of occupants shall be computed at the rate of one occupant per unit of area as prescribed in Table 1004.1.2. For areas without *fixed seating*, the *occupant load* shall not be less than the number determined by dividing the floor area under consideration by the *occupant load* factor assigned to the function of the space as set forth in Table 1004.1.2. Where an intended function is not listed in Table 1004.1.2, the *building official* shall establish a function based on a listed function that most nearly resembles the intended function.

(Amd) **1005.3.1 Stairways.** The capacity, in inches (mm), of the *means of egress stairways* shall be calculated by multiplying the *occupant load* served by such *stairway* by a *means of egress* capacity factor of 0.3 inch (7.6 mm) per occupant. Where *stairways* serve more than one *story*, only the *occupant load* of each *story* considered individually shall be used in calculating the required capacity of the *stairways* serving that *story*.

**Exceptions:**

1. Facilities with *smoke-protected assembly seating* shall be permitted to use the capacity factors in Table 1029.6.2 indicated for stepped aisles for *exit access* or *exit stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is provided with a smoke control system complying with Section 909.
2. Facilities with outdoor *smoke-protected assembly seating* shall be permitted to the capacity factors in Section 1029.6.3 indicated for stepped aisles for *exit access* or *exit stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is open to the outdoors.

(Amd) **1005.3.2 Other egress components.** The capacity, in inches (mm), of *means of egress* components other than *stairways* shall be calculated by multiplying the *occupant load* served by such component by a *means of egress* capacity factor of 0.2 inch (5.1 mm) per occupant.

**Exceptions:**

1. Facilities with *smoke-protected assembly seating* shall be permitted to use the capacity factors in Table 1029.6.2 indicated for level or ramped aisles for *means of egress* components other than *stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is provided with a smoke control system complying with Section 909.
2. Facilities with outdoor *smoke-protected assembly seating* shall be permitted to the capacity factors in Section 1029.6.3 indicated for level or ramped aisles for *means of egress* components other than *stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is open to the outdoors.

(Amd) **1006.1 General.** The number of *exits* or *exit access doorways* required within the *means of egress* system shall comply with the provisions of Section 1006.2 for spaces, including *mezzanines*, and Section 1006.3 for stories.

**Exception:** *Buildings of Group R-1 bed and breakfast establishments* shall only be required to have one *exit*.

(Amd) **1006.2.2.4 Day care means of egress.** Day care facilities, rooms or spaces where care is provided for more than 10 children who are 3 years of age or younger shall have access to not less than two *exits* or *exit access doorways*.

(Amd) **1008.2 Illumination required.** The *means of egress*, including the *exit discharge*, shall be illuminated at all times the *building space* served by the *means of egress* is occupied.

**Exceptions:**

1. Occupancies in Group U.
2. Aisle accessways in Group A.
3. Within *dwelling units* and *sleeping units* in Groups R-1, R-2 and R-3.
4. Within *sleeping units* of Group I occupancies.
5. In *Group R-1 bed and breakfast establishments* when illumination of the *means of egress* is initiated upon initiation of a fire alarm.

(Add) **1008.2.3 Arrangement of illumination.** Required illumination shall be arranged so that the failure of any single lamp does not result in an illumination level of less than 0.2 foot-candle (2.15 lux) at the floor level.

(Amd) **1008.3.3 Other areas.** In the event of power supply failure, an emergency electrical system shall automatically illuminate all of the following areas:

1. Electrical equipment rooms.
2. Fire command centers.
3. Fire pump rooms.
4. Generator rooms.
5. Public restrooms with an area greater than 300 square feet (27.87 m<sup>2</sup>).
6. *Means of egress* components, other than those within sleeping rooms, of *Group R-1 bed and breakfast establishments*.

(Add) **1008.3.6 Activation.** The emergency *means of egress* illumination system shall be arranged to provide the required illumination automatically in the event of any interruption of normal lighting due to any of the following:

1. Failure of a public utility or other outside electrical power supply.
2. Opening of a circuit breaker or fuse.
3. Manual acts, including accidental opening of a switch controlling normal lighting facilities.

(Add) **1010.1.1.2 Bed and breakfast establishments.** Doors within and accessing *Group R-1 bed and breakfast establishments* shall have a minimum clear width of 28 inches (711 mm). Doors within and accessing bathrooms shall have a minimum clear width of 24 inches (610 mm).

(Amd) **1010.1.2.1 Direction of swing.** Doors shall swing in the direction of egress travel where serving a room or area containing an *occupant load* of 50 or more persons, an *exit* enclosure (unless the door serves an individual living unit that opens directly into an *exit* enclosure) or a Group H occupancy.

(Amd) **1010.1.9.5.1 Closet and bathroom doors.** In Group R-4 occupancies, Group I-2 child care facilities, and Group I-4 day care facilities, closet doors that latch in the closed position shall be openable from inside the closet and bathroom doors that latch in the closed position shall be capable of being unlocked from the ingress side.

(Amd) **1011.5.2 Riser height and tread depth.** *Stair* riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. The riser height shall be measured vertically between the *nosings* of adjacent treads. Rectangular tread depth shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at right angle to the tread's *nosing*. *Winder* treads shall have a minimum tread depth of 11 inches (279 mm) between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline and a minimum tread depth of 10 inches (254 mm) within the clear width of the *stair*.

**Exceptions:**

1. Alternating tread devices in accordance with Section 1011.14.
2. Ship ladders in accordance with Section 1011.15.
3. Spiral *stairways* in accordance with Section 1011.10.

4. Aisle *stairs* in assembly seating areas where the *stair* pitch or slope is set, for sightline reasons, by the slope of the adjacent seating area in accordance with Section 1029.13.
5. In *Group R-1 bed and breakfast establishments*; in Group R-3 occupancies; within *dwelling units* in Group R-2 occupancies; and in Group U occupancies that are accessory to Group R-3 occupancy, or accessory to individual *dwelling units* in Group R-2 occupancies; the maximum riser height shall be 8 ¼ inches (209.5 mm) and the minimum tread depth shall be 9 inches (229 mm); the minimum *winder* tread depth at the walkline shall be 10 inches (254 mm); and the minimum *winder* tread depth shall be 6 inches (152 mm). A *nosing* not less than ¾ inch (19.1 mm) but not more than 1 ¼ inches (32 mm) shall be provided on *stairways* with solid risers where the tread depth is less than 11 inches (279 mm).
6. The riser height and tread depth of existing *stairways* in *buildings* undergoing *addition, alteration, repair, relocation or change of occupancy* that involve the existing *stairways* shall be permitted to remain, provided the greatest riser height within any *flight of stairs* shall not exceed the smallest by 3/8 inch and the greatest tread depth within any *flight of stairs* shall not exceed the smallest by 3/8 inch.
7. Any *stairway* replacing an existing *stairway* within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.
8. In Group I-3 facilities, *stairways* providing access to guard towers, observation stations and control rooms, not more than 250 square feet (23 m<sup>2</sup>) in area, shall be permitted to have a maximum riser height of 8 inches (203 mm) and a minimum tread depth of 9 inches (229 mm).

(Amd) **1011.5.3 Winders.** *Winder* treads are not permitted in *means of egress stairways* except within a *dwelling unit* and within existing detached one- and two-family *dwelling units* undergoing a *change of occupancy* to *Group R-1 bed and breakfast establishments*.

**Exceptions:**

1. Curved *stairways* in accordance with Section 1011.9.
2. Spiral *stairways* in accordance with Section 1011.10.

(Amd) **1011.7.2 Outdoor conditions.** Outdoor *stairways* and outdoor approaches to *stairways* shall be designed so that water will not accumulate on walking surfaces. In other than occupancies in Group R-3 and occupancies in Group U that are accessory to an occupancy in Group R-3, treads, platforms and landings that are part of exterior *stairways* in climates subject to snow and ice shall be protected to prevent the accumulation of same.

(Amd) **1011.11 Handrails.** *Stairways* shall have *handrails* on each side and shall comply with Section 1012. Where glass is used to provide the *handrail*, the *handrail* shall also comply with Section 2407.

**Exceptions:**

1. *Stairways* within *dwelling units, Group R-1 bed and breakfast establishments* and spiral *stairways* are permitted to have a *handrail* on one side only.
2. Decks, patios and walkways that have a single change in elevation where the landing depth on each side of the change in elevation is greater than what is required for a landing do not require *handrails*.
3. In Group R-3 occupancies, a change in elevation consisting of a single riser at an entrance or egress door does not require *handrails*.

4. Changes in room floor elevations of three or fewer risers within *dwelling units* and *sleeping units* in Group R-1 bed-and-breakfast establishments and Groups R-2 and R-3 occupancies do not require *handrails*.

(Add) **1013.1.1 Accessible exits.** Where *exit* signs are required by Section 1013.1 of this code, *accessible exit* doors at the *level of exit discharge* that lead directly to *accessible* paths of *exit discharge* shall additionally be marked by the International Symbol of Accessibility. Such symbol shall be not less than 6 inches (152 mm) high and shall be incorporated into the required *exit* sign or shall be located directly adjacent to it. Such symbol shall meet the requirements of Section 1013.

(Amd) **1013.2 Floor-level exit signs.** Where *exit* signs are required from a room or space in Group R-1 occupancies, Group I-2 occupancies, and Group R-2 occupancies by Section 1013.1, additional low-level *exit* signs shall be provided at doors within *exit access corridors* serving *guest rooms* in Group R-1 occupancies, patient and client sleeping areas of Group I-2 occupancies and sleeping areas and *dwelling units* in Group R-2 occupancies and shall comply with Section 1013.5.

The bottom of the sign shall be not less than 10 inches (254 mm) nor more than 12 inches (305 mm) above the floor level. The sign shall be flush mounted to the door or wall on the same plane as the door. Where mounted on the wall, the edge of the sign shall be within 4 inches (102 mm) of the door frame on the latch side.

**Exception:** *Group R-1 bed and breakfast establishments.*

(Amd) **1014.9 Intermediate handrails.** *Stairways* shall have intermediate *handrails* located in such a manner that all portions of the *stairway* width exceeding 75 inches (1905 mm) required for egress capacity are within 30 inches (762 mm) of a *handrail*. On monumental *stairs*, *handrails* shall be located along the most direct path of egress travel.

(Amd) **1015.3 Height.** Required *guards* shall not be less than 42 inches (1067 mm) high, measured vertically as follows:

1. From the adjacent walking surfaces.
2. On *stairways* and stepped aisles, from the line connecting the leading edges of the tread *nosings*.
3. On *ramps* and ramped aisles, from the *ramp* surface at the *guard*.

**Exceptions:**

1. For occupancies in Group R-3 not more than three stories above grade in height, and within individual *dwelling units* in occupancies in Group R-2 not more than three stories above grade in height with separate *means of egress*, required *guards* shall not be less than 36 inches (914 mm) in height measured vertically above the adjacent walking surfaces or adjacent *fixed seating*.
2. For occupancies in Group R-3, and within individual *dwelling units* in occupancies in Group R-2, *guards* on the open sides of *stairs* shall have a height not less than 34 inches (864 mm) measured vertically from a line connecting the leading edges of the treads.
3. For occupancies in *Group R-1 bed and breakfast establishments*, Group R-3, and within individual *dwelling units* in occupancies in Group R-2, where the top of the *guard* also serves as a *handrail* on the open sides of *stairs*, the top of the *guard* shall not be less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the leading edges of the treads.

4. For occupancies in *Group R-1 bed and breakfast establishments*, level *guards* shall be not less than 36 inches (914 mm) high, measured vertically above the adjacent walking surface.
5. The *guard* height in assembly seating areas shall comply with Section 1029.16 as applicable.
6. Along alternating tread devices and ship ladders, *guards* whose top rail also serves as a *handrail*, shall have height not less than 30 inches (762 mm) and not more than 34 inches (864 mm), measured vertically from the leading edge of the device tread *nosing*.

(Amd) **1015.4 Opening limitations.** Required *guards* shall not have openings which allow passage of a sphere 4 inches (102 mm) in diameter from the walking surface to the required *guard* height.

**Exceptions:**

1. From a height of 36 inches (914 mm) to 42 inches (1067 mm), *guards* shall not have openings which allow passage of a sphere 4<sup>3</sup>/<sub>8</sub> inches (111 mm) in diameter.
2. The triangular openings at the open side of a *stair*, formed by the riser, tread and bottom rail shall not allow passage of a sphere 6 inches (152 mm) in diameter.
3. At elevated walking surfaces for access to and use of electrical, mechanical or plumbing systems or equipment, *guards* shall not have openings which allow passage of a sphere 21 inches (533 mm) in diameter.
4. In areas that are not open to the public within occupancies in Group I-3, F, H or S, and for alternating tread devices and ship ladders, *guards* shall not have openings which allow passage of a sphere 21 inches (533 mm) in diameter.
5. In assembly seating areas, *guards* at the end of aisles where they terminate at a fascia of boxes, balconies and galleries shall not have openings which allow passage of a sphere 4 inches in diameter (102 mm) up to a height of 26 inches (660 mm). From a height of 26 inches (660 mm) to 42 inches (1067 mm) above the adjacent walking surfaces, *guards* shall not have openings which allow passage of a sphere 8 inches (203 mm) in diameter.
6. Within individual *dwelling units* and *sleeping units* in Group R-2 and R-3 occupancies, *guards* on the open sides of *stairs* shall not have openings which allow passage of a sphere 4<sup>3</sup>/<sub>8</sub> inches (111 mm) in diameter.
7. In *Group R-1 bed and breakfast establishments*, *guards* shall have balusters or ornamental patterns such that a 6-inch-diameter (152 mm) sphere cannot pass through any opening.

(Add) **1015.9 Retaining walls.** Retaining walls with a difference in finished grade from the top of the wall to the bottom of the wall that is greater than 4 feet (1219 mm) shall be provided with *guards* complying with Sections 1015.3, 1015.4 and 1607.8 when there is a walking surface, parking lot or driveway on the high side located closer than 2 feet (610 mm) to the retaining wall. For the purpose of this section, grass, planting beds or landscaped areas shall not be considered a walking surface.

(Amd) **Table 1017.2 Exit Access Travel Distance.**

Amend final row as follows:

I-2, I-3, I-4	Not Permitted <sup>e</sup>	200 <sup>c</sup>
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Add new footnote as follows:

e. For Group I-4 day care facilities that satisfy Section 903.2.6, exception 2, a maximum travel distance of 150-feet shall be permitted.

(Amd) **1019.3 Occupancies other than Groups I-2 and I-3.** In other than Group I-2 and I-3 occupancies, floor openings containing *exit access stairways* or *ramps* that do not comply with one of the conditions listed in this section shall be enclosed with a *shaft* enclosure constructed in accordance with Section 713.

1. In *buildings* equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1 with other than Group H or I occupancies, an *exit access stairway* serving an *occupant load* of less than 10 not more than one *story* above the *level of exit discharge*.
2. In Group R-1, R-2 or R-3 occupancies, *exit access stairways* and *ramps* connecting four stories or less serving and contained within a single residential *dwelling unit* or *sleeping unit* or *live/work unit*.
3. *Exit access stairways* serving and contained within a Group R-3 congregate residence or a Group R-4 *facility* are not required to be enclosed.
4. *Exit access stairways* connecting the first and second floors of *Group R-1 bed and breakfast establishments*. *Stairways* connecting the second and third floors in such occupancies shall be enclosed with fire separation assemblies having a *fire-resistance rating* of not less than 1 hour. *Stairways* connecting the basement and the first floor occupancies shall be enclosed with *fire partitions* having a *fire-resistance rating* of not less than ½ hour with 20-minute fire-resistance rated door assemblies. Fire-resistance assemblies at *stairways* in *Group R-1 bed and breakfast establishments* shall not be required to be supported by fire-resistance rated construction.
5. *Exit access stairways* and *ramps* within an atrium complying with the provisions of Section 404.
6. *Exit access stairways* and *ramps* in *open parking garages* that serve only the parking garage.
7. *Exit access stairways* and *ramps* serving open-air seating complying with the *exit access travel distance* requirements of Section 1029.7.
8. *Exit access stairways* and *ramps* serving the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, places of religious worship, auditoriums and sport facilities.
9. *Stairways* serving outdoor facilities where all portions of the *means of egress* are essentially open to the outside.
10. *Exit access stairways* serving *mezzanines* complying with the provisions of Section 505.



(Amd) **Table 1020.1 Corridor Fire-Resistance Rating**

Amend second to last row as follows:

I-2 <sup>a</sup> , I-4	All	Not Permitted <sup>d</sup>	0
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Add new footnote as follows:

d. For Group I-4 day care facilities that satisfy Section 903.2.6, exception 2, a *corridor fire-resistance rating* of zero (0) shall be permitted.

(Add) **1020.1.1 Group R-1 bed and breakfast establishments.** A *fire-resistance rating* is not required for *corridors* in *Group R-1 bed and breakfast establishments*. Doors leading from *guest rooms* into *corridors* or hallways in *Group R-1 bed and breakfast establishments* shall be equipped with *self-closing devices*.

(Add) **1022.2.2.2 Group M occupancies.** In mercantile occupancies other than bulk merchandising retail *buildings*, if the only means of customer entrance is through one *exterior wall* of a *building*, one-half of the required egress width from the *street floor* shall be located in such wall. For the purpose of this section, bulk merchandising retail *building* is defined as a *building* exceeding 12,000 square feet (1115 m<sup>2</sup>) in area in which the sales area includes the storage of combustible materials on pallets, in solid piles, or in racks in excess of 12 feet (3660 mm) in storage height.

(Amd) **1023.5 Penetrations.** Penetrations into or through *interior exit stairways* and *ramps* are prohibited except for equipment and ductwork necessary for independent ventilation or pressurization, sprinkler piping, standpipes, electrical raceway for fire department communication and security systems and electrical raceway serving the *interior exit stairway* and *ramp* and terminating at a steel box not exceeding 16 square inches (0.010 m<sup>2</sup>). Such penetrations shall be protected in accordance with Section 714. There shall be no penetrations or communicating openings, whether protected or not, between adjacent *interior exit stairways* and *ramps*.

**Exception:** *Membrane penetrations* shall be permitted on the outside of the *interior exit stairway* and *ramp*. Such penetrations shall be protected in accordance with Section 714.3.2.

(Amd) **1024.6 Penetrations.** Penetrations into or through an *exit passageway* are prohibited except for equipment and ductwork necessary for independent ventilation or pressurization, sprinkler piping, standpipes, electrical raceway for fire department communication and security systems and electrical raceway serving the *exit passageway* and terminating at a steel box not exceeding 16 square inches (0.010 m<sup>2</sup>). Such penetrations shall be protected in accordance with Section 714. There shall be no penetrations or communicating openings, whether protected or not, between adjacent *exit passageways*.

**Exception:** *Membrane penetrations* shall be permitted on the outside of the *exit passageway*. Such penetrations shall be protected in accordance with Section 714.3.2.

(Add) **1025.6 Statutory requirements for exit access corridors.** Pursuant to section 29-256d of the Connecticut General Statutes, in addition to *means of egress illumination* required by Section 1008, *approved luminous egress path marking systems* or devices shall be required in *exit access corridors* in the following newly constructed occupancies:

1. Group A occupancies with a total *occupant load* greater than 300.
2. Group B medical occupancies.

4. Group E occupancies.
5. Group I-1 occupancies.
6. Group I-2 occupancies.
7. Group R-1 *hotels* and motels.
8. Group R-2 dormitories.

**Exceptions:**

1. Group E occupancies where each classroom has at least one door directly to the exterior and rooms for assembly purposes have at least one-half of the required *means of egress* doors opening directly to the exterior. Exterior doors specified in this exception are required to be at ground level.
2. In *corridors* or hallways located within Group R-1 and R-2 *sleeping units* or *dwelling units*.
3. Such systems shall not be required in existing *buildings* of any occupancy, including those undergoing *repair, addition, alteration* or *change of occupancy*. In the case of an *addition* to an existing *building*, this exception also applies to the new construction.

(Add) **1025.6.1 Size and location.** Luminous egress path marking systems or devices shall be sized and located in *exit access corridors* as prescribed by Section 1025.2.4. In *exit access corridors* exceeding 120 inches (3048 mm) in width, the marking shall be provided on both sides of the *corridor*.

(Add) **1025.6.2 Device or system requirements.** Luminous egress path marking systems or devices shall be *listed* and *labeled* and installed in accordance with the manufacturer's installation requirements. *Self-luminous* and *photoluminescent* egress path markings shall comply with Sections 1025.4 and 1025.5. Such systems shall not incorporate arrows, chevrons, signs or alternating lighting patterns designed or intended to lead an occupant to any one specific *exit* in preference over another *exit*.

**Exception:** Systems incorporating arrows, chevrons, signs or alternating lighting patterns designed or intended to lead an occupant in any one specific direction shall be permitted in common paths of travel and dead end *corridors*.

(Add) **1025.6.3 Illumination.** Luminous egress path marking systems or devices shall be continuously illuminated or shall illuminate within 10 seconds in the event of power failure. Illumination shall be maintained for a period of not less than 90 minutes following loss of power to the *corridor* within which the system or device is located.

(Add) **1028.3.1 Remoteness.** Where two or more doors leading to *exit discharge* are required, a minimum of two such doors shall be placed a distance apart equal to not less than one-third of the length of the maximum overall diagonal dimension of the *building* served, measured in a straight line between doors. Additional doors leading to *exit discharge* shall be arranged a reasonable distance apart so that if one becomes blocked, the others will be available.

(Amd) **1029.2 Assembly main exit.** Pursuant to Section 29-381a of the Connecticut General Statutes, in a *building*, room or space used for assembly purposes and provided with a single main entrance/*exit*, the main *exit* shall be of sufficient width to accommodate not less than two-thirds of the *occupant load*, but such width shall not be less than the total required width of all *means of egress* leading to the *exit*. This applies to Group A occupancies that are newly constructed, have an increase in the number of occupants by *addition* or *alteration* or are created by *change of occupancy*. Where the *building* is classified as a Group A occupancy, the main *exit* shall front on at least one street or an unoccupied space of not less than 10 feet (3048 mm) in width that adjoins a street or *public way*. In a *building*, room or space used for assembly purposes where there is no well-defined main entrance/*exit* or where multiple main entrance/*exits* are provided, *exits* shall be permitted to be distributed around the perimeter of the *building* provided that the total width of egress is not less than 100 percent of the required width.

(Amd) **1030.1 General.** In addition to the *means of egress* required by this chapter, *emergency escape and rescue openings* shall be provided in the following occupancies:

1. Group R-2 occupancies located in stories with only one *exit* or access to only one *exit* as permitted by Tables 1006.3.2(1) and 1006.3.2(2).
2. Group R-3 and R-4 occupancies.

Basements and sleeping rooms below the fourth *story above grade plane* shall have not fewer than one exterior *emergency escape and rescue opening* in accordance with this section. Where basements contain one or more sleeping rooms, *emergency escape and rescue openings* shall be required in each sleeping room, but shall not be required in adjoining areas of the basement. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way*.

**Exceptions:**

1. Basements with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.
2. *Emergency escape and rescue openings* are not required from basements or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior *exit* balcony that opens to a *public way*.
3. Basements without *habitable spaces* and having not more than 200 square feet (18.6 m<sup>2</sup>) in floor area shall not be required to have *emergency escape and rescue openings*.
4. Within individual *dwelling* and *sleeping units* in Groups R-2 and R-3, where the *building* is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, sleeping rooms in basements shall not be required to have *emergency escape and rescue openings* provided that the basement has one of the following:
  - 4.1. One *means of egress* and one *emergency escape and rescue opening*.
  - 4.2. Two *means of egress*.

(Add) **1030.1.1 Operational constraints and opening control devices.** *Emergency escape and rescue openings* shall be operational from inside the room without the use of keys or tools. Window-opening control devices complying with ASTM F2090 shall be permitted for use on windows serving as a required *emergency escape and rescue opening*.

(Add) **1030.1.2 Group E occupancies.** In Group E occupancies, *emergency escape and rescue openings* shall be provided in every room or space greater than 250 square feet used for classroom or educational purposes or normally subject to student occupancy.

**Exceptions:**

1. *Buildings* protected throughout by an *approved* automatic sprinkler system in accordance with Section 903.3.1.1.
2. Rooms or spaces that have a door leading directly to the outside of the *building*.

(Add) **1030.1.3 Group I-4 occupancies.** In Group I-4 occupancies, *emergency escape and rescue openings* shall be provided in every room or space greater than 250 square feet normally subject to client occupancy.

**Exceptions:**

1. *Buildings* protected throughout by an *approved* automatic sprinkler system in accordance with Section 903.3.1.1.
2. Rooms or spaces that have a door leading directly to the outside of the *building*.

(Amd) **1030.2.1 Minimum dimensions.** The minimum net clear opening height dimension shall be 24 inches (610 mm). The minimum net clear opening width dimension shall be 20 inches (508 mm). The net clear opening dimensions shall be the result of normal operation of the opening.

**Exception:** In existing *buildings* undergoing a *change of occupancy* to *Group R-1 bed and breakfast establishments*, the net clear opening dimensions may be obtained by removal of the sash without the use of a key or tool provided that the instructions for the removal of the sash are clearly posted on the inside of the *guest room* door.

(Amd) **1030.3 Maximum height from floor.** *Emergency escape and rescue openings* shall have the bottom of the clear opening not greater than 44 inches (1118 mm) measured from the floor.

**Exception:** In an existing *building* undergoing a change of use, the 44-inch (1118 mm) maximum height may 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. Any *stairs* or steps shall comply with Section 1011.5.

## CHAPTER 11 – ACCESSIBILITY

Section 1102. Add the following:

(Add) **COMPLEX.**

(Add) **STORY.**

(Add) **STREET FLOOR.**

(Amd) **1103.2.11 Group R-1 Bed and breakfast establishments.** *Group R-1 bed and breakfast establishments* are not required to be *accessible*.

(Add) **1103.2.15 Statutory requirements.** The following additional exceptions to requirements for accessibility are in accordance with section 29-274 of the Connecticut General Statutes:

1. Accessibility shall not be required in renovations, *additions* or *alterations* to stories in existing *buildings* above the *street floor* being converted to Group B provided each *story* above the *street floor* contains less than 3,000 square feet of total gross area per floor and the *street floor* is renovated or altered to provide accessibility to persons with disabilities. This provision shall not apply to stories above the *street floor* that include the offices of health care providers, municipal or state agencies or passenger transportation facilities or offices located in airport terminals.
2. *Buildings* and structures of any occupancy not otherwise exempted from the requirements of this chapter shall be exempt if each *story* above and below the *street floor* contains less than 3,000 square feet of total gross area and the *street floor* is designed, renovated or altered to provide accessibility to persons with disabilities. This provision shall not apply to stories above or below the *street floor* that include the offices of health care providers, municipal or state agencies or passenger transportation facilities or offices located in airport terminals or mercantile facilities having five or more tenant spaces.

(Add) **1103.2.16 Mezzanines.** *Mezzanines* having fewer than 3,000 square feet of *gross floor area*, either singly or in the aggregate for multiple *mezzanines* on any floor are not required to be accessible and are not required to be located on an *accessible route*, provided that the goods and services available on any *mezzanine* shall be available in accessible areas.

(Amd) **1104.1 Site arrival points.** At least one *accessible route* within the *site* shall be provided from public transportation stops, *accessible* parking and *accessible* passenger loading zones, and public streets or sidewalks to the *accessible building* entrance served. Where an *accessible route* must cross speed bumps or vehicle wheel stops, there shall be a minimum clear passage width of not less than 32 inches.

**Exception:** Other than in *buildings* or facilities containing or serving *Type B units*, an *accessible route* shall not be required between *site* arrival points and the *building* or *facility* entrance if the only means of access between them is a vehicular way not providing for pedestrian access.

(Amd) **1104.4 Multilevel buildings and facilities.** At least one *accessible route* shall connect each *accessible story* and *mezzanine* in multilevel *buildings* and facilities.

**Exceptions:**

1. An *accessible route* is not required to stories and *mezzanines* that comply with Sections 1103.2.15 and 1103.2.16, respectively.
2. Stories or *mezzanines* that do not contain *accessible* elements or other spaces as determined by Section 1107 or 1108 are not required to be served by an *accessible route* from an *accessible* level.
3. In air traffic control towers, an *accessible route* is not required to serve the cab and the floor immediately below the cab.
4. Where a two-story *building* or *facility* has one *story* or *mezzanine* with an *occupant load* of five or fewer persons that does not contain public use space, that *story* or *mezzanine* shall not be required to be connected by an *accessible route* to the *story* above or below.

(Add) **1105.2 Automatic entrances.** Where controls for automatic doors are provided they shall be in an *accessible* location within 10 feet of the entrance.

(Add) **1105.2.1 Primary entrances.** Pursuant to section 29-270a of the Connecticut General Statutes, at least one primary entrance to any *covered mall building*, anchor store or retail business (Group M) with more than 50,000 square feet of floor space shall be equipped with an automatically operating door or doors in sequence, installed in accordance with applicable provisions of this code.

**Exception:** Nothing in this section shall require the installation of an automatically operating door in a primary entrance which is open and unobstructed by any door during the hours the retail business is open to the public.

(Add) **1106.1.1 Automobile accessible parking spaces.** Pursuant to subsection (h) of section 14-253a of the Connecticut General Statutes, parking spaces for passenger motor vehicles designated for persons who are blind and persons with disabilities shall be as near as possible to a *building* entrance or walkway and shall be 15 feet wide including 5 feet of cross hatch.

(Amd) **1106.2 Groups I-1, R-1, R-2, R-3 and R-4.** *Accessible* parking spaces shall be provided in Group I-1, R-1, R-2, R-3 and R-4 occupancies in accordance with Items 1 through 4 as applicable.

1. In Group R-2, R-3 and R-4 occupancies that are required to have Accessible, Type A or Type B *dwelling units* or *sleeping units*, at least two percent, but not less than one, of each type of parking space shall be *accessible*.
2. In Group I-1 and R-1 occupancies, *accessible* parking shall be provided in accordance with Table 1106.1.
3. Where at least one parking space is provided for each *dwelling unit* or *sleeping unit*, at least one *accessible* parking space shall be provided for each *Accessible* and *Type A unit*.
4. Where parking is provided within or beneath a *building*, *accessible* parking spaces shall also be provided within or beneath the *building*.

**Exception:** Private parking garages within or beneath the *building* that contain no more than two parking spaces, that are reserved for the exclusive use of a specific *dwelling unit* and are directly accessed from that *dwelling unit* are not required to be *accessible*.

(Amd) **1106.5 Van spaces.** For every six or fraction of six *accessible* parking spaces, at least one shall be a van-accessible parking space. Each public parking garage or terminal shall have a minimum of two van-accessible parking spaces complying with this section.

**Exception:** In Group R-2 and R-3 occupancies, van-accessible spaces located within *private garages* shall be permitted to have vehicular routes, entrances, parking spaces and access aisles with a minimum vertical clearance of 7 feet.

(Add) **1106.5.1 Van accessible parking spaces.** Pursuant to subsection (h) of section 14-253a of the Connecticut General Statutes, parking spaces for passenger vans designated for persons who are blind and persons with disabilities shall be as near as possible to a *building* entrance or walkway and shall be 16 feet wide including 8 feet of cross hatch.

(Add) **1106.5.1.1 Van access clearance.** Pursuant to subsection (i) of section 14-253a of the Connecticut General Statutes, each public parking garage or terminal shall have 8 feet 2 inches vertical clearance at a primary entrance and along the route to at least two parking spaces for passenger vans that conform to Section 1106.5.1 and that have 8 feet 2 inches of vertical clearance.

(Amd) **1107.6.2.2.1 Type A units.** In Group R-2 occupancies containing more than 20 *dwelling units* or *sleeping units*, at least 10 percent of the units shall be a *Type A unit* in accordance with ICC/ANSI A117.1-2009. All R-2 units on the *site*, within the *building* or within the *complex*, shall be considered to determine the total number of units and the required number of *Type A units*. *Type A units* shall be dispersed among the various classes of units. Bedrooms in monasteries and convents shall be counted as *sleeping units* for the purpose of determining the number of units. Where the *sleeping units* are grouped into suites, only one *sleeping unit* in each suite shall count towards the number of required *Type A units*.

**Exceptions:**

1. The number of *Type A units* is permitted to be reduced in accordance with Section 1107.7.
2. Existing Group R-2 *buildings* or structures on a *site* or within a *complex* shall not contribute to the total number of units on a *site*.

(Amd) **1107.7.2 Multistory units.** A multistory *dwelling unit* or *sleeping unit* that is not provided with elevator service is not required to be a *Type B unit*. Where a *multistory unit* is provided with external elevator service to only one floor, the floor provided with elevator service shall be the primary entrance to the unit, shall comply with the requirements for a *Type B unit*, and, where provided within the unit, provisions for living, sleeping, eating, cooking and a complete toilet and bathing *facility* shall be on that floor. Where a *multistory unit* is provided with external elevator service to more than one floor of the unit, one floor shall be the primary entrance to the unit and shall comply with the requirements for a *Type B unit*, providing provisions for living, sleeping, eating, cooking and a complete toilet and bathing facility on that floor.

(Add) **1109.2.2.1 Pull handle.** Where *accessible* water closet compartments or single occupancy toilet rooms are provided, the compartment or room doors shall have a pull handle mounted 6 inches from the hinge side on the compartment or room side of the door. This handle shall be between 26 inches and 36 inches from the floor and shall meet the requirements of Section 404.2.6 of ICC/ANSI A117.1.

**Exceptions:**

1. Compartments or rooms with *self-closing*, self-latching doors.
2. Doors that swing into the compartment or room.

(Del) **1109.2.3 Lavatories.** Delete in its entirety and replace with the following:

(Amd) **1109.2.3 Lavatories.** Where lavatories are provided, at least 5 percent, but not less than one, shall be *accessible*. Where an *accessible* lavatory is located within the *accessible* water closet compartment at least one additional *accessible* lavatory shall be provided in the multicompartment toilet room outside the water closet compartment. Where the total lavatories provided in a toilet room or bathing facility is four or more, at least one lavatory with enhanced reach ranges shall be provided.

(Add) **1109.2.4 Single occupancy toilet.** Required *accessible* toilet rooms designed for single occupancy in other than Group R shall meet the requirements of ICC/ANSI A117.1. Each such room shall contain both toilet and lavatory, shall have a lever handle privacy lockset and shall have an emergency call system that actuates a visible and audible alarm in a normally occupied area. An alarm pull switch, identified with emergency instruction, shall be provided within 3 feet of the water closet with a pull cord extending to within 12 inches of the floor. Emergency instructions shall be provided outside the toilet room at the normally occupied location.

(Add) **1109.8.1 Limited-use/limited-application elevators.** Limited-use/limited-application elevators shall be permitted to be installed in new construction in the same locations specified in Section 1109.8. Limited-use/limited-application elevators shall be installed in accordance with the Connecticut Safety Code for Elevators and Escalators, adopted under authority of section 29-192 of the Connecticut General Statutes and with provisions of this code adopted under authority of section 29-200 of the Connecticut General Statutes.

(Add) **1109.16 Automated teller machines.** Where automated teller machines are provided for pedestrian use at any site, at least one location and one automated teller machine shall be *accessible*.

(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.



## CHAPTER 15 – ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

(Amd) **1507.11.1 Slope.** Modified bitumen membrane roofs shall have a design slope of a minimum of one-fourth unit vertical in 12 units horizontal (2-per cent slope) for drainage.

**Exception:** A minimum design slope of one-eighth unit vertical in 12 units horizontal shall be permitted when the following two conditions are met:

1. The roofing material is warranted/guaranteed by both the roofing material manufacturer and the roofing installer for the proposed slope.
2. The *registered design professional* responsible for the design of the roof structure certifies that the roof structure is designed to support all *loads*, including any additional *loads* resultant to the reduced slope.

(Amd) **1507.12.1 Slope.** Thermoset single ply membrane roofs shall have a design slope of a minimum of one-fourth unit vertical in 12 units horizontal (2-per cent slope) for drainage.

**Exception:** A minimum design slope of one-eighth unit vertical in 12 units horizontal shall be permitted when the following two conditions are met:

1. The roofing material is warranted/guaranteed by both the roofing material manufacturer and the roofing installer for the proposed slope.
2. The *registered design professional* responsible for the design of the roof structure certifies that the roof structure is designed to support all *loads*, including any additional *loads* resultant to the reduced slope.

(Amd) **1507.13.1 Slope.** Thermoplastic single ply membrane roofs shall have a design slope of a minimum of one-fourth unit vertical in 12 units horizontal (2-per cent slope) for drainage.

**Exception:** A minimum design slope of one-eighth unit vertical in 12 units horizontal shall be permitted when the following two conditions are met:

1. The roofing material is warranted/guaranteed by both the roofing material manufacturer and the roofing installer for the proposed slope.
2. The *registered design professional* responsible for the design of the roof structure certifies that the roof structure is designed to support all *loads*, including any additional *loads* resultant to the reduced slope.

## CHAPTER 16 – STRUCTURAL DESIGN

(Amd) **1603.1.3 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<sup>2</sup>), 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,  $I$ .
4. Thermal factor,  $C_t$ .
5. Drift surcharge *loads*,  $P_d$ .
6. Width of snow 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 7.12 of ASCE 7.

**TABLE 1607.1 MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS,  $L_0$ , AND MINIMUM CONCENTRATED LIVE LOADS<sup>9</sup>**

(Del)	5. Balconies and decks <sup>h</sup>	Same as occupancy served	-----
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Delete row 5 in its entirety and replace with the following:

(Add)	5. Balconies and decks <sup>h</sup>	1.5 times the <i>live load</i> for the area served. Not required to exceed 100 psf.	-----
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(Add) **1607.3.1 Group R-1 bed and breakfast establishments.** *Live loads* shall comply with the requirements of Table 1607.1 for one- and two-family *dwelling*s.

(Add) **1608.1.1 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. 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.

(Add) **1608.1.2 Sloped roof snow loads.** The sloped roof snow *load*,  $p_s$ , shall be calculated in accordance with Section 7.4 of ASCE-7. The value of  $p_f$  used in such calculation shall not be less than 30 pounds per square foot. Values for “unobstructed slippery roofs” in Figure 7-2 of ASCE-7 shall not be utilized, unless *approved* by the *building official*.

(Amd) **1608.2 Ground snow loads.** Ground snow *loads* to be used in determining the design snow *loads* for roofs shall be as listed in Appendix N.

(Del) **Table 1608.2.** Delete table.

(Del) **Figure 1609.3(1).** Delete figure.

(Del) **Figure 1609.3(2).** Delete figure.

(Del) **Figure 1609.3(3).** Delete figure.

(Amd) **1609.3 Design wind speed.** The ultimate design wind speed,  $V_{ult}$ , in mph, for the determination of the wind *loads* shall be determined by Appendix N. When required, the nominal design wind speed,  $V_{asd}$ , shall be determined by Appendix N.

(Amd) **1612.3 Establishment of flood hazard areas.** *Flood hazard areas* shall be established locally by methods lawfully adopted by the town, city or borough.

(Amd) **1613.3.1 Mapped acceleration parameters.** The parameters  $S_s$  and  $S_f$  shall be determined from the MCE spectral response accelerations shown in Appendix N.

(Del) **Figure 1613.1(1).** Delete figure.

(Del) **Figure 1613.1(2)**. Delete figure.

(Del) **Figure 1613.1(3)**. Delete figure.

(Del) **Figure 1613.1(4)**. Delete figure.

(Del) **Figure 1613.1(5)**. Delete figure.

(Del) **Figure 1613.1(6)**. Delete figure.

(Del) **Figure 1613.1(7)**. Delete figure.

(Del) **Figure 1613.1(8)**. Delete figure.

## **CHAPTER 17 - SPECIAL INSPECTIONS AND TESTS**

(Amd) **1704.2 Special inspections and tests.** Where application is made to the *building official* for construction as specified in Section 105, the *owner* or the *owner's* authorized agent, other than the contractor, shall employ one or more *approved agencies* to provide *special inspections* and tests during construction on the types of work specified in Section 1705 and identify the *approved agencies* to the *building official*. These *special inspections* and tests are in addition to the inspections by the *building official* that are identified in Section 110.

### **Exceptions:**

1. *Special inspections* and tests are not required for construction of a minor nature or as warranted by conditions in the *jurisdiction as approved by the building official*.
2. Unless otherwise required by the *building official*, *special inspections* and tests are not required for Group U occupancies that are accessory to a residential occupancy including, but not limited to, those listed in Section 312.1.
3. *Special inspections* and tests are not required for portions of structures designed and constructed in accordance with the cold-formed steel light-frame construction provisions of Section 2211.7 or the *conventional light-frame construction* provisions of Section 2308.
4. The contractor is permitted to employ the *approved agencies* where the contractor is also the *owner*.
5. The contractor is permitted to employ the *approved agencies* for the verification of the temporary installation restraint/bracing required for cold-formed steel trusses in Section 1705.2.4 and metal-plate connected wood trusses in Section 1705.5.2.

(Amd) **1704.2.4 Report requirement.** *Special inspectors* shall keep records of inspections. The *special inspector* shall furnish inspections reports to the *building official* and to the *registered design professional in responsible charge*. Reports shall indicate that work inspected was or was not completed in conformance to *approved construction documents*. Discrepancies shall be brought to the immediate attention of the contractor for correction. If they are not corrected, the discrepancies shall be brought to the attention of the *building official* and to the *registered design professional in responsible charge* prior to the completion of that phase of the work. A final report of inspections documenting completion of all required *special inspections* and correction of any discrepancies noted in the inspections shall be submitted prior to the issuance of the Certificate of Occupancy. Interim reports shall be submitted periodically at the frequency agreed upon by the *permit applicant* and the *building official* prior to the start of work.

(Amd) **1704.2.5.1 Fabricator approval.** *Special inspections* required by Section 1705 shall be permitted to be reduced or eliminated when approved by the *registered design professional in responsible charge* where the work is done on the premises of a fabricator registered and *approved* to perform such work without *special inspection*. Approval shall be based upon review of the fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an *approved special inspection agency*. *Approved* fabricators shall include:

1. A fabricator of structural steel certified by the American Institute of Steel Construction Inc.'s Certification Program for Structural Steel Fabricators, Standard for Steel Building Structures.
2. A manufacturer of metal building systems accredited by the ICC International Accreditation Service (IAS) in accordance with accreditation criteria IAC-AC-472.
3. A manufacturer of K-, LH-, or DLH-Series Joist or Joist Girders who is a member of the Steel Joist Institute and has completed the Institute's examination of complete engineering design details and calculations of joists, bridging and accessories for which standards have been adopted; data obtained from physical tests of joists to verify conclusions from analysis of the applicant company's engineering design, details and calculations; an initial plant inspection and subsequent periodic inspections are required to ensure that the applicant/member company possesses the facilities, equipment and personnel required to properly fabricate joists.
4. A fabricator of precast *concrete* certified by the Precast/Prestressed Concrete Institute's Plant Certification Program, commercial category.
5. A fabricator of cold-formed steel trusses certified by the Truss Plate Institute's Quality Assurance Program.
6. A fabricator of wood trusses certified by the Truss Plate Institute's Quality Assurance Program.
7. A fabricator of structural timber components and assemblies certified by the American Institute of Timber Construction's AITC 115 – Standard for Fabricated Structural Glued Laminated Timber Components and Assemblies.

At the completion of fabrication, the *approved* fabricator shall submit a *certificate of compliance* to the *building official* stating that the work was performed in accordance with the *approved construction documents*.

(Amd) **1704.6.2 Structural observations for wind requirements.** Structural observations shall be provided for those structures sited where  $V_{asd}$  as determined in accordance with Appendix N exceeds 110 mph (49 m/sec), where one or more of the following conditions exist:

1. The structure is classified as *Risk category* III or IV in accordance with Table 1604.5.
2. The *building height* of the structure is greater than 75 feet (22,860 mm).
3. When so designated by the *registered design professional* responsible for the structural design.
4. When such observation is specifically required by the *building official*.

(Amd) **1705.2.4. Cold-formed steel trusses.** Where a cold-formed steel truss 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.

(Add) **1705.2.5 Cold-formed steel light-frame construction.** *Special inspections* of prefabricated cold-formed steel light-frame structural elements and assemblies shall be in accordance with Section 1704.2.5. *Special inspections* of site-built cold-formed steel light-frame structural elements and assemblies shall be in accordance with this section and Table 1705.2.5.

**Exceptions:** *Special inspections*, other than items 5(a) and 5(b) of table 1705.2.5, of site-built cold-formed steel light-frame structural elements and assemblies shall not be required in the following cases:

1. *Buildings* and structures in *risk category I*, per Table 1604.5.
2. *Buildings* and structures in *risk category II* per table 1604.5, which are in wind exposure categories B or C per 1609.4.3 and are not more than three stories high.

(Add) **TABLE 1705.2.5 REQUIRED SPECIAL INSPECTIONS OF COLD-FORMED STEEL LIGHT-FRAME CONSTRUCTION**

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	IBC REFERENCE
1. Inspect Material <i>Grade</i> and Thickness		X	
2. Inspect Framing and Details <ol style="list-style-type: none"> <li>a. Framing layout, member sizes and bearing lengths</li> <li>b. Blocking, bridging and web stiffeners</li> <li>c. Holes<sup>a</sup></li> </ol>		X X X	
3. Inspect Connections <ol style="list-style-type: none"> <li>a. Bolted and screwed connections, including diameter, length, spacing and edge distance</li> <li>b. Welded connections</li> <li>c. Proprietary hangers and framing anchors, including fastener sizes and quantities</li> <li>d. Tie-down anchors, including anchor rod sizes and fastener sizes and quantities</li> </ol>		X X X X	
4. Inspect Shear Walls and <i>Diaphragms</i> <ol style="list-style-type: none"> <li>a. Panel <i>grade</i> and thickness<sup>b</sup></li> <li>b. Steel strapping size, <i>grade</i> and thickness</li> <li>c. Fastener size, length and spacing</li> <li>d. Framing member sizes at panel edges</li> <li>e. Blocking at panel edges</li> </ol>		X X X X X	
5. Inspect Cold-Formed Steel Trusses <ol style="list-style-type: none"> <li>a. Temporary installation restraint/bracing for truss spanning 60' or more</li> <li>b. Permanent individual truss member restraint/ bracing for trusses spanning 30' or more</li> </ol>		X X	<b>1705.2.4</b> <b>1705.2.4</b>

- a. *Inspections of holes to be performed after electrical, mechanical and plumbing rough-in inspections.*
- b. *Includes wood structural panels, steel sheet panels and gypsum board panels.*

(Amd) **1705.5 Wood construction.** *Special inspections* of prefabricated wood structural elements and assemblies shall be in accordance with Section 1704.2.5. *Special inspections* of site-built wood structural elements and assemblies shall be in accordance with this section and Table 1705.5.

**Exceptions:** *Special inspections*, other than items 5(a) and 5(b) of table 1705.5, of site-built wood structural assemblies shall not be required in the following cases:

1. *Buildings* and structures in *risk category I*, per Table 1604.5
2. *Buildings* and structures in *risk category II* per table 1604.5, which are in wind exposure categories B or C per 1609.4.3 and are not more than three stories high.

(Add) **TABLE 1705.5 REQUIRED SPECIAL INSPECTIONS OF WOOD CONSTRUCTION**

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	IBC REFERENCE
1. Inspect Grading of Wood Materials: a. Sawn lumber framing b. Structural composite lumber c. Wood structural panels		X X X	
2. Inspect Framing and Details a. Framing layout, member sizes and bearing lengths b. Blocking and bridging c. Holes and Notches <sup>a</sup>		X X X	
3. Inspect Connections a. Bolted and screwed connections, including diameter, length, spacing and edge distance b. Nailed connections, including diameter, length, type and spacing of nails c. Proprietary hangers and framing anchors, including fastener sizes and quantities d. Tie-down anchors, including anchor rod size and fastener sizes and quantities		X  X X X	
4. Inspect Shear Walls and <i>Diaphragms</i> a. Panel <i>grade</i> and thickness <sup>b</sup> b. Fastener size, length and spacing. c. Framing member sizes at panel edges d. Blocking at panel edges e. Field gluing f. High-load <i>Diaphragms</i>	X	X X X X X	<b>1705.5.1</b>
5. Inspect Metal-Plate Connected Wood Trusses a. Temporary installation restraint/bracing for truss spanning 60' or more b. Permanent individual truss member restraint/bracing for trusses spanning 30' or more c. Multi-ply truss connections.		X  X X	<b>1705.5.2</b>  <b>1705.5.2</b>

- a. *Inspections of holes and notches to be performed after electrical, mechanical and plumbing rough-in inspections.*
- b. *Applies to wood structural panels and gypsum board panels.*

(Amd) **1705.5.2. Metal-plate-connected wood trusses.** Where a truss 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.

(Del) **1705.11.1 Structural Wood.** Delete section.

(Del) **1705.11.2 Cold-formed steel light-framed construction.** Delete section.

(Del) **1705.12.2 Structural Wood.** Delete section.

(Del) **1705.12.3 Cold-formed steel light-framed construction.** Delete section.

## CHAPTER 18 – SOILS AND FOUNDATIONS

(Amd) **Table 1806.2 PRESUMPTIVE LOAD-BEARING VALUES**

CLASS OF MATERIALS	VERTICAL FOUNDATION PRESSURE (psf)	LATERAL BEARING PRESSURE (psf/ft below natural grade)	LATERAL SLIDING RESISTANCE	
			Coefficient of friction <sup>a</sup>	Cohesion (psf) <sup>b</sup>
1. Crystalline bedrock	100,000	1,200	0.6	----
2. Sedimentary and foliated rock	20,000	400	0.35	----
3. Cemented sand, gravel, silt, clay (hard pan)	8,000	300	0.35	----
4. Sandy gravel and/or gravel (GW and GP)	6,000	200	0.35	----
5. Sand, silty sand, clayey sand, silty gravel and clayey gravel (SW, SP, SM, SC, GM, and GC)	4,000	150	0.25	----
6. Clay, sandy clay, silty clay, clayey silt, silt and sandy silt (CL, ML, MH, and CH)	1,500	100	----	130

For SI: 1 pound per square foot = 0.0479 kPa, 1 pound per square foot per foot = 0.157 kPa/m

a. Coefficient to be multiplied by the *dead load*.

b. Cohesion value to be multiplied by the contact area, as limited by Section 1806.3.2

(Add) **1807.2.1.1 Guards.** Retaining walls with a difference in finished grade from the top of the wall to the bottom of the wall that is greater than 4 feet (1219 mm) shall be provided with *guards* complying with Sections 1015.3, 1015.4 and 1607.8 when there is a walking surface, parking lot or driveway on the high side located closer than 2 feet (610 mm) to the retaining wall. For the purpose of this section, grass, planting beds or landscaped areas shall not be considered a walking surface.

(Amd) **1809.5 Frost protection.** Except where otherwise protected from frost, foundations and other permanent supports of *buildings* and structures shall be protected from frost by one or more of the following methods:

1. Extending a minimum of 42 inches below finished grade;
2. Constructing in accordance with ASCE 32; or
3. Erecting on solid rock.

**Exception:** Free-standing *buildings* or structures meeting all of the following conditions shall not be required to be protected:

1. Assigned to *Risk category* I, in accordance with Section 1604.5;
2. Area of 600 square feet (56 m<sup>2</sup>) or less for light frame construction or 400 square feet (37 m<sup>2</sup>) or less for other than light-frame construction; and
3. Eave height of 10 feet (3048 mm) or less.

Shallow foundations shall not bear or be installed on frozen soil.

## CHAPTER 22 – STEEL

(Amd) **2211.3.3 Trusses spanning 60 feet or greater.** The *owner*, the *owner's* authorized agent or the contractor, shall contract with a qualified *registered design professional* for the design of the temporary installation restraint/bracing and the permanent individual truss member restraint/bracing for all trusses with clear spans 60 feet (18 288 mm) or greater.

## CHAPTER 23 – WOOD

(Add) **2303.1.1.3 Ungraded lumber.** Pursuant to section 29-256b of the Connecticut General Statutes, the use of ungraded lumber shall be allowed in Group U Utility and Miscellaneous structures in accordance with Section 312.

(Amd) **2303.4.1.3 Trusses spanning 60 feet or greater.** The *owner*, the *owner's* authorized agent or the contractor, shall contract with a qualified *registered design professional* for the design of the temporary installation restraint/bracing and the permanent individual truss member restraint/bracing for all trusses with clear spans 60 feet (18 288 mm) or greater.

## CHAPTER 24 – GLASS AND GLAZING

(Amd) **2407.1.2 Support.** Each *handrail* or *guard* shall be supported by a minimum of three glass balusters or shall be otherwise supported to remain in place should one baluster panel fail. Glass balusters shall not be installed without an attached *handrail* or *guard*.

## CHAPTER 27 – ELECTRICAL

(Add) **2702.2.17 Electric fire pumps.** *Buildings* provided with standby electrical power for the purpose of continuing operations or occupancy shall provide standby power in accordance with Article 701 of the National Electrical Code for any electric fire pump installed to provide an adequate water supply or minimum operating pressure to a required automatic sprinkler system.

(Amd) **2702.4 Maintenance.** Emergency and *standby power systems* shall be maintained and tested in accordance with the Connecticut State Fire Prevention Code.



## CHAPTER 28 - MECHANICAL SYSTEMS

(Amd) **2801.1 Scope.** Mechanical appliances, equipment and systems shall be constructed, installed and maintained in accordance with this chapter, the International Mechanical Code and applicable statutes and regulations as set forth in Section 101.4 of this code. *Masonry chimneys, fireplaces* and barbeques shall comply with Chapter 21 and the International Mechanical Code.

(Add) **2801.2 Space heaters.** Space heaters shall comply with the requirements of sections 29-318, 29-318a, 29-318b and 29-318c of the Connecticut General Statutes, and the regulations adopted by the Commissioner of Consumer Protection under authority of section 29-318c of the Connecticut General Statutes.

## CHAPTER 29 – PLUMBING SYSTEMS

(Amd) **2901.1 Scope.** The provisions of this chapter and the International Plumbing Code shall govern the erection, installation, *alteration, repairs*, relocation, replacement, *addition* to, use or maintenance of plumbing equipment and systems. Toilet and bathing rooms shall be constructed in accordance with Section 1210. Plumbing systems and equipment shall be constructed, installed and maintained in accordance with the International Plumbing Code. Private sewage disposal systems shall be designed and installed in accordance with the Public Health Code adopted under authority of section 19a-36 of the Connecticut General Statutes. Approval of such systems shall be by the local authority having *jurisdiction*. When such approval is required by the local authority having *jurisdiction*, written proof of such approval shall be submitted to the *building official* prior to issuance of a building *permit*.

(Amd) **2902.1 Minimum number of fixtures.** Plumbing fixtures shall be provided for the type of occupancy and in the minimum number shown in Table 2902.1. Types of occupancies not shown in Table 2902.1 shall be considered individually by the *building official*. The number of occupants shall be determined by this code. Occupancy classification shall be determined in accordance with Chapter 3.

### Exceptions:

1. The following minimum fixtures shall be provided in *Group R-1 bed and breakfast establishments*: Water closets – one per two *guest rooms*; lavatories – one per two *guest rooms*; bathtubs/showers – one per two *guest rooms*. Plumbing fixtures in *Group R-1 bed and breakfast establishments* shall be permitted to be accessed from hallways and *corridors* and to be shared by guests.
2. Child washing and diaper changing facilities shall be permitted in lieu of bathtubs or showers in Group I-4 child care occupancies.

(Amd) **2902.1.2 Single-user toilet facility and bathing room fixtures.** The plumbing fixtures located in single-user toilet facilities and bathing rooms, including family or assisted-use toilet and bathing rooms that are required by Section 1109.2.1 of the International Building Code, shall contribute towards the total number of required plumbing fixtures for a *building* or tenant space. Single user toilet facilities and bathing rooms, and family or assisted-use toilet and bathing rooms shall be identified for use by any person.

(Amd) **2902.2 Separate facilities.** Where plumbing fixtures are required, separate facilities shall be provided for each sex.

**Exceptions:**

1. Separate facilities shall not be required for *dwelling units* and *sleeping units*.
2. Separate facilities shall not be required in structures or tenant spaces with a total *occupant load*, including both employee and customers, of 15 or fewer.
3. Separate facilities shall not be required in mercantile occupancies in which the maximum *occupant load* is 100 or fewer.
4. Separate facilities shall not be required in business occupancies in which the maximum *occupant load* is 25 or fewer.
5. Toilet rooms in Educational Group E Kindergarten and day care occupancies, and in Institutional Group I-4 child day care may be designated as unisex which are primarily for children's use.
6. Single-user toilet facility and bathing room fixtures provided in accordance with 2902.1.2.

## **CHAPTER 30 - ELEVATORS AND CONVEYING SYSTEMS**

(Add) **3001.1.1 Equipment regulated by statute.** All elevators, dumbwaiters, material lifts, vertical and inclined platform lifts, inclined *stairway* chairlifts, limited-use/limited-application elevators and escalators, including existing systems, shall comply with regulations adopted by the Commissioner of Administrative Services pursuant to chapter 538 of the Connecticut General Statutes. Where the provisions of this chapter conflict with other statutory or regulatory provisions, such other requirements shall prevail.

## **CHAPTER 31 - SPECIAL CONSTRUCTION**

(Amd) **3102.1 General.** The provisions of this section shall apply to air-supported, air-inflated, membrane-covered-cable and membrane-covered-frame structures, collectively known as membrane structures, erected for a period of 180 days or longer. Those erected for a shorter time shall comply with Section 3103.5. Membrane structures covering water storage facilities, water clarifiers, water treatment plants, sewage treatment plants, greenhouses and similar facilities not used for human occupancy, are required to meet only the requirements of Sections 3102.3.1 and 3102.7. Membrane structures erected on a *building*, balcony, deck or other structure shall comply with this section.

(Add) **3102.3.1.1 Label.** *Tents* and membrane structures shall have a permanently affixed label which shall identify the size of the structure and the fabric or material type.

(Add) **3102.3.1.2 Certification.** An affidavit or affirmation shall be submitted to the *building official*. The affidavit or affirmation shall attest to the following information relative to the flame resistance of the fabric:

1. Names and addresses of the *owners* of the *tent*, *canopy* or membrane structure.
2. Date the fabric was last treated with flame-resistant solution.
3. Trade name or kind of chemical used in the treatment.
4. Name of person or firm treating the material.
5. Name of testing agency and test standard by which the fabric was tested.

(Add) **3102.9 Spot lighting.** Spot or effect lighting shall only be by electricity, and all combustible construction located within 6 feet (1829 mm) of such equipment shall be protected with *approved* noncombustible insulation not less than 9¼ inches (235 mm) thick.

(Add) **3102.10 Heating and cooking equipment.** Heating and cooking equipment shall be in accordance with Section 3104.15 of the 2018 Connecticut State Fire Safety Code.

(Add) **3102.11 LP-gas.** The storage, handling and use of LP-gas and LP-gas equipment shall be in accordance with Section 3104.16 of the 2018 Connecticut State Fire Safety Code.

(Add) **3102.12 Flammable and combustible liquids.** The use of flammable-fuel-fired equipment shall be in accordance with Section 3104.17 of the 2018 Connecticut State Fire Safety Code.

(Add) **3102.13 Separation of generators.** Generators and other internal combustion power sources shall be separated from *tents* or membrane structures by a minimum of 20 feet (6096 mm) and shall be isolated from contact with the public by fencing, enclosure or other *approved* means.

(Amd) **3103.1 General.** The provisions of this section shall apply to structures, including *tents* and other membrane structures, erected for a period of less than 180 consecutive calendar days out of any 365 consecutive calendar days on a single premises. *Tents* and other membrane structures erected for a period of less than 180 days shall comply with Section 3103.5. Those erected for a longer period of time shall comply with the applicable sections of this code.

(Add) **3103.5 Tents and other membrane structures.** All temporary *tents* and membrane structures shall comply with this section.

(Add) **3103.5.1 Permit required.** *Tents* and membrane structures having an area in excess of 400 square feet (37 m<sup>2</sup>) shall not be erected, operated or maintained for any purpose without obtaining a *permit* from the *building official*.

**Exceptions:**

1. *Tents* used exclusively for recreational camping purposes.
2. *Tents* open on all sides which comply with all of the following:
  - 2.1 Individual *tents* having a maximum size of 700 square feet (65 m<sup>2</sup>)
  - 2.2 The aggregate area of multiple *tents* placed side by side without a fire break clearance of 12 feet (3658 mm), not exceeding 700 square feet (65 m<sup>2</sup>) total.
  - 2.3 A minimum clearance of 12 feet (3658 mm) to all other structures and *tents*.
3. *Tents* 900 square feet and smaller in total area when occupied by fewer than 50 persons, which have no heating appliances, no installed electrical service and are erected for fewer than 72 hours.

(Add) **3103.5.2 Place of assembly.** For the purposes of this section, a place of assembly shall include a circus, carnival, *tent* show, theater, skating rink, dance hall or other place of assembly in or under which persons gather for any purpose.

(Add) **3103.5.3 Construction documents.** A detailed *site* and floor plan for *tents* or membrane structures with an *occupant load* of 50 or more shall be provided with each application for approval. The *tent* or membrane structure floor plan shall indicate details of the *means of egress* facilities, seating capacity, arrangement of the seating and location and type of heating and electrical equipment.

(Add) **3103.5.4 Location and parking.** The location and parking for temporary *tents* and membrane structures shall be in accordance with this section.

(Add) **3103.5.4.1 Location.** *Tents* or membrane structures shall not be located within 20 feet (6096 mm) of *lot lines*, *buildings*, other *tents* or membrane structures, parked vehicles or internal combustion engines. For the purpose of determining required distances, support ropes and guy wires shall be considered as part of the temporary membrane structure or *tents*.

**Exceptions:**

1. Separation distance between membrane structures and *tents* not used for cooking is not required when the aggregate floor area does not exceed 15,000 square feet (1394 m<sup>2</sup>).
2. Membrane structures or *tents* need not be separated from *buildings* when all of the following conditions are met:
  - 2.1. The aggregate floor area of the membrane structure or *tent* shall not exceed 10,000 square feet (929 m<sup>2</sup>).
  - 2.2. The aggregate floor area of the *building* and membrane structure or *tent* shall not exceed the allowable floor area including increases as indicated in this code.
  - 2.3. Required *means of egress* are provided for both the *building* and membrane structure or *tent* including travel distances.

(Add) **3103.5.5 Location of structures in excess of 15,000 square feet in area.** Membrane structures having an area of 15,000 square feet (1394 m<sup>2</sup>) or more shall be located not less than 50 feet (15 240 mm) from any other *tent* or structure as measured from the sidewall of the *tent* or membrane structure unless joined together by a *corridor*.

(Add) **3103.5.6 Connecting corridors.** *Tents* or membrane structures are allowed to be joined together by means of *corridors*. *Exit* doors shall be provided at each end of such *corridor*. On each side of such *corridor* and approximately opposite each other, there shall be provided openings not less than 12 feet (3658 mm) wide.

(Add) **3103.5.7 Fire break.** An unobstructed fire break passageway or fire road not less than 12 feet (3658 mm) wide and free from guy ropes or other obstructions shall be maintained on all sides of all *tents* and membrane structures unless otherwise *approved* by the *building official*.

(Add) **3103.5.8 Membrane material.** The membrane material for all *tents* and membrane structures shall be of: *approved* noncombustible material as set forth in Section 703.5; flame-resistant material as determined in accordance with NFPA 701 and the manufacturer's test protocol; or material treated in an *approved* manner to render the material flame-resistant.

(Add) **3103.5.8.1 Label.** *Tents* and membrane structures shall have a permanently affixed label which shall identify the size of the structure and the fabric or material type.

(Add) **3103.5.8.2 Certification.** An affidavit or affirmation shall be submitted to the *building official* and a copy retained on the premises on which the *tent* or membrane structure is located. The affidavit or affirmation shall attest to the following information relative to the flame resistance of the fabric:

1. Names and addresses of the *owners* of the *tent*, *canopy* or membrane structure.
2. Date the fabric was last treated with flame-resistant solution.
3. Trade name or kind of chemical used in the treatment.
4. Name of person or firm treating the material.
5. Name of testing agency and test standard by which the fabric was tested.

(Add) **3103.5.9 Anchorage required.** *Tents* or membrane structures and their appurtenances shall be adequately roped, braced and anchored to withstand the elements of weather and prevent against collapsing. Documentation of structural stability shall be furnished to the *building official* upon request.

(Add) **3103.5.9.1 Ballasting.** Ballasting of *tents* and membrane structures used for a temporary period, as described in Section 3103.1, shall be in accordance with the *tent* manufacturer's instructions, an *approved* engineering method or in accordance with the *Guidelines for Ballasting Commercial Tents* as published by the Industrial Fabrics Association International.

(Add) **3103.5.9.2 Tents and membrane structures exceeding one story.** *Tents* and membrane structures exceeding one story shall be designed and constructed to comply with Chapter 16.

(Add) **3103.5.10 Temporary air-supported and air-inflated membrane structures.** In addition to other applicable requirements of Section 3103.5, temporary air-supported and air-inflated membrane structures shall be in accordance with Sections 3103.10.1 to 3103.10.4, inclusive.

(Add) **3103.5.10.1 Door operation.** In high winds greater than 50 miles per hour (22 m/s) or in snow conditions, the use of doors in air-supported structures shall be controlled to avoid excessive air loss. Doors shall not be left open under any condition.

(Add) **3103.5.10.2 Fabric envelope design and construction.** Air-supported and air-inflated structures shall have the design and construction of the fabric envelope and the method of anchoring in accordance with Architecture Fabric Institute ASI 77.

(Add) **3103.5.10.2.1 Inflation pressure.** Operating pressure in air-supported and air-inflated structures shall be maintained at the design pressure specified by the manufacturer to assure stability and to avoid excessive distortion during high wind or snow *loads*.

(Add) **3103.5.10.3 Blowers.** An air-supported structure used as a place of assembly shall be furnished with not less than two blowers, each of which has adequate capacity to maintain full inflation pressure with normal leakage. The design of the blower shall be so as to provide integral limiting pressure at the design pressure specified by the manufacturer.

(Add) **3103.5.10.4 Auxiliary power.** Places of assembly for more than 200 occupants shall be furnished with either a fully automatic auxiliary engine-generator set capable of powering one blower continuously for 4 hours, or a supplementary blower powered by an internal combustion engine that shall be automatic in operation.

(Add) **3103.5.11 Seating arrangements.** Seating in *tents* and membrane structures shall be in accordance with Chapter 10.

(Add) **3103.5.12 Means of egress.** *Means of egress* for temporary *tents* and membrane structures shall be in accordance with Sections 3103.12.1 to 3103.12.8, inclusive.

(Add) **3103.5.12.1 Distribution.** *Exits* shall be spaced at approximately equal intervals around the perimeter of the *tent* or membrane structure, and shall be located such that all points are 100 feet (30 480 mm) or less from an *exit*.

(Add) **3103.5.12.2 Number.** *Tents*, or membrane structures or a usable portion thereof shall have at least one *exit* and not less than the number of *exits* required by Table 3103.12.2. The total width of *means of egress* in inches (mm) shall not be less than the total *occupant load* served by a *means of egress* multiplied by 0.2 inches (5mm) per person.

(Add) **TABLE 3103.12.2  
MINIMUM NUMBER OF MEANS OF EGRESS AND MEANS OF  
EGRESS WIDTHS FROM TEMPORARY MEMBRANE STRUCTURES AND TENTS**

Occupant load	Minimum Number of Means of Egress	Minimum Width of Each Means of Egress	
		Tents	Membrane Structures
10 to 199	2	72	36
200 to 499	3	72	72
500 to 999	4	96	72
1,000 to 1,999	5	120	96
2,000 to 2,999	6	120	96
Over 3,000 <sup>a</sup>	7	120	96

a. When the *occupant load* exceeds 3,000, the total width of *means of egress* (in inches) shall not be less than the total *occupant load* multiplied by 0.2 inches per person.

(Add) **3103.5.12.3 Exit openings from tents.** *Exit* openings from *tents* shall remain open unless covered by a flame-resistant curtain. The curtain shall comply with the following requirements:

1. Curtains shall be free sliding on a metal support. The support shall be a minimum of 80 inches (2032 mm) above the floor level at the *exit*. The curtains shall be arranged so that, when open, no part of the curtain obstructs the *exit*.
2. Curtains shall be of a color, or colors, that contrasts with the color of the *tent*.

(Add) **3103.5.12.4 Doors.** *Exit* doors shall swing in the direction of *exit* travel. To avoid hazardous air and pressure loss in air-supported membrane structures, such doors shall be automatic closing against operating pressures. Opening force at the door edge shall not exceed 15 pounds (67 N).

(Add) **3103.5.12.5 Aisle.** The width of aisles without *fixed seating* shall be in accordance with the following:

1. In areas serving employees only, the minimum width shall be 24 inches (610 mm) or not less than the width required by the number of employees served.
2. In public areas, smooth-surfaced, unobstructed aisles having a minimum width of not less than 44 inches (1118 mm) shall be provided from seating areas, and aisles shall be progressively increased in width to provide, at all points, not less than 1 foot (305 mm) of aisle width for each 50 persons served by such aisle at that point.

(Add) **3103.5.12.6 Exit signs.** *Exits* shall be clearly marked. *Exit* signs shall be installed at required *exit* doorways and where otherwise necessary to indicate clearly the direction of egress when the *exit* serves an *occupant load* of 50 or more.

(Add) **3103.5.12.6.1 Exit sign illumination.** *Exit* signs shall be either *listed* and *labeled* in accordance with UL 924 as the internally illuminated type and used in accordance with the listing or shall be externally illuminated by luminaires supplied in the following manner:

1. Two separate circuits, one of which shall be separated from all other circuits, or *occupant loads* of 300 or less; or
2. Two separate sources of power, one of which shall be an *approved* emergency system, shall be provided when the *occupant load* exceeds 300. Emergency systems shall be supplied from storage batteries or from the on-site generator set, and the system shall be installed in accordance with NFPA 70. The emergency system provided shall have a minimum duration of 90 minutes when operated at full design demand.

(Add) **3103.5.12.7 Means of egress illumination.** *Means of egress* shall be illuminated with light having an intensity of not less than 1 footcandle (11 lux) at floor level while the structure is occupied. Fixtures required for *means of egress* illumination shall be supplied from a separate circuit or source of power.

(Add) **3103.5.12.8 Maintenance of means of egress.** The required width of *exits*, aisles and passageways shall be maintained at all times to a *public way*. Guy wires, guy ropes and other support members shall not cross a *means of egress* at a height of not less than 8 feet (2438 mm). The surface of the *means of egress* shall be maintained in an *approved* manner.

(Add) **3103.5.13 Spot lighting.** Spot or effect lighting shall only be by electricity, and all combustible construction located within 6 feet (1829 mm) of such equipment shall be protected with *approved* noncombustible insulation not less than 9¼ inches (235 mm) thick.

(Add) **3103.5.14 Heating and cooking equipment.** Heating and cooking equipment shall be in accordance with Section 3104.15 of the 2018 Connecticut State Fire Safety Code.

(Add) **3103.5.15 LP-gas.** The storage, handling and use of LP-gas and LP-gas equipment shall be in accordance with Section 3104.16 of the 2018 Connecticut State Fire Safety Code.

(Add) **3103.5.16 Flammable and combustible liquids.** The use of flammable-fuel-fired equipment shall be in accordance with Section 3104.17 of the 2018 Connecticut State Fire Safety Code.

(Add) **3103.5.17 Separation of generators.** Generators and other internal combustion power sources shall be separated from *tents* or membrane structures by a minimum of 20 feet (6096 mm) and shall be isolated from contact with the public by fencing, enclosure or other *approved* means.

(Amd) **3105.3 Design and construction.** Awnings and canopies shall be designed and constructed to withstand wind or other lateral *loads*, snow *loads* and *live loads* as required by Chapter 16 with due allowance for shape, open construction and similar features that relieve the pressures or *loads*. Structural members shall be protected to prevent deterioration. Awnings shall have frames of noncombustible material, *fire-retardant-treated wood*, wood of Type IV size, or 1-hour construction with combustible or noncombustible covers and shall be either fixed, retractable, folding or collapsible.

**Exceptions:**

1. Fixed awnings shall not be required to be designed to resist nominal ( $V_{asd}$ ) wind *loads* in excess of 90 mph.
2. Retractable awnings shall not be required to be designed to resist wind or snow *loads*.

(Amd) **3107.1 General.** Signs shall be designed, constructed and maintained in accordance with Appendix H of this code.

(Add) **3109.1 General.** *Swimming pools* shall comply with the requirements of Sections 3109.2 to 3109.9, inclusive, and other applicable sections of this code.

(Add) **3109.1.1 Health Department regulations.** No person shall construct, substantially alter or reconstruct a *swimming pool* until the *construction documents* and water discharge provisions have been approved by the Department of Public Health, in accordance with the regulations adopted pursuant to section 19a-36 of the Connecticut General Statutes.

**Exception:** *Swimming pools* accessory to *owner-occupied*, detached one- two- or three-family residences and *swimming pools* accessory to a single one-family townhouse where the pool is intended to be used exclusively by the *owner* and invited guests.

(Add) **3109.2 Definition.** The following terms are defined in Chapter 2:

**SWIMMING POOL.**

**SPA, EXERCISE**

(Add) **3109.3 Public swimming pools.** Public *swimming pools* shall be completely enclosed by a barrier meeting the requirements of Section 3109.4.

(Add) **3109.4 Swimming pool barriers.** Residential and public *swimming pool* barriers shall comply with Sections 3109.4.1 to 3109.4.3, inclusive.

**Exception:** A residential spa or hot tub with a safety cover complying with ASTM F 1346 need not comply with Section 3109.4.

(Add) **3109.4.1 Barrier height and clearances.** The top of the barrier shall be not less than 48 inches (1219 mm) above grade measured on the side of the barrier that faces away from the *swimming pool*. The vertical clearance between grade and the bottom of the barrier shall be not greater than 2 inches (51 mm) measured on the side of the barrier that faces away from the *swimming pool*. Where the top of the pool structure is above grade, the barrier is authorized to be at ground level or mounted on top of the pool structure, and the vertical clearance between the top of the pool structure and the bottom of the barrier shall be not greater than 4 inches (102 mm).



(Add) **3109.4.1.1 Openings.** Openings in residential *swimming pool* barriers as defined by the exception to Section 3109.1.1 shall not allow passage of a 4-inch-diameter (102 mm) sphere. Openings in public *swimming pool* barriers shall not allow passage of a 2-inch diameter (51 mm) sphere.

(Add) **3109.4.1.2 Solid barrier surfaces.** Solid barriers which do not have openings shall not contain indentations or protrusions except for normal construction tolerances and tooled *masonry* joints.

(Add) **3109.4.1.3 Closely spaced horizontal members.**

Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is less than 45 inches (1143 mm), the horizontal members shall be located on the *swimming pool* side of the fence. Spacing between vertical members shall be not greater than 1¾-inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall be not greater than 1¾-inches (44 mm) in width.

(Add) **3109.4.1.4 Widely spaced horizontal members.** Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is 45 inches (1143 mm) or more, spacing between vertical members in residential pools shall be not greater than 4 inches (102 mm) and spacing between vertical members in public pools shall be not greater than 2 inches (51 mm). Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1¾ inches (44 mm) in width.

(Add) **3109.4.1.5 Chain link dimensions.** Mesh size for chain link fences shall be not greater than a 2¼-inch square (57 mm square) unless the fence is provided with slats fastened at the top or the bottom that reduce the openings to not more than 1¾-inches (44 mm).

(Add) **3109.4.1.6 Diagonal members.** Where the barrier is composed of diagonal members, the opening formed by the diagonal members shall be not greater than 1¾-inches (44 mm).

(Add) **3109.4.1.7 Gates.** Access doors or gates shall comply with the requirements of Sections 3109.4.1.1 through 3109.4.1.6 and shall be equipped to accommodate a locking device. Pedestrian access doors or gates shall open outward away from the pool and shall be *self-closing* and have a self-latching device. Doors or gates other than pedestrian access doors or gates shall have a self-latching device. Release mechanisms shall be in accordance with Sections 1010.1.9 and 1109.13. Where the release mechanism of the self-latching device is located less than 54 inches (1372 mm) from the bottom of the door or gate, the release mechanism shall be located on the pool side of the door or gate 3 inches (76 mm) or more, below the top of the door or gate, and the door or gate and barrier shall be without openings greater than 1/2 inch (12.7 mm) within 18 inches (457 mm) of the release mechanism.

(Add) **3109.4.1.8 Dwelling wall as a barrier.** Where a wall of a *dwelling* serves as part of the barrier, one of the following shall apply:

1. Doors with *direct access* to the pool through that wall shall be equipped with an alarm that produces an audible warning when the door and/or its screen, if present, are opened. The alarm shall be *listed* and *labeled* in accordance with UL 2017. In *dwelling*s not required to be *accessible units*, *Type A units* or *Type B units*, the deactivation switch shall be located 54 inches (1372 mm) or more above the threshold of the door. In *dwelling units* required to be *accessible units*, *Type A units* or *Type B units*, the deactivation switch shall be located not higher than 54 inches (1372 mm) and not less than 48 inches (1219 mm) above the threshold of the door.

2. The pool shall be equipped with a power safety cover which complies with ASTM F1346.
3. All doors with *direct access* to the pool through that wall shall be equipped with a *self-closing* and self-latching device with the release mechanism located a minimum of 54 inches above the door threshold. Swinging doors shall open away from the pool area.

(Add) **3109.4.1.9 Pool structure as a barrier.** Where an above-ground or on-ground pool structure is used as a barrier or where the barrier is mounted on top of the pool structure, and the means of access is a ladder or steps, then the ladder or steps shall be surrounded by a barrier that meets the requirements of Sections 3109.4.1.1 to 3109.4.1.8, inclusive.

**Exception:** A residential spa or hot tub with a safety cover complying with ASTM F1346.

(Add) **3109.4.2 Indoor swimming pools.** Walls surrounding indoor *swimming pools* shall be required to comply with Section 3109.4.1.8.

(Add) **3109.4.3 Prohibited locations.** Barriers shall be located so as to prohibit permanent structures, equipment or similar objects from being used to climb the barriers.

(Add) **3109.5 Entrapment avoidance.** Suction outlets shall be designed and installed in accordance with ANSI/APSP-7.

(Add) **3109.6 Temporary enclosure.** A temporary enclosure shall be installed prior to the electrical bonding inspection of any in-ground *swimming pool* unless the permanent barrier specified in Section 3109 is in place prior to the commencement of the installation. The temporary enclosure shall be a minimum of 4 feet in height, shall have no openings that will allow passage of a 4-inch sphere and shall be equipped with a positive latching device on any openings.

(Add) **3109.7 Pool alarm.** Pursuant to section 29-265a of the Connecticut General Statutes no building *permit* shall be issued for the construction or substantial *alteration* of a *swimming pool* at a residence occupied by, or being built for, one or more families unless a pool alarm is installed with the *swimming pool*. As used in this section, "pool alarm" means a device that emits a sound of at least 50 decibels when a person or an object weighing 15 pounds or more enters the water in a *swimming pool*.

**Exception:** Hot tubs and portable spas shall be exempt from this requirement.

(Add) **3109.8 Accessibility.** Public *swimming pools*, when less than 50 meters in length, shall be provided with *ramps* or *approved* fixed or portable lifting equipment for the purpose of providing assisted access to the water for persons with disabilities. Public *swimming pools*, when 50 meters or more in length, shall be provided with *ramps*. All public *swimming pools*, pool decks, toilet facilities, showers, locker and dressing areas shall be *accessible* and located along *accessible routes*.

(Add) **3109.8.1 Slopes and handrails.** The slopes of *ramps* for accessibility, where required, shall not exceed one unit vertical to eight units horizontal (1:8) where located at least 24 inches below the water line and one unit vertical to 12 units horizontal (1:12) above that point. *Ramps* shall be provided with *handrails* on both sides in accordance with Section 1010.8.

(Add) **3109.9 Pool structure.** The pool structure shall be engineered and designed to withstand the expected forces to which the pool will be subjected.

## CHAPTER 33 – SAFEGUARDS DURING CONSTRUCTION

(Add) **3303.8 Demolition of structures.** The demolition of structures shall be conducted in accordance with the State Demolition Code as found in part IV of chapter 541 of the Connecticut General Statutes and with this chapter.

## CHAPTER 35 – REFERENCED STANDARDS

(Amd) National Fire Protection Association  
**NFPA** 1 Batterymarch Park  
 Quincy, MA 02169-7471

Standard reference number—year of publication	Title	Referenced in code section number
(Add) 02-11	Hydrogen Technologies Code	101.4.1
(Amd) 30-18	Flammable and Combustible Liquids Code	415.6, 507.8.1.1.1, 507.8.1.1.2
(Add) 54-15	National Fuel Gas Code	101.4.1
(Amd) 70-17	National Electrical Code	108.3, 415.11.1.8, 904.3.1, 907.6.1, 909.12.2, 909.16.3, 1205.4.1, 2701.1, 2702.1.2, G501.4, G1001.6, H106.1, H106.2, K101, K111.1
(Add) 102-16	Grandstands, Folding and Telescopic Seating, Tents, and Membrane Structures	3103.5

(Add) APPENDIX N MUNICIPALITY – SPECIFIC STRUCTURAL DESIGN PARAMETERS

<b>(APPENDIX N) MUNICIPALITY - SPECIFIC STRUCTURAL DESIGN PARAMETERS</b>												
<b>Municipality</b>	<b>Ground Snow Load (psf)</b>	<b>MCE Spectral Acceleration s (%g)</b>		<b>Ultimate Design Wind Speeds, <math>V_{ult}</math> (mph)</b>			<b>Nominal Design Wind Speeds, <math>V_{asd}</math> (mph)</b>			<b>Wind-Borne Debris Regions<sup>1</sup></b>		<b>Hurricane-Prone Regions</b>
		<b>S<sub>s</sub></b>	<b>S<sub>1</sub></b>	<b>Risk Cat. I</b>	<b>Risk Cat. II</b>	<b>Risk Cat III-IV</b>	<b>Risk Cat. I</b>	<b>Risk Cat. II</b>	<b>Risk Cat. III-IV</b>	<b>Risk Cat. II &amp; III except Occup I-2</b>	<b>Risk Cat III Occup I-2 &amp; Risk Cat. IV</b>	
Andover	30	0.176	0.063	120	130	140	93	101	108			Yes
Ansonia	30	0.195	0.064	115	125	135	89	97	105			Yes
Ashford	35	0.173	0.063	120	130	140	93	101	108			Yes
Avon	35	0.181	0.064	110	120	130	85	93	101			Yes
Barkhamsted	40	0.177	0.065	110	120	125	85	93	97			Yes
Beacon Falls	30	0.192	0.064	115	125	135	89	97	105			Yes
Berlin	30	0.183	0.063	115	125	135	89	97	105			Yes
Bethany	30	0.189	0.063	115	125	135	89	97	105			Yes
Bethel	30	0.215	0.066	110	120	125	85	93	97			Yes
Bethlehem	35	0.190	0.065	110	120	125	85	93	97			Yes
Bloomfield	35	0.180	0.064	115	125	130	89	97	101			Yes
Bolton	30	0.177	0.063	115	125	135	89	97	105			Yes
Bozrah	30	0.170	0.061	120	135	145	93	105	112		Type A	Yes
Branford	30	0.180	0.061	120	130	140	93	101	108		Type B	Yes
Bridgeport	30	0.209	0.064	115	125	135	89	97	105		Type B	Yes
Bridgewater	35	0.201	0.066	110	120	125	85	93	97			Yes
Bristol	35	0.185	0.064	110	120	130	85	93	101			Yes
Brookfield	35	0.208	0.066	110	120	125	85	93	97			Yes
Brooklyn	35	0.171	0.062	120	130	140	93	101	108			Yes
Burlington	35	0.182	0.064	110	120	130	85	93	101			Yes
Canaan	40	0.173	0.065	105	115	120	81	89	93			
Canterbury	35	0.171	0.061	120	130	140	93	101	108		Type A	Yes
Canton	35	0.180	0.064	110	120	130	85	93	101			Yes
Chaplin	35	0.173	0.062	120	130	140	93	101	108			Yes
Cheshire	30	0.186	0.063	115	125	135	89	97	105			Yes
Chester	30	0.172	0.060	120	130	140	93	101	108		Type A	Yes
Clinton	30	0.169	0.059	120	135	140	93	105	108	Type B	Type A	Yes
Colchester	30	0.174	0.061	120	130	140	93	101	108			Yes
Colebrook	40	0.174	0.065	105	115	125	81	89	97			
Columbia	30	0.175	0.062	120	130	140	93	101	108			Yes
Cornwall	40	0.180	0.065	105	115	120	81	89	93			
Coventry	30	0.176	0.063	120	130	140	93	101	108			Yes
Cromwell	30	0.181	0.063	115	125	135	89	97	105			Yes
Danbury	30	0.217	0.067	110	120	125	85	93	97			Yes
Darien	30	0.242	0.068	110	120	130	85	93	101			Yes
Deep River	30	0.170	0.060	120	130	140	93	101	108		Type A	Yes
Derby	30	0.195	0.064	115	125	135	89	97	105			Yes
Durham	30	0.179	0.062	115	130	140	89	101	108			Yes

**(APPENDIX N) MUNICIPALITY - SPECIFIC STRUCTURAL DESIGN PARAMETERS**

Municipality	Ground Snow Load (psf)	MCE Spectral Accelerations (%g)		Wind Design Parameters								
		S <sub>s</sub>	S <sub>1</sub>	Ultimate Design Wind Speeds, V <sub>ult</sub> (mph)			Nominal Design Wind Speeds, V <sub>asd</sub> (mph)			Wind-Borne Debris Regions <sup>1</sup>		Hurricane-Prone Regions
				Risk Cat. I	Risk Cat. II	Risk Cat III-IV	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV	Risk Cat. II & III except Occup I-2	Risk Cat III Occup I-2 & Risk Cat. IV	
Eastford	40	0.172	0.063	120	130	140	93	101	108			Yes
East Granby	35	0.177	0.065	110	120	130	85	93	101			Yes
East Haddam	30	0.172	0.061	120	130	140	93	101	108			Yes
East Hampton	30	0.177	0.062	120	130	140	93	101	108			Yes
East Hartford	30	0.180	0.064	115	125	135	89	97	105			Yes
East Haven	30	0.182	0.062	120	130	140	93	101	108		Type B	Yes
East Lyme	30	0.164	0.059	125	135	145	97	105	112	Type B	Type A	Yes
Easton	30	0.215	0.066	110	120	130	85	93	101			Yes
East Windsor	35	0.177	0.064	115	125	135	89	97	105			Yes
Ellington	35	0.176	0.064	115	125	135	89	97	105			Yes
Enfield	35	0.176	0.065	110	125	130	85	97	101			Yes
Essex	30	0.168	0.059	120	135	145	93	105	112		Type A	Yes
Fairfield	30	0.215	0.065	115	125	135	89	97	105		Type B	Yes
Farmington	35	0.183	0.064	115	125	135	89	97	105			Yes
Franklin	30	0.171	0.061	120	130	140	93	101	108		Type A	Yes
Glastonbury	30	0.180	0.063	115	125	135	89	97	105			Yes
Goshen	40	0.181	0.065	105	115	125	81	89	97			
Granby	35	0.176	0.065	110	120	130	85	93	101			Yes
Greenwich	30	0.259	0.070	110	120	130	85	93	101			Yes
Griswold	30	0.168	0.060	125	135	145	97	105	112		Type A	Yes
Groton	30	0.160	0.058	125	135	145	97	105	112	Type B	Type A	Yes
Guilford	30	0.176	0.061	120	130	140	93	101	108		Type B	Yes
Haddam	30	0.175	0.061	120	130	140	93	101	108			Yes
Hamden	30	0.185	0.063	115	125	135	89	97	105			Yes
Hampton	35	0.172	0.062	120	130	140	93	101	108			Yes
Hartford	30	0.181	0.064	115	125	135	89	97	105			Yes
Hartland	40	0.175	0.065	110	120	125	85	93	97			Yes
Harwinton	35	0.183	0.065	110	120	130	85	93	101			Yes
Hebron	30	0.177	0.063	120	130	140	93	101	108			Yes
Kent	40	0.188	0.065	105	115	120	81	89	93			
Killingly	40	0.171	0.062	120	130	140	93	101	108			Yes
Killingworth	30	0.173	0.061	120	130	140	93	101	108			Yes
Lebanon	30	0.173	0.062	120	130	140	93	101	108			Yes
Ledyard	30	0.163	0.059	125	135	145	97	105	112		Type A	Yes
Lisbon	30	0.169	0.061	125	135	145	97	105	112		Type A	Yes
Litchfield	40	0.184	0.065	110	120	125	85	93	97			Yes
Lyme	30	0.164	0.059	125	135	145	97	105	112		Type A	Yes
Madison	30	0.173	0.060	120	130	140	93	101	108		Type B	Yes
Manchester	30	0.178	0.064	115	125	135	89	97	105			Yes
Mansfield	35	0.173	0.062	120	130	140	93	101	108			Yes

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		S <sub>s</sub>	S <sub>1</sub>	Ultimate Design Wind Speeds, V <sub>ult</sub> (mph)			Nominal Design Wind Speeds, V <sub>asd</sub> (mph)			Wind-Borne Debris Regions <sup>1</sup>		Hurricane-Prone Regions
				Risk Cat. I	Risk Cat. II	Risk Cat III-IV	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV	Risk Cat. II & III except Occup I-2	Risk Cat III Occup I-2 & Risk Cat. IV	
Marlborough	30	0.177	0.062	120	130	140	93	101	108			Yes
Meriden	30	0.183	0.063	115	125	135	89	97	105			Yes
Middlebury	35	0.191	0.064	110	120	130	85	93	101			Yes
Middlefield	30	0.181	0.063	115	125	135	89	97	105			Yes
Middletown	30	0.180	0.063	115	130	135	89	101	105			Yes
Milford	30	0.194	0.063	115	125	135	89	97	105		Type B	Yes
Monroe	30	0.205	0.065	110	120	130	85	93	101			Yes
Montville	30	0.165	0.059	125	135	145	97	105	112		Type A	Yes
Morris	35	0.187	0.065	110	120	125	85	93	97			Yes
Naugatuck	30	0.190	0.064	110	125	135	85	97	105			Yes
New Britain	30	0.183	0.064	115	125	135	89	97	105			Yes
New Canaan	30	0.240	0.068	110	120	130	85	93	101			Yes
New Fairfield	35	0.212	0.067	105	115	125	81	89	97			
New Hartford	40	0.180	0.065	110	120	130	85	93	101			Yes
New Haven	30	0.186	0.062	115	125	135	89	97	105		Type C	Yes
Newington	30	0.182	0.064	115	125	135	89	97	105			Yes
New London	30	0.161	0.058	125	135	145	97	105	112	Type B	Type A	Yes
New Milford	35	0.198	0.066	105	115	125	81	89	97			
Newtown	30	0.208	0.066	110	120	130	85	93	101			Yes
Norfolk	40	0.175	0.065	105	115	125	81	89	97			
North Branford	30	0.179	0.061	120	130	140	93	101	108			Yes
North Canaan	40	0.173	0.065	105	115	120	81	89	93			
North Haven	30	0.184	0.062	115	125	135	89	97	105			Yes
North Stonington	30	0.163	0.059	125	135	145	97	105	112		Type A	Yes
Norwalk	30	0.232	0.067	110	120	130	85	93	101			Yes
Norwich	30	0.168	0.060	125	135	145	97	105	112		Type A	Yes
Old Lyme	30	0.164	0.059	125	135	145	97	105	112	Type B	Type A	Yes
Old Saybrook	30	0.164	0.059	125	135	145	97	105	112	Type B	Type A	Yes
Orange	30	0.192	0.063	115	125	135	89	97	105			Yes
Oxford	30	0.196	0.064	110	125	130	85	97	101			Yes
Plainfield	35	0.170	0.061	125	135	145	97	105	112		Type A	Yes
Plainville	35	0.184	0.064	115	125	135	89	97	105			Yes
Plymouth	35	0.186	0.064	110	120	130	85	93	101			Yes
Pomfret	40	0.172	0.063	120	130	140	93	101	108			Yes
Portland	30	0.180	0.063	115	130	135	89	101	105			Yes
Preston	30	0.167	0.060	125	135	145	97	105	112		Type A	Yes
Prospect	30	0.188	0.064	115	125	135	89	97	105			Yes

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Municipality	Ground Snow Load (psf)	MCE Spectral Accelerations (%g)		Wind Design Parameters								
		S <sub>s</sub>	S <sub>1</sub>	Ultimate Design Wind Speeds, V <sub>ult</sub> (mph)			Nominal Design Wind Speeds, V <sub>asd</sub> (mph)			Wind-Borne Debris Regions <sup>1</sup>		Hurricane-Prone Regions
				Risk Cat. I	Risk Cat. II	Risk Cat III-IV	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV	Risk Cat. II & III except Occup I-2	Risk Cat III Occup I-2 & Risk Cat. IV	
Putnam	40	0.172	0.063	120	130	140	93	101	108			Yes
Redding	30	0.220	0.067	110	120	130	85	93	101			Yes
Ridgefield	30	0.230	0.068	110	120	125	85	93	97			Yes
Rocky Hill	30	0.181	0.063	115	125	135	89	97	105			Yes
Roxbury	35	0.197	0.065	110	120	125	85	93	97			Yes
Salem	30	0.170	0.060	120	135	140	93	105	108		Type A	Yes
Salisbury	40	0.173	0.065	105	115	120	81	89	93			
Scotland	30	0.172	0.061	120	130	140	93	101	108			Yes
Seymour	30	0.194	0.064	115	125	135	89	97	105			Yes
Sharon	40	0.179	0.065	105	115	120	81	89	93			
Shelton	30	0.199	0.064	115	125	135	89	97	105			Yes
Sherman	35	0.202	0.066	105	115	120	81	89	93			
Simsbury	35	0.179	0.064	110	120	130	85	93	101			Yes
Somers	35	0.174	0.064	115	125	135	89	97	105			Yes
Southbury	35	0.198	0.065	110	120	130	85	93	101			Yes
Southington	30	0.185	0.064	115	125	135	89	97	105			Yes
South Windsor	30	0.178	0.064	115	125	135	89	97	105			Yes
Sprague	30	0.171	0.061	120	130	140	93	101	108		Type A	Yes
Stafford	35	0.173	0.064	115	125	135	89	97	105			Yes
Stamford	30	0.249	0.069	110	120	130	85	93	101			Yes
Sterling	35	0.170	0.061	125	135	145	97	105	112		Type A	Yes
Stonington	30	0.159	0.058	125	140	150	97	108	116	Type B	Type A	Yes
Stratford	30	0.201	0.064	115	125	135	89	97	105		Type B	Yes
Suffield	35	0.176	0.065	110	120	130	85	93	101			Yes
Thomaston	35	0.186	0.064	110	120	130	85	93	101			Yes
Thompson	40	0.172	0.063	120	130	140	93	101	108			Yes
Tolland	35	0.175	0.064	115	125	135	89	97	105			Yes
Torrington	40	0.182	0.065	110	120	125	85	93	97			Yes
Trumbull	30	0.207	0.065	115	125	135	89	97	105			Yes
Union	40	0.172	0.064	115	125	135	89	97	105			Yes
Vernon	30	0.177	0.064	115	125	135	89	97	105			Yes
Voluntown	30	0.168	0.060	125	135	145	97	105	112		Type A	Yes
Wallingford	30	0.183	0.063	115	125	135	89	97	105			Yes
Warren	40	0.186	0.065	105	115	125	81	89	97			
Washington	35	0.192	0.065	105	120	125	81	93	97			Yes
Waterbury	35	0.189	0.064	110	125	130	85	97	101			Yes
Waterford	30	0.161	0.058	125	135	145	97	105	112	Type B	Type A	Yes
Watertown	35	0.189	0.064	110	120	130	85	93	101			Yes
Westbrook	30	0.167	0.059	120	135	145	93	105	112	Type B	Type A	Yes

(APPENDIX N) MUNICIPALITY - SPECIFIC STRUCTURAL DESIGN PARAMETERS												
Municipality	Ground Snow Load (psf)	MCE Spectral Accelerations (%g)		Wind Design Parameters								
		S <sub>s</sub>	S <sub>1</sub>	Ultimate Design Wind Speeds, V <sub>ult</sub> (mph)			Nominal Design Wind Speeds, V <sub>asd</sub> (mph)			Wind-Borne Debris Regions <sup>1</sup>		Hurricane-Prone Regions
				Risk Cat. I	Risk Cat. II	Risk Cat III-IV	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV	Risk Cat. II & III except Occup I-2	Risk Cat III Occup I-2 & Risk Cat. IV	
West Hartford	30	0.181	0.064	115	125	135	89	97	105			
West Haven	30	0.188	0.062	115	125	135	89	97	105		Type B	Yes
Weston	30	0.224	0.067	110	120	130	85	93	101			Yes
Westport	30	0.226	0.067	110	120	130	85	93	101		Type B	Yes
Wethersfield	30	0.181	0.064	115	125	135	89	97	105			Yes
Willington	35	0.174	0.063	115	125	135	89	97	105			Yes
Wilton	30	0.231	0.068	110	120	130	85	93	101			Yes
Winchester	40	0.177	0.065	105	120	125	81	93	97			Yes
Windham	30	0.173	0.062	120	130	140	93	101	108			Yes
Windsor	35	0.179	0.064	115	125	135	89	97	105			Yes
Windsor Locks	35	0.177	0.064	110	125	130	85	97	101			Yes
Wolcott	35	0.187	0.064	110	125	130	85	97	101			Yes
Woodbridge	30	0.191	0.063	115	125	135	89	97	105			Yes
Woodbury	35	0.194	0.065	110	120	130	85	93	101			Yes
Woodstock	40	0.172	0.063	120	130	140	93	101	108			Yes

1. Wind-Borne Debris Regions:

**Type A:** Full Municipality.

**Type B:** Areas south of Interstate 95.

**Exception:** Areas that are more than one mile from the coastal mean high-water line as certified by a *registered design professional* may be classified as being outside a *wind-borne debris region*.

**Type C:** Areas south of Metro North/Amtrak Railroad to the west of the Quinnipiac River and areas south of Interstate 95 to the east of the Quinnipiac River.

**Exception:** Areas that are more than one mile from the coastal mean high-water line as certified by a *registered design professional* may be classified as being outside a *wind-borne debris region*.



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## AMENDMENTS TO ICC/ANSI A117.1 - 2009

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(Amd) **105.2.5 Safety Code for Elevators and Escalators:** ASME A17.1-2013 (American Society of Mechanical Engineers International, Two Park Avenue, New York , NY 10016-5990).

(Amd) **105.2.6 Safety Standard for Platform Lifts and Stairway Chairlifts:** ASME A18.1-2008 (American Society of Mechanical Engineers International, Two Park Avenue, New York, NY 10016-5990).

(Amd) **502.2 Vehicle space size.** Pursuant to section 14-253a of the Connecticut General Statutes, car parking spaces shall be 15 feet in width including 5 feet of cross hatch. Van parking spaces shall be 16 feet in width including 8 feet of cross hatch.

(Del) **Fig. 502.2 Vehicle parking space size.** Delete figure without substitution.

(Del) **Fig. 502.4 Parking space access aisle.** Delete figure without substitution.

(Amd) **502.4.1 Location.** Access aisles (cross hatch) shall adjoin an *accessible* route. Two parking spaces shall be permitted to share a common access aisle. If a car and a van space share a common access aisle, that aisle shall be 96 inches minimum in width. Access aisles shall not overlap with the *vehicular way*. Parking spaces may have access aisles placed on either side of the car or van parking space. Van parking spaces that are angled shall have access aisles located on the passenger side of the parking space.

(Amd) **502.4.2 Width.** Access aisles (cross hatch) serving car parking spaces shall be 60 inches (1525 mm) minimum in width. Access aisles serving van parking spaces shall be 96 inches (2440 mm) minimum in width.

(Amd) **502.6 Vertical clearance.** Vertical clearance for *accessible* van parking spaces shall be in accordance with Section 1106.5 and 1106.5.1.1 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code.

(Amd) **502.7 Identification.** *Accessible* parking spaces shall be identified by above grade *signs* in accordance with Section 1111.1 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code.

(Del) **504 Stairways.** Delete section in its entirety.

(Del) **505 Handrails.** Delete section in its entirety and replace with the following:

(Add) **505 Handrails.**

(Add) **505.1 General.** Handrails shall be provided in accordance with Section 1014 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code.

(Amd) **607.5 Controls.** Controls, other than drain stoppers, shall be provided on an end wall, located between the bathtub rim and grab bar, and between the open side of the bathtub and the centerline of the width of the bathtub. Controls shall comply with Section 309.4.

**Exception:** Controls in Group I-2 long-term health care that provide supervised, assisted bathing may be located outside of the bathtub compartment.

(Amd) **608.4 Controls and hand showers.** Controls and hand held showers shall comply with Sections 608.4 and 309.4.

**Exception:** Controls in Group I-2 long-term health care facilities that provide supervised, assisted bathing shall be permitted to be located outside of the shower compartment.

(Amd) **703.6.3.1 International Symbol of Accessibility.** Pursuant to section 29-269c of the Connecticut General Statutes, references in this code to the International Symbol of Accessibility shall be deemed to mean Connecticut's symbol of access and shall comply with Figure 703.6.3.1.



(Amd) **FIG. 703.6.3.1**

(Amd) **1004.3 Accessible Route.** *Accessible* routes within Type B *dwelling units* shall comply with Section 1004.3.

**Exception:** Exterior spaces less than 60 inches in depth.

(Amd) **1004.3.1 Location.** At least one *accessible* route shall connect all spaces and elements that are a part of the unit. *Accessible* routes shall coincide with or be located in the same area as the general *circulation path*.

**Exception:** An *accessible* route is not required to unfinished attics and unfinished basements that are part of the unit.

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## AMENDMENTS TO THE 2015 INTERNATIONAL EXISTING BUILDING CODE

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### CHAPTER 1 – SCOPE AND ADMINISTRATION

(Amd) **101.1 Title.** The 2015 International Existing Building Code shall be known as the 2015 International Existing Building Code portion of the 2018 Connecticut State Building Code, hereinafter referred to as “the code” or “this code”.

(Amd) **101.4.2 Buildings previously occupied.** The legal use and occupancy of any *building* existing on the date of adoption of this code shall be permitted to continue without change, except as specifically provided in this code or in the 2018 Connecticut State Fire Safety Code.

(Add) **101.4.3 Property maintenance.** The International Property Maintenance Code is not adopted by the State of Connecticut. Property maintenance shall be in accordance with the requirements of this code and the applicable provisions of the 2018 Connecticut State Fire Safety Code and 2018 Connecticut State Fire Prevention Code. References to the International Property Maintenance Code found within the body of the model document shall be considered null and void.

(Amd) **101.6 Appendices.** The provisions of Appendix A shall be incorporated into the requirements of this code.

(Del) **101.7 Corrections of violations of other codes.** Delete in its entirety and replace with the following:

(Add) **101.7 Connecticut State Fire Safety Code abatement.** Where conflicts exist between the requirements of this code and the requirements of a 2018 Connecticut State Fire Safety Code abatement order issued in writing by the local fire marshal with respect to an *existing building*, the requirements of that portion of the 2018 Connecticut State Fire Safety Code that regulates *existing buildings* shall take precedence.

**Exceptions:**

1. New *fire protection systems* shall meet the requirements of Chapter 9 of this code.
2. Electrical work shall meet the requirements of the NFPA 70, National Electrical Code.
3. Structural, plumbing and mechanical work shall conform to the requirements of this code.

(Add) **101.8 Gas.** The International Fuel Gas Code is not adopted by the State of Connecticut. Any references to the International Fuel Gas Code within the body of this code shall be considered references to requirements of NFPA 2, Hydrogen Technologies Code, NFPA 54, National Fuel Gas Code and NFPA 58, Liquefied Petroleum Gas Code, as adopted in the 2018 Connecticut State Fire Safety Code and the 2018 Connecticut State Fire Prevention Code. These requirements apply to liquid petroleum storage systems, gas piping systems extending from the point of delivery to the inlet connections of appliances, the installation and operation of residential and commercial gas appliances and related accessories as covered by this code.

(Add) **101.9 Connecticut State Fire Safety Code.** References to the International Fire Code within the body of the model document shall be considered to be references to the 2018 Connecticut State Fire Safety Code.

(Add) **101.10 Means of egress.** In addition to the requirements of this code, *means of egress* in *existing buildings* shall meet the requirements of the provisions of Part IV of the 2018 Connecticut State Fire Safety Code for the proposed occupancy.

(Add) **101.10.1 Construction documents.** The *construction documents* for *Alterations – Level 2, Alterations – Level 3, additions and changes of occupancy* shall show in sufficient detail the location, construction, size and character of all portions of the *means of egress* in compliance with the provisions of this code. The *construction documents* shall designate the number of occupants to be accommodated in every *work area* of every floor and in all affected rooms and spaces.

(Del) **SECTION 103 DEPARTMENT OF BUILDING SAFETY.** Delete in its entirety and refer to Section 103 of the 2015 International Building Code portion or Section R103 of the 2015 International Residential Code portion, as applicable, of the 2018 Connecticut State Building Code – Enforcement Agency.

(Del) **SECTION 104 DUTIES AND POWERS OF CODE OFFICIAL.** Delete in its entirety and refer to Section 104 of the 2015 International Building Code portion or Section R104 of the 2015 International Residential Code portion, as applicable, of the 2018 Connecticut State Building Code – Duties and Powers of Code Official.

(Del) **SECTION 105 PERMITS.** Delete in its entirety and refer to Section 105 of the 2015 International Building Code portion or Section R105 of the 2015 International Residential Code portion, as applicable, of the 2018 Connecticut State Building Code – Permits.

(Del) **SECTION 106 CONSTRUCTION DOCUMENTS.** Delete in its entirety and refer to Section 107 of the 2015 International Building Code portion or Section R106 of the 2015 International Residential Code portion, as applicable, of the 2018 Connecticut State Building Code – Submittal Documents.

(Del) **SECTION 107 TEMPORARY STRUCTURES AND USES.** Delete in its entirety and refer to Section 108 of the 2015 International Building Code portion or Section R107 of the 2015 International Residential Code portion, as applicable, of the 2018 Connecticut State Building Code – Temporary Structures and Uses.

(Del) **SECTION 108 FEES.** Delete in its entirety and refer to Section 109 of the 2015 International Building Code portion or Section R107 of the 2015 International Residential Code portion, as applicable, of the 2018 Connecticut State Building Code – Fees.

(Del) **SECTION 109 INSPECTIONS.** Delete in its entirety and refer to Section 110 of the 2015 International Building Code portion or Section R109 of the 2015 International Residential Code portion, as applicable, of the 2018 Connecticut State Building Code – Inspections.

(Del) **SECTION 110 CERTIFICATE OF OCCUPANCY.** Delete in its entirety and refer to Section 111 of the 2015 International Building Code portion or Section R110 of the 2015 International Residential Code portion, as applicable, of the 2018 Connecticut State Building Code – Certificate of Occupancy.

(Del) **SECTION 112 – BOARD OF APPEALS.** Delete in its entirety and refer to Section 113 of the 2015 International Building Code portion or Section R112 of the 2015 International Residential Code portion, as applicable, of the 2018 Connecticut State Building Code – Means of Appeal.

(Del) **SECTION 113 - VIOLATIONS.** Delete in its entirety and refer to Section 114 of the 2015 International Building Code portion or Section R113 of the 2015 International Residential Code portion, as applicable, of the 2018 Connecticut State Building Code – Violations.

(Del) **SECTION 114 – STOP WORK ORDER.** Delete in its entirety and refer to Section 115 of the 2015 International Building Code portion or Section R114 of the 2015 International Residential Code portion, as applicable, of the 2018 Connecticut State Building Code – Stop Work Order.

(Del) **SECTION 115 – UNSAFE BUILDINGS AND EQUIPMENT.** Delete in its entirety and refer to Section 116 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code – Unsafe Buildings and Equipment.

(Del) **SECTION 116 – EMERGENCY MEASURES.** Delete in its entirety and refer to Section 117 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code – Emergency Measures.

(Del) **SECTION 117 – DEMOLITION.** Delete in its entirety and refer to Section 102.6.3 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code – Demolition of Structures.

## **CHAPTER 2 – DEFINITIONS**

(Amd) **201.3 Terms defined in other codes.** Where terms are not defined in this code and are defined in other codes adopted as portions of the State Building Code, such terms shall have the meanings ascribed to them as in those codes.

(Add) **202.1 Definitions.** Amend or add the following definitions:

(Add) **BUILDING OFFICIAL.** The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative. Also known as the local *building official* or the code official.

(Amd) **CODE OFFICIAL.** See *Building official*.

(Amd) **EXISTING BUILDING.** A *building* or structure, or portion thereof, erected in whole or in part, for which a legal building *permit* and a certificate of occupancy has been issued. *Buildings* or structures or portions thereof erected prior to October 1, 1970 shall be deemed *existing buildings* regardless of the existence of a legal *permit* or a certificate of occupancy.

(Amd) **TECHNICALLY INFEASIBLE.** An *alteration* of a *building* or a *facility* that has little likelihood of being accomplished because the existing structural conditions require the removal or *alteration* of a load-bearing member that is an essential part of the structural frame, or because other physical or *site* constraints prohibit modification or addition of elements, spaces or features that are in full and strict compliance with the minimum requirements for new construction and that are necessary to provide accessibility. Pursuant to subsection (b) of section 29-269 of the Connecticut General Statutes, the determination of technical infeasibility shall be made by the State Building Inspector.

## CHAPTER 4 – PRESCRIPTIVE COMPLIANCE METHOD

(Amd) **402.5 Smoke alarms in existing portions of a building.** Where an *addition* is made to a *building* or structure of a Group I-4 and E day care facilities, Group I-1 or R occupancy or when one or more sleeping rooms are added or created in existing *dwelling units*, the entire *dwelling unit* or *building* shall be provided with smoke detectors located as required for new *buildings*. Such smoke detectors within existing spaces may be battery operated and are not required to be dual-powered or interconnected unless other remodeling considerations require removal of wall and ceiling coverings which would facilitate concealed interconnected wiring.

(Add) **402.6 Carbon monoxide alarms in existing portions of a building.** Where an *addition* is made to a *building* or structure of Group I-1, I-2, I-4, R, and E occupancy, the *existing building* shall be provided with carbon monoxide alarms in accordance with Section 915.7 of the International Building Code.

(Amd) **403.10 Smoke alarms.** When *alterations* requiring a *permit* occur in Group I-4 and E day care facilities, Group I-1 or R occupancies, or when one or more sleeping rooms are added or created in existing *dwelling units*, the entire *dwelling unit* or *building* shall be provided with smoke detectors located as required for new *buildings*. Such smoke detectors within existing spaces may be battery operated and are not required to be dual-powered or interconnected unless other remodeling considerations require removal of wall and ceiling coverings which would facilitate concealed interconnected wiring.

(Add) **403.12 Carbon monoxide alarms.** Where an *alteration* is made to a *building* or structure of Group I-1, I-2, I-4, R, and E occupancy, the *existing building* shall be provided with carbon monoxide alarms in accordance with Section 915.7 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code.

(Amd) **407.3 Stairways.** Existing stairways in an *existing structure* shall be required to comply with the requirements of Section 1011.5 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code.

(Amd) **408.1.1 Historic buildings.** Exemptions may be granted to the provisions of this code for historic structures pursuant to section 29-259 of the Connecticut General Statutes.

(Amd) **410.4.2 Complete change of occupancy.** Where an entire *building* undergoes a *change of occupancy*, it shall comply with Section 410.4.1 and shall have all of the following *accessible* features:

1. At least one *accessible building* entrance.
2. At least one *accessible route* from an *accessible building* entrance to *primary function* areas.
3. Signage complying with Section 1111 of the International Building Code.

4. *Accessible* parking complying with Section 1106 of the International Building Code, where parking is being provided.
5. At least one *accessible* passenger loading zone, when loading zones are provided.
6. At least one *accessible route* connecting *accessible* parking and *accessible* passenger loading zones to an *accessible* entrance.
7. At least one *accessible* toilet room or toilet and bathing facility complying with Section 1109.2.4 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code.

Where it is *technically infeasible* to comply with the new construction standards for any of these requirements for a change of group or occupancy, the above items shall conform to the requirements to the maximum extent technically feasible.

**Exception:** The *accessible* features listed in Items 1 through 7 are not required for an *accessible route* to *Type B units*.

(Amd) **410.8.3 Lifts and limited-use/limited-application elevators in existing buildings.** Vertical or incline platform lifts, inclined stairway chairlifts and limited-use/limited-application elevators shall not be a part of an *accessible route* in *existing buildings* undergoing *alteration* or *repair* except that vertical platform lifts and limited-use/limited-application elevators shall be permitted in *existing buildings* where permitted in the locations set forth in Section 1109.8 of the International Building Code. Pursuant to section 29-200 of the Connecticut General Statutes, the following exceptions are allowed:

**Exceptions:**

1. In *existing buildings* principally used for meeting, gathering or assembling by any civic, religious, fraternal or charitable organization.
2. In residential *buildings* designed to be occupied by one or two families.
3. In new *buildings* for which a building *permit* application has been filed on or after October 1, 2004, in accordance with the 2018 Connecticut State Building Code.
4. In other *existing buildings* and structures only if the State Building Inspector approves such installation.

Lifts shall comply with ICC A117.1 and shall be installed in accordance with ASME A18.1. Limited use/limited application elevators shall comply with ICC A117.1 and shall be installed in accordance with the Connecticut Safety Code for Elevators and Escalators adopted under authority of section 29-192 of the Connecticut General Statutes.

(Amd) **410.8.6 Accessible dwelling or sleeping units.** Where Group I-1, I-2, I-3, R-1, R-2 or R-4 *dwelling* or *sleeping units* are being altered or added, the requirements of Section 1107 for *Accessible units* and Chapter 9 for visible alarms of the International Building Code apply only to the quantity of spaces being altered or added.

(Amd) **410.8.7 Type A dwelling or sleeping units.** Where more than 20 Group R-2 *dwelling* or *sleeping units* are being altered or added, the requirements of Section 1107 for *Type A units* and Chapter 9 for visible alarms of the International Building Code apply only to the quantity of spaces being added or altered.



(Amd) **410.8.8 Type B dwelling or sleeping units.** Where four or more Group I-1, I-2, R-2, R-3, or R-4 *dwelling or sleeping units* are being added, the requirements of Section 1107 for *Type B units* and Chapter 9 for visible alarms of the International Building Code apply only to the quantity of the spaces being added. Where Group I-1, I-2, R-1, R-2, R-3, or R-4 *dwelling or sleeping units* are being altered and where the *work area* is greater than 50 percent of the aggregate area of the *building*, the requirements of Section 1107 for *Type B units* and Chapter 9 for visible alarms of the International Building Code apply only to the quantity of the spaces being altered.

(Amd) **410.8.10 Toilet rooms.** Where it is *technically infeasible* to alter existing toilet and bathing rooms to be *accessible*, an *accessible* single occupancy toilet room constructed in accordance with Section 1109.2.4 of the International Building Code is permitted. The single occupancy toilet room shall be located on the same floor and in the same area as the existing toilet or bathing rooms. At the inaccessible toilet and bathing rooms, directional signs indicating the location of the nearest *accessible* toilet or bathing facility within the *facility* shall be provided. These directional signs shall include the International Symbol of Accessibility and sign characters shall meet the visual character requirements in accordance with ICC A117.1.

(Add) **410.8.15 Assembly seating.** Where it is *technically infeasible* to disperse *accessible* seating throughout an altered assembly area, *accessible* seating areas may be clustered. Each *accessible* wheelchair space shall have provisions for companion seating and shall be located on an *accessible route* that also serves as an *accessible means of egress*.

## CHAPTER 7– ALTERATIONS – LEVEL 1

(Amd) **702.6.1 Gas** The International Fuel Gas Code is not adopted by the State of Connecticut. Any references to the International Fuel Gas Code within the body of this code shall be considered references to requirements of NFPA 2, Hydrogen Technologies Code, NFPA 54, National Fuel Gas Code and NFPA 58, Liquefied Petroleum Gas Code, as incorporated in the 2018 Connecticut State Fire Safety and the Connecticut State Fire Prevention Codes. These requirements apply to liquid petroleum storage systems, gas piping systems extending from the point of delivery to the inlet connections of appliances, the installation and operation of residential and commercial gas appliances and related accessories as covered by this code.

(Add) **704.2 Minimum standards.** In addition to the requirements of this code, *means of egress* in *existing buildings* shall meet the requirements of the provisions of Part IV of the 2018 Connecticut State Fire Safety Code for the proposed occupancy.

(Amd) **705.1.3 Lifts and limited use/limited application elevators in existing buildings.** Vertical or inclined platform lifts, inclined stairway chairlifts and limited use/limited application elevators shall not be a part of an *accessible route* in *existing buildings* undergoing *alteration* or *repair* except that vertical platform lifts and limited-use/limited-application elevators shall be permitted in *existing buildings* where permitted in the locations set forth in Section 1109.8 of the International Building Code. Pursuant to section 29-200 of the Connecticut General Statutes, the following exceptions are allowed:

### Exceptions:

1. In *existing buildings* principally used for meeting, gathering or assembling by any civic, religious, fraternal or charitable organization.
2. In residential *buildings* designed to be occupied by one or two families.

3. In new *buildings* for which a building *permit* application has been filed on or after October 1, 2004, in accordance with the Connecticut State Building Code.
4. In other *existing buildings* and structures only if the State Building Inspector approves such installation.

Lifts shall comply with ICC A117.1 and shall be installed in accordance with ASME A18.1. Limited use/limited application elevators shall comply with ICC A117.1 and shall be installed in accordance with the Connecticut Safety Code for Elevators and Escalators adopted under authority of section 29-192 of the Connecticut General Statutes.

(Amd) **705.1.9 Toilet rooms.** Where it is *technically infeasible* to alter existing toilet and bathing rooms to be *accessible*, an *accessible* single occupancy toilet room constructed in accordance with Section 1109.2.4 of the International Building Code is permitted. The single occupancy toilet room shall be located on the same floor and in the same area as the existing toilet or bathing rooms. At the inaccessible toilet and bathing rooms, directional signs indicating the location of the nearest *accessible* toilet or bathing facility within the *facility* shall be provided. These directional signs shall include the International Symbol of Accessibility and sign characters shall meet the visual character requirements in accordance with ICC A117.1.

(Amd) **707.3.2 Roof diaphragms resisting wind loads in high-wind regions.** 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,  $V_{ult}$  determined in accordance with Appendix N of the 2015 International Building Code portion of the 2018 Connecticut State Building Code is greater than 115 mph (51 m/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 *diaphragms* 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.

## CHAPTER 8 – ALTERATIONS – LEVEL 2

(Amd) **804.4.3 Smoke alarms.** When *alterations* requiring a *permit* occur in Group I-4 and E day care facilities, Group I-1 or R occupancies, or when one or more sleeping rooms are added or created in existing *dwelling units*, the entire *dwelling unit* or *building* shall be provided with smoke detectors located as required for new *buildings*. Such smoke detectors within existing spaces may be battery operated and are not required to be dual-powered or interconnected unless other remodeling considerations require removal of wall and ceiling coverings which would facilitate concealed interconnected wiring.

(Add) **804.5 Carbon monoxide alarms.** Where an *alteration* is made to a *building* or structure of Group I-1, I-2, I-4, R, and E occupancy, the *existing building* shall be provided with carbon monoxide alarms in accordance with Section 915.7 of the International Building Code.

(Amd) **805.2 General.** The *means of egress* shall comply with the requirements of this section.

**Exception:** Where the *work area* and the *means of egress* serving it complies with Part IV of the Connecticut State Fire Safety Code.

(Amd) **805.3.3 Main Entrance – Group A.** In Group A occupancies renovated or altered to increase capacity that have a single main entrance, such main entrance shall also be the main

*exit*. The main entrance/*exit* shall be of sufficient width to accommodate not less than two-thirds of the *occupant load*, but such width shall not be less than the total required width of all *means of egress* leading to the *exit*. The remaining *exits* shall be capable of providing at least one-half of the total required *exit* capacity.

**Exception:** In assembly occupancies where there is no well-defined main entrance and main *exit* or where multiple main entrances and main *exits* are provided, *exits* shall be permitted to be distributed around the perimeter of the *building* or space containing the assembly occupancy, provided the total width of egress is not less than 100 per cent of the required width.

## CHAPTER 9 – ALTERATIONS – LEVEL 3

### (Add) Section 909. Carbon Monoxide Alarms

(Add) **909.1. Carbon Monoxide Alarms.** Carbon monoxide alarms complying with section 804.5 shall be provided through the *building* in accordance with the 2015 International Building Code portion of the 2018 Connecticut State Building Code.

## CHAPTER 10 – CHANGE OF OCCUPANCY

(Add) **1005.2 Main Entrance – Group A.** In Group A occupancies created by *change of occupancy* that have a single main entrance, such main entrance shall also be the main *exit*. The main entrance/*exit* shall be of sufficient width to accommodate not less than two-thirds of the *occupant load*, but such width shall not be less than the total required width of all *means of egress* leading to the *exit*. The remaining *exits* shall be capable of providing at least one-half of the total required *exit* capacity.

**Exception:** In assembly occupancies where there is no well-defined main entrance and main *exit* or where multiple main entrances and main *exits* are provided, *exits* shall be permitted to be distributed around the perimeter of the *building* or space containing the assembly occupancy, provided the total width of egress is not less than 100 per cent of the required width.

(Amd) **1012.2.1 Fire sprinkler system.** Where a *change of occupancy* classification occurs that requires an automatic fire sprinkler system to be provided based on the new occupancy in accordance with Chapter 9 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code, such system shall be provided throughout the *building* or portion thereof where the *change of occupancy* occurs.

(Amd) **1012.2.2 Fire alarm and detection system.** Where a *change of occupancy* classification occurs that requires a fire alarm and detection system to be provided based on the new occupancy in accordance with Chapter 9 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code, such system shall be provided throughout the *building* or portion thereof where the *change of occupancy* occurs. Existing alarm notification appliances shall be automatically activated throughout the *building*. Where the *building* is not equipped with an existing fire alarm system, alarm notification appliances shall be provided throughout the area where the *change of occupancy* occurs and shall be automatically activated.

(Amd) **1012.8.2 Complete change of occupancy.** Where an entire *building* undergoes a *change of occupancy*, it shall comply with Section 1012.8.1 and shall have all of the following *accessible* features:

1. At least one *accessible building* entrance.
2. At least one *accessible route* from an *accessible building* entrance to *primary function* areas.
3. Signage complying with Section 1111 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code.
4. *Accessible* parking, complying with Section 1106 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code, where parking is being provided.
5. At least one *accessible* passenger loading zone, when passenger loading zones are provided.
6. At least one *accessible route* connecting *accessible* parking and *accessible* passenger loading zones to an *accessible* entrance.
7. At least one *accessible* toilet room or toilet and bathing facility complying with Section 1109.2.4 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code.

Where it is *technically infeasible* to comply with the new construction standards for any of these requirements for a change of group or occupancy, the above items shall conform to the requirements to the maximum extent technically feasible.

**Exception:** The *accessible* features listed in Items 1 through 7 are not required for an *accessible route* to Type B units.

## CHAPTER 11 – ADDITIONS

(Amd) **1104.1 Smoke alarms in existing portions of a building.** Where an *addition* is made to a *building* or structure of a Group I-4 and E day care facilities, Group I-1 or R occupancy, or when one or more sleeping rooms are added or created in existing *dwelling units*, the entire *dwelling unit* or *building* shall be provided with smoke detectors located as required for new *buildings*. Such smoke detectors within existing spaces may be battery operated and are not required to be dual-powered or interconnected unless other remodeling considerations require removal of wall and ceiling coverings which would facilitate concealed interconnected wiring.

(Add) **1104.2 Carbon monoxide alarms in existing portions of a building.** Where an *addition* is made to a *building* or structure of Group I-1, I-2, I-4, R, and E occupancy, the *existing building* shall be provided with carbon monoxide alarms in accordance with Section 915.7 of the International Building Code.

## CHAPTER 12 – HISTORIC BUILDINGS

(Add) **1201.1.1 Exemptions.** Pursuant to section 29-259 of the Connecticut General Statutes, exemptions may be granted to the provisions of this code for historic structures.

(Amd) **1204.1.4 Toilet and bathing facilities.** Where toilet rooms are provided, at least one *accessible* single occupancy toilet room complying with Section 1109.2.4 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code shall be provided. At the inaccessible toilet and bathing rooms, directional signs indicating the location of the nearest *accessible* toilet or bathing room shall be provided. These directional signs shall include the International Symbol of Accessibility and sign characters shall meet the visual character requirements in accordance with ICC A117.1.

**CHAPTER 14 – PERFORMANCE COMPLIANCE METHODS**

(Amd) **1401.2 Applicability.** Structures existing prior to the adoption date of the 2018 Connecticut State Building Code, in which there is work involving *additions, alterations* or changes of occupancy, shall be made to conform to the requirements of this chapter or the provisions of Chapters 5 through 13, inclusive, of this code. The provisions in Sections 1401.2.1 to 1401.2.5, inclusive, of this code shall apply to existing occupancies that will continue to be, or are proposed to be, in Groups A, B, E, F, I-2, M, R, and S. These provisions shall not apply to *buildings* with occupancies in Group H or I-1, I-3 or I-4.

**CHAPTER 16 – REFERENCED STANDARDS**

**(Amd) NFPA** National Fire Protection Association  
 1 Batterymarch Park  
 Quincy, MA 02269-9101

Standard reference number—year of publication	Title	Referenced in code section number
(Add) 02-11	Hydrogen Technologies Code	.....101.8, 704.2
(Add) 54-15	National Fuel Gas Code	.....101.8
(Amd) 70-17	National Electrical Code	.....107.3, 301.2, 607.1.1, 607.1.2, 607.1.3, 607.1.4, 607.1.5, 808.1, 808.3.4, 808.3.7, 1008.1, 1008.2, 1008.3, 1008.4

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## AMENDMENTS TO THE 2015 INTERNATIONAL PLUMBING CODE

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### CHAPTER 1 – SCOPE AND ADMINISTRATION

(Amd) **101.1 Title.** The 2015 International Plumbing Code and this Section shall be known as the 2015 International Plumbing Code portion of the 2018 Connecticut State Building Code, hereinafter referred to as “the code” or “this code”.

(Amd) **101.2 Scope.** The provisions of this code shall apply to the erection, installation, alteration, *repairs*, relocation, replacement, *addition* to, use or maintenance of *plumbing* systems within the State of Connecticut. This code shall also regulate nonflammable medical gas, inhalation anesthetic, vacuum piping, nonmedical oxygen systems and sanitary and condensate vacuum collection systems. The installation of fuel gas distribution piping and equipment, fuel gas-fired *water heaters* and *water heater* venting systems shall be regulated in accordance with Section 101.2.1. The provisions of appendices B, C, D and E shall be considered part of this code.

**Exception:** Detached one- and two-family *dwelling*s and multiple single-family *dwelling*s (*townhouses*) not more than three stories high with separate *means of egress* and their accessory structures shall comply with the 2015 International Residential Code portion of the 2018 Connecticut State Building Code.

(Add) **101.2.1 Gas.** The International Fuel Gas Code is not adopted by the State of Connecticut. Any references to the International Fuel Gas Code within the body of this code shall be considered references to requirements of NFPA 2, Hydrogen Technologies Code, NFPA 54, National Fuel Gas Code and NFPA 58, Liquefied Petroleum Gas Code, as adopted in the Connecticut State Fire Safety and the Connecticut State Fire Prevention Codes. These requirements apply to liquid petroleum storage systems, gas piping systems extending from the point of delivery to the inlet connections of appliances, the installation and operation of residential and commercial gas appliances and related accessories as covered by this code.

(Add) **101.2.2 Electrical.** The provisions of the 2017 NFPA 70, National Electrical Code, shall apply to the installation of electrical systems, including alterations, *repairs*, replacement, equipment, appliances, fixtures, fittings and appurtenances thereto.

(Amd) **102.6 Historic buildings.** Pursuant to section 29-259 of the Connecticut General Statutes, exemptions may be granted to the provisions of this code for historic structures, as defined by section 10-410 of the Connecticut General Statutes, which have been classified as such in the State Register of Historic Places, as long as the provisions of subsection (b) of section 29-259 of the Connecticut General Statutes are adhered to and provided such exemptions shall not affect the safe design, use or construction of such property.

(Del) **SECTION 103 – DEPARTMENT OF PLUMBING INSPECTION.** Delete in its entirety and refer to Section 103 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code – Enforcement Agency.

(Del) **SECTION 104 – DUTIES AND POWERS OF CODE OFFICIAL.** Delete in its entirety and refer to Section 104 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code – Duties and Powers of Building Official.

(Amd) **105.1 General.** The following requirements apply to the approval of materials, methods and equipment as satisfying the requirements of this code. Modifications, variations or exemptions from or approval of alternative compliance with the Connecticut State Building Code requirements may be requested in accordance with section 104.10 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code.

(Amd) **106.1 When Required.** Any *owner* or *owner's* authorized agent who intends to construct, enlarge, alter, *repair*, move, demolish or change the occupancy of a *building* or structure, or to move a *lot line* that will affect any existing *building* or structure, or to erect, install, enlarge, alter, *repair*, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be performed, shall first make application to the *building official* and obtain the required *permit*.

(Add) **106.2.1 State agency exemptions.** Pursuant to section 29-252a of the Connecticut General Statutes, a state agency shall not be required to obtain a building *permit* from a local *building official*. A state agency shall obtain a building *permit* for construction work as described in section 29-252a of the Connecticut General Statutes from the State Building Inspector.

(Amd) **106.4 By whom application is made.** Pursuant to section 29-263 of the Connecticut General Statutes, application for a *permit* shall be made by the *owner* or by an authorized agent. If the authorized agent is a licensed contractor, the provisions of section 20-338b of the Connecticut General Statutes shall be followed. The full names and addresses of the *owner*, agent and the responsible officers, if the *owner* or agent is a corporate body, shall be stated in the application.

(Add) **106.4.1 Permit issuance to a home improvement contractor.** No *permit* shall be issued to a contractor who is required to be registered pursuant to chapter 400 of the Connecticut General Statutes, for work to be performed by such contractor, unless the name, business address and Department of Consumer Protection registration number of such contractor is clearly marked on the *permit* application, and the contractor has presented such contractor's certificate of registration as a home improvement contractor.

(Amd) **106.5 Permit issuance.** Pursuant to section 29-263 of the Connecticut General Statutes, the *building official* shall examine or cause to be examined applications for *permits* and amendments thereto within 30 days after filing and either issue or deny a *permit* within such 30-day period. If the application or *construction documents* do not conform to the requirements of this code and pertinent laws, the *building official* shall reject such application in writing, stating the reasons therefor. If the *building official* is satisfied that the proposed work conforms to the requirements of this code and applicable laws, statutes, regulations and ordinances, the *building official* shall issue a *permit* therefor as soon as practicable.

(Amd) **106.5.6 Retention of construction documents.** The *building official* shall retain one set of *approved construction documents* for a period as set forth in the records/disposition schedule adopted pursuant to chapter 188 of the Connecticut General Statutes.

**Exception:** Pursuant to subsection (e) of section 29-261 of the Connecticut General Statutes, upon receipt of a written request signed by the *owner* of *plans and specifications* on file for a single-family *dwelling* or *out-building*, the *building official* shall immediately return the original *plans and specifications* to the *owner* after a certificate of occupancy is issued with respect to the *plans and specifications*.

(Del) **106.6.1 Work commencing before permit issuance.** Delete section.

(Amd) **106.6.2 Schedule of permit fees.** Each municipality shall establish a schedule of fees for each construction document review, building *permit*, certificate of approval and certificate of occupancy. A schedule of adopted fees shall be posted in the building department for public view.

(Amd) **106.6.3 Fee refunds.** The *building official* is authorized to establish a refund policy.

(Add) **107.2.6 Posting of required inspections.** A schedule of required inspections shall be compiled by the code official. The schedule shall be posted in the building department for public view.

(Add) **107.8 Notification of inspection and testing results.** Notification as to passage or failure, in whole or in part, of any required inspection or test shall be made in writing by the *building official* or his duly authorized representative and shall be left at the job *site* or delivered to the *permit* holder. It shall be the duty of the *permit* holder to ascertain the results of required inspections.

(Add) **108.2.1 Written notice.** The notice of violation shall be in writing and shall be given to the *owner* of the property involved, or to the *owner's* agent or to the person doing the work.

(Amd) **108.4 Violation penalties.** Pursuant to section 29-254a of the Connecticut General Statutes, any person who violates any provision of this code shall be fined not less than two hundred nor more than one thousand dollars or imprisoned not more than six months or both.

(Amd) **108.5 Stop work orders.** Upon notice from the *building official*, work on any plumbing system that is being done contrary to the provisions of this code or in a *dangerous* or unsafe manner shall immediately cease. Such notice shall be in writing and shall be given to the *owner* of the property, or to the *owner's* agent, or to the person doing the work. The notice shall state the conditions under which the work is authorized to resume. Where an emergency exists, the *building official* shall not be required to give a written notice prior to stopping the work. Any person who shall continue any work in or about the structure after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be liable for penalties in accordance with Section 108.4.

(Del) **SECTION 109 – MEANS OF APPEAL** Delete this section in its entirety and refer to Section 113 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code – Means of Appeal.

## CHAPTER 2 – DEFINITIONS

(Amd) **201.3 Terms defined in other codes.** Where terms are not defined in this code and are defined in other portions of the 2018 Connecticut State Building Code, such terms shall have the meanings ascribed to them as in those codes.

(Add) **202.1 Definitions.** Add or amend the following definitions:

(Add) **BUILDING OFFICIAL.** The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative. Also known as the local *building official* or the code official.



(Amd) **CLEANOUT.** An access opening in the *drainage system* utilized for the removal of obstructions. Types of *cleanouts* include a removable plug or cap, and a removable fixture or fixture *trap*. Floor drains, floor sinks, mop sinks and roof drains are not acceptable *cleanouts*.

(Amd) **CODE OFFICIAL.** See Building Official.

(Amd) **REGISTERED DESIGN PROFESSIONAL.** An architect, engineer or interior designer, registered or licensed to practice professional architecture, engineering or interior design, as defined by the statutory requirements of the professional registration laws of the State of Connecticut, and acting within the scope of his or her practice.

## CHAPTER 3 - GENERAL REGULATIONS

(Amd) **305.4 Freezing.** A *water, soil or waste pipe* shall not be installed outside of a *building*, or concealed in outside walls or in any place subjected to freezing temperature, unless adequate provision is made to protect such pipe from freezing by insulation or heat or both. Water service pipe shall be installed not less than 48 inches deep.

(Del) **305.4.1 Sewer depth.** Delete section.

(Del) **312.10.1 Inspections.** Delete section.

(Amd) **312.10.2 Testing.** Required reduced pressure principle, double check, pressure vacuum breaker, reduced pressure detector fire protection, double check detector fire protection, and spill-proof vacuum breaker backflow preventer assemblies and hose connection backflow preventers shall be tested at the time of installation by individuals or agencies qualified to perform such inspections. It shall be the responsibility of the *owner* to have such tests performed and copies of test reports shall be given to the local *building official*. The testing procedure shall be performed in accordance with one of the following standards:

ASSE 5013, ASSE 5015, ASSE 5020, ASSE 5047, ASSE 5048,  
ASSE 5052, ASSE 5056, CSA B64.10 or CSA B64.10.1.

## CHAPTER 4 – FIXTURES, FAUCETS AND FIXTURE FITTINGS

(Amd) **403.1 Minimum number of fixtures.** Plumbing fixtures shall be provided for the type of occupancy and in the minimum number shown in Table 403.1. Types of occupancies not shown in Table 403.1 shall be considered individually by the *building official*. The number of occupants shall be determined in accordance with the International Building Code. Occupancy classification shall be determined in accordance with the International Building Code.

### Exceptions:

1. The following minimum fixtures shall be provided in *Group R-1 bed and breakfast establishments*: Water closets – one per two *guest rooms*; lavatories – one per two *guest rooms*; bathtubs/showers – one per two *guest rooms*. Plumbing fixtures in *Group R-1 bed and breakfast establishments* shall be permitted to be accessed from hallways and *corridors* and to be shared by guests.
2. Child washing and diaper changing facilities shall be permitted in lieu of bathtubs or showers in Group I-4 child care occupancies.

(Amd) **403.1.2 Single-user toilet facility and bathing room fixtures.** The plumbing fixtures located in single-user toilet facilities and bathing rooms, including family or assisted-use toilet and bathing rooms that are required by Section 1109.2.1 of the International Building Code, shall contribute towards the total number of required plumbing fixtures for a *building* or tenant space. Single user toilet facilities and bathing rooms, and family or assisted-use toilet and bathing rooms shall be identified for use by any person.

(Amd) **403.2 Separate facilities.** Where plumbing fixtures are required, separate facilities shall be provided for each sex.

**Exceptions:**

1. Separate facilities shall not be required for *dwelling units* and *sleeping units*.
2. Separate facilities shall not be required in structures or tenant spaces with a total *occupant load*, including both employees and customers, of 15 or fewer.
3. Separate facilities shall not be required in mercantile occupancies in which the maximum *occupant load* is 100 or fewer.
4. Separate facilities shall not be required in business occupancies in which the maximum *occupant load* is 25 or fewer.
5. Toilet rooms in Educational Group E Kindergarten and day care occupancies, and in Institutional Group I-4 child day care may be designated as unisex which are primarily for children's use.
6. Single-user toilet facility and bathing room fixtures provided in accordance with 403.1.2.

(Del) **403.2.1 Family or assisted-use toilet facilities serving as separate facilities.** Delete without substitution.

(Amd) **405.3.4 Water closet compartment.** Each water closet utilized by the public or employees shall occupy a separate compartment with walls or partitions and a door enclosing the fixture to ensure privacy.

**Exceptions:**

1. Water closet compartments shall not be required in a single-occupant toilet room with a lockable door.
2. Toilet rooms located in Educational Group E Kindergarten and day care occupancies, and in Institutional Group I-4 child day care and containing two or more water closets shall be permitted to have one water closet without an enclosing compartment provided the toilet room is accessed through a door or other configuration to provide privacy.
3. This provision is not applicable to toilet areas located within Group I-3 housing areas.

(Amd) **405.3.5 Urinal partitions.** Each urinal utilized by the public or employees shall occupy a separate area with walls or partitions to provide privacy. The walls shall begin at a height not greater than 12 inches (305 mm) from and extend not less than 60 inches (1524 mm) above the finished floor surface. The walls or partitions shall extend from the wall surface at each side of the urinal not less than 18 inches (457 mm) or to a point not less than 6 inches (152 mm) beyond the outermost front lip of the urinal measured from the finished backwall surface, whichever is greater.

**Exceptions:**

1. Urinal partitions shall not be required in a single occupant or family/assisted-use toilet room with a lockable door.

2. Toilet rooms located in Educational Group E Kindergarten and day care occupancies, and in Institutional Group I-4 child day care and containing two or more urinals shall be permitted to have one urinal without partitions provided the toilet room is accessed through a door or other configuration to provide privacy.

(Add) **412.5 Connection required.** Floor drains shall connect to the *sanitary sewer* system or to an on-site holding tank(s) when the discharge contains petroleum-based oil, grease, sand or other harmful or hazardous substances. Interceptors and separators shall be provided in accordance with Section 1003 when floor drains connect to the *sanitary sewer* system, and shall be installed in accordance with regulations promulgated by the Department of Energy and Environmental Protection. Floor drains shall not be connected to a *storm sewer*, a *storm drainage system* or a *storm building drain*. Floor drains shall have *trap seals* in accordance with Section 1002.4.

## CHAPTER 6 - WATER SUPPLY AND DISTRIBUTION

(Amd) **608.17 Protection of individual water supplies.** An individual water supply shall be located and constructed so as to be safeguarded against contamination in accordance with the Public Health Code of the State of Connecticut adopted pursuant to section 19a-36 of the Connecticut General Statutes.

(Del) **608.17.1 through 608.17.8.** Delete subsections and referenced table.

## CHAPTER 7 – SANITARY DRAINAGE

(Amd) **701.2 Sewer required.** *Buildings* in which plumbing fixtures are installed and premises having drainage piping shall be connected to a *public sewer*, where required, or an approved private sewage disposal system in accordance with the Public Health Code adopted under authority of section 19a-36 of the Connecticut General Statutes.

(Amd) **708.1.1 Horizontal drains and building drains.** Horizontal drainage pipes, including *horizontal branch drains* consisting of one or more fixtures, in *buildings* shall have *cleanouts* located at intervals of not more than 100 feet (30 480 mm). *Building drains* shall have *cleanouts* located at intervals of not more than 100 feet (30 480 mm) except where manholes are used instead of *cleanouts*, the manholes shall be located at intervals of not more than 400 feet (122 m). The interval length shall be measured from the *cleanout* or manhole opening, along the *developed length* of the piping to the next *drainage fitting* providing access for cleaning, the end of the horizontal drain or the end of the *building drain*.

**Exception:** Horizontal *fixture drain* piping serving a non-removable *trap* shall not be required to have a *cleanout* for the section of piping between the *trap* and the connection to a horizontal or vertical drain if located within four feet of *developed length* of such connection. The four feet shall be measured from the fixture *trap* weir to the connection at the horizontal or vertical piping.

## CHAPTER 9 – VENTS

(Amd) **903.1 Roof extension.** Open vent pipes that extend through a roof shall be terminated not less than 12 inches above the roof, except where a roof is to be used for any purpose other than weather protection, the vent extensions shall terminate not less than 7 feet above the roof.

(Del) **903.2 Frost closure.** Delete section.

## CHAPTER 10 - TRAPS, INTERCEPTORS AND SEPARATORS

(Amd) **1003.3 Grease interceptors.** Grease interceptors that serve plumbing systems connected to private, on-site septic systems shall comply with the requirements of Sections 1003.3.1 to 1003.3.5, inclusive and in accordance with the Public Health Code adopted pursuant to section 19a-36 of the Connecticut General Statutes. Grease interceptors that serve plumbing systems connected via a *sanitary sewer* to a publicly owned treatment works shall comply with the Department of Energy and Environmental Protection's General Permit for the Discharge of Wastewater Associated with Food Preparation Establishments.

## CHAPTER 12 – SPECIAL PIPING AND STORAGE SYSTEMS

(Amd) **1201.1 Scope.** The provisions of this chapter shall govern the design and installation of piping and storage systems for non-flammable medical gas systems and non-medical oxygen systems. All maintenance and operation of such systems shall be in accordance with the Connecticut State Fire Prevention Code.

## CHAPTER 14 – SUBSURFACE LANDSCAPE IRRIGATION SYSTEMS

(Del) **Sections 1401 through 1403 and bibliography.** Delete sections, subsections and tables and replace with the following:

(Add) **1401.1 General.** Subsurface landscape irrigation systems shall comply with the Public Health Code adopted pursuant to section 19a-36 of the Connecticut General Statutes.

## CHAPTER 15 – REFERENCED STANDARDS

(Amd) **NFPA** National Fire Protection Association  
1 Batterymarch Park  
Quincy, MA 02269-9101

Standard reference number—year of publication	Title	Referenced in code section number
(Add) 02-11	Hydrogen Technologies Code	101.2.1
(Add) 54-15	National Fuel Gas Code	.....101.2.1
(Amd) 70—17	National Electrical Code	..... .502.1, 504.3, 1114.1.3

(Del) **APPENDIX A – PLUMBING PERMIT FEE SCHEDULE.** Delete appendix.

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## AMENDMENTS TO THE 2015 INTERNATIONAL MECHANICAL CODE

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### CHAPTER 1 – SCOPE AND ADMINISTRATION

(Amd) **101.1 Title.** The 2015 International Mechanical Code and this Section shall be known as the 2015 International Mechanical Code portion of the 2018 Connecticut State Building Code, hereinafter referred to as “the code” or “this code”.

(Amd) **101.2 Scope.** This code shall regulate the design, installation, maintenance, alteration and inspection of mechanical systems that are permanently installed and utilized to provide control of environmental conditions and related processes within *buildings*. This code shall also regulate those mechanical systems, system components, equipment and *appliances* specifically addressed herein. The installation of *fuel gas* distribution piping and equipment, fuel-gas-fired *appliances* and fuel-gas-fired *appliance venting systems* shall be in accordance with Section 101.2.2.

**Exception:** Detached one- and two-family *dwellings* and multiple single-family *dwellings* (*townhouses*) not more than three stories high with separate *means of egress* and their accessory structures shall comply with the International Residential Code.

(Amd) **101.2.1 Appendices.** The provisions of Appendix A shall be considered applicable to the utilization of this code.

(Add) **101.2.2 Gas.** The International Fuel Gas Code is not adopted by the State of Connecticut. Any references to the International Fuel Gas Code within the body of this code shall be considered references to requirements of NFPA 2, Hydrogen Technologies Code, NFPA 54, National Fuel Gas Code and NFPA 58, Liquefied Petroleum Gas Code, as incorporated in the 2018 Connecticut State Fire Safety and the Connecticut State Fire Prevention Codes. These requirements apply to liquid petroleum storage systems, gas piping systems extending from the point of delivery to the inlet connections of *appliances*, the installation and operation of residential and commercial gas *appliances* and related accessories as covered by this code.

(Add) **101.2.3 Oil-burning equipment, piping and storage.** In addition to the requirements of this code, the installation of oil burners, equipment, and *appliances* used in connection therewith, including tanks, piping, pumps, control devices and accessories shall comply with NFPA 31, as incorporated in the 2018 Connecticut State Fire Safety Code and the 2018 Connecticut State Fire Prevention Code.

(Add) **101.2.4 Electrical.** The provisions of NFPA 70, National Electrical Code, shall apply to the installation of electrical systems, including alterations, *repairs*, replacement, equipment, *appliances*, fixtures, fittings and appurtenances thereto.

(Add) **101.2.5 Fire prevention.** References to the International Fire Code within the body of the model document shall be considered to be references to the 2018 Connecticut State Fire Safety Code.

(Amd) **102.6 Historic buildings.** Pursuant to section 29-259 of the Connecticut General Statutes, exemptions may be granted to the provisions of this code for historic structures, as defined by section 10-410 of the Connecticut General Statutes, which have been classified as such in the State Register of Historic Places, as long as the provisions of subsection (b) of section 29-259 of the Connecticut General Statutes are adhered to and provided that such exemptions shall not affect the safe design, use or construction of such property.

(Del) **SECTION 103 – DEPARTMENT OF MECHANICAL INSPECTION.** Delete Section 103 in its entirety and refer to Section 103 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code – Enforcement Agency.

(Del) **SECTION 104 – DUTIES AND POWERS OF CODE OFFICIAL.** Delete in its entirety and refer to Section 104 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code – Duties and Powers of Building Official.

(Amd) **105.1 General.** The following requirements apply to the approval of materials, methods and equipment as satisfying the requirements of this code. Modifications, variations or exemptions from or approval of alternative compliance with the 2018 Connecticut State Building Code requirements may be requested in accordance with section 104.10 of the International Building Code portion of the 2018 State Building Code.

(Amd) **106.1 When Required.** Any *owner* or *owner's* authorized agent who intends to construct, enlarge, alter, *repair*, move, demolish or change the occupancy of a *building* or structure, or to move a *lot line* that will affect any existing *building* or structure, or to erect, install, enlarge, alter, *repair*, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be performed, shall first make application to the *building official* and obtain the required *permit*.

(Add) **106.2.1 State agency exemptions.** Pursuant to section 29-252a of the Connecticut General Statutes, a state agency shall not be required to obtain a building *permit* from a local *building official*. A state agency shall obtain a building *permit* for construction work as described in section 29-252a of the Connecticut General Statutes from the State Building Inspector.

(Add) **106.1.3 By whom application is made.** Pursuant to section 29-263 of the Connecticut General Statutes, application for a *permit* shall be made by the *owner* or by an authorized agent. If the authorized agent is a licensed contractor, the provisions of section 20-338b of the Connecticut General Statutes shall be followed. The full names and addresses of the *owner*, agent and the responsible officers, if the *owner* or agent is a corporate body, shall be stated in the application.

(Add) **106.1.4 Permit issuance to a home improvement contractor.** No *permit* shall be issued to a contractor who is required to be registered pursuant to chapter 400 of the Connecticut General Statutes, for work to be performed by such contractor, unless the name, business address and Department of Consumer Protection registration number of such contractor is clearly marked on the application for *permit*, and the contractor has presented such contractor's certificate of registration as a home improvement contractor.

(Amd) **106.4 Permit issuance.** Pursuant to section 29-263 of the Connecticut General Statutes, the *building official* shall examine or cause to be examined applications for *permits* and amendments thereto within 30 days after filing and either issue or deny a *permit* within such 30-day period. If the application or *construction documents* do not conform to the requirements of this code and pertinent laws, the *building official* shall reject such application in writing, stating the reasons therefor. If the *building official* is satisfied that the proposed work conforms to the requirements of this code and applicable laws, statutes, regulations and ordinances, the *building official* shall issue a *permit* therefor as soon as practicable.

(Amd) **106.4.6 Retention of construction documents.** The *building official* shall retain one set of *approved construction documents* for a period as set forth in the records/disposition schedule adopted pursuant to chapter 188 of the Connecticut General Statutes.

**Exception:** Pursuant to subsection (e) of section 29-261 of the Connecticut General Statutes, upon receipt of a written request signed by the *owner of plans and specifications* on file for a single-family *dwelling* or *out-building*, the *building official* shall immediately return the original *plans and specifications* to the *owner* after a certificate of occupancy is issued with respect to the *plans and specifications*.

(Del) **106.5.1 Work commencing before permit issuance.** Delete without substitution.

(Amd) **106.5.2 Schedule of permit fees.** Each municipality shall establish a schedule of fees for each construction document review, building *permit*, certificate of approval and certificate of occupancy. A schedule of adopted fees shall be posted in the building department for public view.

(Amd) **106.5.3 Fee refunds.** The *building official* is authorized to establish a refund policy.

(Add) **107.2.6 Posting of required inspections.** A schedule of required inspections shall be compiled by the code official. The schedule shall be posted in the building department for public view.

(Add) **107.7 Notification of inspection and testing results.** Notification as to passage or failure, in whole or in part, of any required inspection or test shall be made in writing by the *building official* or his duly authorized representative and shall be left at the job *site* or delivered to the *permit* holder. It shall be the duty of the *permit* holder to ascertain the results of required inspections.

(Add) **108.2.1 Written notice.** The notice of violation shall be in writing and shall be given to the *owner* of the property involved, or to the *owner's* agent or to the person doing the work.

(Amd) **108.4 Violation penalties.** Pursuant to section 29-254a of the Connecticut General Statutes, any person who violates any provision of this code shall be fined not less than two hundred nor more than one thousand dollars or imprisoned not more than six months or both.



(Amd) **108.5 Stop work orders.** Upon notice from the *building official*, work on any mechanical system that is being done contrary to the provisions of this code or in a *dangerous* or unsafe manner shall immediately cease. Such notice shall be in writing and shall be given to the *owner* of the property, or to the *owner's* agent, or to the person doing the work. The notice shall state the conditions under which the work is authorized to resume. Where an emergency exists, the *building official* shall not be required to give a written notice prior to stopping the work. Any person who continues any work in or about the structure after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be liable for penalties in accordance with Section 108.4.

(Del) **SECTION 109 - MEANS OF APPEAL.** Delete this section in its entirety and refer to Section 113 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code – Means of Appeal.

## CHAPTER 2 – DEFINITIONS

(Amd) **201.3 Terms defined in other codes.** Where terms are not defined in this code and are defined in other portions of the 2018 Connecticut State Building Code, such terms shall have the meanings ascribed to them as in those codes.

(Add) **202.1 Definitions.** Add or amend the following definitions:

(Add) **BUILDING OFFICIAL.** The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative. Also known as the local *building official* or code official.

(Amd) **CODE OFFICIAL.** See Building Official.

(Add) **Limited-combustible material.** A material shall be considered a limited-combustible material where both of the conditions 1 and 2 below and conditions 3 or 4 below are met.

### Conditions:

1. The material does not comply with the requirements for a *noncombustible material*.
2. The material, in the form in which it is used, exhibits a potential heat value not exceeding 3500 Btu/lb (8141 kJ/kg), when tested in accordance with NFPA 259, Standard Test Method for Potential Heat of Building Materials.
3. The material shall have a structural base of a *noncombustible material* with a surfacing not exceeding a thickness of 1/8 inch (3.2mm) where the surfacing exhibits a *flame spread* index not greater than 50 when tested in accordance with ASTM E 84, Standard Test Method for Surface Burning Characteristics of Building Materials, or ANSI/UL 723, Standard for Test for Surface Burning Characteristics of Building Materials.
4. The material shall be composed of materials that, in the form and thickness used, neither exhibit a *flame spread* index greater than 25 nor evidence of continued progressive combustion when tested in accordance with ASTM E 84 or ANSI/UL 723 and are of such composition that all surfaces that would be exposed by cutting through the material on any plane would neither exhibit a *flame spread* index greater than 25 nor exhibit evidence of continued progressive combustion when tested in accordance with ASTM E 84 or ANSI/UL 723.

(Amd) **REGISTERED DESIGN PROFESSIONAL.** An architect, engineer or interior designer, registered or licensed to practice professional architecture, engineering or interior design, as defined by the statutory requirements of the professional registration laws of the State of Connecticut, and acting within the scope of his or her practice.

## CHAPTER 3 - GENERAL REGULATIONS

(Amd) **301.1 Scope.** Except as may be otherwise regulated by Chapters 540 and 541 of the Connecticut General Statutes, or regulations of other state agencies, this chapter shall govern the approval and installation of all equipment and *appliances* that comprise parts of the *building* mechanical systems regulated by this code in accordance with Section 101.2.

(Amd) **301.6 Gas.** The International Fuel Gas Code is not adopted by the State of Connecticut. Any references to the International Fuel Gas Code within the body of this code shall be considered references to requirements of NFPA 2, Hydrogen Technologies Code, NFPA 54, National Fuel Gas Code and NFPA 58, Liquefied Petroleum Gas Code, as incorporated in the 2018 Connecticut State Fire Safety and the Connecticut State Fire Prevention Codes. These requirements apply to liquid petroleum storage systems, gas piping systems extending from the point of delivery to the inlet connections of *appliances*, the installation and operation of residential and commercial gas *appliances* and related accessories as covered by this code.

## CHAPTER 5 – EXHAUST SYSTEMS

(Amd) **505.2 Makeup air required.** Exhaust hood systems capable of exhausting in excess of 400 cubic feet per minute (0.19 m<sup>3</sup>/s) shall be provided with makeup air at a rate approximately equal to the difference between the exhaust air rate and 400 cubic feet per minute. Such makeup air systems shall be equipped with a means of closure.

**Exception:** Where all *appliances* in the house are of sealed combustion, power-vent, unvented, or electric, the exhaust hood system shall be permitted to exhaust up to 600 cubic feet per minute (0.28 m<sup>3</sup>/s) without providing makeup air. Exhaust hood systems capable of exhausting in excess of 600 cubic feet per minute (0.28 m<sup>3</sup>/s) shall be provided with a makeup air at a rate approximately equal to the difference between the exhaust air rate and 600 feet per minute. Such makeup air systems shall be equipped with a means of closure.

(Amd) **506.3.2.5 Grease duct test.** Prior to the use or concealment of any portion of a grease *duct* system, a leakage test shall be performed. *Ducts* shall be considered to be concealed where installed in *shafts* or covered by coatings or wraps that prevent the ductwork from being visually inspected on all sides. The *permit* holder shall be responsible to provide the necessary equipment and perform the grease *duct* leakage test. The leakage test shall consist of one of the following tests, or an *approved* equivalent test:

(Add) **506.3.2.5.1 Positive pressure smoke test.** The positive pressure smoke test shall be performed by sealing the entire *duct* system from the hood exhaust opening(s) to the *duct* termination. Visible smoke shall be introduced to the *duct* system. The sealed *duct* shall then be pressurized to a minimum pressure of 1.0 inch water column, but shall not exceed the positive pressure capability of the system and components under test. No smoke shall emit from any exterior surface of the *duct*.

(Add) **506.3.2.5.2 Air test.** The air test shall be performed by sealing the entire *duct* system from the hood exhaust opening(s) to the *duct* termination. The sealed *duct* system shall then be pressurized to a minimum pressure of 1.0 inch (249 Pa) water column and shall be required to hold the initial set pressure for a minimum of 20 minutes.

(Add) **506.3.2.5.3 Water test.** The water test shall be performed by use of a pressure washer operating at a minimum of 1500 psi (10.34 kPa), simulating cleaning operations. The water shall be applied directly to all areas to be tested. No water applied to the *duct* interior shall be visible on any exterior surface in any volume during the test.

A test shall be performed for the entire *duct* system, including the hood-to-*duct* connection. All connections, seams and welds shall be visible during the test. The ductwork shall be permitted to be tested in sections, provided that every joint is tested. For *listed* factory-built grease *ducts*, this test shall be limited to *duct* joints assembled in the field and shall exclude factory welds.

(Amd) **506.3.6 Grease duct clearances.** Where enclosures are not required, grease *duct* systems and exhaust equipment serving a Type I hood shall have a clearance to combustible construction of at least 18 inches (457 mm), 3 inches (76 mm) to *limited-combustible material*, and 0 inches (0 mm) to *noncombustible material*.

**Exceptions:**

1. Factory-built commercial kitchen grease *ducts listed* and *labeled* in accordance with UL 1978.
2. Grease *duct* systems or exhaust equipment *listed* for clearances less than those required in 506.3.6, shall be installed with the clearances specified by such listings.
3. Where commercial kitchen grease *ducts* are continuously covered on all sides with a *listed* and *labeled* field-applied grease *duct* enclosure material, system, product or method of construction specifically evaluated for such purpose in accordance with ASTM E2336, the required clearance shall be in accordance with the listing of such material, system, product or method.

(Add) **506.3.6.1 Clearance reduction.** The clearances required by 506.3.6 shall be permitted to be reduced in accordance with Section 308.

(Amd) **507.2.6 Clearances for Type I hood.** A Type I hood shall be installed with a clearance to combustibles of not less than 18 inches (457 mm), 3 inches (76 mm) to *limited-combustible material*, and 0 inches (0 mm) to *noncombustible material*.

**Exceptions:**

1. Clearance shall not be required from gypsum wallboard or 1/2-inch (12.7 mm) or thicker cementitious wallboard attached to noncombustible structures provided that a smooth, cleanable, nonabsorbent and *noncombustible material* is installed between the hood and the gypsum or cementitious wallboard over an area extending not less than 18 inches (457 mm) in all directions from the hood.
2. Type 1 hoods *listed* and *labeled* for clearances less than those required in 507.2.6 in accordance with UL 710 shall be installed with the clearances specified by such listings.

(Add) **507.2.6.1 Clearance reduction.** The clearances required by 506.3.6 shall be permitted to be reduced in accordance with Section 308.

## CHAPTER 6 – DUCT SYSTEMS

(Amd) **606.2 Where required.** Smoke detectors shall be installed where indicated in Sections 606.2.1 to 606.2.3, inclusive.

**Exception:** Smoke detectors shall not be required where air distribution systems are incapable of spreading smoke beyond the enclosing walls, floors and ceilings of the room or space in which the smoke is generated, or where the sole purpose of the air distribution system is to remove air from the inside of the *building* to the outside of the *building*.

(Amd) **606.2.1 Supply air systems.** Smoke detectors shall be installed in *supply air systems* with a design capacity greater than 2,000 cubic feet per minute in the *supply air duct* downstream of any filters and ahead of any *branch* connections.

(Amd) **606.2.2 Common supply and return air systems.** Where multiple air-handling systems share common supply or *return air ducts* or *plenums* with a combined design capacity greater than 2,000 cubic feet per minute, the *supply air system* shall be provided with smoke detectors in accordance with Section 606.2.1.

**Exception:** Individual smoke detectors shall not be required for each fan-powered terminal unit, provided such units do not have an individual design capacity greater than 2,000 cubic feet per minute and will be shut down by the activation of the smoke detectors required by Section 606.2.1.

In all cases the smoke detectors shall comply with Sections 606.4 and 606.4.1.

(Amd) **606.2.3 Return air risers.** Where *return air* risers serve two or more stories and serve any portion of a *return air* system having a design capacity greater than 15,000 cubic feet per minute, smoke detectors shall be installed at each story. Such smoke detectors shall be located upstream of the connection between the *return air* riser and any *air ducts* or *plenums*.

**Exception:** Smoke detectors are not required in the *return air* system where all portions of the *building* served by the air distribution system are protected by area smoke detectors connected to a fire alarm system in accordance with the 2018 Connecticut State Fire Safety Code. The area smoke detection system shall comply with Section 606.4.

## CHAPTER 10 - BOILERS, WATER HEATERS AND PRESSURE VESSELS

(Add) **1001.1.1 Boilers and water heaters.** *Boilers* and *water heaters* shall also be governed by the regulations adopted under authority of chapter 540 of the Connecticut General Statutes.

**CHAPTER 15 – REFERENCED STANDARDS**

(Amd) NFPA National Fire Protection Association 1 Battery Park Quincy, MA 02169-7471		
Standard reference number— year of publication	Title	Referenced in code section number
(Add) 02-11	Hydrogen Technologies Code	101.2.2
(Add) 54-15	National Fuel Gas Code	.....101.2.2
(Amd) 70-17	National Electrical Code	.....301.7, 306.3.1, 306.4.1, 511.1.1.

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## AMENDMENTS TO THE 2015 INTERNATIONAL ENERGY CONSERVATION CODE

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### **IECC – COMMERCIAL PROVISIONS**

#### **CHAPTER 1 [CE] – SCOPE AND ADMINISTRATION**

(Amd) **C101.1 Title.** The 2015 International Energy Conservation Code and this Section shall be known as the 2015 International Energy Conservation Code portion of the 2018 State Building Code, hereinafter referred to as “the code” or “this code”.

(Amd) **C101.5 Compliance.** *Residential buildings* shall meet the provisions of IECC – Residential Provisions. *Commercial buildings* shall meet the provisions of IECC – Commercial Provisions.

**Exception:** Temporary structures are exempt from the requirements of this code.

(Amd) **C101.5.1 Compliance materials.** The code official shall be permitted to approve specific computer software, worksheets, compliance manuals and other similar materials that meet the intent of this code.

(Add) **C101.5.2 Energy efficiency standards for products.** In addition to the requirements of this code, the testing, certification and enforcement of efficiency standards for new products sold, offered for sale or installed in the State of Connecticut shall comply with regulations adopted pursuant to section 16a-48 of the Connecticut General Statutes.

(Add) **C101.6 Administrative matters not provided for.** Administrative matters not covered by this code shall be in accordance with the provisions of Chapter 1 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code.

(Amd) **C102.1.1 Above code programs.** The State Building Inspector and the Codes and Standards Committee may deem a national, state or local energy efficiency program to exceed the energy efficiency required by this code. Such energy efficiency program may include, but not be limited to, the Leadership in Energy and Environmental Design rating system, the Green Globes USA design program, as established by the Green Building Initiative, the National Green Building Standard, as established by the National Association of Home Builders, or an equivalent rating system approved in accordance with section 29-256a of the Connecticut General Statutes. *Buildings* approved in writing by such an energy efficiency program shall be considered in compliance with this code. The requirements identified as “mandatory” in Chapter 4 shall be met.

(Amd) **C103.1 General.** Two sets of *construction documents* and other supporting data shall be submitted to the *building official* at the time of application for the *building permit*. The *construction documents* and designs submitted shall be prepared by a *registered design professional* when required by the provisions of chapters 390 or 391 of the Connecticut General Statutes.

**Exception:** The *building official* may waive the submission of *construction documents* and other supporting data not required to be prepared by a *registered design professional* if the work proposed is not required by the provisions of this code, or the *building official* determines that the nature of the work applied for is such that review of the *construction documents* is not necessary to obtain compliance with this code.

(Amd) **C103.5 Retention of construction documents.** The *building official* shall retain one set of *approved construction documents* for a period as set forth in the records/disposition schedule adopted pursuant to chapter 188 of the Connecticut General Statutes.

(Amd) **C106.1 Referenced codes and standards.** The codes and standards referenced in this code shall be those listed in Chapter 6, and such codes and standards shall be considered as part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Sections C106.1.1 and C106.1.2. Any reference to an ICC code adopted as part of the 2018 Connecticut State Building Code or the 2018 Connecticut State Fire Safety Code shall mean a reference to such ICC code as amended by the State of Connecticut.

(Del) **SECTION C107 – FEES.** Delete in its entirety and refer to Section 109 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code – Fees.

(Del) **SECTION C108 – STOP WORK ORDER.** Delete in its entirety and refer to Section 115 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code – Stop Work Order.

(Del) **SECTION C109 – BOARD OF APPEALS.** Delete in its entirety and refer to Section 113 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code – Means of Appeal.

## **CHAPTER 2 [CE] – DEFINITIONS**

(Amd) **C201.3 Terms defined in other codes.** Where terms are not defined in this code and are defined in other codes adopted as portions of the 2018 Connecticut State Building Code, such terms shall have the meanings ascribed to them as in those codes.

(Add) **C202.1 Definitions.** Add or amend the following definitions:

(Add) **BUILDING OFFICIAL.** The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative. Also known as the local *building official* or code official.

(Amd) **CODE OFFICIAL.** See *building official*.

(Add) **FULL CUTOFF LUMINAIRE.** A luminaire that allows no direct light emissions above a horizontal plane through the luminaire's lowest light-emitting part.

## **CHAPTER 4 [CE] – COMMERCIAL ENERGY EFFICIENCY**

(Amd) **C401.2 Application.** *Commercial buildings* shall comply with one of the following:

1. The requirements of ANSI/ASHRAE/IESNA 90.1, including "Standard 90.1 Appendix G 2013".
2. The requirements of Sections C402 through C405. In addition, *commercial buildings* shall comply with Section C406 and tenant spaces shall comply with Section C406.1.1.
3. The requirements of Section C402.5, C403.2, C404, C405.2, C405.3, C405.4, C405.6 and C407. The building energy costs shall be equal to or less than 85 percent of the standard reference design *building*.

(Amd) **C402.1.1 Low energy buildings.** The following *buildings*, or portions thereof, separated from the remainder of the *building* by building thermal envelope assemblies complying with this code shall be exempt from the building thermal envelope provisions of Section C402:

1. Those with a peak design rate of energy usage less than 3.4 British thermal units per hour per square foot (Btu/h.ft<sup>2</sup>) or 1.0 watts per square foot (watt/ft<sup>2</sup>) of floor area for space conditioning purposes.
2. Those that do not contain *conditioned space*.
4. *Buildings* and structures for which heating and cooling is supplied solely by utilization of non-purchased renewable energy sources including, but not limited to, on-site wind, on-site water or on-site solar power, or wood-burning heating appliances that do not rely on backup heat from other purchased, non-renewable sources.
5. *Greenhouses*.

(Add) **C405.5.2 Light pollution controls.** When the power for exterior lighting is supplied through the energy service to the *building*, luminaires used for exterior lighting shall be *full cutoff luminaires*.

**Exceptions:**

1. Luminaires with an output of 2,600 lumens or less.
2. Luminaires intended to illuminate the façade of *buildings* or to illuminate other objects including, but not limited to, flagpoles, landscape and water features, statuary and works of art.
3. Luminaires for historic lighting on the premises of an *historic building* as defined in the 2015 International Existing Building Code or within a designated historic district.
4. Outdoor sports *facility* lighting of the participant sport area.
5. Emergency *exit discharge* lighting.
6. Low voltage landscape lighting.
7. Sign illumination.
8. Festoon lighting as defined in the NFPA 70 National Electrical Code.
9. Temporary lighting for emergency, *repair*, construction, special events or similar activities.

## **IECC – RESIDENTIAL PROVISIONS**

### **CHAPTER 1 [RE] – SCOPE AND ADMINISTRATION**

(Amd) **R101.1 Title.** The 2015 International Energy Conservation Code and this Section shall be known as the 2015 International Energy Conservation Code portion of the 2018 Connecticut State Building Code, hereinafter referred to as “the code” or “this code”.

(Amd) **R101.5 Compliance.** *Residential buildings* shall meet the provisions of IECC – Residential Provisions. *Commercial buildings* shall meet the provisions of IECC – Commercial Provisions.

**Exception:** Temporary structures are exempt from the requirements of this code.

(Amd) **R101.5.1 Compliance materials.** The code official shall be permitted to approve specific computer software, worksheets, compliance manuals and other similar materials that meet the intent of this code.



(Add) **R101.5.2 Energy efficiency standards for products.** In addition to the requirements of this code, the testing, certification and enforcement of efficiency standards for new products sold, offered for sale or installed in the 2018 Connecticut State of Connecticut shall comply with regulations adopted pursuant to section 16a-48 of the Connecticut General Statutes.

(Add) **R101.6 Administrative matters not provided for.** Administrative matters not covered by this code shall be in accordance with the provisions of Chapter 1 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code.

(Amd) **R102.1.1 Above code programs.** The State Building Inspector and the Codes and Standards Committee may deem a national, state or local energy efficiency program to exceed the energy efficiency required by this code. Such energy efficiency program may include, but not be limited to, the Leadership in Energy and Environmental Design Rating System, the Green Globes USA design program, as established by the Green Building Initiative, the National Green Building Standard, as established by the National Association of Home Builders, or an equivalent rating system approved in accordance with section 29-256a of the Connecticut General Statutes.

*Buildings* approved in writing by such an energy efficiency program shall be considered in compliance with this code. The requirements identified as “mandatory” in Chapter 4 of this code, as applicable, shall be met.

(Amd) **R103.1 General.** Two sets of *construction documents* and other supporting data shall be submitted to the *building official* at the time of application for the building *permit*. The *construction documents* and designs submitted shall be prepared by a *registered design professional* when required by the provisions of chapters 390 or 391 of the Connecticut General Statutes.

**Exception:** The *building official* may waive the submission of *construction documents* and other supporting data not required to be prepared by a *registered design professional* if the work proposed is not required by the provisions of this code, or the *building official* determines that the nature of the work applied for is such that review of the *construction documents* is not necessary to obtain compliance with this code.

(Amd) **R103.5 Retention of construction documents.** The *building official* shall retain one set of *approved construction documents* for a period as set forth in the records/disposition schedule adopted pursuant to chapter 188 of the Connecticut General Statutes.

(Amd) **R106.1 Referenced codes and standards.** The codes and standards referenced in this code shall be those listed in Chapter 6 and such codes and standards shall be considered as part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Sections R106.1.1 and R106.1.2. Any reference to an ICC code adopted as part of the 2018 Connecticut State Building Code or the 2018 Connecticut State Fire Safety Code shall mean a reference to such ICC code as amended by the State of Connecticut.

(Del) **SECTION R107 – FEES.** Delete in its entirety and refer to Section 109 of the 2015 International Building Code portion or Section R108 of the 2015 International Residential Code portion, as applicable, of the 2018 Connecticut State Building Code – Fees.

(Del) **SECTION C108 – STOP WORK ORDER.** Delete in its entirety and refer to Section 115 of the 2015 International Building Code portion or Section R114 of the 2015 International Residential Code portion, as applicable, of the 2018 Connecticut State Building Code – Stop Work Order.

(Del) **SECTION R109 – BOARD OF APPEALS.** Delete in its entirety and refer to Section 113 of the 2015 International Building Code portion or Section R112 of the 2015 International Residential Code portion, as applicable, of the 2018 Connecticut State Building Code – Means of Appeal.

## CHAPTER 2 [RE] – DEFINITIONS

(Amd) **R201.3 Terms defined in other codes.** Where terms are not defined in this code and are defined in other codes adopted as portions of the 2018 Connecticut State Building Code, such terms shall have the meanings ascribed to them as in those codes.

(Add) **R202.1 Definitions.** Add or amend the following definitions:

(Add) **BUILDING OFFICIAL.** The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative. Also known as the local *building official* or code official.

(Amd) **CODE OFFICIAL.** See *building official*.

## CHAPTER 4 [RE] – RESIDENTIAL ENERGY EFFICIENCY

(Amd) **R402.1 General (Prescriptive).** The *building thermal envelope* shall meet the requirements of Sections R402.1.1 through R402.1.5.

**Exception:** The following low-energy *buildings*, or portions thereof, separated from the remainder of the *building* by building thermal envelope assemblies complying with this section shall be exempt from the building thermal envelope provisions of Section R402:

1. Those with a peak design rate of energy usage less than 3.4 Btu/h• ft<sup>2</sup> or 1.0 watts per square foot (watt/ft<sup>2</sup>) of floor area for space conditioning purposes.
2. Those that do not contain *conditioned space*.
3. *Buildings* and structures for which heating and cooling is supplied solely by utilization of non-purchased renewable energy sources including, but not limited to, on-site wind, on-site water or on-site solar power, or wood-burning heating appliances that do not rely on backup heat from other purchased, non-renewable sources.

(Add) **R402.2.14 Foamed-in-place insulating material.** Pursuant to section 29-277 of the Connecticut General Statutes, foamed-in-place insulating material, except urethane foam insulation or styrene foam insulation, shall not be sold or installed in this state on or after May 28, 2013, unless the manufacturer or supplier has certified to the State Building Inspector that the material complies with the provisions of that section.

(Amd) **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.

(Add) **R403.3.1.1 Duct insulation values.** Minimum *duct* insulation values stated in Section 403.2.1 shall be installed R-values.

(Amd) **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:

1. Rough-in test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure if installed at the time of the test. All registers shall be taped or otherwise sealed during the test.
2. Postconstruction test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. Registers shall be taped or otherwise sealed during the test.

**Exceptions:**

1. A *duct* air leakage test shall not be required where the *ducts* and air handlers are 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) of new *duct* in unconditioned spaces shall not be required to be tested in accordance with Section 403.3.3.

A written report of the results of the test shall be signed by the party conducting the test and provided to the code official.

(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 8 cubic feet per minute (226.5 L/min) per 100 square feet (9.29 m<sup>2</sup>) 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 m<sup>2</sup>) of *conditioned floor area*.
2. Postconstruction test: Total leakage shall be less than or equal to 8 cubic feet per minute (226.5 L/min) per 100 square feet (9.29 m<sup>2</sup>) of *conditioned floor area*.

(Amd) **R406.3 Energy Rating Index.** The Energy Rating Index (ERI) shall be determined in accordance with ANSI/RESNET/ICC 301.

(Del) **R406.3.1 ERI reference design.** Delete section.

(Amd) **R406.4 ERI-based compliance.** Compliance based on an ERI analysis requires that the *rated design* be shown to have a maximum ERI of 61 without the use of renewable energy when compared to the ERI reference design.

(Del) **Table R406.4 MAXIMUM ENERGY RATING INDEX.** Delete table.

(Amd) **R406.6.1 Compliance software tools.** Software tools for determining ERI shall be Approved Software Rating Tools in accordance with ANSI/RESNET/ICC 301.

(Amd) **R406.6.4 Specific approval.** Performance analysis tools meeting the applicable sections of Section R406 shall be *approved*. Documentation demonstrating the approval of performance analysis tools in accordance with Section 406.6.1 shall be provided to the *code official*.

(Add) **R406.6.5 Input values.** When calculations require input values not specified by Sections R402, R403, R404 and R405, those input values shall be taken from ANSI/RESNET/ICC 301.

(Del) **R406.7 Calculation software tools.** Delete section.

## CHAPTER 5 – EXISTING BUILDINGS

(Amd) **R502.1.1.1 Building envelope.** New building envelope assemblies that are part of the *addition* shall comply with Sections R402.1, R402.2, R402.3.1 through R402.3.5, and R402.4

### Exceptions:

1. Where nonconditioned space is changed to *conditioned space*, the building envelope of the *addition* shall comply where the UA, as determined in Section 402.1.4 of the existing *building* and the *addition*, and any *alterations* that are part of the project, is less than or equal to UA generated for the existing *building*.
2. A visual inspection of the building envelope tightness and insulation installation shall be considered acceptable when the items listed in Table R402.4.1.1, applicable to the method of construction, are field verified. Where required by the code official, an *approved party* independent from the installer of the insulation shall inspect the *air barrier* and insulation.

## CHAPTER 6 – REFERENCED STANDARDS

(Add)  
**ANSI** American National Standards Institute  
 25 West 43<sup>rd</sup> Street, Fourth Floor  
 New York, NY 10036

Standard reference number—year of publication	Title	Referenced in code section number
(Add) 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	R406.3 R406.6.1 R406.6.5
(Add) ANSI/RESNET/ICC 380-2016	Standard for Testing Airtightness of Building Enclosures, Airtightness of Heating and Cooling Air Distribution Systems, and Airflow of Mechanical Ventilation Systems	R402.4.1.2 R403.3.3

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## AMENDMENTS TO THE 2017 NFPA 70, NATIONAL ELECTRICAL CODE

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### ARTICLE 90 – INTRODUCTION

(Amd) **90.2 Scope.**

**(A) Covered.** This code covers the installation of electrical conductors, equipment and raceways; signaling and communications conductors, equipment and raceways; and optical fiber cables and raceways for the following:

- (1) Public and private premises, including:
  - a. *buildings* and structures;
  - b. installations in detached one- and two-family *dwellings* and multiple single-family *dwellings* (townhouses) not more than three stories in height with a separate *means of egress* and their accessory structures shall be in accordance with the requirements of this code or with the requirements of the 2015 International Residential Code portion of the 2018 Connecticut State Building Code;
  - c. utility connections, *additions* and alterations to mobile homes;
  - d. utility connections to recreational vehicles; and
  - e. floating *buildings*.
- (2) Yards, lots, parking lots, carnivals and industrial substations.
- (3) Installations of conductors and equipment that connect to the supply of electricity.
- (4) Installations used by the electric utility, such as office *buildings*, warehouses, garages, machine shops and recreational *buildings* that are not an integral part of a generating plant, substation or control center.

**(B) Not covered.** This code does not cover the following:

- (1) Installations in ships, watercraft other than floating *buildings*, railway rolling stock, aircraft or automotive vehicles other than mobile homes and recreational vehicles.
- (2) Installations underground in mines and self-propelled mobile surface mining machinery and its attendant electrical trailing cable.
- (3) Installations of railways for generation, transformation, transmission or distribution of power used exclusively for operation of rolling stock or installations used exclusively for signaling and communications purposes.
- (4) Installations of communications equipment under the exclusive control of communications utilities located outdoors or in *building* spaces used exclusively for such installations.

- (5) Installations under the exclusive control of an electric utility where such installations:
- a. Consist of service drops or service laterals, and associated metering; or
  - b. Are located in legally established easements, rights-of-way or by other agreements either designated by or recognized by public service commissions, utility commissions or other regulatory agencies having *jurisdiction* for such installations; or
  - c. Are on property owned or leased by the electric utility for the purpose of communications, metering, generation, control, transformation, transmission or distribution of electric energy; or
  - d. Are located by other written agreements either designated by or recognized by public service commissions, utility commissions, or other regulatory agencies having *jurisdiction* for such installations. These written agreements shall be limited to installations for the purpose of communications, metering, generation, control, transformation, transmission, or distribution of electric energy where legally established easements or rights-of-way cannot be obtained. These installations shall be limited to federal lands, Native American reservations through the U.S. Department of the Interior Bureau of Indian Affairs, military bases, lands controlled by port authorities and state agencies and departments, and lands owned by railroads.

(6) Installations in one- and two-family *dwelling*s and multiple single-family *dwelling*s (townhouses) not more than three stories in height with a separate *means of egress* and their accessory structures not more than three stories above grade plane in height that are in accordance with the provisions of the 2015 International Residential Code portion of the 2018 Connecticut State Building Code.

**(C) Special permission.** The State Building Inspector may grant an exception for the installation of conductors and equipment that are not under the exclusive control of the electric utilities and are used to connect the electric utility supply system to the service-entrance conductors of the premises served, provided such installations are outside a *building* or terminate immediately inside a *building* wall.

(Amd) **90.4 Enforcement.** Administration of this code shall be in accordance with the provisions of Chapter 1 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code. For the purposes of this code, the authority having *jurisdiction* for interpreting the rules and for granting the special permission contemplated in a number of rules is the State Building Inspector. Interpretations shall be requested verbally or in writing from the Office of the State Building Inspector. Special permission shall be requested in writing using the Request for Modification of the State Building Code form available from local building departments or from the Office of the State Building Inspector, 450 Columbus Boulevard, Suite 1303, Hartford CT 06103. [www.portal.ct.gov/DAS](http://www.portal.ct.gov/DAS).

## CHAPTER 1 – GENERAL

### ARTICLE 100 – Definitions.

(Amd) **Accessible, readily (Readily Accessible).** Capable of being reached quickly for operation, renewal, or inspections without requiring those to whom ready access is requisite to actions such as to use tools, to climb over or remove obstacles, or to resort to portable ladders, and so forth. For overcurrent devices located within *listed* enclosures or assemblies for which access requires the use of a tool, the *readily accessible* requirement of this section shall not apply.

(Amd) **Authority having jurisdiction.** The organization, office or individual responsible for approving equipment, material, an installation, or a procedure. The local *building official* has the responsibility for approving *construction documents*, issuing *permits*, approving materials and procedures and for making inspections from time to time as the construction process requires. The State Building Inspector has the responsibility for administering the Connecticut State Building Code, interpreting the Connecticut State Building Code and for granting exceptions from specific rules of the Connecticut State Building Code. See the definition of “Special Permission,” and Article 90.4.

(Amd) **Special Permission.** For the purposes of this code, the authority having *jurisdiction* for granting the special permission contemplated in a number of rules is the State Building Inspector. Special permission shall be requested in writing using the Request for Modification of the State Building Code form available from local building departments or from the Office of the State Building Inspector, 450 Columbus Boulevard, Suite 1303, Hartford CT 06103. [www.portal.ct.gov/DAS](http://www.portal.ct.gov/DAS).

## CHAPTER 2 – WIRING AND PROTECTION

(Del) **240.67 Arc Energy Reduction.** Delete in its entirety without substitution.

(Amd) **250.50 Grounding Electrode System.** If available on the premises at each *building* or structure served, each item in 250.52 (A)(1) to (A)(7), inclusive, shall be bonded together to form the grounding electrode system. Where none of these grounding electrodes are available, one or more of the grounding electrodes specified in 250.52 (A)(4) to (A)(8), inclusive, shall be installed and used.

## CHAPTER 3 – WIRING METHODS AND MATERIALS

(Add) **300.4.1 Drilling and notching.**

**(A) Structural floor, wall, ceiling and roof members.**

**(1) Solid sawn lumber.** Notches in solid lumber joists, rafters and beams shall not exceed one-sixth of the depth of the member, shall not be longer than one-third of the depth of the member and shall not be located in the middle one-third of the span. Notches at the ends of the member shall not exceed one-fourth the depth of the member. The tension side of members 4 inches or greater in nominal thickness shall not be notched except at the ends of the members. The diameter of holes bored or cut into members shall not exceed one-third the depth of the member. Holes shall not be closer than 2 inches to the top or bottom of the member, or to any other hole located in the member. Where the member is also notched, the hole shall not be closer than 2 inches to the notch.

**Exception:** Notches on cantilevered portions of rafters are permitted provided the dimension of the remaining portion of the rafter is not less than 4-inch nominal and the length of the cantilever does not exceed 24 inches.

**(2) Engineered wood products.** Cuts, notches and holes bored in trusses, structural composite lumber, structural glue-laminated members or I-joists are prohibited except where permitted by the manufacturer’s recommendations or where the effects of such alterations are specifically considered in the design of the member by a *registered design professional*.



**(3) Studs.** Any stud in an *exterior wall* or interior bearing partition may be cut or notched to a depth not exceeding 25 percent of its width. Studs in nonbearing interior partitions may be notched to a depth not to exceed 40 percent of a single stud width. Any stud may be bored or drilled, provided that the diameter of the resulting hole is no greater than 40 percent of the stud width, the edge of the hole is no closer than 5/8 inch to the edge of the stud and the hole is not located in the same section as a cut or notch.

**Exceptions:**

1. A stud may be bored or drilled to a diameter not exceeding 60 per cent of its width, provided that such studs located in *exterior walls* or interior bearing partitions are doubled and not more than two successive studs are bored.
2. Approved stud shoes may be used when installed in accordance with the manufacturer's recommendations.

**(4) Top plates.** When wiring, conduit, piping or ductwork is placed in or partly in an *exterior wall* or interior bearing wall, necessitating cutting, drilling or notching of the top plate by more than 50 per cent of its width, a galvanized metal tie of not less than 0.054 inch thick (1.37 mm) (16 ga) and 1 ½ inches (38 mm) wide shall be fastened across and to the plate at each side of the opening with not less than eight 10d (0.148 inch diameter) nails at each side or equivalent. The metal tie must extend a minimum of 6 inches past the opening.

**Exception:** When the entire side of the wall with the notch or cut is covered by wood structural panel sheathing.

## CHAPTER 4 – EQUIPMENT FOR GENERAL USE

### (Amd) 404.2 Switch Connections.

**(A) Three-Way and Four-Way Switches.** Three-way and four-way switches shall be wired so that all switching is done only in the ungrounded circuit conductor. Where in metal raceways or metal-armored cables, wiring between switches and outlets shall be in accordance with 300.20(A).

**Exception:** Switch loops shall not require a grounded conductor.

**(B) Grounded Conductors.** Switches or circuit breakers shall not disconnect the grounded conductor of a circuit.

**Exception:** A switch or circuit breaker shall be permitted to disconnect a grounded circuit conductor where all circuit conductors are disconnected simultaneously, or where the device is arranged so that the grounded conductor cannot be disconnected until all the ungrounded conductors of the circuit have been disconnected.

**(C) Switches Controlling Lighting Loads.** The grounded circuit conductor for the controlled lighting circuit shall be installed at the location where switches control lighting loads that are supplied by a grounded general-purpose branch circuit serving bathrooms, hallways, stairways, or rooms suitable for human habitation or occupancy as defined in the applicable building code. Where multiple switch locations control the same lighting load such that the entire floor area of the room or space is visible from the single or combined switch locations, the grounded circuit conductor shall only be required at one location. A grounded conductor shall not be required to be installed at lighting switch locations under any of the following conditions:

- (1) Where conductors enter the box enclosing the switch through a raceway, provided that the raceway is large enough for all contained conductors, including a grounded conductor.
- (2) Where the box enclosing the switch is accessible for the installation of an additional or replacement cable without removing finish materials.
- (3) Where snap switches with integral enclosures comply with 300.15(E).
- (4) Where lighting in the area is controlled by automatic means.
- (5) Where a switch controls a receptacle load.

The grounded conductor shall be extended to any switch location as necessary that require line-to-neutral voltage to operate the electronics of the switch in the standby mode and shall meet the requirements of 404.22.

Informational Note: The provision for a (future) grounded conductor is to complete a circuit path for electronic lighting control devices.

(Amd) **404.22 Electronic Lighting Control Switches.** Electronic lighting control switches shall be *listed*.

(Amd) **406.4 General Installation Requirements**

**(D) Replacements.** Replacement of receptacles shall comply with 406.4(D)(1), 406.4(D)(2), 406.4(D)(3), 406.4(D)(5) and 406.4(D)(6).

**(D)(4) Arc-Fault Circuit-Interrupter Protection.** Where a receptacle outlet is located in an areas specified in 210.12(A) or (B), a replacement receptacle at this outlet shall be one of the following:

- (1) A *listed* outlet branch-circuit type arc-fault circuit-interrupter receptacle.
- (2) A receptacle protected by a *listed* outlet branch-circuit type arc-fault circuit-interrupter receptacle.
- (3) A receptacle protected by a *listed* combination type arc-fault circuit-interrupter type circuit breaker.

**Exception:** The replacement of receptacles in one- or two-family *dwellings* shall not be required to meet 406.4(D)(4), unless the receptacle being replaced provides arc-fault circuit-interrupter protection.

(Amd) **440.14 Location**

(Add) **Exception No. 3:** Where the interior section of a factory packaged split system is fed solely from the exterior section of the system and the disconnecting means for the exterior section is capable of being locked in the open position, a separate disconnecting means for the interior section shall not be required within sight from that section. The provisions for locking or adding a lock to the disconnecting means shall remain in place with or without the lock installed.

## CHAPTER 5 - SPECIAL OCCUPANCIES

### (Amd) 525.5 Overhead Conductor Clearances

#### (B) Clearances to Portable Structures

##### (2) Over 600 Volts.

(Add) **Exception:** Tents erected and dismantled under the supervision of a licensed electrician or other person approved by the authority having *jurisdiction* may be placed within the 15 feet (4.5 m) space provided the finished height of the tent is a minimum of 10 feet (3.0 m) below the conductors.

## CHAPTER 6 – SPECIAL EQUIPMENT

(Amd) **690.12 Rapid Shutdown of PV Systems on Buildings.** PV system circuits installed on or in *buildings* shall include a rapid shutdown function to reduce shock hazard for emergency responders in accordance with 690.12(A) through (D).

**Exception:** Ground mounted PV system circuits that enter *buildings*, of which the sole purpose is to house PV system equipment, shall not be required to comply with 690.12.

**(A) Controlled Conductors.** Requirements for controlled conductors shall apply to PV circuits supplied by the PV system.

**(B) Controlled Limits.** The use of the term *array boundary* in this section is defined as 305 mm (1 ft) from the array in all directions. Controlled conductors outside the array boundary shall comply with 690.12(B)(1) and inside the array boundary shall comply with 690.12(B)(2).

**(1) Outside the Array Boundary.** Controlled conductors located outside the boundary or more than 1 m (3 ft) from the point of entry inside a *building* shall be limited to not more than 30 volts within 30 seconds of rapid shutdown initiation. Voltage shall be measured between any two conductors and between any conductor and ground.

## CHAPTER 7 - SPECIAL CONDITIONS

### 700.3 Tests and Maintenance

(Del) **(F) Temporary Source of Power for Maintenance or Repair of the Alternate Source of Power.** Delete in its entirety without substitution.

### 700.7 Signs.

(Amd) **(A) Emergency sources.** A sign shall be placed at the service-entrance equipment, at the meter location, and on any equipment up to the service entrance-equipment indicating type and location of on-site emergency power sources.

**Exception:** A sign shall not be required for individual unit equipment as specified in 700.12(F).

### **701.7 Signs.**

(Amd) **(A) Mandated standby.** A sign shall be placed at the service entrance, at the meter location, and on any equipment up to the service entrance-equipment indicating type and location of on-site legally required standby power sources.

**Exception:** A sign shall not be required for individual unit equipment as specified in 701.12(G).

### **702.7 Signs.**

(Amd) **(A) Standby.** A sign shall be placed at the service-entrance equipment, at the meter location, and on any equipment up to the service-entrance equipment that indicates the type and location of on-site optional standby power sources. A sign shall not be required for individual unit equipment for standby illumination.

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## AMENDMENTS TO THE 2015 INTERNATIONAL RESIDENTIAL CODE

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### CHAPTER 1 – SCOPE AND ADMINISTRATION

(Amd) **R101.1 Title.** The 2015 International Residential Code and this Section *shall* be known as the 2015 International Residential Code portion of the 2018 Connecticut State Building Code, hereinafter referred to as “the code” or “this code”.

(Amd) **R101.2 Scope.** The provisions of this code *shall* apply to the construction, *alteration*, movement, enlargement, replacement, *repair*, *equipment*, use and occupancy, location, removal and demolition of detached *one- and two-family dwellings* and multiple single-family *dwellings (townhouses)* not more than three stories above grade plane in height with a separate *means of egress* and their *accessory structures* not more than three stories above grade plane in height.

**Exception:** Existing *buildings* undergoing *repair*, movement, *alteration* or *additions* and *change of occupancy* may comply with the 2015 International Existing Building Code. The *permit* applicant *shall* make the choice to comply with this code or the 2015 International Existing Building Code at the time of application for the building *permit*.

(Add) **R101.2.1 Live/work units in one- and two-family dwellings.** *Live/work units* in *one- and two-family dwellings*, that provide professional services and employ a maximum of one employee within the *dwelling* in addition to the residents of the *dwelling unit*, *shall* be permitted to comply with the requirements of the 2015 International Residential Code for One- and Two-Family *Dwellings* portion of the 2018 Connecticut State Building Code.

(Add) **R101.2.2 Live/work units in townhouses.** *Live/work units* located in *townhouses* and complying with the requirements of Section 419 of the 2015 International Building Code *shall* be permitted to be constructed in accordance with the 2015 International Residential Code for One- and Two-Family *Dwellings*. Fire suppression required by Section 419.5 of the 2015 International Building Code where constructed under the 2015 International Residential Code for One- and Two-family *Dwellings shall* conform to Section P2904.

(Add) **R101.4 Referenced codes and regulations.**

(Add) **101.4.1 Gas.** The International Fuel Gas Code is not adopted by the State of Connecticut. Any references to the International Fuel Gas Code within the body of this code *shall* be considered references to requirements of NFPA 2, Hydrogen Technologies Code, NFPA 54, National Fuel Gas Code and NFPA 58, Liquefied Petroleum Gas Code.

(Add) **R101.4.2 Private sewage disposal.** The International Private Sewage Disposal Code is not adopted by the State of Connecticut. Private sewage disposal systems *shall* be designed and installed in accordance with the Public Health Code adopted under authority of section 19a-36 of the Connecticut General Statutes. Any reference to the International Private Sewage Disposal Code within the body of this code *shall* be deemed a reference to the regulations adopted pursuant to section 19a-36 of the Connecticut General Statutes, known as the Public Health Code.

(Add) **R101.4.3 Property maintenance.** The International Property Maintenance Code is not adopted by the State of Connecticut. Property maintenance *shall* be in accordance with the requirements of this code or the requirements of local property maintenance codes when such codes are adopted by the town, city or borough. References to the International Property Maintenance Code found within the body of the model document *shall* be considered null and void.

(Add) **R101.4.4 Connecticut State Fire Safety Code.** References to the 2015 International Fire Code within the body of the model document *shall* be considered to be references to the 2018 Connecticut State Fire Safety Code.

(Add) **R101.4.5 Applicable electrical code.** The applicable electrical code requirements for *buildings* constructed under this code are those of chapters 34-43 of this code. The *permit* applicant may elect at the time of application for *permit* to follow the requirements of the 2017 NFPA 70 National Electrical Code portion of the 2018 Connecticut State Building Code, as an alternative compliance to the electrical requirements of this code. The applicant must indicate this choice on the *permit* application and on all *construction documents*.

(Add) **R101.4.6 Demolition of structures.** The demolition of structures *shall* be conducted in accordance with the State Demolition Code as found in chapter 541 of the Connecticut General Statutes.

(Add) **R101.4.7 Existing buildings code.** The *permit* applicant may elect at the time of application for *permit* to follow the requirements of the 2015 International Existing Building Code portion of the 2018 Connecticut State Building Code, as an alternative compliance to the requirements of this code. The applicant must indicate this choice on the *permit* application and on all *construction documents*.

(Amd) **R102.4 Referenced codes and standards.** The codes and standards referenced in this code *shall* be considered part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Sections R102.4.1 and R102.4.2. Any reference to the ICC codes *shall* mean the 2018 Connecticut State Building Code adopted pursuant to section 29-252 of the Connecticut General Statutes.

**Exception:** Where enforcement of a code provision would violate the conditions of the listing of the *equipment* or appliance, the conditions of the listing and manufacturer's instructions *shall* apply.

(Amd) **R102.5 Appendices.** The following appendices of the 2015 International Residential Code are hereby specifically adopted and included in this code: E; F; G; H; K; O; P and V.

(Amd) **R102.7 Existing structures.** The legal occupancy of any *building* or structure existing on the date of adoption of this code *shall* be permitted to continue without change, except as specifically covered in this code.

(Del) **SECTION R103 – DEPARTMENT OF BUILDING SAFETY.** Delete Section R103 in its entirety and replace with the following:

(Add) **SECTION R103 – ENFORCEMENT AGENCY**

(Add) **R103.1 Creation of enforcement agency.** Each town, city and borough *shall* create an agency whose function is to enforce the provisions of this code. The official in charge thereof *shall* be known as the *building official*.

(Add) **R103.2 Appointment.** Pursuant to section 29-260 of the Connecticut General Statutes, the chief executive officer of any town, city or borough *shall* appoint an officer to administer this code, and this officer *shall* be known as the “*building official*” and referred to herein as the *building official*, local *building official* or code official.

(Add) **R103.3 Employees.** In accordance with the prescribed procedures and regulations of the town, city or borough, and with the concurrence of the appointing authority, the *building official shall* have the authority to appoint an assistant *building official*, related technical officers, inspectors, plan examiners and other employees. Such employees *shall* have the powers as regulated by the town, city or borough, and by the State of Connecticut.

(Add) **R103.4 Restriction of employees.** An official or employee connected with the agency created to enforce the provisions of this code pursuant to Section R103.1, except one whose only connection with it is that of a member of the board of appeals established under the provisions of Section R112, *shall* not be engaged in, or directly or indirectly connected with, the furnishing of labor, materials or appliances for the construction, *addition, alteration, repair* or maintenance of a *building* located in the town, city or borough in which such official or employee is employed, or the preparation of *construction documents* therefore, unless that person is the *owner* of the *building*. Such officer or employee *shall* not engage in any work that conflicts with official duties or with the interests of the agency.

(Amd) **R104.1 General.** The *building official* is hereby authorized and directed to enforce the provisions of this code. The *building official shall* have the authority to adopt policies and procedures in order to clarify the application of its provisions. Such policies and procedures *shall* be in compliance with the intent and purpose of this code. Such policies and procedures *shall* not have the effect of waiving requirements specifically provided for in this code, nor *shall* they have the effect of establishing requirements in excess of those set forth in this code.

(Add) **R104.1.1 Rule making authority.** Pursuant to subsection (a) of section 29-252 of the Connecticut General Statutes, the State Building Inspector and the Codes and Standards Committee *shall*, jointly, with the approval of the Commissioner of Administrative Services, adopt and administer the Connecticut State 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.

(Amd) **R104.6 Right of entry.** Pursuant to subsection (d) of section 29-261 of the Connecticut General Statutes, the *building official* or his assistant *shall* have the right of entry to such *buildings* or structures, except single-family residences, for the proper performance of his duties between the hours of nine a.m. and five p.m., except that in the case of an emergency he *shall* have the right of entry at any time, if such entry is necessary in the interest of public safety. Pursuant to section 29-393 of the Connecticut General Statutes, on receipt of information from the local fire marshal or from any other authentic source that any *building* in his *jurisdiction*, due to lack of *exit* facilities, fire, deterioration, catastrophe or other cause, is in such condition as to be a hazard to any person or persons, the *building official* or his assistant *shall* immediately make inspection.



(Amd) **R104.10 Modifications.** Variations, or exemptions from and approval of equivalent or alternative compliance with the requirements of this code *shall* be in accordance with the provisions of Sections 104.10.1 to 104.10.4, inclusive.

(Del) **R104.10.1 Flood hazard areas.** Delete and substitute the following:

(Add) **R104.10.1 Connecticut State Building Code.** Pursuant to subsection (b) of section 29-254 of the Connecticut General Statutes, the State Building Inspector may grant modifications, variations or exemptions from, or approve equivalent or alternative compliance with, the Connecticut State Building Code where strict compliance with the Connecticut State Building Code would entail practical difficulty or unnecessary hardship, or is otherwise adjudged unwarranted, provided the intent of the law *shall* be observed and public welfare and safety be assured. Any person aggrieved by any decision of the State Building Inspector may appeal to the Codes and Standards Committee not later than 30 days after mailing of the decision .

(Add) **R104.10.1.1 Action on application.** The application for modification, variation, exemption from or approval of equivalent or alternative compliance with the requirements of the Connecticut State Building Code *shall* be made on a form supplied by the State Building Inspector, which *shall* be submitted by the applicant to the *building official*. Pursuant to subsection (b) of section 29-254 of the Connecticut General Statutes, any such application received by a *building official shall* be forwarded to the State Building Inspector within 15 business days of receipt by such *building official*. The application *shall* include the *building official's* comments on the merits of the application, and *shall* be signed by the *building official*.

(Add) **R104.10.1.2 Records.** The application for modification, variation, exemption or approval of equivalent or alternative compliance and the decision of the State Building Inspector *shall* be in writing and *shall* be officially recorded with the application for a building *permit* in the permanent records of the building department.

(Add) **R104.10.2 Accessibility exemption.** Pursuant to subsection (b) of section 29-269 of the Connecticut General Statutes, any variation of or exemption from any provisions relating to accessibility to, use of and egress from, *buildings* and structures as required herein *shall* be permitted only when approved by the State Building Inspector. Any person aggrieved by the decision of the State Building Inspector may appeal to the Codes and Standards Committee within 30 days after such decision has been rendered.

(Add) **R104.10.3 Historic structures exemption.** Pursuant to section 29-259 of the Connecticut General Statutes, exemptions may be granted to the provisions of this code for historic structures as defined by section 10-410 of the Connecticut General Statutes, which have been classified as such in the State Register of Historic Places as long as the provisions of subsection (b) of section 29-259 of the Connecticut General Statutes are adhered to and provided that such exemptions *shall* not affect the safe design, use or construction of such property. Exemptions *shall* be granted in accordance with Section R104.10.1 of this code.

(Add) **R104.10.4 Urban homesteading property exemption.** Pursuant to section 29-259 of the Connecticut General Statutes, exemptions may be granted to the provisions of this code for property acquired by an urban homesteading agency, pursuant to section 8-169r of the Connecticut General Statutes, and transferred to a qualified applicant pursuant to section 8-169s of the Connecticut General Statutes; provided such exemptions *shall* not affect the safe design, use or construction of such property. Exemptions *shall* be granted in accordance with Section R104.10.1 of this code.

(Add) **R104.11.2 Research reports.** Submission to the local *building official* of a valid research report prepared by an *approved* evaluation service that supports the efficacy of use of any material, appliance, *equipment* or method of construction not specifically provided for in this code, or that demonstrates compliance with this code, may be deemed evidence of compliance with this code.

(Amd) **R105.1 Required.** Any *owner* or *owner's* authorized agent who intends to construct, enlarge, alter, *repair*, move, demolish or change the occupancy of a *building* or structure, or to move a *lot line* that will affect any existing *building* or structure, or to erect, install, enlarge, alter, *repair*, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be performed, *shall* first make application to the *building official* and obtain the required *permit*.

(Add) **R105.1.1 By whom application is made.** Pursuant to section 29-263 of the Connecticut General Statutes, application for a *permit shall* be made by the *owner* or by an authorized 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.

(Add) **R105.1.2 Permit issuance to a home improvement contractor.** No *permit shall* be issued to a contractor who is required to be registered pursuant to chapter 400 of the Connecticut General Statutes, for work to be performed by such contractor, unless the name, business address and Department of Consumer Protection registration number of such contractor is clearly marked on the application for *permit*, and the contractor has presented such contractor's certificate of registration as a home improvement contractor.

(Amd) **R105.2 Work exempt from permit.** Exemption from the *permit* requirements of this code *shall* not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws, statutes, regulations or ordinances of the *jurisdiction*. *Permits shall* not be required for the following work:

**Building:**

1. One-story detached *accessory structures* used as tool and storage sheds, playhouses and similar uses, provided the floor area is not greater than 200 square feet (18.58 m<sup>2</sup>).
2. Fences, other than swimming pool barriers, not over 7 feet (2134 mm) high.
3. Retaining walls that are not higher than 3 feet (914 mm) measured from finished grade at the bottom of the wall to finished grade at the top of the wall, unless supporting a surcharge.
4. Water tanks supported directly upon grade if the capacity does not exceed 5,000 gallons (18 927 L) and the ratio of height to *diameter* or width does not exceed 2 to 1.

5. Sidewalks, driveways and on-grade *concrete* or *masonry* patios not more than 30 inches (762 mm) above adjacent grade and not over any *basement* or *story* below.
6. Painting, papering, tiling, carpeting, cabinets, countertops and similar finish work not involving structural changes or *alterations*.
7. Prefabricated *swimming pools* that are equal to or less than 24 inches (610 mm) deep.
8. Swings, non-habitable tree houses and other playground equipment.
9. Window awnings supported by an *exterior wall* which do not project more than 54 inches (1372 mm) from the *exterior wall* and which do not require additional support.
10. Decks not exceeding 200 square feet (18.58 m<sup>2</sup>) in area, that are not more than 30 inches (762 mm) above grade at any point, are not attached to a *dwelling* and do not serve the *exit* door required by Section R311.4.
11. *Repairs* that are limited to 25 percent of roof covering and *building* siding within one calendar year.

**Electrical:**

1. *Listed* cord-and-plug connected temporary decorative lighting.
2. Reinstallation of attachment plug receptacles but not the outlets therefor.
3. Replacement of branch circuit overcurrent devices of the required capacity in the same location.
4. Electrical wiring, devices, appliances, apparatus or *equipment* operating at less than 25 volts and not capable of supplying more than 50 watts of energy.
5. Minor *repair* work, including the replacement of lamps and fuses or the connection of *approved* portable electrical equipment to *approved* permanently installed receptacles.

**Gas:**

1. Portable heating or cooking appliances with a self-contained fuel supply.
2. Replacement of any minor part that does not alter approval of *equipment* or make such *equipment* unsafe.
3. Portable-fuel-cell appliances that are not connected to a fixed piping system and are not interconnected to a power grid.

**Mechanical:**

1. Portable heating appliances with a self-contained fuel supply.
2. Portable *ventilation* appliances.
3. Portable cooling units.
4. Steam, hot- or chilled-water piping contained within any heating or cooling *equipment* regulated by Chapters 18 to 24, inclusive, of this code.
5. Replacement of any minor part that does not alter approval of *equipment* or make such *equipment* unsafe.
6. Portable evaporative coolers.
7. Self-contained refrigeration systems containing 10 pounds (4.54 kg) or less of refrigerant or that are actuated by motors of 1 horsepower (746 W) or less.
8. Portable-fuel-cell appliances that are not connected to a fixed piping system and are not interconnected to a power grid.

**Plumbing:**

1. The stopping of leaks in *drains*, water, soil, waste or vent pipe; provided if any concealed trap, drainpipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work *shall* be

considered as new work and a *permit shall* be obtained and inspection made as provided in Sections R105 and R109 of this code.

2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures, and the removal and reinstallation of water closets, provided such *repairs* do not involve or require the replacement or rearrangement of valves, pipes or fixtures.

(Amd) **R105.3.1 Action on application.** Pursuant to section 29-263 of the Connecticut General Statutes, the *building official shall* examine or cause to be examined applications for *permits* and amendments thereto within 30 days after filing and either issue or deny a *permit* within such 30-day period. If the application or *construction documents* do not conform to the requirements of this code and applicable laws, the *building official shall* reject such application in writing, stating the reasons therefore. If the *building official* is satisfied that the proposed work conforms to the requirements of this code and applicable laws, the *building official shall* issue a *permit* as soon as practicable.

(Add) **R105.3.1.1.1 Wind design criteria for existing structures.** For structures where the proposed work is determined to be a substantial improvement or restoration under R105.3.1.1 and having a wind Exposure D, structural elements that are uncovered *shall* be required to be improved to meet the wind speed design criteria in R301.2.1.

(Add) **R105.3.1.2 Zoning approval.** Pursuant to subsection (f) of section 8-3 of the Connecticut General Statutes, no building *permit shall* be issued, in whole or in part, for a *building*, use or structure subject to the zoning regulations of a municipality without certification in writing by the official charged with the enforcement of such regulations that such *building*, use or structure is in conformity with such regulations or is a valid nonconforming use under such regulations.

(Amd) **R105.5 Expiration of permit.** Every *permit* issued *shall* become invalid unless the work on the *site* authorized by such *permit* is commenced within 180 days after its issuance or if the work authorized by such *permit* is suspended or abandoned for a period of 180 days after the time the work is commenced. The *building official* may grant, in writing, one or more extensions, for periods of not more than 180 days each. The extensions *shall* be requested in writing and justifiable cause *shall* be demonstrated.

**Exception:** The *building official* may specify an expiration date of not less than 30 days, nor more than 180 days, for commencement of work under *permits* issued to abate unsafe conditions pursuant to Section R115 of this code. Work performed under such *permits shall* be completed as expeditiously as possible.

(Add) **R106.2.1 Private sewage disposal system.** The *site* plan *shall* indicate the location of a private or public sewage disposal system. Private sewage disposal systems *shall* be designed and installed in accordance with the requirements of the Public Health Code adopted under authority of section 19a-36 of the Connecticut General Statutes. All technical and soil data required by the Public Health Code *shall* be submitted with the *site* plan. Approval of such systems *shall* be by the local authority having *jurisdiction*. When such approval is required by the local authority having *jurisdiction*, written proof of such approval *shall* be submitted to the *building official* prior to issuance of a building *permit*.

(Amd) **R106.5 Retention of construction documents.** Pursuant to subsection (e) of section 29-261 of the Connecticut General Statutes, upon receipt of a written request signed by the *owner* of *plans and specifications* on file for a single-family *dwelling* or *out-building*, the *building official shall* immediately return the original *plans and specifications* to the *owner* after a certificate of occupancy is issued with respect to the *plans and specifications*.

(Add) **R106.6 Additional requirements.** Nontransient residential *dwellings* having more than 16 units or 24,000 square feet total gross area per *building shall* be subject to the additional requirements set forth in Section 107.6 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code.

(Amd) **R107.1 General.** The *building official* may issue a *permit* for temporary structures and temporary uses. Such *permits shall* be limited as to time of service, but *shall* not be permitted for more than 180 days. The *building official* may grant a single 180-day extension for demonstrated cause.

**Exceptions:** The following *shall* be exempt from *permit* requirements:

1. Tents used exclusively for recreational camping purposes.
2. Tents less than 350 square feet total area.
3. Tents 900 square feet and smaller in total area when occupied by fewer than 50 persons, which have no heating appliances, no installed electrical service, and are erected for fewer than 72 hours.

(Amd) **R107.3 Temporary power.** The *building official* is authorized to give permission to temporarily supply utilities before an installation has been fully completed and the final certificate of approval has been issued. The part covered by the temporary permission *shall* comply with the requirements specified for temporary lighting, heat or power in this code or in the 2017 NFPA 70, National Electrical Code, portion of the 2018 Connecticut State Building Code.

(Amd) **R108.2 Schedule of permit fees.** Each municipality *shall* establish a schedule of fees for each construction document review, building *permit*, certificate of approval and certificate of occupancy. A schedule of adopted fees *shall* be posted for public view.

(Amd) **R108.3 Building permit valuations.** The applicant for a *permit shall* provide an estimated *permit* value at the time of application. *Permit* valuations *shall* include total value of work, including materials and labor, for which the *permit* is being issued, such as electrical, gas, mechanical, plumbing equipment and permanent systems. If, in the opinion of the *building official*, the valuation is underestimated on the application, the *permit shall* be denied, unless the applicant can show detailed estimates to meet the approval of the *building official*. Final building *permit* valuation *shall* be set by the *building official*.

(Del) **R108.6 Work commencing before permit issuance.** Delete without substitution.

(Add) **R109.1.4.1 Insulation inspection.** Inspection of the *building* air tightness and insulation installation *shall* be conducted in accordance with Section N1102.4.1.2.

(Add) **R109.1.5.2 Additional electrical inspections.** Required electrical inspections in addition to those required by Sections R109.1.2 and R109.1.6 *shall* include installations of temporary services prior to activation and installation of underground piping and conductors after trenches are excavated and bedded and before backfill is put in place.

(Add) **R109.1.7 Posting of required inspections.** The *building official shall* compile a schedule of required inspections and *shall* post the schedule in the building department for public view.

(Add) **R109.5 Notification of inspection results.** Notification as to passage or failure, in whole or in part, of any required inspection *shall* be made in writing by the *building official* or his duly authorized representative and *shall* be left at the job *site* or delivered to the *permit* holder. It *shall* be the duty of the *permit* holder to ascertain the results of required inspections.

(Amd) **R110.1 Use and occupancy.** Pursuant to subsection (a) of section 29-265 of the Connecticut General Statutes, no building or structure erected or altered in any municipality after October 1, 1970, *shall* be occupied or used, in whole or in part, until a certificate of occupancy has been issued by the *building official*, certifying that such *building*, structure or work performed pursuant to the building *permit* substantially complies with the provisions of this code. Nothing in the code *shall* require the removal, *alteration* or abandonment of, or prevent the continuance of the use and occupancy of, any single-family *dwelling* but within six years of the date of occupancy of such *dwelling* after substantial completion of construction of, *alteration* to or *addition* to such *dwelling*, or of a *building* lawfully existing on October 1, 1945, except as may be necessary for the safety of life or property. The use of a *building* or premises *shall* not be deemed to have changed because of a temporary vacancy or change of ownership or tenancy.

**Exceptions:**

1. Work for which a certificate of approval is issued in accordance with Section R110.9.
2. A certificate of occupancy is not required for work exempt from *permit* requirements under Section R105.2.

(Add) **R110.1.1 Zoning approval.** Pursuant to subsection (f) of section 8-3 of the Connecticut General Statutes, no certificate of occupancy *shall* be issued for a *building*, use or structure subject to the zoning regulations of a municipality without certification in writing by the official charged with the enforcement of such regulations that such *building*, use or structure is in conformity with such regulations or is a valid nonconforming use under such regulations.

(Add) **R110.1.2 Statement of professional opinion.** Pursuant to section 29-276c of the Connecticut General Statutes, no certificate of occupancy *shall* be issued for a proposed structure or *addition* to *buildings* classified as nontransient residential *dwellings* having more than 16 units or 24,000 square feet total gross area per *building*, until the *building official* has been provided with a statement signed by the architect or professional engineer and the general contractor stating that the completed structure or *addition* is in substantial compliance with the *approved* plans on file.

(Amd) **R110.4 Temporary occupancy.** The *building official* may issue a temporary certificate of occupancy before the completion of the entire work covered by the *permit*, provided such portion or portions *shall* be occupied safely prior to full completion of the *building* or structure without endangering life or public welfare. Any occupancy permitted to continue during completion of the work *shall* be discontinued within 30 days after completion of the work unless the *building official* issues a certificate of occupancy.

(Add) **R110.6 Partial occupancy.** The *building official* may issue a partial certificate of occupancy for a portion of the *building* or structure when, in the *building official's* opinion, the portion of the *building* to be occupied is in substantial compliance with the requirements of this code and no unsafe conditions exist in portions of the *building* not covered by the partial certificate of occupancy that are accessible from the occupied portion.

(Add) **R110.7 Prefabricated assemblies.** A certificate of approval by an *approved agency shall* be furnished with every prefabricated assembly, including modular housing, except where all elements of the assembly are readily accessible for inspection at the *site*. The *building official shall* inspect placement of prefabricated assemblies and the connections to public utilities and private water and septic systems at the *building site*, as well as any site-built or installed components or equipment to determine compliance with this code. A final inspection *shall* be provided in accordance with Section R109.1.6.

(Add) **R110.8 Manufactured housing used as dwellings.** Provisions for foundation systems and *building* service equipment connections necessary to provide for the installation of new *manufactured homes* and for existing *manufactured homes* to which *additions, alterations or repairs* are made are contained in Appendix E.

(Add) **R110.9 Certificate of approval.** The *building official shall* issue a certificate of approval indicating substantial compliance with the requirements of this code for all completed work that requires a building *permit* but does not require a certificate of occupancy. Such work *shall* include, but not be limited to: fences greater than 7 feet in height; retaining walls greater than 3 feet in height; decks; garages; *swimming pools; basements and attics* converted to *habitable space*; electrical, plumbing, and mechanical *repairs or alterations*. No certificate of approval *shall* be issued for work subject to the zoning regulations of a municipality without certification in writing by the official charged with the enforcement of such regulations that the work is in conformity with such regulations or is a valid nonconforming use under such regulations.

(Del) **SECTION R112 - BOARD OF APPEALS.** Delete this section in its entirety and replace with the following:

(Add) **SECTION R112 – MEANS OF APPEAL**

(Add) **R112.1 Appeal from decision of building official.** Pursuant to subsection (b) of section 29-266 of the Connecticut General Statutes, when a *building official* rejects or refuses to approve the mode or manner of construction proposed to be followed or the materials to be used in the erection or *alteration* of a *building* or structure, or when it is claimed that the provisions of the code do not apply or that an equally good or more desirable form of construction can be employed in a specific case, or when it is claimed that the true intent and meaning of the code has been misconstrued or wrongly interpreted or when the *building official* issues a written order under subsection (c) of section 29-261 of the Connecticut General Statutes, the *owner* of such *building* or structure, whether already erected or to be erected, or his authorized agent may appeal in writing from the decision of the *building official* to the municipal board of appeals. A person, other than such *owner*, who claims to be aggrieved by any decision of the *building official* may, by himself or his authorized agent, appeal in writing from the decision of the *building official* to the municipal board of appeals as provided by subsection (b) of section 29-266 of the Connecticut General Statutes.

(Add) **R112.1.1 Absence of municipal board of appeals.** In the absence of a municipal board of appeals, the provisions of subsection (c) of section 29-266 of the Connecticut General Statutes *shall* be followed.

(Add) **R112.1.2 State Building Inspector review.** Pursuant to subsection (d) of section 29-252 of the Connecticut General Statutes, the State Building Inspector or his designee *shall* review a decision by a local *building official* or municipal board of appeals when he has reason to believe that such official or board has misconstrued or misinterpreted any provision of the Connecticut State Building Code.

(Add) **R112.2 Appointment of municipal board of appeals.** Pursuant to subsection (a) of section 29-266 of the Connecticut General Statutes, a municipal board of appeals consisting of five members *shall* be appointed.

(Add) **R112.2.1 Qualifications.** One member of the municipal board of appeals *shall* be appointed from the general public. The other four members *shall* have at least five years of experience each in *building design*, *building construction* or supervision of *building construction*.

(Add) **R112.2.2 Chair.** The board *shall* annually select one of its members to serve as chair.

(Add) **R112.3 Notice of meeting.** Each appeal *shall* be heard in the municipality for which the *building official* serves within five days, exclusive of Saturdays, Sundays and legal holidays, after the date of receipt of the appeal.

(Add) **R112.4 Determination of aggrievement.** Upon receipt of an appeal from a person other than the *owner* or his agent, the board of appeals *shall* first determine whether such person has a right to appeal.

(Add) **R112.5 Appointment of a panel.** Upon receipt of an appeal from an *owner* or his agent, or approval of an appeal by a person other than the *owner* or his agent, the chairman of the municipal board of appeals *shall* appoint a panel of not less than three members of such board to hear such appeal.

(Add) **R112.6 Rendering of decisions.** The panel *shall*, upon majority vote of its members, affirm, modify or reverse the decision of the *building official* in a written decision upon the appeal and file such decision with the *building official* from whom such appeal has been taken not later than five days, exclusive of Saturdays, Sundays and legal holidays, following the day of the hearing thereon. A copy of the decision *shall* be mailed, prior to such filing, to the party taking the appeal.

(Add) **R112.7 Appeal to the Codes and Standards Committee.** Any person aggrieved by the decision of a municipal board of appeals may appeal to the Codes and Standards Committee within 14 days after the filing of the decision with the *building official* in accordance with the provisions of subsection (c) of section 29-266 of the Connecticut General Statutes.

(Add) **R112.8 Court review.** Any person aggrieved by any ruling of the Codes and Standards Committee may appeal to the Superior Court for the judicial district where such *building* or structure has been or is being erected in accordance with the provisions of subsection (d) of section 29-266 of the Connecticut General Statutes.

(Add) **R113.2.1 Written notice.** The *building official* or his duly authorized representative *shall* provide any notice of violation in writing to the *owner* of the property involved or to the *owner's* agent or to the person doing the work.



(Amd) **R113.4 Violation penalties.** Pursuant to section 29-254a of the Connecticut General Statutes, any person who violates any provision of this code *shall* be fined not less than two hundred nor more than one thousand dollars or imprisoned not more than six months, or both.

(Amd) **R114.2 Unlawful continuance.** Any person who continues any work in or about the structure after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe conditions, *shall* be liable for penalties in accordance with Section R113.4.

#### (Add) **SECTION R115 - UNSAFE STRUCTURES AND EQUIPMENT**

(Add) **R115.1 General:** The procedures to be followed regarding unsafe structures and *equipment shall* be as set forth in Section 116 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code.

#### (Add) **SECTION R116 - EMERGENCY MEASURES**

(Add) **R116.1 General:** The procedures to be followed regarding emergency measures *shall* be as set forth in Section 117 of the 2015 International Building Code portion of the State Building Code.

#### (Add) **SECTION R117- VACANT BUILDINGS**

(Add) **R117.1 General.** Temporarily unoccupied *buildings*, structures, premises or portions thereof, including tenant spaces, *shall* be safeguarded and maintained in accordance with Section 118 of the 2015 International Building Code portion of the State Building Code.

### **CHAPTER 2 – DEFINITIONS**

(Amd) **R201.3 Terms defined in other codes.** Where terms are not defined in this code and are defined in other portions of the State Building Code, such terms *shall* have the meanings ascribed to them as in those codes.

(Add) **R202.1 Definitions.** Add or amend the following definitions:

(Amd) **ATTIC, HABITABLE.** A finished area, not considered a *story* and not containing any dormers, complying with all of the following requirements:

1. The occupiable floor area is at least 70 square feet (6.5 m<sup>2</sup>), in accordance with Section R304,
2. The occupiable floor has a *ceiling height* in accordance with Section R305, and
3. The *occupiable space* is enclosed by the roof assembly above, knee walls (if applicable) on the sides and the floor-ceiling assembly below.

Roofs of habitable *attics* containing dormers will be considered a *story*.

(Amd) **BUILDING, EXISTING.** A *building* or structure, or portion thereof, erected in whole or in part, for which a legal building *permit* and a certificate of occupancy has been issued. *Buildings* or structures or portions thereof erected prior to October 1, 1970 *shall* be deemed existing *buildings* regardless of the existence of a legal *permit* or a certificate of occupancy.

(Add) **COMPLEX.** For application of accessibility requirements, this term means any group of *buildings* located on a single parcel of land or on contiguous parcels of land or any *building* or group of *buildings* that are subdivided into separate occupancies and planned, financed, constructed or promoted by common management for the purpose of sale or lease of the entire *complex* or any subdivision thereof, excluding any single-family detached *dwelling*.

(Add) **ONE-FAMILY DWELLING.** A *building* containing one *dwelling unit* with not more than six lodgers or boarders. Also known as a single-family *dwelling*.

(Amd) **REGISTERED DESIGN PROFESSIONAL.** An individual who is registered or licensed by the Department of Consumer Protection pursuant to chapters 390, 391, 396 or 396a of Connecticut General Statutes to practice their respective design profession and acting within the scope of his or her license and practice discipline.

(Add) **TWO-FAMILY DWELLING.** A *building* containing two *dwelling units* with not more than six lodgers or boarders per *dwelling unit*.

(Amd) **WINDBORNE DEBRIS REGION.** Areas south of Interstate 95 in the following municipalities: Clinton, East Lyme, Groton, Madison, New London, Old Lyme, Old Saybrook, Stonington, Waterford, and Westbrook.

**Exception:** Areas that are more than one mile from the coastal mean high-water line as certified by a *registered design professional* may be classified as being outside of a *wind-borne debris region*.

## CHAPTER 3 – BUILDING PLANNING

(Amd) **R301.2.1 Wind design criteria.** *Buildings* and portions thereof *shall* be constructed in accordance with the wind provisions of this code using the ultimate design wind speed in Appendix V. Where different construction methods and structural materials are used for various portions of a *building* or structure, the applicable requirements of this section for each portion *shall* apply. Where not otherwise specified, the wind *loads* listed in Table R301.2(2) adjusted for height and exposure using Table R301.2(3) *shall* be used to determine design load performance requirements for wall coverings, curtain walls, roof coverings, exterior windows, skylights, garage doors and exterior doors. Asphalt shingles *shall* be designed for wind speeds in accordance with Section R905.2.4. A continuous *load path shall* be provided to transmit the applicable uplift forces in Section R802.11.1 from the roof assembly to the foundation.

(Amd) **R301.2.1.1 Alternative wind design provisions** As an alternative to the requirements in Section R301.2.1, the design of *buildings* for wind *loads* may be in accordance with one or more of the following methods:

1. AF&PA *Wood Frame Construction Manual* (WFCM).
2. ICC *Standard for Residential Construction in High-Wind Regions* (ICC 600).
3. ASCE *Minimum Design Loads for Buildings and Other Structures* (ASCE 7).
4. AISI *Standard for Cold-Formed Steel Framing - Prescriptive Method For One- and Two-Family Dwellings* (AISI S230).
5. *International Building Code*.

(Amd) **TABLE R301.2(1) CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA**

GROUND SNOW LOAD	WIND DESIGN		SEISMIC DESIGN CATEGORY	SUBJECT TO DAMAGE FROM		
	Speed <sup>b</sup> (mph)	Wind-Borne debris zone		Weathering <sup>a</sup>	Frost line depth	Termite
As set forth in Appendix V.	As set forth in Appendix V.	See definition	As set forth in Appendix V.	Severe	42"	Moderate-Heavy

WINTER DESIGN TEMP	ICE BARRIER UNDERLAYMENT REQUIRED	FLOOD HAZARDS	AIR FREEZING INDEX	MEAN ANNUAL TEMPERATURE	CLIMATE ZONE
7°F	YES	To be determined locally	1,500 or less	50°F	5A

For SI: 1 pound per square foot = 0.0479 kPa, 1 mile per hour = 0.447 m/s.

- a. Weathering may require a higher strength *concrete* or grade of *masonry* than necessary to satisfy the structural requirements of this code.
- b. Wind exposure category *shall* be determined on a site-specific basis in accordance with Section R301.2.1.4.

(Del) **FIGURE R301.2(1) ISOLINES OF THE 97½ PERCENT WINTER (DECEMBER, JANUARY AND FEBRUARY) DESIGN TEMPERATURE (°F).**

Delete without substitution.

(Del) **FIGURE R301.2(2) SEISMIC DESIGN CATEGORIES – SITE CLASS D.**

Delete without substitution.

(Del) **FIGURE R301.2(3) WEATHERING PROBABILITY MAP FOR CONCRETE<sup>a,b</sup>.**

Delete without substitution.

(Del) **FIGURE R301.2(4)A BASIC WIND SPEEDS.**

Delete without substitution.

(Del) **FIGURE R301.2(4)B REGIONS WHERE WIND DESIGN IS REQUIRED.**

Delete without substitution.

(Del) **FIGURE R301.2(4)C WIND – BORNE DEBRIS REGIONS.**

Delete without substitution.

(Del) **FIGURE R301.2(5) GROUND SNOW LOADS, P<sub>g</sub> FOR THE UNITED STATES (lb/ft<sup>2</sup>).**

Delete without substitution.

(Del) **FIGURE R301.2(6) TERMITE INFESTATION PROBABILITY MAP.**

Delete without substitution.

(Del) **R301.2.1.3 Wind speed conversion.** Delete without substitution.

(Del) **TABLE 301.2.1.3 WIND SPEED CONVERSIONS.** Delete without substitution.

(Amd) **R301.2.1.4 Exposure category.** For each wind direction considered, an exposure category that adequately reflects the characteristics of ground surface irregularities *shall* be determined for the *site* at which the *building* or structure is to be constructed. For a *site* located in the transition zone between categories, the category resulting in the largest wind forces *shall* apply. Account *shall* be taken of variations in ground surface roughness that arise from natural topography and vegetation as well as from constructed features. For a *site* where multiple detached *one- and two-family dwellings, townhouses* or other structures are to be constructed as part of a subdivision or master-planned community, or are otherwise designated as a developed area by the authority having *jurisdiction*, the exposure category for an individual structure *shall* be based upon the *site* conditions that will exist at the time when all adjacent structures on the *site* have been constructed, provided that their construction is expected to begin within one year of the start of construction for the structure for which the exposure category is determined.

(Add) **R301.2.1.4.1 Wind directions and sectors.** For each selected wind direction at which the wind *loads* are to be evaluated, the exposure of the *building* or structure *shall* be determined for the two upwind sectors extending 45 degrees (0.79 rad) either side of the selected wind direction. The exposures in these two sectors *shall* be determined in accordance with Sections R301.2.1.4.2 and R301.2.1.4.3 and the exposure resulting in the highest wind *loads shall* be used to represent winds from that direction.

(Add) **R301.2.1.4.2 Surface roughness categories.** A ground surface roughness within each 45-degree (0.79 rad) sector *shall* be determined for a distance upwind of the *site* as defined in Section R301.2.1.4.3 from the categories defined below, for the purpose of assigning an exposure category as defined in Section R301.2.1.4.3.

**Surface Roughness B.** Urban and suburban areas, wooded areas or other terrain with numerous closely spaced obstructions having the size of single-family *dwellings* or larger.

**Surface Roughness C.** Open terrain with scattered obstructions having heights generally less than 30 feet (9144 mm). This category includes flat open country, and grasslands.

**Surface Roughness D.** Flat, unobstructed areas and water surfaces. This category includes smooth mud flats, salt flats and unbroken ice.

(Add) **R301.2.1.4.3 Exposure categories.** An exposure category *shall* be determined in accordance with the following:

**Exposure B.** For *buildings* with a mean roof height of less than or equal to 30 feet (9144 mm), Exposure B *shall* apply where the ground surface roughness, as defined by Surface Roughness B, prevails in the upwind direction for a distance of at least 1,500 feet (457 m). For *buildings* with a mean roof height greater than 30 feet (9144 mm), Exposure B *shall* apply where Surface Roughness B prevails in the upwind direction for a distance of at least 2,600 feet (792 m) or 20 times the height of the *building*, whichever is greater.

**Exposure C.** Exposure C *shall* apply for all cases where Exposure B or D does not apply.

**Exposure D.** Exposure D *shall* apply where the ground surface roughness, as defined by Surface Roughness D, prevails in the upwind direction for a distance of at least 5,000 feet (1524 m) or 20 times the height of the *building*, whichever is greater. Exposure D *shall* also apply where the ground surface roughness immediately upwind of the *site* is B or C, and the *site* is within a distance of 600 feet (183 m) or 20 times the *building height*, whichever is greater, from an Exposure D condition as defined in the previous sentence.

(Del) **R301.2.1.5 Topographic wind effects.** Delete without substitution.

(Del) **R301.2.1.5.1 Simplified topographic wind speed-up method.** Delete without substitution.

(Del) **Table R301.2.1.5.1 ULTIMATE DESIGN WIND SPEED MODIFICATION FOR TOPOGRAPHIC WIND EFFECT.** Delete without substitution.

(Del) **FIGURE R301.2.1.5.1(1) TOPOGRAPHIC FEATURES FOR WIND SPEED-UP EFFECT.** Delete without substitution.

(Del) **FIGURE R301.2.1.5.1(2) ILLUSTRATION OF WHERE ON A TOPOGRAPHIC FEATURE, WIND SPEED INCREASE IS APPLIED.** Delete without substitution.

(Del) **FIGURE R301.2.1.5.1(3) UPWIND OBSTRUCTION.** Delete without substitution.

(Amd) **R301.2.2.1 Determination of seismic design category.** *Buildings shall be assigned a seismic design category in accordance with Appendix V. Soil site class shall be as defined in Section 1613.3.2 of the 2015 International Building Code.*

(Del) **R301.2.2.1.1 Alternate determination of seismic design category.** Delete without substitution.

(Del) **R301.2.2.1.2 Alternate determination of seismic design Category E.** Delete without substitution.

(Del) **R301.2.2.4 Seismic design Category E.** Delete without substitution.

(Amd) **R301.6 Roof load.** Roofs *shall* be designed for the snow *load* indicated in Table R301.2(1).

(Del) **Table R301.6 – MINIMUM ROOF LIVE LOADS IN POUNDS-FORCE PER SQUARE FOOT OF HORIZONTAL PROJECTION.** Delete table in its entirety without substitution.

(Add) **R301.9 Ungraded lumber.** Pursuant to section 29-256b of the Connecticut General Statutes, the use of ungraded lumber is allowed in utility structures and low-risk structures, which for the purposes of this section *shall mean accessory structures.*

(Amd) **R302.2 Townhouses.** Walls separating *townhouses shall* be constructed in accordance with Section R302.2.1 or R302.2.2.

(Amd) **R302.2.1 Double walls.** Each townhouse *shall* be separated by two 1-hour fire-resistance-rated walls assemblies tested in accordance with ASTM E119, UL 263 or Section 703.3 of the 2015 International Building Code.

(Amd) **R302.2.2 Common walls.** Common walls separating *townhouses shall* be assigned a *fire-resistance rating* in accordance with item 1 or 2. The common wall shared by two *townhouses shall* be constructed without plumbing or mechanical *equipment*, ducts or vents in the cavity of the common wall. The wall *shall* be rated for fire exposure from both sides and *shall* extend to be tight against *exterior walls* and the underside of the roof sheathing.

Electrical installations *shall* be in accordance with Chapter 34 through 43. Penetrations of the membrane of common walls for electrical outlet boxes *shall* be in accordance with Section R302.4.

1. Where a fire sprinkler system in accordance with P2904 is provided, the common wall *shall* be not less than a 1-hour fire-resistance-rated wall assembly tested in accordance with ASTM E119, UL 263 or Section 703.3 of the 2015 International Building Code.
2. Where a fire sprinkler system in accordance with P2904 is not provided, the common wall *shall* be not less than a 2-hour fire-resistance-rated wall assembly tested in accordance with ASTM E119, UL 263 or Section 703.3 of the 2015 International Building Code.

(Amd) **R302.2.3 Continuity.** The fire-resistance-rated wall or assembly separating *townhouses* *shall* be continuous from the foundation to the underside of the roof sheathing, deck or slab. The *fire-resistance rating shall* extend the full length of the wall or assembly, including wall extensions through and separating attached enclosed *accessory structures*.

(Amd) **R302.2.4 Parapets for townhouses.** Parapets constructed in accordance with Section R302.2.5 *shall* be constructed for *townhouses* as an extension or *exterior walls* or common walls in accordance with the following:

1. Where roof surfaces adjacent to the wall or walls are at the same elevation, the parapet *shall* extend not less than 30 inches (762 mm) above the roof surfaces.
2. Where roof surfaces adjacent to the wall or walls are at different elevations and the higher roof is not more than 30 inches (762 mm) above the lower roof, the parapet *shall* extend not less than 30 inches (762 mm) above the lower roof surface.

**Exception:** A parapet is not required in the preceding two cases where the roof covering complies with a minimum Class C rating as tested in accordance with ASTM E108 or UL 790 and the roof decking or sheathing is of *noncombustible materials* or *fire-retardant-treated wood* for a distance of 4 feet (1219 mm) on each side of the wall or walls, or one layer of 5/8-inch (15.9 mm) Type X *gypsum board* is installed directly beneath the roof decking or sheathing, supported by not less than nominal 2-inch (51 mm) ledgers attached to the sides of the framing members, for a distance of not less than 4 feet (1219 mm) on each side of the wall or walls and any openings or penetrations in the roof are not within 4 feet (1219 mm) of the common walls. *Fire-retardant-treated wood shall* meet the requirements of Sections R802.1.5 and R803.1.2.

3. A parapet is not required where roof surfaces adjacent to the wall or walls are at different elevations and the higher roof is more than 30 inches (762 mm) above the lower roof. The common wall construction from the lower roof to the underside of the higher *roof deck shall* have not less than a 1-hour *fire-resistance rating*. The wall *shall* be rated for exposure from both sides.

(Add) **R302.2.5 Parapet construction.** Parapets *shall* have the same *fire-resistance rating* as that required for the supporting wall or walls. On any side adjacent to a roof surface, the parapet *shall* have noncombustible faces for the uppermost 18 inches (457 mm), to include counterflashing and coping materials. Where the roof slopes toward a parapet at slopes greater than 2 units vertical and 12 units horizontal (16.7-percent slope), the parapet *shall* extend to the same height as any portion of the roof within a distance of 3 feet (914 mm), and the height *shall* be not less than 30 inches (762 mm).

(Add) **302.2.6 Structural independence.** Each individual townhouse *shall* be structurally independent.

**Exceptions:**

1. Foundations supporting *exterior walls* or common walls.
2. Structural wall or roof sheathing from each unit fastened to the common wall framing.
3. Nonstructural wall and roof coverings.
4. Flashing at termination or roof covering over common wall.
5. *Townhouses* separated by a common wall as provided in Section R302.2.2, Item 1 or 2.

(Add) **R302.2.7 Sound transmission.** Wall and floor-ceiling assemblies separating adjacent townhouse units *shall* comply with Appendix K.

(Amd) **R302.3 Two-family dwellings.** *Dwelling units* in *two-family dwellings* *shall* be separated from each other and from common spaces serving both *dwelling units* by wall or floor-ceiling assemblies having not less than 1-hour *fire-resistance rating* when tested in accordance with ASTM E119 or UL 263. Fire-resistance-rated floor-ceiling and wall assemblies *shall* extend to and be tight against the *exterior wall* and wall assemblies *shall* extend to the underside of the roof sheathing. Fire-resistance-rated assemblies *shall* be supported to the foundation by construction with the same *fire-resistance rating* as the assembly supported.

**Exceptions:**

1. A *fire-resistance rating* of ½ hour *shall* be permitted in *buildings* equipped throughout with an automatic sprinkler system installed in accordance with NFPA 13.
2. Wall assemblies need not extend through *attic* spaces when the ceiling is protected by not less than 5/8 inch (15.9 mm) Type X *gypsum board* and an *attic* draft stop construction as specified in Section R302.12.1 is provided above and along the wall assembly separating the *dwellings*. The structural framing supporting the ceiling *shall* also be protected by not less than ½ inch (12.7 mm) *gypsum board* or equivalent.

(Add) **R302.3.2 Sound transmission.** Wall and floor-ceiling assemblies separating *dwelling units* *shall* comply with Appendix K.

(Amd) **R302.5.3 Other penetrations.** Penetrations into or through the separation required in Table R302.6 *shall* be protected as required by Section R302.11, Item 4.

(Amd) **R302.6 Dwelling/garage fire separation.** The garage *shall* be separated as required by Table R302.6 except that wood structural members of the minimum dimension specified in the 2015 International Building Code for Type IV construction *shall* be acceptable without further protection. Openings in garage walls *shall* comply with Section R302.5. Attachment of *gypsum board* *shall* comply with Table R702.3.5. The wall separation provisions of Table R302.6 *shall* not apply to garage walls that are perpendicular to the adjacent *dwelling unit* wall.

(Amd) **TABLE R302.6 DWELLING/GARAGE SEPARATION**

<b>SEPARATION</b>	<b>MATERIAL</b>
From the residence and <i>attics</i>	Not less than 5/8 inch Type X <i>gypsum board</i> or equivalent applied to the garage side <sup>1</sup>
From all habitable rooms above the garage	Not less than 5/8 inch Type X <i>gypsum board</i> or equivalent
Structure(s) supporting floor/ceiling assemblies used for separation required by this section	Not less than 5/8 inch Type X <i>gypsum board</i> or equivalent <sup>1</sup>
Garages located less than 3 feet from a <i>dwelling unit</i> on the same <i>lot</i>	Not less than 5/8 inch Type X <i>gypsum board</i> or equivalent applied to the interior side of <i>exterior walls</i> that are within this area <sup>1</sup>

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

<sup>1</sup> If *building* is sprinklered in accordance with R313, then not less than 1/2-inch *gypsum board* or equivalent is required.

(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 clear except under beams, girders, pipes, ducts or other obstructions where the clear height *shall* be a minimum of 6 feet 4 inches.

(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 (2032 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.



(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 and escape rescue openings shall have a net clear opening of not less than 5.7 square feet (0.530 m<sup>2</sup>). 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 m<sup>2</sup>)
2. Existing *buildings* undergoing *alterations* or installation of replacement windows shall be permitted to utilize removable sash to achieve the required minimum net clear openings. Such removable sash shall be capable of being removed without the use of a key or tool.

(Amd) **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.*

**Exception:** *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.*

(Add) **R310.2.5 Replacement windows.** *Replacement windows installed in buildings meeting the scope of this code shall be exempt from the maximum sill height requirements of Section R310.2.2 and the requirements of Section R310.2.1, provided that the replacement window meets the following conditions:*

1. The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window is of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.
2. The replacement window is not part of a *change of occupancy*.

(Amd) **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*.
3. 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*.

(Amd) **R310.6 Alterations or repairs of existing basements.** Delete without substitution.

(Amd) **R311.3.1 Floor elevations at the required egress doors.** Landings or finished floors at the required egress door shall not be more than 1½ inches (38 mm) lower than the top of the threshold.

**Exception:** The landing or floor on the exterior side shall not be more than 8¼ inches (209.5 mm) below the top of the threshold provided the door does not swing over the landing or the 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.

(Amd) **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 8¼ inches (209.5 mm) below the top of the threshold.

**Exception:** A landing is not required where a *stairway* of three or fewer risers, including the top riser from the *dwelling* to the top tread, is located on the exterior side of the door, provided the door does not swing over the *stairway*.

(Amd) **R311.7.1 Width.** *Stairways* shall not be less than 36 inches in clear width at all points above the permitted *handrail* height and below the required headroom height. *Handrails* shall not project more than 4½ inches (114 mm) on either side of the *stairway* and the minimum clear width of the *stairway* at and below the *handrail* height, including treads and landings, shall not be less than 31½ inches (787 mm) where a *handrail* is installed on one side and 27 inches (698 mm) where *handrails* are provided on both sides.

**Exceptions:**

1. The width of spiral *stairways* shall be in accordance with Section R311.7.10.1.
2. The width of existing *stairways* serving existing unfinished *attics* or existing unfinished *basements* being converted to *habitable space* or replacement *stairways* within existing *dwellings* shall not be less than 32 inches (813 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 inches (102 mm) on either side of the *stairway* and the minimum clear width of the *stairway* at and below the *handrail* height, including treads and landings, shall not be less than 28 inches (711 mm) where a *handrail* is installed on one side and 24 inches (610 mm) where *handrails* are provided on both sides.

3. Where an incline platform lift or *stairway* chairlift is installed on a *stairway* within a *dwelling unit*, a clear passage width not less than 20 inches (508 mm) *shall* be provided. If the seat and platform can be folded when not in use, the distance *shall* be measured from the folded position.

(Amd) **R311.7.2 Headroom.** The minimum headroom in all parts of the *stairway shall* not be less than 6 feet, 8 inches (2032 mm) measured vertically from the sloped line adjoining the tread *nosing* or from the floor surface of the landing or platform on that portion of the *stairway*.

**Exceptions:**

1. Where the *nosing* of treads at the side of a *flight* extend under the edge of a floor opening through which the stair passes, the floor opening *shall* be allowed to project horizontally into the required headroom a maximum of 4¾ inches (121 mm).
2. The minimum headroom in all parts of existing *stairways* serving existing unfinished *attics* or existing unfinished *basements* being converted to *habitable space* or replacement *stairs* where the pitch or slope cannot be reduced because of existing construction *shall* be 6 feet, 4 inches (1982 mm), measured as stated above.

(Amd) **R311.7.5.1 Risers.** The maximum riser height *shall* be 8 ¼ inches (209.5 mm). The riser *shall* be measured vertically between leading edges of adjacent treads. The greatest riser height within any *flight* of *stairs shall* not exceed the smallest by more than ⅜ 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 opening between treads does not permit the passage of a 4-inch-*diameter* (102 mm) sphere.

**Exceptions:**

1. The maximum riser height of existing *stairs* serving existing unfinished *attics* or existing unfinished *basements* being converted to *habitable space* or replacement *stairs* where the pitch or slope cannot be reduced because of existing construction *shall* be 9 inches (229 mm), measured as stated above.
2. The opening between adjacent treads is not limited on *stairs* with a total rise of 30 inches (762 mm) or less.

(Amd) **R311.7.5.2 Treads.** The minimum tread depth *shall* be 9 inches (229 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 ⅜ inch (9.5 mm)

**Exception:** The minimum tread depth of existing *stairs* serving existing unfinished *attics* or existing unfinished *basements* being converted to *habitable space* or replacement stairs within existing *dwelling*s *shall* be 8 inches (203 mm), measured as above.

(Amd) **R311.7.6 Landings for stairways.** There *shall* be a floor or landing at the top and bottom of each *stairway*. The width perpendicular to the direction of travel *shall* be not less than the width of the *flight* served. Landings of shapes other than square or rectangular *shall* be permitted provided that the depth at the walk line and the total area is not less than that of a quarter circle with a radius equal to the required landing width. Where the *stairway* has a straight run, the depth in the direction of travel *shall* be not less than 36 inches (914 mm).

**Exceptions:**

1. A floor or landing is not required at the top of an interior *flight* of *stairs*, including *stairs* in an enclosed garage, provided that a door does not swing over the *stairs*.
2. The depth in the direction of travel of landings of existing *stairs* serving existing *basements* being converted to *habitable space* or replacement *stairs* within existing *dwellings shall* be at least equal to the *stair* width but not less than 32 inches (762 mm) where R311.7.1, exception 2 is utilized for a reduced *stair* width.

(Add) **R312.1.1.1 Retaining wall guards.** Retaining walls with a difference in finished grade from the top of the wall to the bottom of the wall that is greater than 4 feet (1219 mm) *shall* be provided with *guards* complying with Section R312 when there is a walking surface, parking lot or driveway on the high side located closer than 2 feet (610 mm) to the retaining wall. For the purposes of this section, grass, planting beds or landscaped areas are not a walking surface.

(Amd) **R313.1 Townhouse automatic fire sprinkler systems.** When an automatic residential fire sprinkler system is to be installed in *townhouses*, it *shall* be designed and installed in accordance with Section P2904 or NFPA 13D.

(Del) **R313.1.1 Design and installation.** Delete section.

(Amd) **R313.2 One- and two-family dwellings automatic fire systems.** When an automatic fire sprinkler system is to be installed in *one- and two-family dwellings*, it *shall* be designed and installed in accordance with Section P2904 or NFPA 13D.

(Del) **R313.2.1 Design and installation.** Delete section.

(Amd) **R314.2.2 Alterations, repairs and additions.** When *alterations, repairs* or *additions* requiring a *permit* occur, or when one or more sleeping rooms are added or created in existing *dwellings*, the entire *dwelling unit shall* be provided with smoke alarms located as required for new *dwellings*.

**Exceptions:**

1. Work involving the *exterior surfaces* of *dwellings*, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or decks, are exempt from the requirements of this section.
2. Installation, *alteration* or *repairs* of plumbing, mechanical or electrical systems are exempt from the requirements of this section.

(Amd) **R314.4 Interconnection.** Where more than one smoke alarm is required to be installed within an individual *dwelling unit* in accordance with Section R314.3, the alarm devices *shall* be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual unit.

**Exception:** Interconnection of smoke alarms in existing areas *shall* not be required where *alterations* or *repairs* do not result in removal of interior wall or ceiling finishes exposing the structure.

(Amd) **R314.6 Power source.** Smoke alarms *shall* receive their primary power from the *building* wiring when such wiring is served from a commercial source, and when the primary power is interrupted, *shall* receive power from a battery. Wiring *shall* be permanent and without a disconnecting switch other than those required for overcurrent protection.

**Exceptions:**

1. Smoke alarms *shall* be permitted to be battery operated when installed in *buildings* without commercial power.
2. Hard-wiring of smoke alarms in existing areas *shall* not be required where the *alterations* or *repairs* do not result in the removal of interior wall or ceiling finishes exposing the structure.

(Amd) **R315.1 Carbon monoxide alarms.** For new construction, an *approved* carbon monoxide alarm *shall* be installed outside of each sleeping area in the immediate vicinity of the bedrooms and on each additional habitable level of the *dwelling unit*. When more than one carbon monoxide alarm is required to be installed within an individual *dwelling unit* the alarm devices *shall* be interconnected in such a manner that the actuation of one carbon monoxide alarm will activate all of the carbon monoxide alarms in the individual unit. The alarm *shall* be clearly audible in all bedrooms over background noise levels with all intervening doors closed.

**Exception:** Carbon monoxide alarms *shall* not be required in *dwelling units* not containing a fuel-burning appliance, *fireplace* or attached garage.

(Amd) **R315.2.2. Alterations, repairs and additions.** When *alterations*, *repairs* or *additions* requiring a *permit* occur, or when one or more sleeping rooms are added or created in existing *dwellings*, the individual *dwelling* *shall* be provided with carbon monoxide alarms located as required for new *dwellings*. The carbon monoxide alarms *shall* have a power source in accordance with Section R315.5.

**Exceptions:**

1. The carbon monoxide alarms may be battery operated or plug-in and are not required to be interconnected when other remodeling considerations do not require the removal of the appropriate wall and ceiling coverings to facilitate concealed interconnected wiring.
2. *Alterations* to the *exterior surfaces* of *dwellings* including, but not limited to re-roofing, residing, window replacement and the construction of decks, *shall* be exempt from the requirements of this section.
3. Carbon monoxide alarms *shall* not be required in *dwelling units* not containing a fuel-burning appliance, *fireplace* or attached garage.
4. Installation, *alteration* or *repairs* of plumbing, mechanical or electrical systems are exempt from the requirements of this section.

(Del) **SECTION R320 – ACCESSIBILITY.** Delete section in its entirety and replace with the following:

(Add) **SECTION R320 – ACCESSIBILITY**

(Add) **R320.1 Scope.** Detached *one- and two-family dwellings shall* be exempt from accessibility requirements. Attached multiple single-family *dwellings (townhouses) shall* comply with Section R320.2 for single-story *townhouses* and with Section R320.3 for multi-story *townhouses*. For the purposes of this section, a one-story above-grade townhouse with a finished *basement shall* be considered a multi-story townhouse. Required Type B units *shall* comply with ICC/ANSI A117.1, as amended.

(Add) **R320.2 Single-story townhouses.** Where there are four or more *townhouses* in a single structure, each single-story townhouse *shall* be a Type B unit.

**Exception:** The number of Type B units *shall* be permitted to be reduced in accordance with Section R320.4.

(Add) **R320.3 Multi-story townhouses.** *Buildings or complexes* that contain 10 or more multi-story *townhouses shall* have at least 10 per cent Type B units. This requirement *shall* be met by providing a sufficient number of single-story Type B units or by providing a sufficient number of multi-story *townhouses* that incorporate a Type B unit on the street floor or by a combination of the two. Multi-story *townhouses* that incorporate a Type B unit on the street floor *shall* not be required to provide accessibility to floors above or below the street floor. The Type B unit on the street floor *shall* include provisions for living, sleeping, eating, cooking and a complete toilet and bathing facility on that floor.

**Exceptions:**

1. Structures with fewer than four *dwelling units*.
2. The number of Type B units *shall* be permitted to be reduced in accordance with Section R320.4.

(Add) **R320.4 General exceptions.** Where permitted by Sections R320.2 and R320.3, the required number of Type B units *shall* be permitted to be reduced in accordance with Sections R320.4.1 and R320.4.2.

(Add) **R320.4.1 Site impracticality.** On a *site* with multiple *buildings*, the number of units required by Sections R320.2 and R320.3 to be Type B units may be reduced to a percentage which is equal to the percentage of the entire *site* having grades, prior to development, which are less than 10 percent, provided not less than 20 percent of the Type B units required by Sections R320.2 and R320.3 on the *site* are provided.

(Add) **R320.4.2 Design flood elevation.** The required number of Type B units *shall* not apply to a *site* where the *lowest floor* is required to be at or above the *design flood elevation* resulting in:

1. A difference in elevation between the minimum required floor elevation at the primary entrance and the closest vehicular and pedestrian arrival points, and
2. A slope exceeding 10 percent between the minimum required floor elevation at the primary entrance and the closest vehicular and pedestrian arrival points.

(Add) **R320.5 Accessible route.** At least one *accessible route shall* connect accessible *building or facility* entrances with the primary entrance of each Type B unit within the *building or complex* and with those exterior and interior facilities that serve the units.

**Exception:** If the slope of the finished ground level between accessible facilities and *buildings* exceeds one unit vertical in twelve units horizontal (1:12), or where physical barriers prevent the installation of an accessible *route*, a vehicular route with parking that complies with Section 1106 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code at each public or *common use facility or building* is permitted in place of the accessible *route*.

(Add) **R320.6 Parking.** Two per cent, but not less than one, of each type of parking space provided in occupancies which are required to have Type B *dwelling units shall* be accessible. For each six or fraction of six accessible parking spaces, at least one *shall* be a van-accessible parking space.

(Add) **R320.6.1 Parking within or beneath a building.** Where parking is provided within or beneath a *building*, accessible parking spaces *shall* also be provided within or beneath the *building*.

**Exception:** Private parking garages within or beneath the *building* that contain no more than two parking spaces, that are reserved for the exclusive use of a specific *dwelling unit* and are directly accessed from that *dwelling unit* are not required to be accessible.

(Add) **R320.6.2 Automobile accessible parking spaces.** Pursuant to subsection (h) of section 14-253a of the Connecticut General Statutes, parking spaces for passenger motor vehicles designated for persons who are blind and persons with disabilities *shall* be as near as possible to a *building* entrance or walkway and *shall* be 15 feet (4572 mm) wide including 5 feet (1524 mm) of cross hatch.

(Add) **R320.6.3 Van accessible parking spaces.** Pursuant to subsection (h) of section 14-253a of the Connecticut General Statutes, parking spaces for passenger vans designated for persons who are blind and persons with disabilities *shall* be as near as possible to a *building* entrance or walkway and *shall* be 16 feet (4877 mm) wide including 8 feet (2438 mm) of cross hatch.

(Add) **R320.6.3.1 Van access clearance.** Pursuant to subsection (i) of section 14-253a of the Connecticut General Statutes, each public parking garage or terminal *shall* have 8 feet 2 inches (2489 mm) vertical clearance at a primary entrance and along the route to at least two parking spaces for passenger vans that conform to Section R320.6.3 and that have 8 feet 2 inches (2489 mm) of vertical clearance.

(Amd) **R321.1 Elevators.** Where provided, passenger elevators, limited use/limited application elevators or elevators installed in private residences *shall* comply with ASME A17.1 and *shall* be installed in accordance with regulations adopted under authority of section 29-192 of the Connecticut General Statutes. Where the provisions of this section conflict with other statutory or regulatory provisions, those requirements *shall* prevail.

(Amd) **R324.2 Solar thermal systems.** Solar thermal systems *shall* be designed and installed in accordance with Chapter 23.

(Amd) **R324.3 Photovoltaic systems.** Photovoltaic systems *shall* be designed and installed in accordance with Sections R324.3.1 through R324.7.2.5 and NFPA 70. Inverters *shall* be *listed* and *labeled* in accordance with UL 1741. Systems connected to the utility grid *shall* use inverters *listed* for utility interaction.

(Amd) **R324.6.1 Fire separation distances.** For the purposes of *fire separation distances*, ground-mounted photovoltaic systems *shall* be considered *accessory structures* and subject to the applicable fire separation requirements of this code.

(Add) **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.

**Exception:** Detached garages and *accessory structures* to one and *two-family dwellings* and *townhouses*, such as parking shade structures, carports, solar trellises and similar structures.

(Add) **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.

(Add) **R324.7.2 Solar photovoltaic systems.** Solar photovoltaic systems *shall* comply with Sections R324.7.2.1 through R324.7.2.5.

(Add) **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.

(Add) **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 accessing the roof.

**Exceptions:**

1. This requirement *shall* not apply to roofs with slopes of 2 units vertical in 12 units horizontal (16.6 percent) and less.
2. Where panels are installed on only one roof slope and there is clear access on the opposing slope.

(Add) **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.

**Exceptions:**

1. This requirement *shall* not apply to roofs with slopes of 2 units vertical in 12 units horizontal (16.6 percent) and less.
2. Where panels are installed on only one roof slope and there is clear access on the opposing slope.



(Add) **R324.7.2.4 Roofs with hips and valleys.** Panels and modules installed on *dwelling*s 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.

(Amd) **R326.1 General.** The provisions of this section *shall* control the design and construction of *swimming pools*, spas and hot tubs installed in or on the *lot* of a *one- or two-family dwelling*.

(Add) **R326.2 Pools in flood hazard areas.** Pools that are located in *flood hazard areas* established by Table R301.2(1), including above-ground pools, on-ground pools and in-ground pools that involve placement of fill, *shall* comply with Section R326.2.1 or R326.2.2.

**Exception:** Pools located in riverine *flood hazard areas* which are outside of designated *floodways*.

(Add) **R326.2.1 Pools located in designated floodways.** Where pools are located in designated *floodways*, documentation *shall* be submitted to the *building official* which demonstrates that the construction of the pool will not increase the *design flood elevation* at any point within the *jurisdiction*.

(Add) **R326.2.2 Pools located where floodways have not been designated.** Where pools are located where *design flood elevations* are specified but *floodways* have not been designated, the applicant *shall* provide a *floodway analysis* that demonstrates that the proposed pool will not increase the *design flood elevation* more than 1 foot (305 mm) at any point within the *jurisdiction*.

(Add) **R326.3 Definitions.** For the purposes of these requirements, the terms used *shall* be defined as follows and as set forth in Chapter 2.

**ABOVE-GROUND/ON-GROUND POOL.** See “Swimming pool”.

**BARRIER.** A fence, wall, *building* wall or combination thereof which completely surrounds the swimming pool and obstructs access to the swimming pool.

**HOT TUB.** See “Swimming pool”.

**IN-GROUND POOL.** See “Swimming pool”.

**RESIDENTIAL.** That which is situated on the premises of a detached *one- or two-family dwelling*, or a one-family townhouse not more than three stories in height where the pool is intended to be used by the *owners* and invited guests.

**SPA.** A product intended for the immersion of persons in temperature-controlled water circulated in a closed system and not intended to be drained and filled with each use. A spa usually includes a filter; an electric, solar or gas heater; a pump or pumps; and a control and can also include other equipment, such as lights, blowers, and sanitizing equipment.

**SPA, EXERCISE (Also known as a swim spa).** Variants of a spa in which the design and construction includes specific features and equipment to produce a water flow intended to allow recreational physical activity including, but not limited to, swimming in place. *Exercise spas* can include peripheral jetted seats intended for water therapy, heater, circulation and filtration system, or can be a separate distinct portion of a combination spa/*exercise spa* and can have separate controls. These spas are of a design and size such that they have an unobstructed volume of water large enough to allow the 99<sup>th</sup> Percentile Man as specified in APSP 16 to swim or exercise in place.

**SPA, NONPORTABLE.** See “Swimming pool”.

**SPA, PORTABLE.** A nonpermanent structure intended for recreational bathing, in which all controls, water-heating and water-circulating equipment are an integral part of the product.

**SWIMMING POOL.** Any structure intended for swimming or recreational bathing that contains water more than 24 inches (610 mm) deep.

**SWIMMING POOL, INDOOR.** A swimming pool which is totally contained within a structure and surrounded on all four sides by the walls of the enclosing structure.

**SWIMMING POOL, OUTDOOR.** Any swimming pool which is not an indoor pool.

(Add) **R326.4 Swimming pools.** Swimming pools *shall* be designed and constructed as follows:

(Add) **R326.4.1 In-ground pools.** In-ground pools *shall* be designed and constructed in compliance with ANSI/NSPI-5.

(Add) **R326.4.2 Above-ground and on-ground pools.** Above-ground and on-ground pools *shall* be designed and constructed in compliance with ANSI/NSPI-4.

(Add) **R326.4.3 Pools in flood hazard areas.** In *flood hazard areas* established by Table R301.2(1), pools in coastal high-hazard areas *shall* be designed and constructed in compliance with ASCE 24.

(Add) **R326.5 Spas and hot tubs.** Spas and hot tubs *shall* be designed and constructed as follows:

(Add) **R326.5.1 Permanently installed spas and hot tubs.** Permanently installed spas and hot tubs *shall* be designed and constructed in compliance with ANSI/NSPI-3.

(Add) **R326.5.2 Portable spas and hot tubs.** Portable spas and hot tubs *shall* be designed and constructed in compliance with ANSI/NSPI-6.

(Add) **R326.6 Barrier requirements.** The provisions of this section *shall* control the design of barriers for residential *swimming pools*, spas and hot tubs. These design controls are intended to provide protection against potential drownings and near-drownings by restricting access to *swimming pools*, spas and hot tubs.

Add) **R326.6.1 Outdoor swimming pool.** An outdoor swimming pool, including an in-ground, above-ground or on-ground pool, hot tub or spa, *shall* be surrounded by a barrier which *shall* comply with the following:

1. The top of the barrier *shall* be at least 48 inches (1219 mm) above grade measured on the side of the barrier which faces away from the swimming pool. The maximum vertical clearance between grade and the bottom of the barrier *shall* be 2 inches (51 mm) measured on the side of the barrier which faces away from the swimming pool. Where the top of the pool structure is above grade, such as an above-ground pool, the barrier may be at ground level, such as the pool structure, or mounted on top of the pool structure. Where the barrier is mounted on top of the pool structure, the maximum vertical clearance between the top of the pool structure and the bottom of the barrier *shall* be 4 inches (102 mm).
2. Openings in the barrier *shall* not allow the passage of a 4-inch-*diameter* (102 mm) sphere.
3. Solid barriers which do not have openings, such as a *masonry* or stone wall, *shall* not contain indentations or protrusions, except for normal construction tolerances and tooled *masonry* joints.
4. Where the barrier is composed of horizontal and vertical members, and the distance between the tops of the horizontal members is less than 45 inches (1143 mm), the horizontal members *shall* be located on the swimming pool side of the fence. Spacing between vertical members *shall* not exceed 1¾-inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts *shall* not exceed 1 3/4 inches (44 mm) in width.
5. Where the barrier is composed of horizontal and vertical members, and the distance between the tops of the horizontal members is 45 inches (1143 mm) or more, spacing between vertical members *shall* not exceed 4 inches (102 mm). Where there are decorative cutouts within vertical members, spacing within the cutouts *shall* not exceed 1¾- inches (44 mm) in width.
6. Maximum mesh size for chain link fences *shall* be a 2 1/4-inch (57 mm) square, unless the fence has slats fastened at the top or the bottom which reduce the openings to not more than 1¾- inches (44 mm).
7. Where the barrier is composed of diagonal members, such as a lattice fence, the maximum opening formed by the diagonal members *shall* not be more than 1 ¾ inches (44 mm).
8. Access gates *shall* comply with the requirements of Items 1 through 7, and *shall* be equipped to accommodate a locking device. Pedestrian access gates *shall* open outward away from the pool, and *shall* be *self-closing* and have a self-latching device. Gates, other than pedestrian access gates, *shall* have a self-latching device. Where the release mechanism of the self-latching device is located less than 54 inches (1372 mm) from the bottom of the gate, the release mechanism and openings *shall* comply with the following:
  - 8.1 The release mechanism *shall* be located on the pool side of the gate at least 3 inches (76 mm) below the top of the gate; and
  - 8.2 The gate and barrier *shall* have no opening larger than 1/2 inch (12.7 mm) within 18 inches (457 mm) of the release mechanism.
9. Where a wall of a *dwelling* serves as part of the barrier, one of the following conditions *shall* be met:

- 9.1 The pool *shall* be equipped with a powered safety cover in compliance with ASTM F1346;
  - 9.2 Doors with direct access to the pool through that wall *shall* be equipped with an alarm which produces an audible warning when the door and/or its screen, if present, are opened. The alarm *shall* be *listed* and *labeled* in accordance with UL 2017. The deactivation switch(es) *shall* be located at least 54 inches (1372 mm) above the threshold of the door; or
  - 9.3 Other means of protection, such as *self-closing* doors with self-latching devices, which are *approved* by the governing body, *shall* be acceptable as long as the degree of protection afforded is not less than the protection afforded by Item 9.1 or 9.2 described herein.
10. Where an above-ground or on-ground pool structure is used as a barrier or where the barrier is mounted on top of the pool structure, and the means of access is a ladder or steps, the ladder or steps *shall* be surrounded by a barrier that meets the requirements of Section AG105.2, Items 1 to 9, inclusive.

(Add) **R326.6.2** Indoor swimming pool. Walls surrounding an indoor swimming pool *shall* comply with Item 9 of Section R326.6.1.

(Add) **R326.6.3 Barrier perimeter clearance.** The required barrier height *shall* exist around the entire perimeter of the barrier and for a distance of 3 feet (914 mm) measured horizontally from the outside of the required barrier, free of structures, equipment or similar objects.

(Add) **R326.6.4 Barrier exceptions.** Spas or hot tubs with a safety cover which comply with ASTM F1346 *shall* be exempt from the provisions of this chapter.

(Add) **R326.6.5 Temporary enclosure.** A temporary enclosure *shall* be installed prior to the electrical bonding inspection of any in-ground swimming pool unless the permanent barrier specified in Section R326.6.1 is in place prior to the commencement of the installation. The temporary enclosure *shall* be a minimum of 4 feet (1219) in height, *shall* have no openings that will allow passage of a 4-inch sphere and *shall* be equipped with a positive latching device on any openings.

(Add) **R326.6.6 Pool alarm.** Pursuant to section 29-265a of the Connecticut General Statutes, no building *permit shall* be issued for the construction or substantial *alteration* of a swimming pool at a residence occupied by, or being built for, one or more families unless a pool alarm is installed with the swimming pool. As used in this section, “pool alarm” means a device that emits a sound of at least 50 decibels when a person or an object weighing 15 pounds or more enters the water in a swimming pool.

**Exception:** Hot tubs and portable spas *shall* be exempt from this requirement.

(Add) **R326.7 Entrapment protection for swimming pool and spa suction outlets.** Suction outlets *shall* be installed in accordance with ANSI/APSP-7.

(Add) **R326.8 Abbreviations.** The following abbreviations are defined as:

ANSI—American National Standards Institute  
25 West 43rd Street, 4<sup>th</sup> Floor  
New York, NY 10036

APSP—Association of Pool and Spa Professionals  
NSPI—National Spa and Pool Institute  
2111 Eisenhower Avenue  
Alexandria, VA 22314

ASCE—American Society of Civil Engineers  
1801 Alexander Bell Drive  
Reston, VA 20191

ASTM—ASTM International  
100 Barr Harbor Drive, P.O. Box C700  
West Conshohocken, PA 19428

UL—Underwriters Laboratories, Inc.  
333 Pfingsten Road  
Northbrook, IL 60062

(Add) **R326.9 Referenced standards.** The following standards are referenced:

<b>ANSI/APSP</b>	
ANSI/APSP/ICC-3—14 American National Standard for Permanently Installed Residential Spas and Swim Spas	R326.5.1
ANSI/APSP/ICC-4—12 American National Standard for Aboveground/Onground Residential Swimming Pools	R326.4.2
ANSI/APSP/ICC-5—11 American National Standard for Residential Inground Swimming Pools	R326.4.1
ANSI/APSP/ICC-6—13 American National Standard for Residential Portable Spas and Swim Spas	R326.5.2
ANSI/APSP/ICC-7—13 American National Standard for Suction Entrapment Avoidance in Swimming Pools, Wading Pools, Spas, Hot Tubs and Catch Basins	R326.7
<b>ASTM</b>	
ASTM F1346—91 (2010) Standard Performance Specification for Safety Covers and Labeling Requirements for All Covers for Swimming Pools, Spas and Hot Tubs	R326.6.1, R326.6.4
<b>UL</b>	
UL 2017—2008 General-Purpose Signaling Devices and Systems - with revisions through May 2011	R326.6.1

## CHAPTER 4 – FOUNDATIONS

(Add) **R401.3.1 Drainage nuisances.** Any surface or roof drainage which creates a structural or *health hazard*, or any other nuisance to the *owners* or occupants of adjacent premises, or to the public by reason of discharge into, onto or across any adjacent *building*, premises or public thoroughfare, *shall* be a violation. The *building official shall* require the drainage to be disposed of in an *approved* manner.

(Amd) **R403.1 General.** All *exterior walls shall* be supported on continuous solid or fully grouted *masonry* or *concrete* footings, crushed stone footings, wood foundations or other *approved* structural systems which *shall* be of sufficient design to accommodate all *loads* according to Section R301 and to transmit the resulting *loads* to the soil within the limitations as determined from the character of the soil. Footings *shall* be supported on undisturbed natural soils or engineered fill. *Concrete* footings *shall* be designed and constructed in accordance with the provisions of Section R403 or in accordance with ACI 332.

**Exception:** Freestanding *accessory structures* with an area of 600 square feet or less and an eave height of 10 feet (3048 mm) or less.

Footings and freestanding *accessory structures* as exempted above *shall* be supported on undisturbed natural soils or engineered fill and *shall* be anchored to resist wind-induced uplift and overturning.

(Amd) **R403.1.4.1 Frost protection.** Except where otherwise protected from frost, foundation walls, piers and other permanent supports of *buildings* and structures *shall* be protected from frost by one or more of the following methods:

1. Extended below the frost line specified in Table R301.2.(1).
2. Constructed in accordance with Section R403.3.
3. Constructed in accordance with ASCE 32.
4. Erected on solid rock.

**Exceptions:**

1. Protection of freestanding *accessory structures* with an area of 600 square feet (56 m<sup>2</sup>) or less, of light-frame construction, with an eave height of 10 feet (3048 mm) or less *shall* not be required.
2. Protection of freestanding *accessory structures* with an area of 400 square feet (37 m<sup>2</sup>) or less, of other than light-frame construction, with an eave height of 10 feet (3048 mm) or less *shall* not be required.
3. Decks not supported by a *dwelling* need not be provided with footings that extend below the frost line.
4. The footing for the grade level termination of *stairs* or *ramps* attached to decks or landings, whether the deck or landing is supported by a *dwelling* or not, *shall* only be required to be placed at least 12 inches (305 mm) below the undisturbed ground surface in accordance with R403.1.4.

Footings *shall* not bear on frozen soil unless the frozen condition is permanent.

(Add) **R404.4.1 Guards.** Retaining walls with a difference in finished grade from the top of the wall to the bottom of the wall that is greater than 4 feet (1219 mm) *shall* be provided with *guards* complying with Sections R312.1.2 and R312.1.3 when there is a walking surface, parking lot or driveway on the high side located closer than 2 feet (610 mm) to the retaining wall. For the purpose of this section, grass, planting beds or landscaped areas *shall* not be a walking surface.

(Add) **R404.6 Deep foundations.** *Deep foundations shall* comply with the requirements set forth in Section 1810 of the 2015 International Building Code portion of the State Building Code.

(Add) **R405.3 Above grade drainage.** Above grade drainage systems, including but not limited to, gutters and downspouts, roof *drains*, and yard *drains*, *shall* not be connected to the foundation drainage system.

## CHAPTER 6 – WALL CONSTRUCTION

(Amd) **Table R602.7(1), Footnote e.** Use 30 psf ground snow *load* for cases in which ground snow *load* is less than 30 psf and the *roof live load* is equal to or less than 20 psf. For ground snow *loads* between 30 and 50 psf, linear interpolation is permitted.

(Amd) **Table R602.7(3), Footnote b.** Tabulated values assume #2 *grade* lumber, wet service and incising for refractory species. Use 30 psf ground snow *load* for cases in which ground snow *load* is less than 30 psf and the *roof live load* is equal to or less than 20 psf. For ground snow *loads* between 30 and 50 psf, linear interpolation is permitted.

## CHAPTER 8 – ROOF-CEILING CONSTRUCTION

(Amd) **R802.5 Allowable rafter spans.** 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 (92 cm).

**TABLE R905.2.4.1  
CLASSIFICATION OF ASPHALT ROOF SHINGLES**

MAXIMUM ULTIMATE DESIGN WIND SPEED, $V_{ult}$ FROM FIGURE R301.2(4)A (mph)	MAXIMUM BASIC WIND SPEED, $V_{ASD}$ FROM APPENDIX V (mph)	ASTM D7158a SHINGLE CLASSIFICATION	ASTM D3161 SHINGLE CLASSIFICATION
110	85	D, G or H	A, D or F
116	90	D, G or H	A, D or F
129	100	G or H	A, D or F
142	110	G or H	F
155	120	G or H	F
168	130	H	F
181	140	H	F
194	150	H	F

For SI: 1 foot = 304.8 mm; 1 mph = 0.447 m/s.

a. The standard calculations contained in ASTM D7158 assume Exposure Category B or C and *building height* of 60 feet or less. Additional calculations are required for conditions outside of these assumptions

## CHAPTER 11 [RE] – ENERGY EFFICIENCY

(Add) **N1101.15 (R101.5.2) Energy efficiency standards for products.** In addition to the requirements of this code, the testing, certification and enforcement of efficiency standards for new products sold, offered for sale or installed in the State of Connecticut *shall* be in compliance with section 16a-48 of the Connecticut General Statutes and regulations adopted under authority of said statute.

(Amd) **N1101.4 (R102.1.1) Above code programs.** The State Building Inspector and the Codes and Standards Committee may deem a national, state or local energy efficiency program to exceed the energy efficiency required by this chapter. Such energy efficiency program may include, but not be limited to, the Leadership in Energy and Environmental Design rating system, the Green Globes USA program, as established by the Green Building Initiative, the National Green Building Standard, as established by the National Association of Home Builders, or an equivalent rating system approved in accordance with section 29-256a of the Connecticut General Statutes.

*Buildings* approved in writing by such an energy efficiency program *shall* be considered in compliance with this chapter. The requirements identified as “mandatory” in this Chapter of this code, as applicable, *shall* be met.



(Add) **N1101.10.1.1.1 (R402.2.14) Foamed-in-place insulating material.** Pursuant to section 29-277 of the Connecticut General Statutes, foamed-in-place insulating material, except urethane foam insulation or styrene foam insulation, *shall* not be sold or installed in this state on or after May 28, 2013, unless the manufacturer or supplier has certified to the State Building Inspector that the material complies with the provisions of that section.

(Amd) **N1102.1 (R402.1) General (Prescriptive).** The *building* thermal envelope *shall* meet the requirements of Sections N1102.1.1 through N1102.1.5.

**Exception:** The following low energy *buildings*, or portions thereof, separated from the remainder of the *building* by building thermal envelope assemblies complying with this section *shall* be exempt from the building thermal envelope provisions of Section N1102.

1. Those with a peak design rate of energy usage less than 3.4 Btu/h · ft<sup>2</sup> (10.7 W/m<sup>2</sup>) or 1.0 watt/ft<sup>2</sup> of floor area for space conditioning purposes.
2. Those that do not contain *conditioned space*.
3. *Buildings* and structures for which heating and cooling is supplied solely by utilization of non-purchased renewable energy sources including but not limited to, on-site wind, on-site water or on-site solar power, or wood-burning heating appliances that do not rely on backup heat from other purchased, non-renewable sources.

(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 N1102.4.1.2 (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.

(Add) **N1103.3.1.1 (R403.2.1.1) Duct insulation values.** Minimum duct insulation values stated in Section N1103.2.1 *shall* be installed R-values.

(Amd) **N1103.3.3 (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:

1. Rough-in test: Total leakage *shall* be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure if installed at the time of the test. All registers *shall* be taped or otherwise sealed during the test.
2. Postconstruction test: Total leakage *shall* be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. Registers *shall* be taped or other-wise sealed during the test.

**Exceptions:**

1. A duct air leakage test *shall* not be required where the ducts and air handlers are 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) of new duct in unconditioned spaces *shall* not be required to be tested in accordance with Section 1103.3.3.

A written report of the results of the test *shall* be signed by the party conducting the test and provided to the code official.

(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 8 cubic feet per minute (226.5 L/min) per 100 square feet (9.29 m<sup>2</sup>) 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 m<sup>2</sup>) 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 8 cubic feet per minute (226.5 L/min) per 100 square feet (9.29 m<sup>2</sup>) of *conditioned floor area*.

(Amd) **N1106.3 (R406.3) Energy Rating Index.** The Energy Rating Index (ERI) *shall* be determined in accordance with ANSI/RESNET/ICC 301.

(Amd) **N1106.4 (R406.4) ERI-based compliance.** Compliance base on an ERI analysis requires that the *rated design* be shown to have a maximum ERI of 61 without the use of renewable energy when compared to the ERI *reference design*.

(Del) **Table N1106.4 (R406.4) MAXIMUM ENERGY RATING INDEX.** Delete without substitution.

(Amd) **N1106.6 (R406.6.1) Compliance software tools.** Software tools used for determining the ERI *shall* be Approved Software Rating Tools in accordance with ANSI/RESNET/ICC 301.

(Add) **N1106.6.4 (R406.6.4) Specific approval.** Performance analysis tools meeting the applicable sections of Section R406 *shall be approved*. Documentation demonstrating the approval of performance analysis tools in accordance with Section 1106.6.1 *shall* be provided to the *code official*.

(Add) **N1106.6.5 (R406.6.5) Input values.** When calculations require input values not specified by Sections N1102, N1103, N1104 and N1105, those input values *shall* be taken from ANSI/RESNET/ICC 301.

(Del) **Section N1106.7 (R406.7)**

(Amd) **N1108.1.1.1 (R502.1.1.1) Building envelope.** New *building* envelope assemblies that are part of the *addition shall* comply with Sections N1102.1, N1102.2, N1102.3.1 through N1102.3.5, and N1102.4.

**Exceptions:**

1. Where nonconditioned space is changed to *conditioned space*, the *building* envelope of the *addition shall* comply where the UA, as determined in Section N1102.1.5, of the existing *building* and the *addition*, and any *alterations* that are part of the project, is less than or equal to UA generated for the existing *building*.
2. A visual inspection of the *building* envelope tightness and insulation *shall* be considered acceptable when the items listed in Table N1102.4.1.1 (R402.4.1.1), applicable to the method of construction, are field verified. Where required by the code official, an *approved* party independent from the installer of the insulation *shall* inspect the air barrier and insulation.

## **CHAPTER 13 – GENERAL MECHANICAL SYSTEM REQUIREMENTS**

(Amd) **M1301.1 Scope.** The provisions of this chapter *shall* govern the installation of mechanical systems not specifically covered in other chapters applicable to mechanical systems. Installations of mechanical appliances, *equipment* and systems not addressed by this code *shall* comply with the applicable provisions of the International Mechanical Code and requirements as noted in Section R101.4.1 for Fuel Gas.

## CHAPTER 15 – EXHAUST SYSTEMS

(Amd) **M1503.4 Makeup air required.** Exhaust hood systems capable of exhausting in excess of 400 cubic feet per minute (0.19 m<sup>3</sup>/s) *shall* be provided with makeup air at a rate approximately equal to the difference between the exhaust air rate and 400 cubic feet per minute. Such makeup air systems *shall* be equipped with a means of closure.

**Exception:** Where all appliances in the house are of sealed combustion, power-vent, unvented, or electric, the exhaust hood system may exhaust up to 600 cubic feet per minute (0.28 m<sup>3</sup>/s) without providing makeup air. Exhaust hood systems capable of exhausting in excess of 600 cubic feet per minute (0.28 m<sup>3</sup>/s) *shall* be provided with a makeup air at a rate approximately equal to the difference between the exhaust air rate and 600 feet per minute. Such makeup air systems *shall* be equipped with a means of closure.

## CHAPTER 19 – SPECIAL APPLIANCES, EQUIPMENT AND SYSTEMS

(Amd) **M1904.1 Installation.** Gaseous hydrogen *shall* be installed in accordance with the applicable requirements of Sections M1307.4 and M1903.1 and the 2015 International Building Code portion of the 2018 Connecticut State Building Code, and the requirements as noted in Section R101.4.1 for Fuel Gas.

## CHAPTER 22 – SPECIAL PIPING AND STORAGE SYSTEMS

### (Amd) SECTION M2201.7 – TANK ABANDONEMENT AND REMOVAL

(Add) **M2201.7.1 Removal from service of tanks and related equipment.** Except as provided for in M2201.7.2 or M2201.7.3, if a tank and its related piping are abandoned for whatever reason, the tank and all piping connected to it, including the outside fill and vent piping and any piping connected to the appliance, *shall* be emptied of all contents, cleaned, removed from the premises or property, and disposed of in accordance with applicable local, state, and federal rules and regulations.

(Add) **M2201.7.2 Temporary removal from service.** If a liquid fuel-burning appliance is converted to an alternate fuel, but the tank is kept in place so that it can be returned to service at some future date, the following requirements *shall* be met before the alternate fuel is used:

1. The entire contents of the tank *shall* be completely removed and the tank purged of all vapors.
2. The fuel tank vent line *shall* remain intact and open.
3. The outside fill pipe *shall* be removed and the tank opening *shall* be capped or plugged or the outside fill pipe *shall* be capped and filled with *concrete*, and all remaining piping, other than the vent line, *shall* be capped or sealed.

(Add) **M2201.7.3 Permanent abandonment of underground tanks.** Underground tanks *shall* be permitted to be permanently closed in place if the following requirements are met:

1. All applicable authorities having *jurisdiction shall* be notified.
2. A safe workplace *shall* be maintained throughout the prescribed activities.
3. All flammable and *combustible liquids* and residues *shall* be removed from the tank, appurtenances, and piping and *shall* be disposed of in accordance with regulatory requirements and industry practices, using a written procedure.

4. The tank, appurtenances, and piping *shall* be made safe by either purging them of flammable vapors or inerting the potential *explosive* atmosphere. Confirmation that the atmosphere in the tank is safe *shall* be by testing of the atmosphere using a combustible gas indicator if purging, or an oxygen meter if inerting, at intervals in accordance with written procedures.
5. Access to the tank *shall* be made by careful excavation to the top of the tank.
6. All exposed piping, gauging and tank fixtures, and other appurtenances, except the vent, *shall* be disconnected and removed.
7. The tank *shall* be completely filled with an inert solid material.
8. The tank vent and remaining underground piping *shall* be capped or removed.
9. The tank excavation *shall* be backfilled.

## CHAPTER 24 – FUEL GAS

(Amd) **G2402.3 Terms defined in other codes.** Where terms are not defined in this code and are defined in other portions of the 2018 Connecticut State Building Code, such terms *shall* have the meanings ascribed to them as in those portions of the code.

(Del) **G2411.1.1 (310.1) CSST.** Delete in its entirety without substitution.

(Add) **G2411.2 (310.1.1) CSST.** This section applies to corrugated stainless steel tubing (CSST) that is not *listed* with an arc-resistant jacket or coating system in accordance with ANSI LC 1/CSA 6.26. CSST gas *piping* systems and piping systems containing one or more segments of CSST *shall* be electrically continuous and bonded to the electrical service grounding electrode system or, where provided, the lightning protection grounding electrode system.

(Add) **G2411.2.1 (310.1.1.1) Point of connection.** The bonding jumper *shall* connect to a metallic pipe, pipe fitting or CSST fitting.

(Add) **G2411.2.2 (310.1.1.2) Size and material of jumper.** The bonding jumper *shall* be not smaller than 6 AWG copper wire or equivalent.

(Add) **G2411.2.3 (310.1.1.3) Bonding jumper length.** The length of the bonding jumper between the connection to a gas piping system and the connection to a grounding electrode system *shall* not exceed 75 feet (22 860 mm). Any additional grounding electrodes installed to meet this requirement *shall* be bonded to the electrical service grounding electrode system or, where provided, the lightning protection grounding electrode system.

(Add) **G2411.2.4 (310.1.1.4) Bonding connections.** Bonding connections *shall* be in accordance with NFPA 70.

(Add) **G2411.2.5 (310.1.1.5) Connection devices.** Devices used for making the bonding connections *shall* be *listed* for the application in accordance with UL 467.

(Add) **G2411.3 Arc-resistant CSST.** This section applies to corrugated stainless steel tubing (CSST) that is *listed* with an arc-resistant jacket or coating system in accordance with ANSI LC 1/CSA 6.26. The CSST *shall* be electrically continuous and bonded to an effective ground fault current path. Where any CSST component of a piping system does not have an arc-resistant jacket or coating system, the bonding requirements of Section G2411.2 *shall* apply. Arc-resistant-jacketed CSST *shall* be considered to be bonded where it is connected to an appliance that is connected to the appliance grounding conductor of the circuit that supplies that appliance.

(Amd) **G2412.2 Liquefied petroleum gas storage.** The storage system for liquefied petroleum gas *shall* be designed and installed in accordance with NFPA 58.

(Add) **G2412.2.1 Identification Label.** LP-Gas fuel suppliers *shall* affix and maintain in a legible condition, their firm name(s) and emergency telephone number(s) in a readily visible location on LP-Gas supplier-owned Department of Transportation (DOT) and American Society of Mechanical Engineers (ASME) containers installed on a consumer's premises. The firm name(s) and emergency telephone number(s) *shall* be at least ½ inch high and of contrasting color to the container. The emergency telephone number(s) *shall* be staffed 24 hours a day to ensure that the LP-Gas supplier is available in the event of an emergency at the consumer's premises. Cylinders, tanks or containers *shall* be filled, evacuated or transported only by the *owner* of the cylinder, tank or container or upon the *owner's* authorization.

## CHAPTER 25 – PLUMBING ADMINISTRATION

(Amd) **P2503.5.1 Rough plumbing.** DWV systems *shall* be tested on completion of the 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) (34 kPa) or 10 inches of mercury column (34 kPa). This pressure *shall* be held without introduction of additional air for a period of 15 minutes.

## CHAPTER 26 – GENERAL PLUMBING REQUIREMENTS

(Add) **P2602.1.1 Individual sewage disposal systems and individual water supply systems.** Installations *shall* be approved in accordance with this code and the regulations enforced by the local health director in accordance with the Public Health Code of the State of Connecticut adopted pursuant to section 19a-36 of the Connecticut General Statutes.

(Del) **P2603.5.1 Sewer depth.** Delete without substitution.

## CHAPTER 29 – WATER SUPPLY AND DISTRIBUTION

(Add) **P2902.5.3.1 Automatic lawn sprinkler system sensor device.** An automatic lawn sprinkler system *shall* be equipped with a rain sensor or switch that will automatically override the irrigation cycle in accordance with section 29-265b of the Connecticut General Statutes.

## CHAPTER 30 – SANITARY DRAINAGE

(Del) **Section P3009.1 through P3009.11.** Delete sections, subsections and tables and replace with the following:

(Add) **P3009.1 General.** Subsurface landscape irrigation systems *shall* comply with the Public Health Code of the State of Connecticut.

## CHAPTER 31 – VENTS

(Amd) **P3103.1 Roof extension.** Open vent pipes that extend through a roof *shall* be terminated at least 12 inches (305 mm) above the roof, except that where a roof is to be used for any purpose other than weather protection, the vent extension *shall* be at least 7 feet (2134 mm) above the roof.

(Del) **P3103.2 Frost closure.** Delete without substitution.

## CHAPTER 34 – GENERAL REQUIREMENTS

## CHAPTER 36 – SERVICES

(Amd) **E3608.1 Grounding electrode system.** If available on the premises at each *building* or structure served, each item in Section E3608.1.1 to E3608.1.6, inclusive, of this code *shall* be bonded together to form the grounding electrode system. Where none of these grounding electrodes are available, one or more of the grounding electrodes specified in Section E3608.1.3 to E3608.1.6, inclusive, *shall* be used.

## CHAPTER 38 – WIRING METHODS

(Amd) **TABLE E3802.1 GENERAL INSTALLATION AND SUPPORT REQUIREMENTS FOR WIRING METHODS**<sup>a, b, c, d, e, f, g, h, i, j, k</sup>

INSTALLATION REQUIREMENTS (Requirement applicable only to wiring methods marked "A")	AC MC	EMT IMC RMC	ENT	FMC LFC	NM UF	RN C	SE	SR <sup>a</sup>	USE
Where wiring methods run parallel with the framing member or furring strip, the wiring <i>shall</i> be not less than 1¼ inches from the edge of a furring strip or a framing member, such as a joist, rafter or stud, or <i>shall</i> be physically protected.	A	---	A	A	A	---	A	---	---
Bored holes in framing members for wiring <i>shall</i> be not less than 2									

<b>INSTALLATION REQUIREMENTS</b> <b>(Requirement applicable only to wiring methods marked "A")</b>	<b>AC MC</b>	<b>EMT IMC RMC</b>	<b>ENT</b>	<b>FMC LFC</b>	<b>NM UF</b>	<b>RN C</b>	<b>SE</b>	<b>SR<sup>a</sup></b>	<b>USE</b>
inches from the edge of the joists or rafters and 1¼ inch from the edge of studs or <i>shall</i> be protected with a minimum 0.0625-inch steel plate or sleeve, a <i>listed</i> steel plate or other physical protection.	A <sup>k</sup>	---	A <sup>k</sup>	A <sup>k</sup>	A <sup>k</sup>	---	A <sup>k</sup>	---	---
Where wiring methods are installed in grooves, to be covered by wallboard, siding, paneling, carpeting or similar finish, wiring methods <i>shall</i> be protected by 0.0625-inch thick steel plate, sleeve, or equivalent; a <i>listed</i> plate; or by not less than 1¼-inch free space for the full length of the groove in which the cable or raceway is installed.	A	---	A	A	A	---	A	A	A
Securely fastened bushing or grommets <i>shall</i> be provided to protect wiring run through openings in metal framing members.	---	---	A <sup>i</sup>	---	A <sup>j</sup>	---	A <sup>j</sup>	---	---
The maximum number of 90-degree bends <i>shall</i> not exceed four between junction boxes.	---	A	A	A	---	A	---	---	---
Bushings <i>shall</i> be provided where entering a box, fitting or enclosure unless the box or fitting is designed to afford equivalent protection.	A	A	A	A	---	A	---	A	---
Ends of raceways <i>shall</i> be reamed to remove rough edges.	---	A	A	A	---	A	---	A	---
Maximum allowable on center support spacing for the wiring method in feet.	4.5 <sup>b,c</sup>	10 <sup>l</sup>	3 <sup>b</sup>	4.5 <sup>b</sup>	4.5 <sup>i</sup>	3 <sup>d,l</sup>	2.5 <sub>e</sub>	---	2.5 <sup>e</sup>



INSTALLATION REQUIREMENTS (Requirement applicable only to wiring methods marked "A")	AC MC	EMT IMC RMC	ENT	FMC LFC	NM UF	RN C	SE	SR <sup>a</sup>	USE
Maximum support distance in inches from box or other terminations.	12 <sup>b, f</sup>	36	36	12 <sup>b, g</sup>	12 <sup>h, i</sup>	36	12	---	---

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 degree = 0.0175 rad.

a. Installed in accordance with listing requirements.

b. Supports not required in accessible ceiling spaces between light fixtures where lengths do not exceed 6 feet.

c. Six feet for MC cable.

d. Five feet for trade sizes greater than 1 inch.

e. Two and one-half feet where used for service or outdoor feeder and 4.5 feet where used for branch circuit or indoor feeder.

f. Twenty-four inches where flexibility is necessary.

g. Where flexibility after installation is necessary, lengths of flexible metal conduit and liquid tight flexible metal conduit measured from the last point where the raceway is securely fastened *shall* not exceed: 36 inches for trade sizes ½ through 1¼, 48 inches for trade sizes 1½ through 2 and 5 feet for trade sizes 2½ and larger.

h. Within 8 inches of boxes without cable clamps.

i. Flat cables *shall* not be stapled on edge.

j. Bushings and grommets *shall* remain in place and *shall* be *listed* for the purpose of cable protection.

k. See Sections R502.8 and R802.7 for additional limitations on the location of bored holes in horizontal framing members.

l. Where oversized, concentric or eccentric knockouts are not encountered, a raceway not greater than 18 inches in length *shall* not require support where it is a continuous length without couplings. Such raceways *shall* terminate at an outlet box, junction box, device box, cabinet, or other termination at each end of the raceway.

## CHAPTER 39 – POWER AND LIGHTING DISTRIBUTION

(Amd) **FIGURE E3901.4 COUNTERTOP RECEPTACLES.** Add GFCI designation to the receptacle shown in the pictorial figure at the center island countertop.

(Amd) **E3902.17 Arc-fault circuit interrupter protection for branch circuit extensions or modifications.** Where branch-circuit wiring is modified, replaced, or extended in any of the areas specified in Section E3902.12, the branch circuit *shall* be protected by one of the following:

1. A combination-type AFCI located at the origin of the branch circuit.
2. An outlet branch-circuit type AFCI located at the first receptacle outlet of the existing branch circuit.

### Exceptions:

1. AFCI protection *shall* not be required for replacement receptacles.
2. AFCI protection *shall* not be required where an extension of the existing conductors is not more than 6 feet (1.8 m) in length and does not include any additional outlets or devices.

## CHAPTER 44 – REFERENCED STANDARDS

(Amd)

**ANSI**

American National Standards Institute  
25 West 43<sup>rd</sup> Street, Fourth Floor  
New York, NY 10036

Standard reference number—year of publication	Title	Referenced in code section number
(Add) 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	R1106.3 R1106.6
(Add) ANSI/RESNET/ICC 380-2016	Standard for Testing Airtightness of Building Enclosures, Airtightness of Heating and Cooling Air Distribution Systems, and Airflow of Mechanical Ventilation Systems	R1102.4.1.2 R1103.3.3

(Amd)

**NFPA**

National Fire Protection Association  
1 Batterymarch Park  
Quincy, MA 02269

Standard reference number—year of publication	Title	Referenced in code section number
(Add) 02-11	Hydrogen Technologies Code	R101.4.1
(Add) 54-15	National Fuel Gas Code	R101.4.1
(Amd) 70-17	National Electrical Code	E3401.1, E3401.2, E4301.1, Table E4303.2, E4304.3, E4304.4, R324.3

## APPENDIX E - MANUFACTURED HOUSING USED AS DWELLINGS

(Amd) **AE101.1 General.** The provisions of Appendix E *shall* be applicable only to a *manufactured home* used as a single *dwelling unit* and *shall* apply to the following:

1. Construction, *alteration* and *repair* of any foundation system necessary to provide for the installation of a *manufactured home* unit.
2. Construction, installation, *addition*, *alteration*, *repair* or maintenance of the *building* service equipment necessary for connecting *manufactured homes* to water, fuel or power supplies and sewage systems.

3. *Alterations, additions or repairs* to existing *manufactured homes*. The construction, *alteration*, moving, demolition, *repair* and use of accessory *buildings* and structures and their *building service equipment shall* comply with the requirements of the Connecticut State Building Code.

These provisions *shall* not be applicable to the design and construction of *manufactured homes* and *shall* not be deemed to authorize either modifications or *additions* to *manufactured homes* where otherwise prohibited.

**Exception:** In addition to these provisions, new and replacement *manufactured homes* to be located in *flood hazard areas* as determined locally *shall* meet the applicable requirements of Section R322 of this code.

(Amd) **AE600.1 General.** The provisions of Sections AE601 to AE606, inclusive, are applicable only upon request of the building *permit* applicant with the approval of the local *building official*.

(Amd) **SECTION AE606 REFERENCED STANDARDS**

ASTM C 270 – 07 Specification for Mortar for Unit Masonry.....AE602

NFPA 501 – 10 Standard on Manufactured Housing.....AE201

(Amd) **APPENDIX F – PASSIVE RADON GAS CONTROLS**

(Amd) **AF101.1 General.** This appendix contains radon-resistant construction techniques for new construction.

(Add) **AF101.2 Radon Mitigation Preparation Construction Technique.** All newly constructed detached *one- and two-family dwellings* and *townhouses shall* be provided with radon mitigation preparation construction in accordance with Section AF104 of this code.

**Exceptions:**

1. Radon-resistant construction technique complying with Section AF103 of this code.
2. Such systems *shall* not be required in existing *buildings* undergoing *repair, addition or alteration*. In the case of an *addition* to an existing *building*, this exception also applies to the new construction.

(Add) **AF102.2 Definitions.** Add or amend the following definitions.

(Amd) **SOIL-GAS-RETARDER.** A continuous membrane of 6-mil (0.15 mm) polyethylene or other *approved* equivalent material used to retard the flow of soil gases into a *dwelling*.

**SECTION AF103 PASSIVE RADON-RESISTANT SYSTEM REQUIREMENTS**

(Amd) **AF103.2 Entry routes.** Potential radon entry routes *shall* be closed in accordance with Sections AF103.2.1 to AF103.2.7, inclusive, of this code.

(Amd) **AF103.3.2 “T” fitting and vent pipe.** A 3- or 4-inch “T” fitting *shall* be inserted beneath the soil-gas-retarder and be connected to a vent pipe. The vent pipe *shall* extend through the *conditioned space* of the *dwelling* and terminate not less than 12 inches (305 mm) above the roof in a location not less than 10 feet (3048 mm) away from any window or other opening into the *conditioned spaces* of the *building* that is less than 2 feet (610 mm) below the exhaust point. The vent pipe *shall* be the same *diameter* throughout its length and *shall* be supported in accordance with Section P2605.

(Amd) **AF103.4.3 “T” fitting and vent pipe.** Before a slab is cast or other floor system is installed, a “T” fitting *shall* be inserted below the slab or other floor system and the soil-gas- retarder. The “T” fitting *shall* be connected to a vent pipe. The vent pipe *shall* extend through the *conditioned space* of the *dwelling* and terminate not less than 12 inches (305 mm) above the roof in a location not less than 10 feet (3048 mm) away from any window or other opening into the *conditioned spaces* of the *building* that is less than 2 feet (610 mm) below the exhaust point. The vent pipe *shall* be the same *diameter* throughout its length and *shall* be supported in accordance with Section P2605.

(Amd) **AF103.6 Multiple vent pipes.** In *dwellings* where interior footings or other barriers separate the gas-permeable layer, each area *shall* be fitted with an individual vent pipe. Vent pipes *shall* connect to a single vent that terminates not less than 12 inches above the roof or each individual vent pipe *shall* terminate separately not less than 12 inches above the roof. The vent pipe *shall* be the same *diameter* throughout its length and *shall* be supported in accordance with Section P2605.

(Amd) **AF103.10 Power source and access for future radon fan.** To provide for future installation of a radon fan, an electrical circuit terminated in an *approved* box *shall* be installed during construction in the anticipated location of the radon fans. An accessible clear space 22 inches (610 mm) in *diameter* by 3 feet (914 mm) in height adjacent to the vent pipe *shall* be provided at the anticipated location of a future radon fan.

## (Add) **SECTION AF104 RADON MITIGATION PREPARATION**

(Add) **AF104.1 Soil-gas-retarder.** A continuous membrane of 6-mil (0.15 mm) polyethylene or other *approved* equivalent material used to retard the flow of soil gases into a *dwelling shall* be installed under the floor slab in accordance with R506.2.3.

(Add) **AF104.2 “T” fitting and vent pipe.** Before a slab is cast or other floor system is installed, a 3-inch “T” fitting *shall* be inserted beneath the soil-gas-retarder. The “T” fitting *shall* be surrounded by aggregate consisting of material that will pass through a 2-inch (51 mm) sieve and be retained by a ¼-inch (6.4 mm) sieve not less than an 8-inch deep by 24-inch *diameter* hole. The aggregate *shall* be wrapped in filter fabric or equivalent material. The “T” fitting *shall* be connected to a 3-inch *diameter* (76 mm) ABS or PVC vent pipe extending from the *basement* through the *conditioned space* of the *dwelling* and terminate and be capped not less than 12 inches (305 mm) above the roof in a location not less than 10 feet (3048 mm) away from any window or other opening into the *conditioned spaces* of the *building* that is less than 2 feet (610 mm) below the exhaust point. The vent pipe *shall* be the same *diameter* throughout its length and *shall* be supported in accordance with Section P2605. The vent pipe *shall* be labeled at the bottom and in the *attic* and *shall* specifically state: “Reserved for a Potential Radon Reduction Mechanical System”.

(Add) **AF104.2.1 Combination foundations.** Where *basement* or crawl space floors are on different levels, each level *shall* have a separate vent pipe. Multiple vent pipes *shall* be permitted to be connected to a single vent pipe that terminates above the roof.

(Add) **AF104.2.2 Drain tile and sump used for depressurization.** As an alternative to inserting a vent pipe into a “T” fitting, a vent pipe *shall* be permitted to be inserted directly into an interior perimeter drain tile loop or through a sump cover.

(Add) **AF104.3 Floor openings.** Openings around bathtubs, showers, water closets, pipes, wires or other objects that penetrate *concrete* slabs, or other floor assemblies, *shall* be filled with a polyurethane caulk or expanding foam applied in accordance with the manufacturer’s instructions. In addition, slab joints inclusive of cracks, penetrations, expansion joints and the slab to foundation connections, *shall* be filled with polyurethane caulk.

(Add) **AF104.4 Sumps.** Sumps open to soil or serving as the termination point for subslab or exterior drain tile loops *shall* be covered with a gasketed or sealed lid. Sumps used as the suction point in a subslab depressurization system *shall* have a lid designed to accommodate the vent pipe. Sumps used as a floor drain *shall* have a lid equipped with a trapped inlet.

(Add) **AF104.5 Waterproofing and dampproofing.** The *exterior surfaces* of foundation walls below grade *shall* be waterproofed or dampproofed in accordance with Section R406.

(Add) **AF104.6 Power source for future radon fan.** To provide for future installation of a potential radon fan AF104.6.1 or AF104.6.2 *shall* be met:

(Add) **AF104.6.1 Conduit for future radon fan.** A  $\frac{3}{4}$  inch electrical compliant conduit from the *basement* or room or space that the electrical panel is located to the attic *shall* be installed during construction. This conduit is intended to and dedicated for accommodating electrical wiring should a radon mitigation fan be installed. The conduit *shall* be capped in both the *basement* and in the *attic*. The conduit *shall* be labeled at the top and bottom and specifically state: “Reserved for a Potential Radon Reduction Mechanical System”.

(Add) **AF104.6.2 Circuit for future radon fan.** To provide for future installation of a radon fan, an electrical circuit terminated in an *approved* box *shall* be installed during construction in the anticipated location of the radon fans.

(Add) **AF104.7 Accessible clear space.** An *accessible* clear space 22 inches (610 mm) in diameter by 3 feet (914 mm) in height adjacent to the vent pipe *shall* be provided in the *attic* or at an acceptable location of a potential radon fan.

(Add) **APPENDIX V – WIND SPEEDS, SEISMIC DESIGN CATEGORIES and GROUND SNOW LOADS**

Municipality	Ultimate Wind Speed, $V_{ult}$	Nominal Wind Speed, $V_{asd}$	Seismic Design Category <sup>1</sup>		Ground Snow Load, $P_g$ (psf)
			Site (Soil) Class A-D	Site (Soil) Class E	
Andover	130	101	B	B	30
Ansonia	125	97	B	B	30
Ashford	130	101	B	B	35
Avon	120	93	B	B	35
Barkhamsted	120	93	B	B	40
Beacon Falls	125	97	B	B	30
Berlin	125	97	B	B	30
Bethany	125	97	B	B	30
Bethel	120	93	B	C	30
Bethlehem	120	93	B	B	35
Bloomfield	125	97	B	B	35
Bolton	125	97	B	B	30
Bozrah	135	105	B	B	30
Branford	130	101	B	B	30
Bridgeport	125	97	B	C	30
Bridgewater	120	93	B	C	35
Bristol	120	93	B	B	35
Brookfield	120	93	B	C	35
Brooklyn	130	101	B	B	35
Burlington	120	93	B	B	35
Canaan	115	89	B	B	40
Canterbury	130	101	B	B	35
Canton	120	93	B	B	35
Chaplin	130	101	B	B	35
Cheshire	125	97	B	B	30
Chester	130	101	B	B	30
Clinton <sup>2</sup>	135	105	B	B	30
Colchester	130	101	B	B	30
Colebrook	115	89	B	B	40
Columbia	130	101	B	B	30
Cornwall	115	89	B	B	40
Coventry	130	101	B	B	30
Cromwell	125	97	B	B	30
Danbury	120	93	B	C	30
Darien	120	93	B	C	30
Deep River	130	101	B	B	30
Derby	125	97	B	B	30
Durham	130	101	B	B	30
Eastford	130	101	B	B	40
East Granby	120	93	B	B	35

Municipality	Ultimate Wind Speed, $V_{ult}$	Nominal Wind Speed, $V_{asd}$	Seismic Design Category <sup>1</sup>		Ground Snow Load, $P_g$ (psf)
			Site (Soil) Class A-D	Site (Soil) Class E	
East Haddam	130	101	B	B	30
East Hampton	130	101	B	B	30
East Hartford	125	97	B	B	30
East Haven	130	101	B	B	30
East Lyme <sup>2</sup>	135	105	B	B	30
Easton	120	93	B	C	30
East Windsor	125	97	B	B	35
Ellington	125	97	B	B	35
Enfield	125	97	B	B	35
Essex	135	105	B	B	30
Fairfield	125	97	B	C	30
Farmington	125	97	B	B	35
Franklin	130	101	B	B	30
Glastonbury	125	97	B	B	30
Goshen	115	89	B	B	40
Granby	120	93	B	B	35
Greenwich	120	93	B	C	30
Griswold	135	105	B	B	30
Groton <sup>2</sup>	135	105	B	B	30
Guilford	130	101	B	B	30
Haddam	130	101	B	B	30
Hamden	125	97	B	B	30
Hampton	130	101	B	B	35
Hartford	125	97	B	B	30
Hartland	120	93	B	B	40
Harwinton	120	93	B	B	35
Hebron	130	101	B	B	30
Kent	115	89	B	B	40
Killingly	130	101	B	B	40
Killingworth	130	101	B	B	30
Lebanon	130	101	B	B	30
Ledyard	135	105	B	B	30
Lisbon	135	105	B	B	30
Litchfield	120	93	B	B	40
Lyme	135	105	B	B	30
Madison <sup>2</sup>	130	101	B	B	30
Manchester	125	97	B	B	30
Mansfield	130	101	B	B	35
Marlborough	130	101	B	B	30
Meriden	125	97	B	B	30
Middlebury	120	93	B	B	35
Middlefield	125	97	B	B	30
Middletown	130	101	B	B	30
Milford	125	97	B	B	30
Monroe	120	93	B	C	30
Montville	135	105	B	B	30

Municipality	Ultimate Wind Speed, $V_{ult}$	Nominal Wind Speed, $V_{asd}$	Seismic Design Category <sup>1</sup>		Ground Snow Load, $P_g$ (psf)
			Site (Soil) Class A-D	Site (Soil) Class E	
Morris	120	93	B	B	35
Naugatuck	125	97	B	B	30
New Britain	125	97	B	B	30
New Canaan	120	93	B	C	30
New Fairfield	115	89	B	C	35
New Hartford	120	93	B	B	40
New Haven	125	97	B	B	30
Newington	125	97	B	B	30
New London <sup>2</sup>	135	105	B	B	30
New Milford	115	89	B	B	35
Newtown	120	93	B	C	30
Norfolk	115	89	B	B	40
North Branford	130	101	B	B	30
North Canaan	115	89	B	B	40
North Haven	125	97	B	B	30
North Stonington	135	105	B	B	30
Norwalk	120	93	B	C	30
Norwich	135	105	B	B	30
Old Lyme <sup>2</sup>	135	105	B	B	30
Old Saybrook <sup>2</sup>	135	105	B	B	30
Orange	125	97	B	B	30
Oxford	125	97	B	B	30
Plainfield	135	105	B	B	35
Plainville	125	97	B	B	35
Plymouth	120	93	B	B	35
Pomfret	130	101	B	B	40
Portland	130	101	B	B	30
Preston	135	105	B	B	30
Prospect	125	97	B	B	30
Putnam	130	101	B	B	40
Redding	120	93	B	C	30
Ridgefield	120	93	B	C	30
Rocky Hill	125	97	B	B	30
Roxbury	120	93	B	B	35
Salem	135	105	B	B	30
Salisbury	115	89	B	B	40
Scotland	130	101	B	B	30
Seymour	125	97	B	B	30
Sharon	115	89	B	B	40
Shelton	125	97	B	C	30
Sherman	115	89	B	C	35
Simsbury	120	93	B	B	35
Somers	125	97	B	B	35
Southbury	120	93	B	B	35
Southington	125	97	B	B	30
South Windsor	125	97	B	B	30



Municipality	Ultimate Wind Speed, $V_{ult}$	Nominal Wind Speed, $V_{asd}$	Seismic Design Category <sup>1</sup>		Ground Snow Load, $P_g$ (psf)
			Site (Soil) Class A-D	Site (Soil) Class E	
Sprague	130	101	B	B	30
Stafford	125	97	B	B	35
Stamford	120	93	B	C	30
Sterling	135	105	B	B	35
Stonington <sup>2</sup>	140	108	B	B	30
Stratford	125	97	B	C	30
Suffield	120	93	B	B	35
Thomaston	120	93	B	B	35
Thompson	130	101	B	B	40
Tolland	125	97	B	B	35
Torrington	120	93	B	B	40
Trumbull	125	97	B	C	30
Union	125	97	B	B	40
Vernon	125	97	B	B	30
Voluntown	135	105	B	B	30
Wallingford	125	97	B	B	30
Warren	115	89	B	B	40
Washington	120	93	B	B	35
Waterbury	125	97	B	B	35
Waterford <sup>2</sup>	135	105	B	B	30
Watertown	120	93	B	B	35
Westbrook <sup>2</sup>	135	105	B	B	30
West Hartford	125	97	B	B	30
West Haven	125	97	B	B	30
Weston	120	93	B	C	30
Westport	120	93	B	C	30
Wethersfield	125	97	B	B	30
Willington	125	97	B	B	35
Wilton	120	93	B	C	30
Winchester	120	93	B	B	40
Windham	130	101	B	B	30
Windsor	125	97	B	B	35
Windsor Locks	125	97	B	B	35
Wolcott	125	97	B	B	35
Woodbridge	125	97	B	B	30
Woodbury	120	93	B	B	35
Woodstock	130	101	B	B	40

Footnotes:

1. If *Site Class F* is present, the Short Period Spectral Response Acceleration ( $S_{DS}$ ) shall be determined according to Section 1613.3 of the International Building Code, and the *Seismic Design Category* shall be determined in accordance with Table 301.2.2.1.1.
2. Areas south of Interstate 95 in this municipality are classified as a *wind-borne debris region*. See Section R202 for exceptions.



## **Proposed 2018 Connecticut State Building Code**

Comments Received During Public Comment Period

January 2, 2018 – February 16, 2018

Prepared In Response To Legislative Review  
May 31, 2018

## 2018 Connecticut State Building Code

### Public Comments and Resulting Actions

Commenter	Model Code	Code Section(s)	Subject	Comment	Response
Margaret Gorman Senior Director Northeast Region American Chemistry Council	2015 IECC	n/a	Energy Code Amendments	General support of adoption of 2015 IECC, but recommends "that Connecticut eliminate the weakening amendments to the air leakage and duct tightness testing requirements and adopt the full 2015 IECC."  (Note: Letter was received via e-mail on 1/19/18, is dated 2/16/17 and references the 1/2/18 release of the draft code)	In IECC section R402.4.1.2 an exception was added increasing the allowable air leakage rate for "low-rise, attached dwelling units" governed by the residential provisions of the IECC. This exception is operable only if the contractor does not utilize a guarded blower door test to control the internal air pressure of any adjoining dwelling units. Normalizing internal pressure of the dwelling being tested relative to adjacent dwellings would require pressurization/depessurization of adjoining dwellings units using multiple blower-door apparatus simultaneously. Further, as leakage to non-pressure normalized adjoining units is not "leakage to the outside" an energy penalty for such leakage does not occur.
Darren Port Northeast Energy Efficiency Partnerships	2015 IECC	n/a	Energy Code Amendments	Overall support, but provides comment regarding the CT amendments regarding: (1) R402.4.1.2 Testing Air Leakage; (2) R403.3.4 Duct Leakage (Prescriptive); (3) R406.4 ERI-Based Compliance.	In IECC section R403.3.4 the duct air leakage values are increased when testing is done including the air handler with the duct system. Stakeholder feedback has indicated that meeting the model code values with the air handler included has been challenging due to leakage at the air handler. The model code values are unchanged when a duct system is tested without the unit, which is the more common method used to test these systems.
Eric Lacey Responsible Energy Codes Alliance	2015 IECC	n/a	Energy Code Amendments	Overall support, but provides comment regarding the CT amendments regarding: (1) R402.4.1.2 Testing Air Leakage; (2) R403.3.4 Duct Leakage (Prescriptive); (3) R406.4 ERI-Based Compliance.	The CT amendment deletes section 406.3.1 that refers to an ERI reference design and instead includes the 2018 IECC language that references the RESNET/ICC 301 standard. The 2018 IECC also increases the Climate Zone 5 maximum allowable ERI to 61 from 55. This was done as it was discovered that the prescriptive path requirements would yield an equivalent of ERI 61, thus making the ERI more rigorous than the prescriptive path which was not the intent of the committee. ICC corrected this mismatch by raising the C25 ERI to 61 for the 2018 IECC. The CT amendment to R406.4 does this by including the requirement that the design has a maximum ERI of 61 "without the use of renewable energy". Any backstop language is unnecessary as the performance requirements of ERI 61 remain.
Tim Mailloux Tecton Architects	2015 IBC	1005.3.1 1019	Exit stair factors Exit access stairways	1. Request that the state of CT allows the exceptions in the model 2015 IBC to section 1005.3.1 Stairways, and allow for the stair egress factor of 0.2 inches per occupant in building equipped with automatic sprinkler systems. 2. Allow for exit access stairways to be used as a means of egress per the model 2015 IBC code.	1) CT has historically removed this exception, choosing to require the more conservative sizing of egress stairs. 2) CT has historically removed this condition, choosing to require the more conservative approach in requiring enclosure of egress stairs.
Robert Scully	2015 IPC	Ch. 14	Subsurface Landscape Irrigation Systems	Proposes further amendment of the gray water provisions in the IPC to better align with the Public Health Code.	The amendment document has been revised to delete the entire contents of IPC Chapter 14 and refer to the CT Public Health Code.
Doug Coulter	2015 IMC 2015 IRC	Various	Various	Oral testimony at public hearing and written submission regarding: (1) Commercial Kitchen Grease Duct Testing - adding test methods (2) IRC Fuel Burning Equipment - IRC code path to NFPA 31	Section 506.3.2.5 of the 2015 IMC has been modified by deleting the light test and including three other test methods – positive air pressure, positive air pressure with smoke, or water spray. The IRC mechanical chapters are meant to address installations typically found in one and two family dwellings. M1301.1 specifically points to the IMC for equipment and installations beyond the scope of the IRC. The IRC does reference NFPA 31, in areas where appropriate for the equipment covered by this code. The IRC refers to sections of the IFC which have been deleted in the CT Fire Safety Code for the removal of oil tanks. The salient sections from NFPA 30 have been added to the IRC with these requirements.
Mike Sinigalli CFMA / 541 Committee	2015 IFC 2015 IBC	Various	Various	(1) 2015 IFC - Restore 507.1.507.2 (Water supply), 507.5.1.1 (Standpipe systems) & 507.5.6 (Physical protection) (2) 2015 IFC/IBC - 903.2.1.2 A-2 use group sprinkler threshold (3) IFC/IBC 1006.3.2 (1) Single exit for R-2 buildings	Comments were applied as discussed with the subcommittee.
David Thompson Encore Fire Protection	2015 IRC	-	Adoption of 2015 IRC w/out amendment	Adoption of 2015 IRC w/out amendment	Adoption without amendments is impractical as statutory requirements must be included into the codes.
Peter Zvingilas President CBOA	2018 SBC	n/a	General Support	Letter in support of adopting proposed 2018 State Building Code.	
William Nash Government Relations Manager ICC	ICC Codes	n/a	General Support	Letter in support of adoption of 2015 ICC model codes for the 2018 Connecticut State Building Code.	

Dennis Milenovic CBOA	General	General	General Support	Testimony in <u>support</u> of proposed 2018 SBC	
Michael Trahan	2015 IRC	R324.6.1 R324.7.2.5	Photovoltaic	We're asking for a clarification and a change to the Draft 2018 SBC sections dealing with solar. We understand (Amd) R324.6.1 to mean that ground mount arrays are classified as accessory structures. Yes? (Add) R324.7.2.5 "... located less than 3-feet-[9944mm] [18"] below the roof ridge ... " (This is consistent with NY State Fire Code and conforms with R324.7.2.4).	Yes, that is correct. This section has been revised to provide added clarity.  This comment identifies a conflict between the requirements in R324.7.2.5 and R324.7.2.4. We have removed section R324.7.2.5 as it has the same purpose and intent as the spacing requirements in R324.7.2.4.
Jack Lyons National Electrical Manufacturers' Association (NEMA)	2017 NEC	404.6(D)4	Replacement Receptacles & Arc Fault Protection	Oral testimony at public hearing and letter (e-Mailed 1/23/18) in opposition of removing the NEC requirement that replacement receptacles are required to provide arc fault protection. 2nd letter e-mailed 2/16/18.	Sections NEC 406.4 (D) and IRC E3902.17 have been revised based on your input.
Steven Cerruto Vice President of Operations Torrington Water Company	2015 IRC 2015 IBC	R313.1 R313.2 407.13	Residential Sprinklers	The Torrington Water Co. opposes HB-5278 due to several concerns. Residential meters are not fire rated. A separate fire service line creates the possibility of an illegal connection. Furthermore, if by chance the fire line is connected to the domestic service and there was a termination for non payment what would be the liability on the company? We still object to any idea of having a fire system on any domestic water service due to termination of service. We are also concerned with the Cross Connection that would occur.	
Robert Longo Superintendent Bristol Water	2015 IRC 2015 IBC	R313.1 R313.2 407.13	Residential Sprinklers	[OSBI Note: This commenter's email was included in the string of emails included with commenter PC-002's comment.]	
Kathlene Gerrity Connecticut Burns Care Foundation	2015 IRC	R313.1 R313.2	Residential Sprinklers	Oral testimony at public hearing and written submission <u>in support</u> of requiring residential sprinklers in townhouses.	
Joanne Breen	2015 IRC	R313.1 R313.2	Residential Sprinklers	Oral testimony at public hearing in <u>opposition</u> of requiring residential sprinklers in townhouses.	The committee reviewed all of the materials provided on this subject during the public comment period, held a follow up discussion and decided to include the sprinkler requirement for IRC townhouses.
Carl Lantz	2015 IRC	R313.1 R313.2	Residential Sprinklers	Oral testimony at public hearing and written submission <u>in opposition</u> of requiring residential sprinklers in townhouses.	
Theresa Hatton	2015 IRC	R313.1 R313.2	Residential Sprinklers	Written submission in <u>opposition</u> of requiring residential sprinklers in townhouses.	
Roger Nelson Bloomfield Fire Marshal	2015 IRC	R313.1 R313.2	Residential Sprinklers	Oral testimony at public hearing and written submission <u>in support</u> of requiring residential sprinklers in townhouses.	
David Waskowicz CT Fire Protection Sprinkler Systems Work Examining Board	2015 IRC	R313.1 R313.2	Residential Sprinklers	Oral testimony at public hearing in <u>support</u> of requiring residential sprinklers in townhouses.	
Robert Hanbury	2015 IRC	R313.1 R313.2	Residential Sprinklers	Oral testimony at public hearing in <u>opposition</u> of requiring residential sprinklers in townhouses.	
Mike Carrier SOMAK Inc.	2015 IRC	R313.1 R313.2	Residential Sprinklers	Oral testimony at public hearing and written submission in <u>opposition</u> of requiring residential sprinklers in townhouses.	
Robert Fusari, Sr.	2015 IRC	R313.1 R313.2	Residential Sprinklers	Oral testimony at public hearing and written submission in <u>opposition</u> of requiring residential sprinklers in townhouses.	

Chris Nelson Nelson Construction	2015 IRC	R313.1 R313.2	Residential Sprinklers	Oral testimony at public hearing and written submission in <u>opposition</u> of requiring residential sprinklers in townhouses.
Alan & Liz Kovia Nordic Builders of Tolland	2015 IRC	R313.1 R313.2	Residential Sprinklers	Oral testimony at public hearing in <u>opposition</u> of requiring residential sprinklers in townhouses.
Eric & Kevin Santini Santini Homes	2015 IRC	R313.1 R313.2	Residential Sprinklers	Oral testimony at public hearing in <u>opposition</u> of requiring residential sprinklers in townhouses.
Tony Donorfia A.A. Denorfia Building & Development	2015 IRC	R313.1 R313.2	Residential Sprinklers	Oral testimony at public hearing in <u>opposition</u> of requiring residential sprinklers in townhouses.
David LaFond NFA	2015 IRC	R313.1 R313.2	Residential Sprinklers	Oral testimony at public hearing in <u>support</u> of requiring residential sprinklers in townhouses and in one- and two-family dwellings. Written submission followed on 2/14/18.
Rick Russo Jr. AFSA CT Chapter	2015 IRC	R313.1 R313.2	Residential Sprinklers	Oral testimony at public hearing in <u>support</u> of requiring residential sprinklers in townhouses.
Bob Hollis AFSA	2015 IRC	R313.1 R313.2	Residential Sprinklers	Oral testimony at public hearing in <u>support</u> of requiring residential sprinklers in townhouses.
Jeff Shapiro IRC Fire Sprinkler Coalition	2015 IRC	R313.1 R313.2	Residential Sprinklers	Oral testimony at public hearing in <u>support</u> of requiring residential sprinklers in townhouses. Written submission received 2/15/18.
Bill Ethier	2015 IRC	R313.1 R313.2	Residential Sprinklers	Written submission in <u>opposition</u> of requiring residential sprinklers in townhouses.
Kevin Cooney CT Fire Chiefs Association	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses.
Ashley Ranslow Manager of Government Affairs Northeastern Retail Lumber Association	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>opposition</u> of requiring residential sprinklers in townhouses.
Robert Duval Northeast Regional Director / Senior Fire Investigator NFA	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses.
Michael Roke Owner Fire System Services, LLC	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>support</u> of requiring residential sprinklers in townhouses and in one- and two-family dwellings.
Wendy Callahan American Fire Sprinkler Association	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>support</u> of requiring residential sprinklers in townhouses and in one- and two-family dwellings.
Kyle Tasse Viega	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>support</u> of requiring residential sprinklers in townhouses and in one- and two-family dwellings.
James Brake Brake Fire Protection Robert Wiedenmann Sunwood Development	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>support</u> of requiring residential sprinklers in townhouses and in one- and two-family dwellings.
Kyle Evans K&M Fire Protection Services	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses and in one- and two-family dwellings.

The committee reviewed all of the materials provided on this subject during the public comment period, held a follow up discussion and decided to include the sprinkler requirement for IRC townhouses.

Brent Renius K&M Fire Protection Services	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses and in one- and two-family dwellings.
Kurt Livzey K&M Fire Protection Services	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses and in one- and two-family dwellings.
Tony Burling K&M Fire Protection Services	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses and in one- and two-family dwellings.
Mark Seeger Retired Fire Chief / Fire Marshal	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses and in one- and two-family dwellings.
Robert Albert Deputy Fire Marshal City of Shelton	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses.
Paul Interlandi Waterford Builders	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>opposition</u> of requiring residential sprinklers in townhouses.
Peter Fisherman East Brook Construction Co.	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>opposition</u> of requiring residential sprinklers in townhouses.
Mike Mastronunzio Brom Builders	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>opposition</u> of requiring residential sprinklers in townhouses.
Rico Mastronunzio Brom Builders	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>opposition</u> of requiring residential sprinklers in townhouses.
Joe Mastronunzio Brom Builders	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>opposition</u> of requiring residential sprinklers in townhouses.
Russ Smith Amity Construction & Design	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>opposition</u> of requiring residential sprinklers in townhouses.
Gary Merrigan M&L Development Corporation	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>opposition</u> of requiring residential sprinklers in townhouses.
Joanne Carroll JMC Resources	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>opposition</u> of requiring residential sprinklers in townhouses.
Diane Rodrigues Absolute Fire Sprinklers	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>support</u> of requiring residential sprinklers in townhouses.
Vernon Proctor HD Segur Insurance	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>opposition</u> of requiring residential sprinklers in townhouses.
Alyssa Paradis Central CT Fire Protection	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>support</u> of requiring residential sprinklers in townhouses and in one- and two-family dwellings.
David Cooper Connecticut Valley Homes	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>opposition</u> of requiring residential sprinklers in townhouses.
William Rhodes Hampshire Fire Protection	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses and in one- and two-family dwellings.
Scott Tillmann HTH Automatic Sprinkler	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses and in one- and two-family dwellings.
Richard Wildermuth Connecticut Valley Homes	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>opposition</u> of requiring residential sprinklers in townhouses.
John Fecke Kitchen Company	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>opposition</u> of requiring residential sprinklers in townhouses.
Catherine Taylor CT Valley Homes	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>opposition</u> of requiring residential sprinklers in townhouses.
Dale Hall Simplex Grinnell Johnson Controls	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses and in one- and two-family dwellings.
George McPherson CT Valley Homes	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>opposition</u> of requiring residential sprinklers in new homes.

Jim Lord Complete Fire Protection	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses and in one- and two-family dwellings.
Robert Norton North Canaan Fire Marshal	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses.
Stefanie Demaris Core & Main Fire Protection	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses and in one- and two-family dwellings.
Adam Libros Mansfield Fire Marshal	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses.
Albert Harbec HHS Mechanical	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses and in one- and two-family dwellings.
Anthony Medeiros	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses and in one- and two-family dwellings.
Dan Volovski UConn Fire Inspector	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses.
Darrick Lundeen Ansonia Fire Marshal	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses.
James Tortora Shelton Fire Marshal	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses.
Jessica Zadrozny Excel Realty, LLC	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>opposition</u> of requiring residential sprinklers in townhouses.
John O'Brien North Branford Deputy FM	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>support</u> of requiring residential sprinklers in townhouses.
Keith Flood West Haven Fire Marshal	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses.
Mark Nimons East Haven Fire Marshal	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>support</u> of requiring residential sprinklers in townhouses.
Michael Giantonio Glastonbury Deputy FM	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses.
Patrick Tourville Simsbury Deputy FM	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses.
Paul Burton Hebron Fire Dept. Peter Tyc	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses.
Middlefield Fire Marshal's Office	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>support</u> of requiring residential sprinklers in townhouses.
Robert Grimaldi Bristol Fire Marshal	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses.
Thomas Donnelly Manchester Fire Dept.	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>support</u> of requiring residential sprinklers in townhouses.
Thomas Wisener Southington Fire Marshal	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses.
William Davin Monroe Fire Marshal	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses.
William Kessler Fairfield Fire Marshal	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>support</u> of requiring residential sprinklers in townhouses.
Elizabeth Gara Connecticut Water Works Association	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>opposition</u> of requiring residential sprinklers in townhouses.
Ignatius Kapalczynski American Fire Services	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in <u>support</u> of requiring residential sprinklers in townhouses.
James DiPace	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>support</u> of requiring residential sprinklers in townhouses.
Liz Koiva	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in <u>opposition</u> of requiring residential sprinklers in new homes.

The committee reviewed all of the materials provided on this subject during the public comment period, held a follow up discussion and decided to include the sprinkler requirement for IRC townhouses.

Lori Mathieu Public Health Section Chief - CT DPH	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter proposing conditions be met before the approval and installation of a residential sprinkler system.
Robert Buch Darien Fire Marshal	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in support of requiring residential sprinklers in townhouses.
Robert Hanbury	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in opposition of requiring residential sprinklers in townhouses.
Robert Powers Nelson Construction	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in opposition of requiring residential sprinklers in townhouses.
Rocco Grosso Wilton Fire Dept.	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in support of requiring residential sprinklers in townhouses.
Dick Baron Woodstock Fire Marshal	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in support of requiring residential sprinklers in townhouses.
Alan Crabtree K&M Fire Protection	2015 IRC	R313.1 R313.2	Residential Sprinklers	Letter in support of requiring residential sprinklers in townhouses and in one- and two-family dwellings.
Greg Hanmer Brom Builders	2015 IRC	R313.1 R313.2	Residential Sprinklers	e-Mail in opposition of requiring residential sprinklers in townhouses.
		Other	Wall framing thermal break	Condensation risk from over sealing new homes.





February 16, 2017

Melody A. Currey  
Commissioner  
Department of Administrative Services

Joseph V. Cassidy, P.E.  
Department of Administrative Services  
Office of the State Building Inspector  
450 Columbus Boulevard, Suite 1303  
Hartford, CT 06103

**RE: ACC Comments Supporting the Adoption of the 2015 IECC for Residential and Commercial Construction in Connecticut with no weakening amendments**

Dear Ms. Currey and Mr. Cassidy:

In March of 2017, the American Chemistry Council wrote to support of the adoption of the 2015 International Energy Conservation Code without any weakening amendments. On January 2, your office released a draft 2018 Connecticut State Building Code. This draft document represents a significant improvement in Connecticut's energy code, but it can be further improved upon before final adoption.

Connecticut has historically been among the leaders in its region, but a handful of weakening amendments incorporated in the existing code caused Connecticut to come up short of the model codes in overall efficiency. Adopting the model codes without weakening amendments is essential. The code is developed through an exhaustive public process and represents the collective wisdom of thousands of experts from various industries of where the minimum standards should be set. Tailoring amendments can be helpful, but only so long as they recognize that the model code is a floor, not a ceiling. Thus, we recommend that Connecticut eliminate the weakening amendments to the air leakage and duct tightness testing requirements and adopt the full 2015 IECC.

The American Chemistry Council (ACC) is a national trade association representing chemicals and plastics manufacturers in the United States, including member companies in Connecticut and providing over 13,000 direct jobs. Our members are committed to the safety of their products and to the protection of public health. Over 96% of all manufactured goods are directly touched by the business of chemistry, making this industry an essential part of every facet of our nation's economy. Chemistry provides significant economic benefits in every state including Connecticut. Thanks to chemistry, our lives are healthier, safer more sustainable and productive than before.

According to the U.S. DOE, the 2015 IECC builds upon the improvements of the 2012 IECC and provides additional energy and cost savings for residential homeowners.<sup>1</sup> This analysis also demonstrates that any incremental increases in

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<sup>1</sup> See U.S. Dep't of Energy, *Updating State Residential Building Energy Efficiency Codes, Notice of Final Determination*, 77 Fed. Reg. 29322 (May 17, 2012) (Final Determination on 2012 IECC), and U.S. Dep't of Energy, *Determination Regarding Energy*

cost for improved thermal envelope requirements will be more than recaptured in lower energy costs over the useful lifetime of the building.

As with Connecticut homeowners, owners and operators of commercial buildings constructed to the 2015 IECC in Connecticut will also save a substantial amount of energy and money. The consideration of the 2015 IECC will also help Connecticut meet its obligations under federal law. The benefits of adopting the 2015 IECC include more comfortable and more efficient homes and commercial buildings, a reduced need to build and site additional generation to meet growing electric demand, and the associated environmental impacts. These improvements will not only benefit the owners of these modern homes, but will also benefit Connecticut citizens as a whole.

Connecticut has businesses employing people in the development and sale of building products and systems used to increase the energy efficiency of buildings. In addition, manufacturers participate in the regular improvement of model codes as a means of delivering the very performance we expect from our office buildings, schools and homes. Companies in the advanced manufacturing sector provide quality jobs for the people of Connecticut.

ACC strongly supports Connecticut adoption and implementation of the 2015 IECC and we are happy to answer any questions that you have as you work to maximize building energy efficiency. Please contact me at 518-432-7835 if we can be of any further assistance.

Regards,



Margaret Gorman  
Senior Director, Northeast Region  
American Chemistry Council





February 15, 2018

**VIA ELECTRONIC MAIL**

Joseph V. Cassidy, P.E.  
Department of Administrative Services Office of the State Building Inspector  
165 Capitol Avenue, Room 265  
Hartford, CT 06106  
[DPS.CodesStandards@ct.gov](mailto:DPS.CodesStandards@ct.gov)

**RE: Connecticut 2015 Energy Code Adoption**

Dear Mr. Cassidy,

The Northeast Energy Efficiency Partnerships (NEEP) respectfully submits comments for your review and consideration. Over-all, adoption of 2015 suite of International Codes, will benefit the health, safety, and economy of Connecticut residents. Building codes and code compliance assures Connecticut will meet the state's energy efficiency and carbon reduction goals. Specifically, our comments address amendments to the 2015 International Energy Conservation Code.

**R402.4.1.2 Testing Air Leakage**

*The proposed amendment exempts low rise attached dwellings (townhouses) from complying with a maximum of three air changes per hour and permits five air changes per hour.*

Controlling air flow, heat flow, and moisture flow will benefit both the buildings construction elements and occupants. Reducing moisture, which increases with more air flow, increases material durability. Fire and smoke spread are reduced in tighter buildings. Indoor air quality improves as mold, and other pollutants, both interior, and exterior are limited. A tighter building envelope contributes to lower utility bills, which in turn stabilizes rental unit affordability and long term homeownership.

**R403.3.4 - Duct Leakage (Prescriptive)**

*This section of the code requires that duct leakage not exceed four cfm per 100 square feet of conditioned floor area. The proposed amendment allows for eight cfm of duct leakage per 100 square feet for both post construction and rough in.*

As the testing amendment above many of the same reasons prevails in requiring limited duct leakage: safety, indoor air quality, efficiency, and comfort. Ducts to code at four cfm decreases one of the most common comfort complaints, rooms that are too cold or too hot within the same structure or seasonally. This amendment places this code provision on par with the 2009 IECC, two cycles behind the current adoption. Considering current construction practices and programs offered by the state's utilities complying with tighter ducts as specified by the 2015 IECC is readily achievable.

**Inclusion of Reference Standards ANSI/RESNET/ICC 301-2015 and 308-2016**

Adoption of these standards is advantageous in enabling various options for code compliance, ensuring statewide consistency for code compliance and utilization of third-party inspectors.



#### **R406.4 ERI-based compliance**

*Rated design to a maximum ERI of 61, exceeds the 2015 IECC ERI of 55 by using the 2018 IECC ERI for climate zone five.*

Increasing the ERI score to 61 decreases overall buildings efficiency compared to the 2015 IECC ERI of 55. Additionally not including the backstop language provided in the 2018 IECC which ensures envelope efficiency is confusing in the market and to design professional and builders.

We recommend either inclusion of the backstop language, which will yield a 2015 IECC envelope backstop if on-site renewable generation is employed or preferably utilizing the 2015 IECC ERI of 55 with a 2009 IECC backstop in effect for buildings without on-site renewable generation.

Many states in the region are considering code provisions or above code initiatives such as stretch codes that will drive the ERI below 50 or more. There is widespread recognition in the governmental sector, the design community and construction trades that the future of building construction is zero energy or zero energy ready. Connecticut's utilities incentivize participation in the USDOE Energy Star Program and Zero Energy Ready Homes program. It seems incongruent to have conflicting priorities within the state, code increasing the direction of the ERI and other initiatives and programs driving toward zero.

#### **In conclusion**

NEEP is available to discuss the above matters and provide technical assistance, please do not hesitate to contact us at your convinance. Thank you for the opportunity to submit comments.

Sincerely,

A handwritten signature in black ink, appearing to read 'D. Port', written over a faint, light-colored signature line.

Darren S. Port

Buildings and Communities Solutions Manager  
NEEP - Northeast Energy Efficiency Partnerships  
81 Hartwell Avenue, Lexington, MA 02421-3137  
781-860-9177 Ext.132  
[dport@neep.org](mailto:dport@neep.org)  
[www.neep.org](http://www.neep.org)

#### ***Northeast Energy Efficiency Partnerships (NEEP)***

*The Northeast Energy Efficiency Partnerships (NEEP) is a regional non-profit organization whose mission is to accelerate energy efficiency as an essential part of demand-side solutions to enable a sustainable regional energy system. Through Collaboration, Education, and Enterprise NEEP envisions a region that embraces next-generation energy efficiency as a core strategy to meet energy needs in a carbon-constrained world.*

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February 16, 2018

**VIA ELECTRONIC MAIL**

Joseph V. Cassidy, P.E.  
State Building Inspector  
Department of Administrative Services  
Office of the State Building Inspector  
450 Columbus Blvd. Suite 1303  
Hartford, CT 06103

**RE: RECA Comments Supporting the Adoption of the 2015 *IECC* for Residential and Commercial Construction in Connecticut and Addressing Proposed Amendments**

Dear Mr. Cassidy,

We are writing to support the adoption of the 2015 *International Energy Conservation Code (IECC)* into the 2018 Connecticut State Building Code (2018 CSBC) for both residential and commercial energy conservation, without weakening amendments.<sup>1</sup> The 2015 *IECC* will bring a range of benefits to homeowners and owners and occupants of commercial buildings for many years to come.

We view the draft 2018 CSBC available on the Department of Administrative Services website as an improvement over the current code and generally support it. While we do not wish to slow down the process of adoption, we do believe that eliminating a handful of state-specific weakening amendments that are carried over from the current residential energy code will bring additional clarity and improved energy efficiency. Specifically, we urge the Department to improve the duct tightness and whole house air tightness requirements as discussed below. Further, while we understand the logic behind the approach taken in the draft, we would prefer that the CSBC include all of the Energy Rating Index provisions as set out in either the 2015 or 2018 *IECC* (either the more rigorous 2015 ERI target or the more rigorous envelope backstop from the 2018 version).

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<sup>1</sup> The Responsible Energy Codes Alliance is a broad coalition of energy efficiency professionals, regional organizations, product and equipment manufacturers, trade associations, and environmental organizations that promote the adoption and implementation of improved building energy codes and, in particular, the most recent version of the *IECC* nationwide without weakening amendments. A list of RECA members is enclosed at the end of this letter. RECA members have been involved in the development of the *IRC* and *IECC*, and the implementation of these codes in jurisdictions across the country for two decades.

## Support for the 2015 *IECC* Commercial Provisions and *ASHRAE* Standard 90.1-2013

We support Connecticut's proposal to adopt the 2015 *IECC*, including an updated reference to *ASHRAE* Standard 90.1-2013, largely as published. Adopting the 2015 *IECC* commercial provisions will increase building energy performance, save building owners money, and will simplify compliance. Commercial buildings constructed to the 2015 *IECC/ASHRAE* 90.1-2013 will include a more efficient building thermal envelope, more efficient heating and cooling systems, and more efficient lighting. Building owners, operators, and tenants stand to save a considerable amount of energy from the improvements in the code. While the level of savings will vary based on building type and compliance alternative selected, the U.S. Department of Energy estimates that on a national average basis, **buildings constructed to the 2015 *IECC* will provide an estimated 11.5% in energy cost savings as compared to Connecticut's current commercial energy code.**<sup>2</sup> Likewise, where *ASHRAE* Standard 90.1-2013 is selected for compliance, the U.S. Department of Energy found that privately-owned commercial buildings constructed to Standard 90.1-2013 will save owners, on average, \$3.51 per square foot over the first 30 years of the building's life cycle.<sup>3</sup> Indeed, in some cases, because of changes in lighting requirements and equipment downsizing, *ASHRAE* 90.1-2013 could bring an immediate payback for some building types.<sup>4</sup> These improved savings will provide owners, operators, and tenants of commercial buildings in Connecticut with more comfortable, more efficient, and more economical buildings.

The adoption of the 2015 *IECC* (with the reference to *ASHRAE* 90.1-2013) will also help Connecticut meet federal statutory requirements. The U.S. Department Of Energy reviewed *ASHRAE* 90.1-2013 and issued a Final Determination that it represents an improvement in energy efficiency over the previous edition.<sup>5</sup> This determination triggers a federal statutory requirement that states certify that their commercial energy codes meet or exceed *ASHRAE* 90.1-2013.<sup>6</sup> We believe that the proposed adoption of the 2015 *IECC* for commercial construction (including the updated reference to *ASHRAE* 90.1-2013) will help Connecticut comply with these requirements.

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<sup>2</sup> See U.S. Department of Energy, *Energy and Energy Cost Savings Analysis of the 2015 IECC for Commercial Buildings*, at vi (Aug. 2015).

<sup>3</sup> See U.S. Department of Energy, *Cost-Effectiveness of ASHRAE Standard 90.1-2013 for the State of Connecticut*, at 3 (Dec. 2015).

<sup>4</sup> *Id.* at 5.

<sup>5</sup> See U.S. Department of Energy, *Determination Regarding Energy Efficiency Improvements in ANSI/ASHRAE/IES Standard 90.1-2013; Energy Standard for Buildings, Except Low-Rise Residential Buildings*, 79 Fed. Reg. 57900 (Sept. 26, 2014).

<sup>6</sup> See 42 U.S.C. § 6833(b)(2)(B)(i) (2016).

## **Support for the Residential Provisions of the 2015 *IECC* and Three Recommendations**

We also support the proposal to incorporate most of the changes in the 2015 *IECC* into the 2018 CSBC, but we make three recommendations that will bring the code even closer to the national model codes. The proposed residential energy code update will improve incrementally upon the current CSBC, but it carries forward a handful of amendments from the current CSBC that cause it to fall short of the full 2015 *IECC* in terms of efficiency. To be clear, we support the improvements incorporated into the draft 2018 CSBC and acknowledge that the Department has already rejected a number of weakening amendments submitted by stakeholders that could have been catastrophic for energy conservation. However, we believe that with a few additional improvements, Connecticut could achieve the full amount of cost-effective savings contained in the 2015 *IECC*. Specifically, we recommend the Department consider three changes: (1) improved duct tightness; (2) improved whole home air tightness; and (3) full adoption of either the 2015 or 2018 *IECC* version of the Energy Rating Index.

The 2015 *IECC* builds upon the efficiency gains of the 2012 *IECC* with some moderate, cost-effective improvements. According to the U.S. DOE, the 2015 *IECC* for residential buildings adds an additional approximately 1% in energy savings, as compared to the 2012 *IECC*.<sup>7</sup> This analysis also demonstrates that incremental cost increases for improved thermal envelope requirements will be more than recaptured in lower energy costs over the useful lifetime of the building. For Connecticut's climate zone specifically, DOE found a simple payback of 1.6 years for the improvements and a positive cash flow in the first year.<sup>8</sup> As with the commercial energy code, adopting the 2015 *IECC* will also help Connecticut meet its obligations under federal law. The U.S. DOE issued a final determination on the 2015 *IECC*, finding that it represents an improvement in energy efficiency over the 2012 *IECC*.<sup>9</sup> As a result, all states are required to certify that they have reviewed and considered adopting the 2015 *IECC*.<sup>10</sup> Connecticut can satisfy this requirement by adopting the 2015 *IECC*.

### **Three Recommendations to Improve the 2018 CSBC**

In order to achieve the full cost-effective energy savings of the 2015 *IECC*, we believe that Connecticut should move to eliminate or at least phase out previous amendments that weaken energy efficiency. Three specific changes to the proposed new code could bring the

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<sup>7</sup> See U.S. Department of Energy, *Determination Regarding Energy Efficiency Improvements in the 2015 International Energy Conservation Code (IECC)*, Notice of Determination, 80 Fed. Reg. 33250 (June 11, 2015).

<sup>8</sup> See U.S. Department of Energy, *National Cost-Effectiveness of the Residential Provisions of the 2015 IECC*, at iv (June 2015).

<sup>9</sup> See *Determination Regarding Energy Efficiency Improvements in the 2015 IECC*, *supra* note 7.

<sup>10</sup> 42 U.S.C. § 6833(a)(5)(B) (2016).

draft 2018 CSBC much closer to the 2015 *IECC*.

- 1. Improve Duct Tightness.** The current draft carries forward a weakening amendment that was adopted into the 2016 CSBC permitting duct leakage up to 8cfm per 100 sq. ft., the same level as currently permitted by the 2009 *IECC* and twice the amount of leakage allowed by either the 2012 or 2015 *IECC*. This is a huge missed opportunity to improve the efficiency of residential buildings and improve the operation of heating and cooling systems that keep homes comfortable.

If the Department determines that the full requirement is not practical now, we suggest two alternatives: (1) the state could phase in the tighter duct requirement over a specified period, such as 6cfm in the first year, and 4cfm the following year (or at least move to 6 cfm in this version of the state code with plans to go further in future versions); or (2) the state could maintain 4cfm as the prescriptive requirement, but permit efficiency trade-offs against other efficiency measures, up to a maximum of 8cfm. This would allow builders flexibility on duct leakage in the performance path through a trade-off, but would still require an equivalent level of energy savings to be provided from other building components and would reasonably limit the trade-off to a maximum level of duct leakage. In any case, we believe that at least some amount of improvement is warranted in the current CSBC update.

- 2. Improve Whole House Air Tightness.** As with the duct tightness requirement, the draft 2018 CSBC proposes carrying forward a weaker air tightness requirement for multiple attached dwelling units, based on unit size. We recognize that air tightness may be more challenging in smaller attached dwelling units, but it is also extremely important that attached housing (which is often marketed to lower-income buyers or renters) maintain a reasonable level of efficiency. Again, if the Department determines that the full *IECC* requirement cannot be achieved in these units, we recommend either a phase-in approach or an equivalent trade-off against other efficiency measures. Low-rise attached dwelling units should still be required to achieve reasonable air tightness, or to at least improve other aspects of the building to replace the efficiency lost.
- 3. Make Energy Rating Index Consistent with *IECC*.** The ERI is a completely new compliance option in the 2015 *IECC*. As such, it is important that all elements of the ERI be included—appropriate Index numbers, basic mandatory requirements, and reasonable trade-off backstops. We recommend that Connecticut either adopt the 2015 version of the ERI as published (including an ERI score of 55, thermal envelope backstop of 2009 *IECC*, and no recognition of on-site power production), or adopt the 2018 version of the ERI, which includes an ERI score of 61 and a thermal envelope



backstop of the 2015 *IECC* for homes that incorporate on-site renewable energy. The current draft CSBC incorporates part of both approaches—a higher ERI, but without an enhanced envelope backstop. We urge the Department to consider adopting the entire ERI from the *IECC*, whether it is the 2015 or 2018 version.

### **Conclusion**

The 2018 CSBC represents an opportunity for Connecticut to shed a handful of weakening amendments and to fully catch up with the national model energy codes for residential and commercial construction. While we have provided specific recommendations that would improve the current draft 2018 CSBC that we hope you will consider, we do not intend consideration of these changes to slow down the current process to adopt better codes. We encourage the Department to move forward on this code update and to fund adequate training and enforcement efforts as part of any code updates. We offer our experience in energy code adoption and implementation as the Department moves to maximize energy efficiency. Please contact me at (202) 339-6366 if you have any questions or if you would like to discuss how RECA can be of assistance.

Sincerely,

Eric Lacey  
RECA Chairman

*RECA is a broad coalition of energy efficiency professionals, regional organizations, product and equipment manufacturers, trade associations, and environmental organizations with expertise in the adoption, implementation and enforcement of building energy codes nationwide. RECA is dedicated to improving the energy efficiency of homes throughout the U.S. through greater use of energy efficient practices and building products. It is administered by the Alliance to Save Energy, a non-profit coalition of business, government, environmental and consumer leaders that supports energy efficiency as a cost-effective energy resource under existing market conditions and advocates energy-efficiency policies that minimize costs to society and individual consumers. Below is a list of RECA Members that endorse these comments.*

Air Barrier Association of America

Alliance to Save Energy

American Chemistry Council

American Council for an Energy-Efficient Economy

CertainTeed Corporation

EPS Industry Alliance

Extruded Polystyrene Foam Association

Guardian Industries Corporation

Institute for Market Transformation

Johns Manville Corporation

Knauf Insulation

National Fenestration Rating Council

North American Insulation Manufacturers Association

Polyisocyanurate Insulation Manufacturers Association

**From:** Tim Mailloux [<mailto:Tim@tectonpc.com>]  
**Sent:** Wednesday, February 14, 2018 10:34 AM  
**To:** Cassidy, Joseph <[Joseph.Cassidy@ct.gov](mailto:Joseph.Cassidy@ct.gov)>  
**Subject:** 2018 State Building code: change proposal

Inspector Cassidy

I know I am very late to the game here, but is there any chance to submit code request changes to the proposed 2018 State Building code currently under review?

1. Request that the state of CT allows the exceptions in the model 2015 IBC to section 1005.3.1 Stairways, and allow for the stair egress factor of 0.2 inches per occupant in building equipped with automatic sprinkler systems.
2. Allow for exit access stairways to be used as a means of egress per the model 2015 IBC code.

**Tim Mailloux, LEED AP BD+C**  
Lead Project Coordinator

## **Tecton**Architects

One Hartford Square West  
Hartford, CT 06106  
d: 860.990.6926  
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[www.tectonarchitects.com](http://www.tectonarchitects.com)

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**From:** Scully, Robert  
**Sent:** Friday, February 16, 2018 3:28 PM  
**To:** CodesStandards, DAS  
**Cc:** Blancaflor, Suzanne  
**Subject:** Comments on Proposed Amendments to the 2015 IPC Chapter 14

DAS Office of the State Building Inspector:

Chapter 14 of the 2015 International Plumbing Code concerns subsurface landscape irrigation systems (SLISs) connected to non-potable water from on-site water reuse systems, and it cites the reuse of gray water. The proposed amendment to this chapter adds new language in Section 1401.1.1 that notes SLISs shall comply with CT's Public Health Code (PHC). No amendments to other portions of Chapter 14 have been proposed.

PHC Section 19-13-B103b (n) defines "gray water" as domestic sewage containing no fecal material or toilet waste, and this Department and local directors of health regulate the vast majority (95 plus %) of subsurface disposal of domestic sewage including gray water in the state. As such, I recommend other requirements in Chapter 14 that is included in sections, subsections and tables in Section 1401.1 through 1403.2 be deleted and replaced with the proposed amendment language. These revisions would be consistent with the proposed amendments to P3009 (SLISs) in Chapter 30 of the 2015 International Residential Code.

Sincerely,  
Bob Scully

Robert Scully, PE  
Supervising Sanitary Engineer  
Environmental Engineering Program  
Connecticut Department of Public Health  
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# Commercial Kitchen Grease Duct Testing

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## OBJECTIVE

**To provide instructions and requirements for commercial kitchen grease duct testing and inspection, to ensure that the system was installed liquid tight and grease tight in order to contain the spread of any grease duct fires, which risk the loss of life and property.**

## DISCUSSION

Currently, section 506.3.2.5 of 2015 IMC portion of the 2018 CT State Building Code permits welded grease ducts and assemblies to be tested with a 100 watt light bulb test to help identify inferior welded seams. The code does not currently address the new technology for testing of factory made gasket joint ducts.

This proposal provides instructions for three new alternative test methods routinely used in the sheet metal industry:

- a. Negative Pressure Duct Test
- b. Positive Pressure Smoke Duct Test
- c. Water Spray Duct Test

The welded or gasket connected duct seams are required to be liquid tight for several reasons:

- a. A duct system on fire can liquefy accumulated grease and oil to a very low viscosity, causing "liquid fire" to drip through even the smallest of pin holes;
- b. A leaking duct system can cause accumulated grease outside of the duct and hood area, causing a build-up of flammable cooking grease outside of the area protected by steel duct and extinguishing systems.
- c. A duct system needs to withstand high pressure water washing without leaking and causing water damage to the structure and equipment;
- d. There is a documented history of loss of life to occupants, first responders and also to property attributed to failed grease duct systems, including recent events.

It is the collective experience of the petitioners, and an increasingly accepted industry practice, that the light test is not always practical and reliable for testing field welded or gasket joined grease ducts vertically installed in shafts, ceiling plenums, and roof curb penetrations where full visibility of all welded seams may not be available, or where a 100 watt light bulb cannot be pushed or pulled through a horizontal duct run. Further, depending on the environmental ambient light, the "light leak" may not be properly visible to the inspector. Essentially, the inspector needs a dark room and an unimpaired view from different directions of the welded or gasket joint seam for the light test to be effective. This condition is not practical in many field installation tests. The light test may not be practical for all environments; it may not be

reliable for new technology, eg: new factory made modular duct systems with gasket connections.

The light bulb test has been discontinued as an accepted practice by the State of Massachusetts, where they now only authorize a Negative Duct Pressure Test conducted with testing and balancing equipment by a licensed testing and balancing contractor. The State of Minnesota has similar provisions.

While the Duct Negative Air Pressure Test option chosen by Massachusetts as the only acceptable test does add a layer of expertise, specialized equipment, and associated cost, it may very well be the only reliable option for testing of ducts that have been concealed prior to testing. In the petitioner's experience, this concealment often happens with contractors not testing prior to fire wrap, or the re-inspection of ducts already installed---perhaps where possible fire damage is being assessed. At present, a contractor who has wrapped or concealed a duct prior to testing can only undue and redo the work---the pressure test option would provide a cost effective reliable alternative.

The Positive Smoke Pressure Test does not require any special expertise or equipment. A standard air compressor, a roll of duct tape, and a smoke test pellet bomb are all that is required. The test does not take much longer than the light bulb test, and is in fact quicker and easier on long or twisting duct runs. The test can be used for entire systems or small sections. The test is not affected by ambient light conditions. We understand it is the test preferred by OSBI inspectors on State projects, and it is the experience of the petitioners that the Smoke Test will locate leaks not reliably detectable by the Light Test.

The Water Spray Test option does require a pressure washer and special spray head, and the containment of water. It is mentioned here because it is sometimes specified in the contract documents as a required test. (eg: Chipotle Restaurants) It is the recommended test by manufacturer Captive Aire.

It is proposed herein to provide the Building Official and Fire Marshal with the means to approve alternatives to the light bulb test when the conditions for light test are inadequate to achieve a reliable test result.

## SUMMARY

The proposed change incorporates provisions from ASHRAE Standard 154-2011 to clearly identify different methods of testing grease ducts to verify that the joints are liquid-tight. The light test method is currently specified in section 506.3.2.5 and is contained in the current IMC. *This amendment is necessary because there needs to be more than one method specified in the code to allow for flexibility in the field when evaluating whether the joints are indeed liquid-tight.* The smoke pressure test is equal to or less than the cost of the light bulb test in time, labor and materials. The other new tests are proportionate to the complexity of the project. These provisions are reasonable because they are based on generally-accepted code enforcement strategies for Type I grease duct systems in the sheet metal industry.

**PROPOSED CODE LANGUAGE: [DELETE 506.3.2.5 IN IT'S ENTIRETY AND REPLACE WITH:]**

**2015 IMC portion of the 2018 CSBC section 506.3.2.5 Grease duct leakage performance test.** (Amd) Prior to the use or concealment of any portion of a grease duct system, a leakage test shall be performed to determine that all welded or gasket sealed joints and seams are liquid-tight. This test must be performed by a properly licensed sheet metal contractor or an Approved individual that specializes in Testing, Adjusting, and Air Balancing of HVAC systems.

Ducts shall be considered to be concealed where they are installed in shafts, ceiling plenums, or covered by coatings or wraps that prevent the duct from being visually inspected on all sides. It is permissible to test the duct in sections, provided that, after the duct system is completely assembled, all field-assembled joints are tested, including the duct-to-hood connection. When the testing is performed in this manner, only the field-assembled joints of listed factory-built grease ducts are required to be tested.

The leakage test shall consist of: a.)Light; b.)Positive Pressurized Smoke; c.)Negative Air Pressure; d.)Water Spray; or e.)an Approved equivalent test. The permit holder shall be responsible to provide the necessary equipment and perform the grease duct leakage test. The Building Official and Fire Marshal shall *Approve* the test method.

**506.3.2.5.1**

**Light Test.** A light test shall be performed by passing a lamp having a power rating of not less than 100 watts (or lamp equivalent emitting a minimum of 1600 lumens) through the entire section of ductwork to be tested. The test shall be conducted where ambient room lighting does not interfere with the light leak test, and where the inspector shall have full visual access to all of the seams being tested. The lamp shall be open so as to emit light equally in all directions perpendicular to the duct walls. No light from the duct interior shall be visible through any exterior surface.

**506.3.2.5.2**

**Water Spray Test.** The water test shall be performed by use of a pressure washer operating at a minimum of 1,500 psi, simulating cleaning operations, using an Omni-directional spray nozzle designed for duct testing. The water shall be applied directly to all areas to be tested. No Water applied to the duct interior shall be visible on any exterior surface in any volume during the test. The inspector shall have visual access to all welded connections and seams. The duct and associated assembly shall not be pressurized by water.

**506.3.2.5.3**

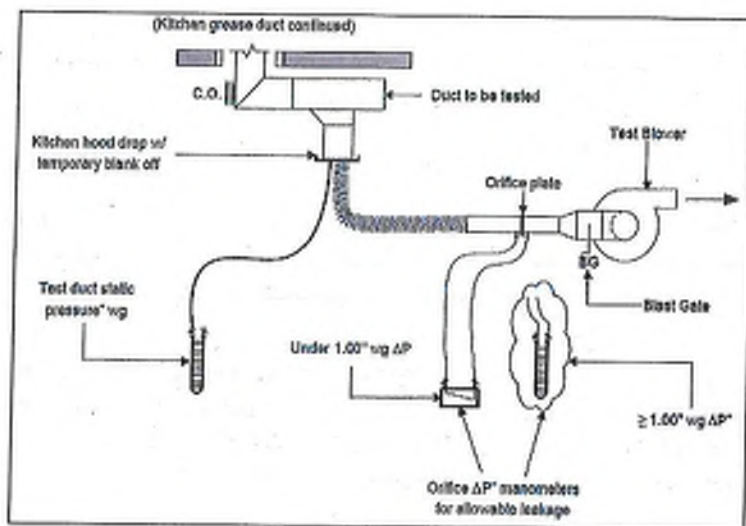
**Positive Pressure Smoke Test.** The pressurized smoke test shall be performed by sealing the entire duct system from the hood exhaust opening(s) to the duct termination. Visible smoke shall be introduced to the duct system. The sealed duct system shall then be pressurized to a minimum pressure of 1.0 inch water column, but shall not exceed the positive pressure capability of the system and components under test. No smoke shall emit from any exterior surface of the duct. The inspector shall have visual access to all welded connections and seams.





**Testing Equipment.** The permit holder or its testing agency must provide all equipment necessary to perform the kitchen exhaust duct pressure test. As a minimum this equipment must consist of:

1. A test blower or apparatus capable of producing enough negative pressure to achieve the ducts design pressure class.
2. A calibrated orifice and tube with a certified flow chart with corresponding  $\Delta P$ 's and CFM rates to calculate the CFM leakage.
3. A high range manometer for reading the test duct negative static pressure with a range of at least  $\pm 0.00''$  to  $\pm 12.00''$ . This manometer can be liquid filled, analog or digital. Liquid filled U-Tube type and analog devices must be adjusted to zero prior to running the test fan and the digital manometer must be calibrated within one year of the test date and with no stored readings in memory.
4. A low range manometer sized for reading the test orifice  $\Delta P$ . If the calculate orifice  $\Delta P$  is less than  $1.00''$  WG then the range of this instrument shall not be larger than  $1.00''$  for this test and must be inclined if liquid filled not a U-Tube type. If analog then no larger than a  $\pm 2.50''$  range on the gauge. Digital manometers must be calibrated within one year of the test date and with no stored readings in memory.
5. A speed drive, SCR or blast gate damper to control the pressure and flow from the test blower or apparatus as not to over pressurize and compromise the grease exhaust duct.
6. See Figure 1 for illustration of the test apparatus configuration below.



**Figure 1**

**Documentation.** It is the responsibility of the permit holder or its testing agency for providing all of the documentation and forms for the test. As a minimum the testing documentation shall contain the following:

1. Sketch of the ductwork section being tested showing SSF of sections, temporary testing caps and test portion end and beginning termination points.
2. Pressure Test form consisting of the following:
  - (a) Name of Architect, Engineer, Permit Holder and Testing Agency (if different).
  - (b) MA sheet metal permit #.
  - (c) Technician name and MA sheet metal license number and test date.
  - (d) Name and ID # of the System / Exhaust Fan.



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January 14, 2015

Sheet Metal Board Code Advisory - Commercial Kitchen Grease Duct Testing

**Objective:** To provide instructions and requirements for commercial kitchen grease duct testing and inspection, to ensure that the system was installed liquid-tight and grease-tight in order to contain the spread of any grease duct fires, which risk the loss of life and property.

**Summary:** Currently, many installers and inspectors use the 100-watt light bulb test required by the International Mechanical Code (IMC) to help identify inferior welded seams. This test is not practical for testing field-welded grease ducts vertically installed in shafts where full visibility of all welded seams may not be available, or where a 100-watt light bulb cannot be pushed or pulled through a horizontal duct run.

Effective IMMEDIATELY, the Board advises that the entire grease duct system be leak tested under negative pressure equal to the duct fabrication pressure class. This test will measure and prove the tightness of the duct system without visibly inspecting each welded seam. Instructions on how the test should be performed follow below. State Sheet Metal Inspectors have found this to be effective in identifying leaks that may otherwise not have been visible with a light bulb test.

This test must be performed by a properly licensed sheet metal business or individual that specializes in Testing, Adjusting, and Air Balancing of HVAC systems.

If you have any questions, please contact the Board at 617-727-3022.



### Kitchen Grease Exhaust Testing:

#### **Testing, Adjusting and Balancing – Commercial Kitchen Exhaust.**

The following testing methods and criteria shall be used when pressure testing kitchen grease exhaust ductwork to verify the following:

1. System is installed correctly and shall perform as intended or designed.
2. The overall quality and workmanship of the installation.
3. That public safety is not at risk due leakage caused by inferior welds and seams.
4. The duct does exceed allowable leakage when pressurized to the design negative duct pressure class.

**Scope.** The testing of new and renovated kitchen grease exhaust systems in commercial and residential buildings shall include the following:

1. Have a duct leakage pressure test performed as a part of a rough inspection prior to being covered, concealed, insulated or wrapped and prior to connecting the exhaust fan and the kitchen exhaust hood(s) or equipment. The pressure test shall be witnessed by the building inspector and the test documents signed by the permit holder or tester (if different) and the inspector.
2. At the completion of the project the system will be tested, adjusted and balanced. Balancing will be performed by an independent TAB contractor and a balancing report will be generated prior to final sign off of the permit.
3. All applicable systems shall be pressure tested during the initial installation. If the kitchen grease exhaust system is modified or renovated then the entire system will require testing. Testing and balancing shall be performed initially as stated above and additionally as needed.

**Duct Pressure Test Procedure.** A duct pressure test shall be performed by the permit holder or its testing agency using the criteria from this code below. Test personnel shall be a MA licensed sheet metal worker.

1. To perform the duct pressure test on a kitchen grease exhaust system you will need to know the <sup>1</sup>WG rating of the duct and the <sup>2</sup>allowable leakage accepted for a duct.
2. <sup>1</sup> The WG rating of the duct construction for the kitchen grease duct will determine the test pressure to test to. *The test pressure is not determined by the fan capabilities or the external pressure of the fan but the duct construction class rating in inches of WG.*
3. <sup>2</sup> In order to determine the allowable CFM of leakage for a test you need to:  
Measure the amount of surface square foot (SSF) of metal used to make the duct.  
Determine what the leakage class (C<sub>L</sub>) of the duct is to be tested.  
Once you have the C<sub>L</sub> determine the Leakage Factor (F) for the duct pressure test.
4. The allowable leakage for the duct test is determined by the calculation in Table 1.  
(a) <sup>1</sup>For all KGE pressure tests the test shall be (-) negative and the leakage class shall be a C<sub>L</sub>0.5 (b) For a quick guide of leakage factors on typical duct construction classes to determine the Leakage Factor "F" for a specific test refer to Table 2.

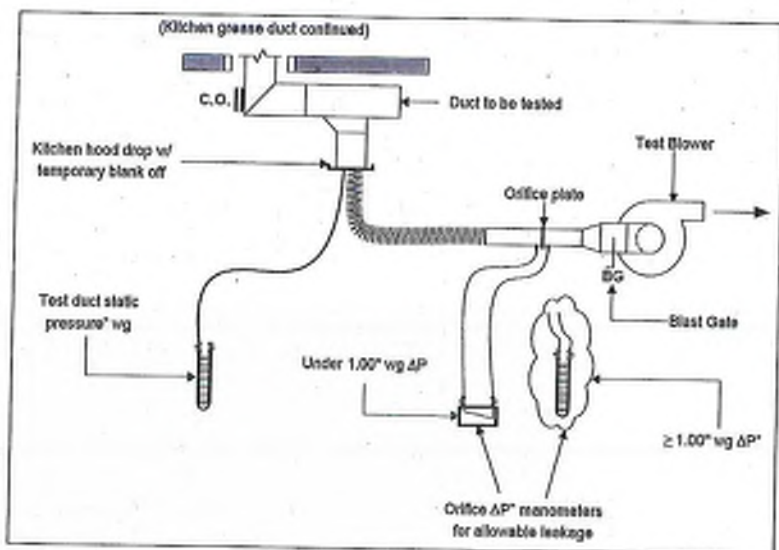
Table 1 Allowable Leakage Formula	
Problem	$(SSF / 100) * F = \text{Allowable Leakage measured in CFM.}$
When -	
SSF =	Surface Square Foot of metal (stock) used to construct the duct to be tested.
C <sub>L</sub> =	Leakage Class, determined by duct construction class and seal class or <sup>1</sup> as specified by this code.
(P) =	Duct static pressure in inches of water column that the duct is to be tested to.
F =	Leakage Factor which is determined by: $F = C_L(P)^{0.5}$

Table 2 Leakage Factor "F" Quick Guide													
Leakage Class (C <sub>L</sub> )	POSITIVE & NEGATIVE DUCT STATIC PRESSURE IN INCHES												
	0.25"	0.50"	0.75"	1.00"	1.50"	2.00"	2.50"	3.00"	4.00"	6.00"	8.00"	10.00"	12.00"
0.5	0.20	0.32	0.41	0.50	0.65	0.78	0.91	1.02	1.23	1.60	1.93	2.23	2.51
1	0.41	0.64	0.83	1.00	1.30	1.57	1.81	2.04	2.46	3.20	3.86	4.47	5.03
2	0.81	1.27	1.66	2.00	2.60	3.14	3.63	4.08	4.92	6.41	7.73	8.93	10.06
3	1.22	1.91	2.49	3.00	3.90	4.71	5.44	6.13	7.39	9.61	11.59	13.40	15.09
4	1.62	2.55	3.32	4.00	5.21	6.28	7.26	8.17	9.85	12.82	15.45	17.87	20.12
5	2.03	3.19	4.15	5.00	6.51	7.85	9.07	10.21	12.31	16.02	19.32	22.33	25.14
6	2.44	3.82	4.98	6.00	7.81	9.42	10.88	12.25	14.77	19.23	23.18	26.80	30.17
7	2.84	4.46	5.81	7.00	9.11	10.98	12.70	14.30					
8	3.25	5.10	6.64	8.00	10.41	12.55	14.51	16.34					
9	3.66	5.74	7.47	9.00	11.71	14.12	16.33	18.38					
10	4.06	6.37	8.29	10.00	13.02	15.69	18.14	20.42					
12	4.87	7.65	9.95	12.00	15.62	18.83	21.77	24.51					
24	9.75	15.29	19.91	24.00									
48													

**Testing Equipment.** The permit holder or its testing agency must provide all equipment necessary to perform the kitchen exhaust duct pressure test. As a minimum this equipment must consist of:

1. A test blower or apparatus capable of producing enough negative pressure to achieve the ducts design pressure class.

2. A calibrated orifice and tube with a certified flow chart with corresponding  $\Delta P$ 's and CFM rates to calculate the CFM leakage.
3. A high range manometer for reading the test duct negative static pressure with a range of at least  $\pm 0.00''$  to  $\pm 12.00''$ . This manometer can be liquid filled, analog or digital. Liquid filled U-Tube type and analog devices must be adjusted to zero prior to running the test fan and the digital manometer must be calibrated within one year of the test date and with no stored readings in memory.
4. A low range manometer sized for reading the test orifice  $\Delta P$ . If the calculate orifice  $\Delta P$  is less than  $1.00''$  WG then the range of this instrument shall not be larger than  $1.00''$  for this test and must be inclined if liquid filled not a U-Tube type. If analog then no larger than a  $\pm 2.50''$  range on the gauge. Digital manometers must be calibrated within one year of the test date and with no stored readings in memory.
5. A speed drive, SCR or blast gate damper to control the pressure and flow from the test blower or apparatus as not to over pressurize and compromise the grease exhaust duct.
6. See Figure 1 for illustration of the test apparatus configuration below.



**Figure 1**

**Documentation.** It is the responsibility of the permit holder or its testing agency for providing all of the documentation and forms for the test. As a minimum the testing documentation shall contain the following:

1. Sketch of the ductwork section being tested showing SSF of sections, temporary testing caps and test portion end and beginning termination points.
2. Pressure Test form consisting of the following:
  - (a) Name of Architect, Engineer, Permit Holder and Testing Agency (if different).
  - (b) MA sheet metal permit #.
  - (c) Technician name and MA sheet metal license number and test date.
  - (d) Name and ID # of the System / Exhaust Fan.

- (c) The Leakage Class ( $C_1$ ), Static Pressure *KGE* test must be a (-) negative test.
- (f) The testing fan & orifice plate manufacturer, model and serial number.
- (g) Name / location of section and total SSF. (list all branches on separate lines then total).
- (h) Allowable Leakage Factor & CFM.
- (i) Test tube & Orifice sizes.
- (j) The actual test static pressure.
- (k) The actual pressure drop across the test orifice and the actual CFM leakage.
- (l) Pass or fail box or section.
- (m) Signature sections for the technician and inspector who witnessed the test.
- (n) Section to note if this is a complete test of the system or partial test (# of #)

# IRC Fuel Burning Equipment

## OBJECTIVE

**To provide instructions and requirements for fuel burning equipment, tanks and piping, to ensure that the systems are safe to help prevent fires, CO poisoning, and fuel leaks, which can result in risk of loss of life and property.**

## DISCUSSION

Currently, the Mechanical Section of the 2015 IRC has minimal and less than comprehensive guidance on fuel burning equipment. In previous versions of the CT State Building Code the State Amendments had included a reference to statutes 29-316-29-317, and regulations known as the CT Oil Burning Equipment Code (which led the user to NFPA-31, Standard for the Installation of Oil Burning Equipment), which no longer exists in law.

The 2016 Amendments failed to provide a path to NFPA-31.

The installation of oil burning equipment should have level and equal regulation throughout the State for all categories of installation. Presently, NFPA 31 controls Oil Burning Equipment under the IMC. There is little argument to be made that 1 and 2 family residences should be less safe.

The printed version of the 2015 IRC only references NFPA-31 in the following incidences:

- a.) M1701.1 Combustion Air
- b.) M1801.3.1 Vent Sizing
- c.) M1805.3 Chimney Sizing.

In general, a regulation's reliance upon Manufacturer's Instructions is becoming problematic for code officials, because many installation manuals now say "recommended" practice. It is believed the manufacturer enjoys some additional legal defense in the event of a liability claim when altering "Instruction" to "Recommendation". We are told by OSBI that "recommended" practices are not enforceable.

NFPA-31 is a 50 page document of comprehensive code minimum standards, whereas the IRC tries to cover this same subject with 3 pages of regulation. In comparison, the IRC fuel gas section covers similar appliances with 77 pages of regulation.

Noted problematic deficiencies in code application for a safe installation include, but are not limited to:

- a.) Protection of piping from physical damage--substantial support.



The petitioner has observed the industry in general has recently developed a habit of laying the copper tubing loosely across the basement floor, creating a trip hazard and subjecting the tubing to physical damage. There is no section in the IRC regulating the installation of fuel lines.

- b.) M2201.7 does not require the removal of abandoned fuel tanks. It is the experience of the petitioner that fuel tanks abandoned in place collect condensation, the water sinks to the bottom of the tank which corrodes over time, thus causing leaks from the residual oil in the tank. This often leads to an unhealthy indoor environment and can lead to an expensive environmental abatement. It is arguably in the best interest of the homeowner to have tank removed when use is abandoned, as required in NFPA-31 for properties regulated under the IMC. Further, accidental delivery to the wrong address is not a story of urban legend.
- c.) No discussion on acceptable liquid fuels
- d.) No requirement for testing or proper combustion
- e.) No prohibition of installation where combustible dusts, vapors, gases, or liquids are present

#### SUMMARY

The proposed change restores the path to NFPA 31 Standard For The Installation of Oil-Burning Equipment for oil burning equipment regulated under the IRC. The regulations provided in NFPA-31 provide comprehensive life safety code requirements to promote the safety of fuel burning equipment. *This amendment is necessary because the IRC has insufficient coverage of the installation of fuel burning equipment.*

#### **PROPOSED CODE LANGUAGE: ADD UNDER 2015 IRC 101.4.[?]**

**Oil Burning Equipment, Piping, and Storage.** In addition to the requirements of this Code, the installation of oil burners, equipment, and appliances used in conjunction therewith, including tanks, piping, pumps, control devices and accessories shall also comply with NFPA 31.

# Memo

**To:** Lou Free, Chairman Code Amendment Sub-committee  
**From:** Michael Sinsigalli  
**CC:** Joe Cassidy, Bill Abbott  
**Date:** February 2, 2018  
**Re:** CFMA Comments regarding 2015 I-Series Code Adoption

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Lou,

The Connecticut Fire Marshal's Association and the CFMA 541 Committee thank you, State Building Official Joe Cassidy and State Fire Marshal Bill Abbott for the opportunity to be a part of the fire code adoption workgroup during this code cycle. We were able to resolve most of the issues that we considered important. There were a few remaining issues that we were unable to resolve which are summarized below in hopes of further resolution.

## Chapter 5

Restore sections 507.1 Required Water Supply and 507.2 Type of Water Supply. These sections assure that the proposed water supply and its location will be consistent with the operating capabilities of the local fire department. [Example – Building constructed with 1250 gpm manual wet standpipe demand on municipal supply capable of only 750 gpm.]

Restore sections 507.5 1.1 Hydrant for Standpipe Systems and 507.5.6 Physical Protection. This section assures that the local fire department has the means and the appropriate location for accessing the approved water supply. [Example – dry hydrant at stored water supply.]

## Chapter 9

### **Section 903.2.1.2**

In Section 903.2.1.2 of the International Fire Code, the International Code Council sets the threshold requirements for sprinkler systems in A-2 Assembly occupancies. In the 2006 edition of the IFC, the ICC lowered the occupant load threshold from 300 persons maximum to 100 persons. This was done in direct response to the Station Nightclub fire in 2003. In West Warwick Rhode Island, 100 people died in a non-sprinklered A-2 assembly occupancy.

Over the past 100 years, there have been several large life loss fire tragedies in our country. All these incidents occurred in buildings where large numbers of people were gathered; most fitting today's definition of an A-2 Assembly occupancy. All of these incidents also shared the fact that they occurred in buildings that were not protected by an automatic sprinkler system. With the model code requirements now found in the IFC, all new buildings of this type would be protected

by a sprinkler system, preventing future tragedies.

With Connecticut's adoption of the 2012 International Fire Code in October of 2016, this sprinkler requirement was scheduled to become the law in our state. Unfortunately, during the adoption process, the Office of the State Fire Marshal amended that particular section of the code. Essentially, the amended language maintained the previous occupant load threshold of 300, unless the proposed A-2 Assembly occupancy is determined to be a nightclub or dance hall. If determined to be one of the above-mentioned occupancy uses, then the occupant load threshold would be 100, as intended by the ICC.

This amendment introduced an element of subjectivity that was never intended by the code developers. Under Connecticut's amendment, a building meets, or does not meet, the definition of a nightclub or dance hall solely on the declaration of the business owner. Prior to the occupancy of building, the authority having jurisdiction has no way of knowing what the space will be used for at any given time. It further introduces the temptation for the business owner or designer to "misrepresent" the intended use of the space in an effort to lower project costs. It can be reasonably surmised that it was for this precise reason that the ICC chose the occupant load threshold of 100 occupants, without exception, for the requirement of an automatic sprinkler system.

Since Connecticut's adoption of this amended code section in October 2016, we have seen several new A-2 Assembly occupancies constructed. Many of these projects have seen considerable construction delays as a result of disagreements over this section of code. We, as fire marshals, now have the burden of subjective interpretation as to the specific uses of a space. Additionally, we have the burden of having to monitor all future uses of the space, if it is constructed without a sprinkler system. Any A-2 Assembly occupancy constructed without a sprinkler system as a result of the Connecticut exception, would never be able to introduce "live music" in their building, based on the amended code language. This degree of enforcement is essentially impossible to perform accurately. The activities that would constitute a "nightclub", live music, dancing, etc., would almost always occur outside the normal inspection hours that any local authority would hold. Sadly, the only way a local authority would discover the non-compliant use would be after a tragedy, when it was too late.

In summary, the Connecticut amendment has created an enforcement quagmire for the local fire marshal. Further, it promotes a system that encourages the business owner to misrepresent his/her intentions for their property, while allowing little to no flexibility for the owner years later, should their business plans change. Ultimately, it does a disservice to both the local code official and the business owner alike, while also having the potentially tragic result of building unsafe buildings. There is no logical reason to amend the model code language and the practice should be ceased with this code adoption cycle.

Section 905.2.1 Piping Design, Exception and section 9.10.1.1 Water Supply have contradictory requirements. The first section allows Class One standpipes to have a manual water supply for buildings no higher than 75 feet while the second section allows a manual water supply for buildings no higher than 150 feet. 75 feet is threshold for high rise buildings referenced by the Building Code and by NFPA 14 Standard for Standpipe Systems.

## Chapter 10

Section 1006.3.2 (1) Single Exit – permits as many as 320 occupants in dwelling units located on three floors and basement level to be served by a single exit, based on:

- 1 - A maximum of 20 occupants per dwelling unit, (per 1006.2.1 Exception 1 - based on occupant load and common path for egress travel distance),

2 – 4 dwelling units per floor and,

3 - Dwelling units on basement, first, second, or third stories above grade plane for a potential total of 320 occupants served by a single exit, including a convergence from the basement and first floor of 160 occupants.

This number of occupants far exceeds the maximum of 49 occupants with a single exit permitted in places of assembly limited to the first story above or below grade plane, or 29 occupants on higher floors, and not permitted at all in residential occupancies. The 320 occupants served by a single exit are found in multiple dwelling unit apartment buildings where it is presumed that occupants will be sleeping, the most challenging life safety scenario other than institutions with locking. Replace this section by 2018 NFPA Section 30.2.4.6 which has more detailed and comprehensive requirements, is widely accepted and in use for many years.

---

**From:** Dave Thompson <dthompson@encorefireprotection.com>  
**Sent:** Monday, January 29, 2018 12:46 PM  
**To:** CodesStandards, DAS  
**Subject:** Fire sprinkler requirement in all new townhouses

I support the adoption of the 2015 International Residential Building Code without amendments as written. Please consider this request when making your decision on this topic. Should you have any questions or need to discuss further please do not hesitate to reach out.

Thank you for your time and consideration,

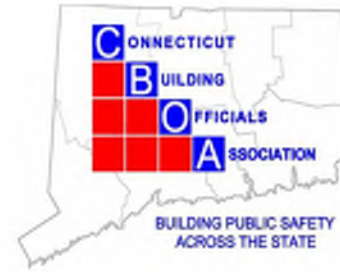
Dave

**David K. Thompson**  
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For Emergency Service: 800.966.0000  
Check out our NEW website: [www.encorefireprotection.com](http://www.encorefireprotection.com)



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*1944 – 74 Years of Code Administration – 2018*  
*January 2018*



Peter Zvingilas, President,  
Dennis Milanovich, Vice President,  
Robert Ruzzo Second Vice President,  
Carlton Smith, Treasure,  
James Rupert, Secretary

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

From: Peter W Zvingilas  
President  
Connecticut Building Officials Association

Dear Sirs,

We are writing a letter to support the adoption of the proposed 2018 State of Connecticut Building Code as amended. The adoption of this code as amended will ensure that newer products in the construction industry are utilized without prejudice due to an older building code. It also more closely aligns itself with the federal government's model for a code cycle adoption process being consistent with the years the code was designed to impact. It is important for a building code to be symbiotic with the construction industry. This committee has worked very hard on presenting the 2018 Connecticut model code and their hard work should be commended. This committee is made up of all the factions within the construction industry and therefore should be the professionals presenting this code to us as amended. We rely on this committee to follow due process in the adoption of building code and work to provide the citizens of Connecticut with the most professionally usable set of rules to abide by in the construction industry. We feel this code as amended achieves this.

Sincerely,

Peter W Zvingilas  
President  
Connecticut Building Officials Association



**International Code Council**  
73 Allston Avenue  
Middletown, RI 02842  
t: 888.422.7233, ext. 4876  
c: 401.265.0003  
wnash@iccsafe.org  
www.iccsafe.org

January 23, 2018

Department of Administrative Services  
Office of the State Building Inspector  
450 Columbus Blvd.; Suite 1303  
Hartford, CT 06103

Re: Intent to Adopt the 2018 Connecticut State Building Code

To Whom It May Concern:

My name is William Nash and I am the Governmental Relations Manager in Connecticut for the International Code Council (ICC) and your liaison to the ICC. Please allow this letter to serve as written comments in support of the proposal to update the existing Connecticut State Building Code to the published 2015 ICC family of International Codes (I-Codes) that are included in the posted notice.

The ICC is a member-focused association dedicated to helping the building safety community and the construction industry provide safe and sustainable construction through the development of codes and standards used in the design, build, and compliance process. Most U.S. states and communities, Federal agencies, and many global markets choose the I-Codes to set the standards for regulating construction, fire prevention, and energy conservation in the built environment.

The International Building Code (IBC), along with 14 other I-Codes are updated and revised every three years through a national consensus process that strikes a balance between the latest technology, new building products, installation techniques, economics, and cost while incorporating the most recent advances in public and first responder safety. It is an open, inclusive process that encourages input from all individuals and groups, and allows ICC Governmental Members, many whom are from Connecticut, to determine the final code provisions. Because of the above noted process, many beneficial changes to the model code that Connecticut is considering adopting were made. While we respectfully recommend that Connecticut adopt the most updated version of the model codes (2018 versions), we recognize the significant efforts that leaders in Connecticut have made along with their commitment to a safe built environment for their visitors and citizens.

The I-Codes are correlated to work together without conflicts to eliminate confusion in building design, inconsistent code enforcement, or interpretation among different jurisdictions. Jurisdictions that utilize the most current edition of the I-Codes thereby ensure the highest standards for safety, energy efficiency, sustainability, economic incentive, and long-term resiliency of their built environment.

The ICC would like to commend the State of Connecticut for its consistently outstanding work for reviewing and now proposing to update the CT State Building Code that is based on the 2015 I-Codes. The proposed amendments and update of this code, while incorporating amendments that reflect the unique character and needs of Connecticut, will ensure that the CT Building Code remains technically viable, allow for consistency in code application and enforcement, allow for economic investment in building construction, and provide for the greatest safety of the public and emergency responders, while embracing modern technology and building practices.

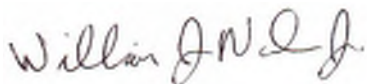
Connecticut's adoption of the I-Codes provides the greatest safety to its citizens and supports the construction industry when economic investment in building construction is essential to the state and local economy. Further, the adoption of updated model building codes is an economic incentive. Statewide building construction codes reduce costs associated with personal injury in the built environment, reduce property damage and associated costs, while providing for the safety of the public and emergency responders, which is critical in the present economy. The economic benefits of building to updated codes include improved safety, reduced maintenance costs, energy savings, and lower insurance premiums. For instance, the Multi-Hazard Mitigation Council of the National Institute of Building Science recently updated their 2005 landmark study on mitigation and resiliency (<http://www.nibs.org/page/mitigationsaves>) to detail that for every dollar spent on building safer, stronger, and resilient buildings, on average, reduces losses from high-wind damage, floods, earthquakes and other disasters by six dollars!

The Insurance Services Office (ISO) develops and publishes rules that many insurers, including FEMA's National Flood Insurance Program, use to calculate premiums for insurance policies and provides statistical, actuarial, underwriting, and claims data by collecting information useful in many aspects of insurance underwriting. That information includes evaluations of public fire protection, flood risk, and the adoption and enforcement of building codes in individual communities. Information on municipal services helps the communities with their efforts to manage and mitigate their Building Code Effectiveness Grading Schedule (BCEGS®) Program. The BCEGS program assesses the building codes in effect in a particular community and how the community enforces its building codes, with special emphasis on mitigation of losses from natural hazards. To receive a favorable BCEGS classification, a community needs to adopt and enforce a national model building code. The ISO does not make judgments regarding any technical aspects of the code but rather provides maximum credit for adopting the latest edition of the code.

Technical assistance and training from ICC is always available to groups including, but not limited to: CT Dept. of Administrative Services, CT Office of the State Building Inspector, CT Office of the State Fire Marshal, CT Design Professionals, and State and Local plan review, permit, and inspection staff. They will continue to have access to ICC training programs and materials, product Evaluation Reports, certification programs, and ICC technical staff, who will assist with code opinions and interpretations based on the I-Codes.

Thank You for the opportunity to submit these comments. The ICC is honored to partner with the State of Connecticut in support of the adoption and administration of the CT State Building Code that is based on the 2015 I-Codes and we look forward to continuing to serve your needs for many more years. Please feel free to contact me via email or cell phone (information noted below) if you have any questions, concerns, or comments relative to the 2015 I-Codes adoption or anything else ICC related.

Sincerely,

A handwritten signature in cursive script that reads "William J. Nash, Jr." in dark ink.

William J. Nash, Jr.  
Government Relations Manager  
International Code Council  
[wnash@iccsafe.org](mailto:wnash@iccsafe.org)  
401-265-0003



---

**From:** Mike Trahan <mtrahan@solarconnecticut.org>  
**Sent:** Friday, December 29, 2017 1:18 PM  
**To:** Cassidy, Joseph; Hobbs, Darren  
**Cc:** (CGB) Isabelle Hazlewood  
**Subject:** '18 draft SBC clarification/amd

Joe and Darren -

Thanks for being open to our earlier suggestions. We're asking for a clarification and a change to the Draft 2018 SBC sections dealing with solar.

We understand (Amd) R324.6.1 to mean that ground mount arrays are classified as accessory structures. Yes?

(Add) R324.7.2.5 " ... located less than ~~3 feet (914mm)~~ [18"] below the roof ridge ... " (This is consistent with NY State Fire Code and conforms with R324.7.2.4).

Thank you.

Mike

—

Michael Trahan, Executive Director  
SolarConnecticut, Inc.  
P.O. Box 515, Higganum, CT 06441  
www.solarconnecticut.org | mtrahan@solarconnecticut.org  
P: 860-345-7449 | C: 860-256-1698

"We must all hang together, or assuredly we shall all hang separately."

- Benjamin Franklin -

Department of Administrative Services  
Office of the State Building Inspector  
450 Columbus Blvd. Suite 1303  
Hartford, CT 06103  
Fax number: 860-713-7410  
Email: DAS.CodesStandards@ct.gov

## **Re: Proposed change to the National Electrical Code and the electrical section of the IRC**

### **In Chapter 34 of the 2015 IRC (General Requirements), Section 3401.2 states:**

“Chapters 34 – 43 shall cover the **installation of** electrical systems, equipment and components indoors and outdoors that are within the scope of this code, including services, power distribution systems, fixtures, appliances, devices and appurtenances. “..... Service Limitations.....” . These Chapters specifically cover the equipment, fixtures, appliances, and wiring methods and materials that are commonly **used in the construction or alteration** of one- and two-family dwellings and accessory structures regulated by this code. **The omission from these chapters of any material or method of construction provided for in the referenced Standard NFPA 70 shall not be construed as prohibiting the use of such materials or methods of construction.** Electrical systems, equipment or components not specifically covered in these chapters **shall comply** with the applicable provisions of NFPA 70.”

The Committee’s suggested change to the NEC (Section 404.6(D)4 and the IRC (E3902.17) related to replacement receptacles and the deletion of the requirement of arc fault circuit interruption protection (AFCI) at these replacement locations reduce the fire safety for homeowners that is provided by this technology.

The use of AFCI receptacle replacement requirements in the NEC can provide the owner of older homes with improved fire protection in their homes. Statistics will show that electrical fires in aging homes will be higher than newer homes. The products available and the technology provided by AFCI devices can detect both parallel and series arcing events that may lead to fires within older homes as it does for new installations. This protection can provide arc fault protection to existing branch circuit wiring and to the equipment that plugs into the receptacles. The industry provides several ways to meet the requirement within the NEC. The NEC language allows for the contractor to make the proper decision as to what product best suits the needs of the application.

By inserting the language in the IRC that would not require AFCI for replacements seems contrary to the safety goals this committee should provide to the residents of this State. By removing the language in the NEC, it takes away the work that many industry professionals determined is best suited for these areas of repairs. The scope within the IRC is clear in what it intends: allow the user to use products and installations in the NEC that are not specifically addressed in the IRC. The professionals who have researched and concluded that the benefits of this technology does provide

**the necessary fire protection in older installations. The IRC does not properly address the replacement issue as it relates to AFCI. AFCI technology is used for branch circuit protection and protection of equipment that uses power from receptacles in homes unlike GFCI technology which provides shock protection. By eliminating the requirement of receptacle replacement in areas that are now required to be AFCI protected, we lose the chance to protect against unwanted arcing events in plug connected equipment and aging wiring systems.**

**I ask the committee to reconsider adding the proposal to both Section 406.4(D)4 and E3902.17 and allow the electrical industry to use the requirements in both codes as stated in the scope of the IRC. The scope in section 3901.2 is clear that if rules are not specifically addressed then turn to the NEC. The ICC relies on the NEC code making process to be balanced and technically sound in the development of the requirements in the electrical code; I ask you rely on their expertise also.**

**Thank you**

**Jack Lyons  
National Electrical Manufacturers Association, NEMA  
Northeast Field Rep  
Jack.lyons@nema.org**

Department of Administrative Services  
Office of the State Building Inspector  
450 Columbus Blvd. Suite 1303  
Hartford, CT 06103  
Fax number: 860-713-7410  
Email: DAS.CodesStandards@ct.gov

**Jack Lyons**  
**National Electrical Manufacturers Association, NEMA**  
**Northeast Field Rep**  
**Jack.lyons@nema.org**  
February 16, 2018

**Re: Proposed Change in the National Electrical Code (406.4(D)(4) and the IRC (E3902.17)**

This Public Comment on the proposed change to the language in section 406.4 of the NEC and section E3902.17 related to AFCI protection for all replacement receptacles is related to several discussions held at the C&S Codes Amendment Subcommittee meeting on February 14, 2018. There was a comment made that AFCI technology protects only the branch circuit wiring.

This is not correct.

AFCI technology protects both Branch Circuit wiring AND Plug connected loads from arcing events that have the energy to ignite surrounding combustible materials. This is accomplished with the COMBINATION AFCI technology that the NEC requires. This is not the same as DUAL FUNCTION which includes GFCI and AFCI technology in the same breaker or device. The other comment is that the replacement is limited to the AFCI protection that is provided at the point of replacement. The NEC does not require that the receptacle be an AFCI Device, it must be protected with AFCI technology. This can be accomplished with an upstream device or circuit breaker. In the choice of upstream protection the installation has increased protection to existing branch circuit wiring and additional plug connected loads.

There was a comment made to correlate the NEC and IRC due to the fact that the IRC does not address the replacement of receptacles and the requirement that they must be AFCI protected. I would argue that if correlation be done that safety be the driving factor and include this in the IRC. Do not take it out of the NEC where you have the unintended consequence of removing the requirement for ALL Occupancies.

The removal of 406.4(D)4 in the NEC prevents enforcement of the rule in MULT-family apartment houses. Some of the MULTI-family may be multi-story. This requirement is a fire safety rule that benefits the most vulnerable of all occupancies, those that have the less maintenance to the wiring and less control of what the tenants use to plug into the existing power system. The added fire protection would reduce electrical fires in the high rise buildings and prevent the hazard of injuries during these event.

I urge the committee to reconsider their proposed change to the NEC and IRC on this issue.

**From:** Steven Cerruto <s.cerruto@torringtonwater.com>  
**Sent:** Friday, January 12, 2018 9:28 AM  
**To:** Elizabeth Gara; Craig Patla; CodesStandards, DAS  
**Cc:** Ray Esponda; glogan; Dave Kuzminski; bkargl@eltownhall.com; dwaz@meridenct.gov; Guy Russo; nsalemi@themdc.com; tvilla@snew.org; d.day@danbury-ct.gov; tsmith@easthamptonct.gov; David Banker; Steve Pratt; wrsmith@rc.com; jlanzafame; John Hudak; Patrick Kearney; rjarema; george.adair@wallingfordct.gov; caterino@watertownct.org; jsheehan@woodardcurran.com; Susan Suhanovsky; Dick Johnson; Maureen Westbrook; mbaroni@rc.com; David Radka; bmcdermott@murthalaw.com; Steve Rugar; jlgagne@tbinb.com; MElliott@FirstDistrictWater.org; Donald Ladd; Susan Negrelli; jpaggioli@colchesterct.gov; lalibertejl@cdmsmith.com; j.cansler@waterauthority.org; garysimard; bob.young@middletownct.gov; Robert Longo; John Herlihy; gcoates@murthalaw.com; dleblanc@fordmeterbox.com; John Avery; lvitagliano@rwater.com; alanbanks@proowlerwater.com; cheryl.mcanespie@stantec.com; Michael Keating; cyannoni@stantec.com; depinsky@tighebond.com; Elizabeth Gara; Beth Dunn; Mark Anderson; rcundari@snew.org; linda.oder@willis.com; Scott Bonett; Cindy Gaudino; Kevin Tighe; stevensr; tcusack@lbgct.com; cclark897; Mark Decker; pnbelval436; Avon Water; kjohnson@tbinb.com; btighe@tisaes.com; ksschwabe@ctwater.com; adam.szczesniak@comcast.net; pmccary@murthalaw.com; Tracey Pierson; lassard@eheitkamp.com; bnesteriak@rwater.com; ddigangi@firstdistrictwater.org; Don Carver; dmedd286; cbabcock@tunxisgolf.com; jwking@geoinc.com; murphylj@cdmsmith.com; neil.amwake@wallingfordct.gov; Dave Murphy; mvalade@hazenandsawyer.com; f.rogers  
**Subject:** Re: Automatic Fire Sprinklers - State Building Code - Input required

The Torrington Water Co.opposes HB-5278 due to several concerns. Residential meters are not fire rated. A separate fire service line creates the possibility of an illegal connection. Furthermore, if by chance the fire line is connected to the domestic service and there was a termination for non payment what would be the liability on the company?

Steven F. Cerruto  
V.President/Operations  
The Torrington Water Company  
Phone : (860) 489-4149

Fax : (860) 496-7889  
Cell : (860) 601-5708

On January 11, 2018 at 3:03 PM Elizabeth Gara wrote:

It would certainly be helpful to have individual water companies submit comments on the record.

Thank you.

Betsy Gara  
CWWA  
860-841-7350

On Jan 11, 2018, at 2:24 PM, Craig Patla wrote:

Betsy - CWC stands with CWWA in its previous stance. Question - Are you wanting us to submit our opinion to the indicated email? My assumption is that is what you wanted us to do - Not just reply to you.

Craig J. Patla, P.E.  
Vice President – Service Delivery

-----Original Message-----

From: Susan Suhanovsky

[mailto:[s.suhanovsky@torringtonwater.com](mailto:s.suhanovsky@torringtonwater.com)]

Sent: Thursday, January 11, 2018 2:17 PM

To: glogan; [bob.young@middletownct.gov](mailto:bob.young@middletownct.gov); Ray Esponda; Dave Kuzminski; John Herlihy; Robert Longo; [bkargl@eltownhall.com](mailto:bkargl@eltownhall.com); [dwaz@meridenct.gov](mailto:dwaz@meridenct.gov); John Avery; Guy Russo; [lvitagliano@rwater.com](mailto:lvitagliano@rwater.com); [s.cerruto@torringtonwater.com](mailto:s.cerruto@torringtonwater.com); [nsalemi@themdc.com](mailto:nsalemi@themdc.com); Michael Keating; Elizabeth Gara; [rcundari@snew.org](mailto:rcundari@snew.org); [tvilla@snew.org](mailto:tvilla@snew.org); [d.day@danbury-ct.gov](mailto:d.day@danbury-ct.gov); Cindy Gaudino; [tsmith@easthamptonct.gov](mailto:tsmith@easthamptonct.gov); stevensr; cclark897; Mark Decker; Avon Water; David Banker; Elizabeth Gara; Steve Pratt; Craig Patla; [ksschwabe@ctwater.com](mailto:ksschwabe@ctwater.com); jlanzafame; John Hudak; Patrick Kearney; Tracey Pierson; rjarema; [bnesteriak@rwater.com](mailto:bnesteriak@rwater.com); [george.adair@wallingfordct.gov](mailto:george.adair@wallingfordct.gov); [caterino@watertownct.org](mailto:caterino@watertownct.org); [ddigangi@firstdistrictwater.org](mailto:ddigangi@firstdistrictwater.org); Don Carver; Maureen Westbrook; dmedd286; David Radka; [MElliott@FirstDistrictWater.org](mailto:MElliott@FirstDistrictWater.org); [neil.amwake@wallingfordct.gov](mailto:neil.amwake@wallingfordct.gov); [jpaggioli@colchesterct.gov](mailto:jpaggioli@colchesterct.gov); Susan Negrelli; [j.cansler@waterauthority.org](mailto:j.cansler@waterauthority.org)

Cc: [wrsmith@rc.com](mailto:wrsmith@rc.com); [jsheehan@woodardcurran.com](mailto:jsheehan@woodardcurran.com); Dick Johnson; [mbaroni@rc.com](mailto:mbaroni@rc.com); [bmcdermott@murthalaw.com](mailto:bmcdermott@murthalaw.com); [jlgagne@tbinb.com](mailto:jlgagne@tbinb.com); Steve Rupar; Donald Ladd; [lalibertejl@cdmsmith.com](mailto:lalibertejl@cdmsmith.com); garysimard; [gcoates@murthalaw.com](mailto:gcoates@murthalaw.com); [dleblanc@fordmeterbox.com](mailto:dleblanc@fordmeterbox.com); [alanbanks@prowlerwater.com](mailto:alanbanks@prowlerwater.com); [cheryl.mcanespie@stantec.com](mailto:cheryl.mcanespie@stantec.com); [depinsky@tighebond.com](mailto:depinsky@tighebond.com); [cyannoni@stantec.com](mailto:cyannoni@stantec.com); Beth Dunn; Mark Anderson; [linda.oder@willis.com](mailto:linda.oder@willis.com); Scott Bonett; Kevin Tighe; [tcusack@lbgt.com](mailto:tcusack@lbgt.com); pnbelval436; [kjohnson@tbinb.com](mailto:kjohnson@tbinb.com); [btighe@tiales.com](mailto:btighe@tiales.com); [adam.szczesniak@comcast.net](mailto:adam.szczesniak@comcast.net); [pmccary@murthalaw.com](mailto:pmccary@murthalaw.com); [lassard@eheitkamp.com](mailto:lassard@eheitkamp.com); [cbabcock@tunxisgolf.com](mailto:cbabcock@tunxisgolf.com); [jwking@geoinc.com](mailto:jwking@geoinc.com); [murphylj@cdmsmith.com](mailto:murphylj@cdmsmith.com); Dave Murphy; [mvalade@hazenandsawyer.com](mailto:mvalade@hazenandsawyer.com)  
Subject: Re: Automatic Fire Sprinklers - State Building Code - Input required

TWC is also against this.

On January 11, 2018 at 12:19 PM Robert Longo wrote:

Hi Betsy,

We still object to any idea of having a fire system on any domestic water service due to termination of service. We are also concerned with the Cross Connection that would occur. If this has not been sent, I think it should be forwarded to the CTAWWA Cross Connection Committee so that they can review and comment as well.

Sincerely,

Robert J. Longo  
Superintendent

>>> Elizabeth Gara 1/11/2018 12:07 PM >>>

The draft 2018 State Fire Safety Code includes a recommendation to require automatic fire sprinklers in new residential construction. Specifically, Sec. 407.13.17 requires all storage, habitable and occupiable rooms as well as kitchens and closets to be sprinklered.

In previous years, CWWA has raised concerns regarding requiring automatic fire sprinklers because such sprinklers can create potential contamination issues due to cross connections and the impact of sprinkler systems on pressure and volume demands, as outlined in the attached testimony from 2016.

Currently, the Public Health Code requires the public water supplier to be notified regarding the installation or modification of an automatic fire extinguishing system, however, this is seldom done. Other concerns raised include sprinkler designs that would connect directly to the domestic water supply rather than as separate lines.

Please review the changes to the State Fire Safety Code (

[The public hearing is scheduled for January 24, 10:00 a.m., at the LOB, Room to be determined. Written comments may be submitted to the Department of Administrative Services, Office of the State Fire Marshal at \[DAS.CODESSTANDARDS@CT.GOV\]\(mailto:DAS.CODESSTANDARDS@CT.GOV\). up until the close of business on February 16, 2018.](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Furldefense.proofpoint.com%2Fv2%2Furl%3Fu%3Dhttp-3A_portal.ct.gov_-2D_media_DAS_Office-2Dof-2DState-2DBuilding-2DInspector_2018-2DCSFSC-2D-2D-2DCode-2DPacket.pdf-3Fla-3Den%26d%3DDwICaQ%26c%3DNON-HKiiifrKMxS1WLsdH-w%26r%3DzuSb40Jt6X1aMMiFHxPdBE6LsnUppZZEgdQe9TQ5FJs%26m%3DyDZEr9pteZ3PP-1sNAhm9jU4MmIIEKExKrYAi0UGQTaY%26s%3D3KqVzhi_v30Aeh4oHY6o0wqqAp9aTy629hGLE5aQW8E%26e&data=02%7C01%7C%7Cdad7361779b84ff485aa08d55928f1e5%7C84df9e7fe9f640afb435aaaaaaaaaaaa%7C1%7C0%7C636512954741019706&sdata=Svm8kSs%2BopcLTfYkkVKJd%2FSeDFRe3CzStqmpjUvze4%3D&reserved=0=) and let me know if you continue to have these concerns.</p></div><div data-bbox=)

Thank you.



Betsy Gara  
CWWA  
860-841-7350

Steven F. Cerruto  
V.President/Operations  
The Torrington Water Company  
Phone : (860) 489-4149  
Fax : (860) 496-7889  
Cell : (860) 601-5708

---

**From:** CodesStandards, DAS  
**Subject:** RE: Automatic Fire Sprinklers - State Building Code - Input required

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Sincerely,

Robert J. Longo  
Superintendent

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Please review the changes to the State Fire Safety Code ([The public hearing is scheduled for January 24, 10:00 a.m., at the LOB, Room to be determined. Written comments may be submitted to the Department of Administrative Services, Office of the State Fire Marshal at \[DAS.CODESSTANDARDS@CT.GOV\]\(mailto:DAS.CODESSTANDARDS@CT.GOV\). up until the close of business on February 16, 2018.](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Furldefense.proofpoint.com%2Fv2%2Furl%3Fu%3Dhttp-3A__portal.ct.gov_-2D_media_DAS_Office-2Dof-2DState-2DBuilding-2DInspector_2018-2DCSFSC-2D-2D-2DCode-2DPacket.pdf-3Fla-3Den%26d%3DDwICaQ%26c%3DNOn-HKiiifrKMxS1WLsdH-w%26r%3DzuSb40Jt6X1aMMiFHxPdBE6LsnUppZZEgdQe9TQ5FJs%26m%3DyDZEr9pteZ3PP-1sNAhm9jU4MmIIEExKrYAi0UGQTaY%26s%3D3KqVzhi_v30Aeh4oHY6o0wqqAp9aTy629hGLE5aQW8E%26e&data=02%7C01%7C%7Cdad7361779b84ff485aa08d55928f1e5%7C84df9e7fe9f640afb435aaaaaaaaaa%7C1%7C0%7C636512954741019706&sdata=Suvm8kSs%2BopclTfykkVKJd%2FSeDFRe3CzStqmpjUvze4%3D&reserved=0=) and let me know if you continue to have these concerns.</p></div><div data-bbox=)

Thank you.

Betsy Gara  
CWWA  
860-841-7350

Steven F. Cerruto  
V.President/Operations  
The Torrington Water Company  
Phone : (860) 489-4149  
Fax : (860) 496-7889  
Cell : (860) 601-5708



# CONNECTICUT BURNS CARE FOUNDATION, INC.

601 Boston Post Road • Milford, CT 06460  
Phone: 203-878-6744 • Fax: 203-878-4044 • Toll Free: 1-888-40-BURNS  
www.ctburnsfoundation.org • email: ctburnscare@optonline.net

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Susan Howard

### Emeritus

Sandra Erickson, R.N.  
Walter Pleban, M.D.  
Vincent Viturale

### Past President

Arthur C. Luf  
1978 - 2006

### Founders

Arthur C. Luf  
1929 - 2006  
Andrew J. Panellieri, M.D.  
1913 - 1999

January 16, 2018

RECEIVED

JAN 23 2018

Office of the State Building Inspector

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

RE: State Building and Fire Code

*Please consider this correspondence support for the inclusion of the fire sprinkler requirement for newly built townhouses as unanimously voted on by the Codes and Standards Committee.*

Each year, 40,000 people are hospitalized with burn injuries. Every burn survivor reflects a unique story of pain, healing, and a lifelong journey of recovery. Since 1978, the Connecticut Burns Care Foundation has promoted burn prevention and actively provided peer support of burn survivors. The Foundation runs The Arthur C. Luf Children's Burn Camp and is involved in other associated matters related to burn care. For 26 years the Children's Camp, located in Union, CT, has provided emotional and physical support for burn survivors 8 to 18 years old, helping them to accept their life-altering burn injuries. Volunteer counselors at the camp include many faces of the burn community – firefighters, emergency medical providers, adult burn survivors, loved ones of burn victims, health care professionals, fire service advocates and others.

Fire sprinklers are a proven effective way to reduce injuries and death from the catastrophic effects of fire. The Foundation wishes to congratulate the Codes and Standards Committee for having the foresight to include this lifesaving technology in the State Building and Fire Code for newly built townhouses. Our Board of Directors believes that this step will assist in protecting Connecticut residents from the lifelong devastating effects of a future fire tragedy. Not all fire incidents are preventable, but taking proven steps towards reducing the possibility of residential fires is certainly a core value of our Foundation.

Signed on behalf of the Board of Directors By:

Armand J. Cantafio  
President



## CONNECTICUT REALTORS®

111 Founders Plaza, Suite 1101 • East Hartford, CT 06108  
Tel: (860) 290-6601 • [ctrealtor.com](http://ctrealtor.com)

### Statement on

## ADOPTION OF THE STATE BUILDING CODE WITH INCLUSION OF SECTION R313.1 OF THE INTERNATIONAL RESIDENTIAL CODE

### OPPOSED

Submitted to the State Codes and Standards Committee  
January 24, 2018

By Carl Lantz  
Connecticut REALTORS®

Good morning members of the State Codes and Standards committee.

My name is Carl Lantz and I am a REALTOR® and the 2017 President of the Greater Hartford Association of REALTORS®. I am here today as a representative of the 17,000 members of the Connecticut Association of Realtors in opposition to the new ordinances requiring automatic fire extinguishing systems in new residential buildings.

Specifically, the code amendment would require automatic residential fire sprinkler systems to be installed in all townhouses. CTR opposes this mandate and the cost it would add on a new home purchase.

Building a home or buying a home is the largest financial decision most of us will ever make. Sprinkler system costs are very expensive, especially when tied to municipal water supplies. These devices also require regular maintenance, adding another expense for homeowners. Also, malfunctions of the system can severely damage property causing additional expenses.

Building materials and design in home construction today provide improved safety from earlier years. Mandating the addition of sprinkler systems costing many thousands of dollars to new home construction could prevent those who would otherwise build a home from doing so by pricing them out of the building market. It will also make new home construction built with these costly sprinklers that much more expensive to sell and thereby that much less competitively priced compared to the existing home market where there are no expensive sprinklers.

The best remedy is what Connecticut already has in place: buyers may voluntarily purchase a sprinkler system if that additional system is wanted. Any buyer who believes the cost to add a sprinkler system to their new home is valuable to them continues to have the option to do that voluntarily.



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Connecticut REALTORS® urge you to consider any new cost, especially such a huge new cost, will damage our state's already fragile real estate market. Any new home that is not built because of the rising construction costs like this new sprinkler system costs construction jobs and many other related small business jobs.

Please do not support the changes to the code. Thank you for allowing me to speak before you and I will try to answer any questions you may have.



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**Statement on**

**ADOPTION OF THE STATE BUILDING CODE WITH INCLUSION OF SECTION  
R313.1 OF THE INTERNATIONAL RESIDENTIAL CODE**

**OPPOSED**

**Submitted to the State Codes and Standards Committee  
January 24, 2018**

**By Theresa Hatton  
Connecticut REALTORS®**

Good morning members of the State Codes and Standards committee.

My name is Theresa Hatton and I am a REALTOR®. I am here today as a representative of the 17,000 members of the Connecticut Association of Realtors in opposition to the new ordinances requiring automatic fire extinguishing systems in new residential buildings.

Of biggest concern is the code which, if approved, would require automatic residential fire sprinkler systems to be installed in all newly constructed townhouses. Connecticut REALTORS oppose this mandate and the unnecessary costs and burdens it will place on present and future CT residents.

The decision to purchase or build a home is one of the most important decisions we make in our lives, in large part due to the financial impact this purchase will have on both ourselves and our families. Sprinkler system costs are very expensive; this expense increases when the sprinkler system is tied to municipal water supplies. These devices also require regular maintenance, which costs money, and malfunctions to the system can severely damage property, adding to the homeowner's financial burden.

These additional financial burdens surrounding sprinkler systems are not necessary for every home. Today's improved building materials and construction provide additional fire safety compared to construction from earlier years. Mandating the addition of costly sprinkler systems to new home construction could price homebuilders out of the market and prevent them from building a home they otherwise would have. The requirement of these sprinklers will also make new home construction that much more expensive for potential buyers. This affects not only the potential buyer's ability to purchase, but also a builder's chances to build and sell new homes.



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The requirement of automatic fire extinguishers in homes is an added financial cost with no benefit. For those homeowners who feel there is a benefit there is the continued option to have the sprinklers installed voluntarily.

Connecticut REALTORS® urge you to carefully consider any new cost, especially large costs like this, which has the potential to damage our state's recovering real estate market. Added costs to construction have the potential to effect a homebuilder's decision to build or not to build. A decision not to build subsequently effects the many jobs and businesses required to build and furnish the home.

Please do not support the changes to the code. Thank you for allowing me to speak before you and I will try to answer any questions you may have.



# BLOOMFIELD CENTER FIRE DISTRICT

## *Office of the Fire Marshal*

18 Wintonbury Avenue  
Bloomfield, Connecticut 06002  
Phone (860) 242-5131 / Fax (860) 243-8757

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January 24, 2018

State of Connecticut, DAS  
Codes and Standards Committee  
450 Columbus Blvd  
Hartford, CT 06103

Thank you for the opportunity to provide comment today. My name is Roger Nelson and I am the Fire Marshal for the Bloomfield Center Fire District and serve on the Board of Directors of the Connecticut Fire Marshal's Association.

I, along with the CFMA, are urging this committee to vote to require fire sprinklers in all new townhouses in Connecticut. Although our goal is ultimately to have sprinklers in all new one and family homes, we strongly feel that this is the first step in a positive direction.

It is more important than ever to protect families from the increased dangers in their homes in the forms of new synthetic furniture and lightweight construction.

These systems can help prevent unnecessary deaths and injuries that occur in our state every year, while also helping to additionally protect those firefighters and first responders from the duties they perform.

Sprinkler systems allow the extra time for families to safely exit their residence. Statistics show the decrease in both fatalities and injuries in homes that have this safety measure.

Connecticut has taken safety measures to make children and families safer in cars, as well as in schools. Please let us take this next small step to help ensure additional fire safety in their own homes.

Sincerely,

Roger K. Nelson  
Fire Marshal  
Bloomfield Center Fire District

---

**From:** Mike Carrier <mcarrier@somakmanagement.com>  
**Sent:** Friday, February 09, 2018 4:24 PM  
**To:** CodesStandards, DAS  
**Subject:** Opposed to Residential Sprinklers In Townhomes

From: Mike Carrier, CMCA, CT CAM.0000649

Organization: SOMAK Inc. DBA SOMAK Property Management

I am opposed to the new code requiring residential sprinkler systems in townhouse style units.

Background: Mike Carrier has been managing various properties since early 2000s through the By Carrier brand of new home construction, including townhomes and single-family Homes. In 2009, a separate venture was started with a focus on outside Homeowners Associations and Common Interest Communities. SOMAK Property Management is proud to say that since 2009, there has not been one client elect to terminate their services. Today, SOMAK has grown to employ 4 licensed managers, 5 maintenance staff and 2 clerical support employees. SOMAK now manages 37 communities, consisting of over 2000 units. This background and experience allows Mike Carrier to have a unique perspective into the everyday workings of townhomes in CT.

From a pragmatic standpoint, yearly inspections for all units will prove to be nearly impossible. The interior of condominium units are privately held real estate. Unit owners renting their units would add another layer of complexity to any inspection or service. To enter the unit for routine maintenance, the association must obtain prior authorization from the owner and tenant (as applicable). The proposed sprinkler systems would fall into this routine maintenance requirement. The nearest routine task completed by communities at this time is mandatory dryer vent cleanings. Associations are lucky to achieve 80% compliance from owners and their tenants. To complete the remainder of the units, Associations must take further action, such as levying fines following notice and hearing per the Common Interest Ownership act. Even when faced with the prospect of

daily fines, a small percentage of units still do not comply, and the Association is required to escalate the matter to its attorney, obtaining court orders and injunctions to perform routine work, resulting in an added burden of time, complexity and expense to unit owners, Board Members and management companies.

Another facet of this bill to consider is the reality that system failures can and will occur. Specifically, frozen pipes pose a serious threat to common interest communities. Units that are improperly maintained can allow temperatures to drop due to many reasons, including unit owners shutting heat down, mechanical failure, power failure or utility non-payment. Presently, standard plumbing is both easily accessible and predictably located to service bathrooms and kitchens. Adding sprinkler system piping will introduce new plumbing to otherwise plumbing free areas of these units. This new plumbing cannot be winterized or shut down in case of frozen temperatures like standard plumbing. During the beginning of 2018 Connecticut experienced record cold. Temperatures were below freezing for nearly two weeks. This caused our firm to respond to 30+ calls of frozen pipes. Of those, 15 resulted in emergency site visits to thaw. Further, 6 units experienced burst pipes, causing damage to the units. In the past, SOMAK has had clients with burst pipe claims upwards of \$77,000.00!

This brings me to my third and final point; insurance. CT state statute is clear the association's master policy is primary on all losses. This is true for water losses caused by burst pipes. These losses can result in higher deductibles, higher premiums or non-renewal by conventional carriers. All too often, associations with poor loss history need to move to excess lines markets where costs are more for much less quality coverage. As such, property preservation is paramount, however If sprinkler systems are mandated and they cause damage, this will increase insurance costs and place burdens on already tight budgets.

We ask that you do not mandate sprinkler systems in townhouse units. The negative effect on unit owners, Executive Boards and Management Companies is far-reaching and unnecessary.

Best regards,

Mike Carrier, CMCA  
President

"Life's hard, but we Manage!"

PO Box 1343  
Farmington, CT 06034  
Phone/Fax: 860-259-1046

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January 24, 2018

TO: Joseph V. Cassidy P.E., State Building Inspector  
William Abbott, State Fire Marshall  
All Members of the State Codes & Standards Committee

From: Robert C. Fusari Sr., President  
Real Estate Service of CT, Inc (RESC)  
123 Elm Street, Suite 300  
Old Saybrook, CT 06475  
(860) 575-0442 (Cell)

Re: Opposition to Adoption of the State Building Code with the  
Inclusion of Section R313 of the IRC

I have been involved in residential development and construction for over 60 years. Over the last 30 years I have also been involved in the issues concerning Homelessness and Affordable Housing. I served on the Governor's Task force to Study Residential Fire Sprinklers in the mid 1990s. While there are many unresolved issues over the installation of residential fire sprinklers, I will concentrate my comments to the virtually complete absence of market acceptance, the issues relating to connection to a public water supply, and my experience with the effects of water damage associated with fire sprinklers.

In the early 1990s, our company (RESC) was beginning Phase 2 of Riverbend, a 363 unit small-lot development of single family homes. At that time, I was approached by the Middletown Fire Chief who attempted to persuade me to install fire sprinklers in all our remaining proposed homes. About 335 units. After a thorough investigation I determined we could not afford to do that. However, I did agree to install a sprinkler system in one of our new model homes and offer the systems as an option to our customers. Our model park included an elaborate Product Information Center that provided samples and literature about the almost every product we put into our homes including options. We made available all of the relevant literature regarding fire sprinklers and we even had a video tape player that gave a powerful demonstration of fire sprinkler

performance. **NONE OF THE REMAINING 335 BUYERS IN RIVERBEND CHOSE THE FIRE SPRINKLER OPTION.** When we tried to sell the model that had the fire sprinkler system, we found it to be a liability. Most prospective buyers refused to consider it because it had a fire sprinkler system. Since the completion of Riverbend, our company has developed and sold over 300 additional single family homes and condominiums. Not one of those buyers have asked for a fire sprinkler system.

During the installation of the system in the Riverbend model, we experienced a number of unexpected roadblocks. We had difficulty finding a subcontractor who was interested in quoting on and installing residential fire sprinklers. We also found that we needed a building plan with the sprinkler layout, stamped by a licensed engineer (at a cost of \$500) before we could get a permit. We further found that each additional stamped plan, even if it was identical to a previous stamped plan would cost \$500. In essence, we were paying for the "stamp" and the liability the engineer was assuming. The connection to the Middletown public water supply also encountered issues. The Middletown Water Department regulations did not address connection to residential fire sprinklers. It simply stated that any connection to a fire sprinkler system required a **separate, minimum, 1 ½ inch service pipe.** At that time the fire chief intervened and convinced the Water Department to accept a single upsized water service. We then discovered that the Middletown residential water meters were not UL approved for connection to a fire sprinkler system. What to do? Again the fire chief intervened and got the Water Department to accept a tee-off before the meter with a quarter turn ball valve that was "sealed" with a cable and a lead seal that could be inspected when the meter was read. (This created a new issue when the Water Department began to use remote meter readers.) Initially, the water department wanted a back-flow preventer. A \$500+/- item that must be inspected and/or tested from time to time. (By whom and at what cost?) Again, the fire chief talked the water department into allowing a double check valve. It was my understanding that these issues were to be resolved and incorporated into their revised regulations. Since no additional fire sprinkler systems were installed in Riverbend, I am not sure if the regulations were revised. Furthermore, there is no State regulatory authority that can mandate consistent regulations for municipal and

regional water supply systems. Privately owned water supply companies (CT Water, etc.) are controlled by PURA, but they have chosen to not become involved in this issue and allow each company to create its own regulations. Navigating this morass of inconsistent regulations is a uncertain, time consuming and very costly process.

Regarding water damage: In Norwich, CT there is a non-profit organization that provides housing and transitional services for 24 homeless single mothers and their children in a 24 unit three story wood frame apartment building on the campus of the former Uncas on Thames Hospital. The building was built 25 years ago with Federal, State, and private funding. At the time it was built, I served on the Board of Directors and was Chairman of the Building Committee. It has a fire sprinkler system. On three occasions over the last 25 years there has been minor stove-top fires. All occurred in a third floor apartment. Each occurrence triggered the sprinkler system. Each occurrence created extensive water damage to not only the apartment with the fire, but also the two apartments below it and the occupants possessions. All three units had to be gutted down to the bare studs. The last occurrence was a little over a year ago. The cost was in excess of \$250,000 and the tenants had to vacate for over 4 months. Remember, these were homeless families who required not just housing, but also a wide range of personalized case management services.

My involvement with various non-profit Affordable Housing advocates and providers has taught me how government over-reach is making it impossible to create new Affordable Housing. The cost of government funded affordable rental housing is often exceeding \$300,000 per unit. Limited funds means fewer units will be created. Let's not force families who cannot find decent affordable housing to live in sub-standard and, often, very fire prone accommodations. Or, indeed, no accommodations at all.

Sometimes, the best of intentions must be tempered with common sense. This is one of those times.

Thank you.

## Testimony against Fire Sprinklers in Townhomes      January 24, 2017

Chris Nelson

Nelson Construction Inc., 860-658-7600

Builder of homes, townhomes and protected multi-family apartments

### **Testimony Summary:**

- **2 Hour Fire Separation Wall Works Well**
- **True Costs of Sprinklers and 2 Hour Wall**
- **Safety Argument - Zero Townhome Fire Deaths in Past 25 Years!**
- **TownHomes become more Fire Resistant with Each Code Cycle**
- **True Sale Price and Market Impact of Change**

### **Questions for Code Committee:**

1. Proposed change submission has flatly wrong and deceptive information. How can committee defend process which didn't allow exposing these false statements?
2. If in Connecticut there have been zero fire deaths reported in newer townhomes (last 25 years), how does the Code Committee justify this new requirement when codes have gotten even safer each cycle?
3. Is committee charged with recommending Public Safety Code Improvements based on emotional arguments or historic facts dictating corrective solutions?
4. Is a 3% - 4% increase in cost irrelevant to the committee's task of recommending a better building code?
5. How do we address lack of similar rules and cost among various water companies? For example, Aquarion Water has a requirement for independent fire service with \$183.38 annual fee. (plus inspections) Also Aquarion will not allow us to tap the mains under road until a service meter and pit or full backflow has been installed for each tap. Build foundations and install fire backflows BEFORE paving roads!



Good morning,

My name is Chris Nelson with Nelson Construction and I am a residential builder working mostly in greater Hartford. I am here to speak **against** Fire Sprinklers being put back in the IRC in Townhome New Construction. Our company has built single family homes, 180 traditional townhomes, and 200 units of apartments in the past 20 years. We currently have a 20 unit townhome community under construction in Simsbury, and a 48 unit affordable townhome community approved for construction “if or when” the townhome market ever recovers.

Incidentally, I expect my Fire Marshall, Mr. Kawalski is in the room. I respect his commitment and service. We have a good professional relationship but on this issue we see things differently.

Our company takes pride in the high quality, safe, highly energy efficient construction that we build into all our residences. Regarding our three story rental apartments, we are building under the IBC and are happy to incorporate fire sprinklers in those larger multi-family buildings. I can see the need for sprinklers in these larger buildings. They are multi floor, stacked units and they have egress travel distances several times longer than most residential buildings. So in those applications, I support the requirement for Fire Sprinklers.

### **2 Hour Fire Separation Wall Works Well**

I am **against** mandated sprinklers in one and two family homes, and against mandated sprinklers in our townhomes. After all, isn't the primary reason we build two hour fire separation walls in townhomes to make them behave more like a single family home for fire safety reasons. Some of you are aware, but when we build 2 hour fire separation walls between units in townhomes, we use two inches of heavy gypsum shaftwall in the middle of the wall, with

air spaces that are draft sealed, then totally separate structures on both sides. These structures hold to the shaftwall with melt away clips, so one building could totally burn and collapse, significantly delaying the safety risk or structure damage of adjacent units. Yes, there could be some damage and smoke to adjacent units, just like in a small lot single family neighborhood. For safety of adjacent residents, we want ample time to exit. I recently went through our townhomes, and it took me **15 seconds** to walk from the furthest point in the unit to get out the front door. For safety, the 2 hour walls work, even when I searched “townhome fires” as suggested in in the application.

### **True Cost of Sprinklers and 2 Hour Wall**

I would like to speak to cost based on my experience building townhomes in Connecticut. We have active current contract data to install Fire Sprinklers in 20,000 square foot, highly efficient apartment buildings. My cost for those buildings is close to \$3.00 per Square Foot including the independent water service work. Using those same contractors, our costs to install fire sprinklers in our 1,600 – 1,800 living area townhomes is between \$4.00 and \$5.00 per Square Foot depending on the water service requirements, unit design, and unit size. We need to do the basement square footage as well. Unfortunately, we don’t have the option of doing a very basic, low cost system using the same service as the domestic water.

For a small townhome, this equates to a 4% increase in my building cost and will add \$9,000 - \$12,000 to the sale price for our 1,700 Square Foot townhome with a normal basement.

I have read through the Proposed Change to the IRC putting sprinklers back into townhomes. The author makes it sound like there is a big offsetting credit because I will not have to build that 2 hour fire separation wall between units. First, their costs are flat wrong. The difference between a one and two hour wall is not \$9,000, our **actual cost** is less than \$1,600 per unit. More importantly, we rely on that 2 inch dense shaftwall system to get the sound transmission down to where we need it. The code has required Sound Transmission Coefficient rating between units. We need to spend those

dollars for sound or we build a product where you will hear your neighbor snoring.

I agree fire sprinklers in all townhomes would limit property damage, and in very rare occurrences injury or death, **but at what cost?** It is difficult to say no to anything that has an element of added safety.

### **Safety Argument - Zero Townhome Fire Deaths in Past 25 Years!**

I would like to look at the safety argument looking backwards. For a moment, let's assume here in Connecticut we have built 10% of our new homes over 25 years as townhomes. That would be about 1,000 units a year. At \$10,000 per unit cost for sprinklers, that would be \$250,000,000 in added cost. Now let's look at the safety side. Could we find 3 deaths in townhome construction in Connecticut in this new housing stock? Is there even one death? I would think we would all have all that data if it supported the application. Your charge is Public Safety. How can you justify this change? Even the property damage argument is absurd when you look at it this way. \$250 Million dollars to save a small fraction of that in fire damage costs.

### **TownHomes get more Fire Resistant with Each Code Cycle**

According to the National Fire Protection Association's U.S. Home Fires Fact Sheet, the leading cause of unintentional home fires are cooking equipment, heating equipment and electrical distribution and lighting equipment. Newer townhomes homes are built to a system of building codes explicitly designed to make homes safer. Technological innovations in building techniques include advanced heating and electrical systems, egress windows, hardwired, interconnected smoke alarm systems, and fire-resistant materials and features like the separation between the house and the garage and fireblocking in concealed spaces. The updated code continues to make townhomes more and more fire resistant it seems with every code cycle. Today, we are sheetrocking basement ceilings to help protect exposed wood.

## **True Sale Price and Market Impact of Change**

I have sold 16 out of 20 beautiful townhomes in Simsbury over the past FIVE years. Adding \$9,000 – \$12,000 to our sale prices will slow the pace of our townhome sales even more!. Combined with all the other regulation, it could totally stop or change our new project. In Connecticut, the cost of housing has already got a reputation for being very high and strangled by excessive regulations. Why are you doing this? This code change will harm Connecticut's Townhome business with what sounds like **very, very limited safety benefit.**



National Headquarters:  
514 Progress Drive, Suite A  
Linthicum Heights, MD 21090  
845-878-4200  
nfsa.org

February 14, 2018

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

RE: State Building and Fire Code

On behalf of the not for profit National Fire Sprinkler Association, I would like to take this opportunity to provide comment on the Connecticut Building and Fire Code. I also want to thank the members of the Codes and Standards Committee for their time and commitment during this important process of promulgating the State Building and Fire Code.

The NFSA, founded in 1905 and its members have championed our mission of “protecting lives and property through the widespread acceptance of the fire sprinkler concept” for more than 110 years. Our members form a strong coalition of the fire sprinkler industry, as well as fire and life safety advocates who have come to depend on NFSA for training, education, best practices and an unparalleled dedication to our mission.

I respectfully request the Committee to support the following:

- Support the adoption of the 2015 International Residential Building Code without amendments, as written.
- The inclusion, as currently written, the 2015 IRC R313.1 requirement for fire sprinklers in all newly built townhouses.
- The restoration of the 2015 IRC R313.2 requirement for fire sprinklers in all new one-two family dwellings.

Fire sprinkler requirements in one- and two-family dwellings and townhouses were added to all the national model codes because of the fire safety problem emerging from today’s construction materials. There is no technical substitute for fire sprinkler systems, at least anything reasonably affordable.

There has been much discussion on the fire safety of engineered wood and lightweight truss construction materials at the national code hearings – much of it coming from the professional firefighters who will not accept fire fighter death and injury because of this “NEW” construction process. An Internet search of Lightweight Construction Fire Safety will identify over 7.3 million results that clearly dimension the emerging fire safety problem. Because of the increased number of people dying during escape in new home construction, the U.S. Fire Administration held a symposium during which UL and FM presented information on lightweight construction and very flammable furnishings validating the need for fire sprinklers.

Floor plans of new homes are more open allowing greater fire loads to free burn in larger compartments. The larger room coupled with new furnishings that burn hotter and quicker and releases more smoke and flame than older legacy furniture, contributes significantly to the safety of the occupants and responding firefighters. Reports from UL show the

fast burning typical with today's furnishings and underscores the rapid-fire growth problem when coupled with lightweight engineered wood or "modern" materials. Add in new energy requirements that increase the heat buildup from home fires and we have a deadly recipe during fire conditions. Rooms flashover very quickly leaving three minutes or less to escape.

What does this mean to fire and life safety? It means that buildings that exclude basic life safety requirements will continue to claim the lives of citizens and firefighters for years to come. Last year, in the 48 states that excluded the provisions for residential sprinklers, there were more than 700,000 homes built without built in fire protection.

Please join California, Maryland, the District of Columbia and hundreds of other communities in adopting the model building code as written regarding residential sprinklers.

***I am also including for your review*** Seigworth documents that will detail costs associated with constructing interior partitions based on Certainteed System WPE154 fire resistive rating design: 1-hour wall type with an STC rating of 54. The other summary shows costs associated with constructing interior partitions based on Certainteed System WAH261 fire resistive rating design: 2-hour wall type with a STC rating of 61.

*The analysis for estimating the comparison of wood framed 1-hour vs 2-hour interior partitions was completed by a CT certified construction estimator using CT labor, materials and equipment.*

*The cost difference for the 1-hour wall assembly for a 5-unit, 4 wall configurations is \$50,628.80. The cost to furnish and install the 2-hour rated assembly is \$82,771.97. The result is savings of \$32,143.17. Please see the attached **Seigworth document**.*

**Further** please find quotes for residential sprinkler costs for townhouses (10/11/2017) being built at the Yorkshire-Building 1, Farmington, CT for units 31, 33, 35, 37. (page #1)

Please refer to the attached **Yorkshire-Farmington** and **Metropolitan Fire Protection** documents.

*In the Yorkshire-Farmington quote, page # 1, the average prices from all vendors with tank and pump water supply systems is \$12,512.00 per unit.*

*I call your attention to the # 3 bid from Encore, the price quote to install fire sprinklers throughout one typical 4-unit building for "**Thirty-Five Thousand Six Hundred Dollars (\$32,600.00)**." I am not sure if it is \$35,600 or \$32,600.00. The alternate proposal to include a tank and pump system totals \$63,800.00 which equals an additional \$7,800.00 for each tank and pump unit. (This represents a significant mark up for these types of units in my opinion). Please know that fire department connections are not required or recommended for NFPA 13D fire sprinkler systems. This further increases the price. And I offer up the following regarding backflow prevention devices that was also included in this price quote in bullet point #5 on page #3.*

*The State Building and Fire Code adoption did not amend the IRC P2904 section which states in part from actual text of the 2018 Code, which by the way is the same language that is in the 2012 version.*

*"A backflow preventer shall not be required to separate a sprinkler system from the water distribution system, provided that the sprinkler system complies with all of the following:"*

- 1. The system complies with NFPA13D or Section P2904. (It does)*
- 2. The piping materials complies with P2904. (It does)*
- 3. The system does not contain antifreeze. (There is no antifreeze)*
- 4. The system does not have a fire department connection (The FDC is not required or recommended on NFPA 13D systems)*

*In addition to this information, please consider the **State of Connecticut Cross Connection Manual** prepared by the*

**Department of Public Health Drinking Water Division and the CT Section American Water Works Association, Cross Connection Committee.** In this document page 57, 6.1.2. FDC's nor backflow prevention are not required unless the above-mentioned are present. Clearly, in my opinion, these devices inflate the already inflated price submittal.

In the Metropolitan Fire Protection quote with the tank and pump water supply system, the average price for each unit is \$6,578.00. Without the tank and pump system the average price quoted is \$4,203.00

In quote #4, please note that Worsbrough is no longer in existence, however, the quote is for a multipurpose fire sprinkler system.

In quote #6, please note once again that backflow and a Siamese fire department connection for basement are not recommended or required for NFPA 13D systems.

Regarding page #12, Nelson Construction / Mill Pond Crossing, I submit the following. It appears that this project was designed under NFPA 13R and not NFPA 13D, which is allowed in townhomes. 13R requires 4-sprinkler calculation and increased water service demand / sizing. (2" meter vs perhaps ¾" meter depending on design details). NFPA 13D would have a 2-sprinkler head design basis.

Accordingly, if NFPA 13D was used, a single water line into the building can be used and therefore a riser into each unit complete with alarm and backflow protection would not be necessary. A change to 13D which is permitted in CT would yield a significant savings by eliminating 4 fire department connections and 4 backflow preventers.

Further the size of each unit is misrepresented. The submittal indicates "Four-Unit, 8,000 Sq Ft Townhome Building with Unfinished Basements". The true size per draft plans is 9,912 Sq Ft. This is a 24% error in the cost per sqft. Ignoring all the other issues and taking no credit for wall reduction, this mistake alone lowers the price estimate from \$3.95 to 3.19 per sqft.

Thank you for your consideration.

David A. LaFond  
New England Regional Manager  
National Fire Sprinkler Association  
2 Burns Way  
Holyoke, MA 01040

Attachments

Gregory C. Seigworth, CPE CERT  
15 Farmstead Lane  
West Simsbury, CT 06092 - 2414

January 15, 2018

Pages via email: 16

Jeffrey M. Shapiro, P.E., FSFPE  
International Code Consultants  
8207 Asmara Drive  
Austin, TX 78750

Re: Construction estimating for comparison of wood framed 1-hour vs 2-hour interior partitions.

Dear Mr. Shapiro:

I am a construction estimator with over 37 years of experience. I routinely prepare general construction estimates that include 1-hour and 2-hour wood framed partitions. My 1-page resume is included herein. A 3-page partial client list is included as **Attachment A**.

Attached to this 3-page cover letter are two 1-page cost summaries. One summary shows costs associated with constructing interior partitions based on the Certainteed System WPE154 fire resistance rating design: 1-hour wall type with an STC rating of 54. The other summary shows costs associated with constructing interior partitions based on the Certainteed System WAH261 fire resistance rating design: 2-hour wall type with an STC rating of 61.

Material costs included in my estimates are taken from an extensive data base accumulated while preparing hundreds of estimates on both private and commercial construction projects. It is standard operating practice for me to solicit hard material pricing from retail vendors in proximity to the project when practical. The material pricing in the form of a quote is used to update my material data base.

Labor rates used to prepare my estimates are derived from my extensive labor rate data base. Contractor clients provide me with their proprietary hourly labor, benefit and insurance rates for both General Liability and Workmen's Compensation.

#### QUALIFICATIONS:

The attached estimate(s) are based upon the following hypothetical assumptions regarding the structure:

Number of stories:	3
Floor to floor height:	10 vertical feet
Number of units:	5
Interior partition total length estimated:	720 lineal feet



Gregory C. Seigworth, CPE CERT  
15 Farmstead Lane  
West Simsbury, CT 06092 - 2414

January 15, 2018 Cost differential between 1-hour vs 2-hour interior partitions. Page 2 of 3

Assuming a 60 ft depth, and 6 in 12  
center peak attic = 112.5 sqsf of wall  
in attic space per wall for a total of: 450 square feet

Baseboard, taping, sanding, primer and finish coats for painting is not included as commonality applies to wall types.

Wood waste factor is 5 percent.  
Gypsum board waste factor is 8 percent.  
Insulation waste factor is 4 percent.  
Stud spacing is 16 inches on center.

Waste factor is added to material cost.

All costs as shown based upon experienced work crew using pneumatic tools.

#### EXCLUSIONS:

Overhead and profit. Radical differences exist between regions in the continental USA.  
Performance, Material and Payment Bond costs.  
Sales taxes. Radical differences exist between regions in the continental USA.  
Prevailing wages normally referred to as Davis-Bacon wage rates.  
Regional cost multipliers.  
Costs associated with regional design differences related to architectural preferences outside of CT.  
Costs associated with regional design differences related to weather or code requirements outside of CT.  
Costs due to inflation and or market fluctuations due to supply and demand.  
Firestopping at the interface with floor joist construction. Cost to be included in floor.

#### COMMENTS:

Costs included in my work product are based upon details as shown on CertainTeed assemblies shown in **Attachment B**. Assemblies included in my cost comparison are noted as wall type detail System WPE154 for 1-hour fire rating and System WAH261 for 2-hour fire rating.

Note: I was unable to obtain pricing of the CertainTeed materials namely M2TECH and GLASROCK SHAFT LINER. CertainTeed did not respond to my solicitations for pricing. I instead contacted US Gypsum a competitor. US Gypsum furnished pricing on materials known in the industry as "an equal". Product data including a *cross over comparison chart* was sent to your attention earlier this date via email. The attached estimate for the 2-hour design includes US Gypsum *Moldtough Shaft Liner Panel*. Liner Panel and Cross Over Chart: 5-pages included as **Attachment C**.

Gregory C. Seigworth, CPE CERT  
15 Farmstead Lane  
West Simsbury, CT 06092 - 2414

January 15, 2018 Cost differential between 1-hour vs 2-hour interior partitions. Page 3 of 3

## CONCLUSION:

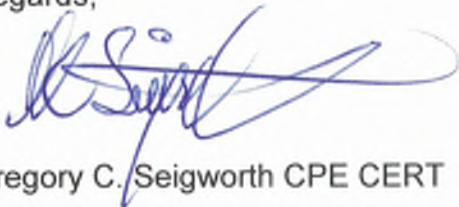
It is with a reasonable degree of professional certainty that I find:

The cost to furnish and install 1-hour rated partitions is \$7.03 per square foot. The total amount is \$50,628.80

The cost to furnish and install 2-hour rated partitions is \$11.50 per square foot. The total amount is \$82,771.97

If you have any questions or concern's, please contact me immediately.

Regards,



Gregory C. Seigworth CPE CERT

1-HR > PROBABLE COST FOR CONSTRUCTION

PROJECT: 1-HR vs. 2-HR INTERIOR PARTITIONS

ITEM #	SECTION #	SCOPE OF WORK DESCRIPTION	BID (Y=1)	PROPOSED QUANTITY	UM	CHECK 4 UNIT COST OR BID	TOTAL LABOR	TOTAL EQUIP	TOTAL MATT	TOTAL SUB-CONTR	AMOUNT
1	H = 10'-0"	STUD FRAMING > 2-IN X 4-IN KILN DRIED	1	1440	LF	18.80	19261.32	1902.93	5902.31	0.00	27,066.56
2	1 LAYER	BATT INSULATION 3 1/2-IN	1	7200	SF	1.05	3129.88	82.50	4343.04	0.00	7,555.42
3		5/8-IN TYPE X GYPSUM WALL BOARD	1	14250	SF	1.12	8026.55	716.63	7264.65	0.00	16,008.82
4			1	0		0.00	0.00	0.00	0.00	0.00	0.00
5			1	0		0.00	0.00	0.00	0.00	0.00	0.00
6			1	0		0.00	0.00	0.00	0.00	0.00	0.00
7			1	0		0.00	0.00	0.00	0.00	0.00	0.00
8			1	0		0.00	0.00	0.00	0.00	0.00	0.00
9			1	0		0.00	0.00	0.00	0.00	0.00	0.00
10			1	0		0.00	0.00	0.00	0.00	0.00	0.00
11			1	0		0.00	0.00	0.00	0.00	0.00	0.00
12			1	0		0.00	0.00	0.00	0.00	0.00	0.00
13			1	0		0.00	0.00	0.00	0.00	0.00	0.00
14			1	0		0.00	0.00	0.00	0.00	0.00	0.00
15			1	0		0.00	0.00	0.00	0.00	0.00	0.00
16			1	0		0.00	0.00	0.00	0.00	0.00	0.00
17			1	0		0.00	0.00	0.00	0.00	0.00	0.00
18			1	0		0.00	0.00	0.00	0.00	0.00	0.00
19			1	0		0.00	0.00	0.00	0.00	0.00	0.00
20			1	0		0.00	0.00	0.00	0.00	0.00	0.00
21			1	0		0.00	0.00	0.00	0.00	0.00	0.00
22			1	0		0.00	0.00	0.00	0.00	0.00	0.00
23			1	0		0.00	0.00	0.00	0.00	0.00	0.00
24			1	0		0.00	0.00	0.00	0.00	0.00	0.00
25			1	0		0.00	0.00	0.00	0.00	0.00	0.00
26			1	0		0.00	0.00	0.00	0.00	0.00	0.00
27			1	0		0.00	0.00	0.00	0.00	0.00	0.00
28			1	0		0.00	0.00	0.00	0.00	0.00	0.00
29			1	0		0.00	0.00	0.00	0.00	0.00	0.00
30			1	0		0.00	0.00	0.00	0.00	0.00	0.00
31			1	0		0.00	0.00	0.00	0.00	0.00	0.00
32			1	0		0.00	0.00	0.00	0.00	0.00	0.00
33			1	0		0.00	0.00	0.00	0.00	0.00	0.00
34			1	0		0.00	0.00	0.00	0.00	0.00	0.00
35			1	0		0.00	0.00	0.00	0.00	0.00	0.00
36			1	0		0.00	0.00	0.00	0.00	0.00	0.00
37			1	0		0.00	0.00	0.00	0.00	0.00	0.00
38			1	0		0.00	0.00	0.00	0.00	0.00	0.00
39			1	0		0.00	0.00	0.00	0.00	0.00	0.00
40			1	0		0.00	0.00	0.00	0.00	0.00	0.00
41			1	0		0.00	0.00	0.00	0.00	0.00	0.00
42			1	0		0.00	0.00	0.00	0.00	0.00	0.00
43			1	0		0.00	0.00	0.00	0.00	0.00	0.00
44			1	0		0.00	0.00	0.00	0.00	0.00	0.00
45			1	0		0.00	0.00	0.00	0.00	0.00	0.00
46			1	0		0.00	0.00	0.00	0.00	0.00	0.00

TOTALS	\$30,416.74	\$2,702.05	\$17,510.00	\$0.00	\$50,628.80
PERCENT	60.08%	5.34%	34.59%	0.00%	100.00%

\$11.50

## 2-HR &gt; PROBABLE COST FOR CONSTRUCTION

ITEM #	ITEM #	SCOPE OF WORK DESCRIPTION	BID (Y=1)	PROPOSED QUANTITY	UM	CHECK 4 UNIT COST OR BID	TOTAL LABOR	TOTAL EQUIP	TOTAL MATT	TOTAL SUB-CONTR	AMOUNT
47	H = 10'-0"	STUD FRAMING > 2-IN X 4-IN KILN DRIED	1	1440	LF	18.80	19281.32	1902.93	5902.31	0.00	27,066.56
48	2 LAYERS	BATT INSULATION 3 1/2-IN	1	14400	SF	1.05	6289.75	165.00	8886.09	0.00	16,110.83
49	0	1/2-IN TYPE X GYPSUM WALL BOARD	1	14250	SF	1.04	8025.55	716.63	8033.45	0.00	14,775.62
50	0	1-IN SHAFTLINER BOARD - DOUBLE LAYER	1	14400	SF	1.79	9732.03	869.00	15217.92	0.00	25,818.96
51	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
52	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
53	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
54	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
55	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
56	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
57	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
58	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
59	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
60	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
61	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
62	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
63	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
64	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
65	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
66	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
67	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
68	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
69	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
70	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
71	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
72	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
73	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
74	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
75	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
76	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
77	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
78	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
79	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
80	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
81	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
82	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
83	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
84	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
85	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
86	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
87	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
88	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
89	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
90	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
91	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
92	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00

TOTAL BUDGET PAGE 2 :

PAGE 2

TOTALS	\$43,278.65	\$3,653.55	\$35,839.76	\$0.00	\$82,771.97
PERCENT	52.29%	4.41%	43.30%	0.00%	100.00%

GREGORY C. SEIGWORTH, CPE CERT  
15 Farmstead Lane  
West Simsbury, CT 06092

Fax: 860.408.9517  
Phone: 860.916.8527

### CONSTRUCTION EXECUTIVE

Successful construction management professional with 37 years of progressively more responsible positions in administration and operations. Persistent, dependable and adaptable problem-solver with proven track record of results. Excellent communicator and facilitator. **Solid background in construction oversight, expert witness, cost estimating and claim preparation.** References available upon request.

#### NET - WORK INK, LLC.

West Simsbury, CT

President - December, 1994 to Present. Provide Cost Estimating, Claim Preparation, Expert Witness and Project Management services for a variety of clients.

#### ENVIRONMENTAL REMEDIATION, INC.

East Hartford, CT

Chief Estimator/Project Executive - June, 1994 to December, 1994. General and Environmental Construction.

#### KESSLER CONSTRUCTION COMPANY

Hartford, CT

Chief Estimator/Project Executive - May, 1989 to June, 1994. General and Heavy Construction.

#### COSTELLO INDUSTRIES

Newington, CT

Senior Estimator/Project Manager - November, 1986 to May, 1989. General and Heavy Construction.

#### MILES DEVELOPING AND CONTRACTING

Clarion, PA

Project Manager / Estimator - June, 1981 to October, 1986. General and Heavy Construction.

### EDUCATION

Boyce Community College, Monroeville, PA  
Major: Economics and Accounting

1972 - 1973

Edinboro State College, Edinboro, PA  
Major: Economics and Accounting

1973 - 1974

Texas A&M University, College Station, TX  
Major: Wildlife and Fisheries Sciences

1977 - 1981

### ASSOCIATIONS:

American Society of Professional Estimators. Certified Professional Estimator. CPE.  
American Arbitration Association. Former Panel of Arbitrators and Contributing Member.  
Construction Estimators Roundtable. CERT.

Gregory C. Seigworth, CPE  
15 Farmstead Lane  
West Simsbury, CT 06092

Attachment A: Contractor client references. 3 pages.

**General Construction:**

Malala Management Consulting LLC 6 High Street Poughkeepsie, NY 12601 Bernard Daisley President  
Phone: 845.417.8294

Corporation for Independent Living 157 Charter Oak Avenue-3<sup>rd</sup> Floor Hartford, CT 06106  
Tom Conetta Vice President Construction Services Phone: 860.509.6746

Bruno Architecture 36 Main Street Blue Hill, Maine 04614 Blas Bruno President Phone: 207.374.5574

Newfield Construction 225 Newfield Avenue Hartford, CT 06016 Chuck Grabowski Chief Estimator  
Phone: 860.953.1477

Crosskey Architects, LLC 1 Union Place Hartford, CT 06103 Phone: 860.651.5177 Peter Ernst P.E.

VESTA Corp. 175 Powder Forest Weatogue, CT 06089 Margo Kelleher Vice President Phone: 860.325.1700

Lupachino & Salvatore 15 Northwood Drive Bloomfield, CT 06002 John J. Salvatore President  
Phone 860.243.1751

LaRosa Building Group, LLC 163 Research Parkway Meriden, CT 06450 Kyma H. Ganzer Project Manager  
James LaRosa President Phone: 203.235.1770

Amaya Architects 284 Racebrook Road Orange, CT 06477 Rafael A. Amaya II, AIA President  
Phone: 203.795.5656

Cariati Developers, Inc. 507 Brownstone Ridge Meriden, CT 06451 Don Cariati President Phone: 203.238.9846

Connecticut Carpentry Corporation 1850 Silas Deane Highway Rocky Hill, CT 06067 Frank Di Bacco President  
Phone: 860.571.8812

Falls Village Fire Department 35 Railroad Street Falls Village, CT 06031 John B. Allyn President Hazel K.  
McGuire Assistant Phone: 860.824.0533

Versatile Construction 301 Watertown Road Morris, CT 06763 David Robert President Phone: 860.459.4281

Henry M. Osowiecki & Sons, Inc. 48 Clay Street Thomaston, CT 06787-0905 Henry Osowiecki President  
Phone: 860.282.9474

AXELA Development Group 558 Chase Avenue Waterbury, CT 06704 Yitz Rabinowitz Vice President  
Phone: 203.573.9870

Pioneer Builders of Newington, Inc. 336 Stamm Road Newington, CT 06111 Marco Caminito President  
Phone: 860.666.2320

Phone: 860.916.8527 Facsimile: 860.408.9517 net-work.ink@comcast.net

Gregory C. Seigworth, CPE  
15 Farmstead Lane  
West Simsbury, CT 06092

**Site and Structural Concrete:**

Lawton Adams Construction Corp. 260 Route 10 Somers, NY 10589 Lawton Adams, Jr. President  
Phone: 914.490.2592

RP Builders & Sons LLC 994 North Colony Road Suite 152 Wallingford, CT 06492 Rod Pandolfo President  
Phone: 203.537.8577

M.F. Moore Concrete 87 Somerset Street Elmwood, CT Mike Moore President Phone: 860.232.6150

LaRosa Construction Company, Inc. 1400 Old North Colony Road Meriden, CT 06450 John LaRosa President  
Phone: 203.237.5409

**Sitework:**

LaRosa Construction Company, Inc. 1400 Old North Colony Road Meriden, CT 06450 John LaRosa President  
Phone: 203.237.5409

Coastland Enterprises LLC 140 West Street Middlefield, CT 06455 Steve McLarty President  
Phone: 860.828.6890

Laydon Industries 51 Longhini Lane New Haven, CT 06519 Jeffery Laydon President Phone: 203.562.7283

Carroll Construction Corp. PO Box 482 Ridgefield, CT 06877 Christopher Carroll President Phone: 203.313.1552

J. Iapaluccio, Inc. 425 Federal Road Brookfield, CT 06804 Douglas P. Burdick Vice President  
Phone: 203.775.1437

Roger Arnow & Sons, Inc. 773 High Ridge Road Stamford, CT 06905 Roger Arnow President  
Phone: 203.322.2656

Paganelli Construction Corp. 51 Lawnacre Road Windsor Locks, CT 06096 Michael Daddario Project Manager  
Phone: 860.883.1873

B & L Construction, Inc. 756 Middlesex Turnpike Old Saybrook, CT 06475 Allen E. Hull President  
Phone: 860.388.9665

M & O Construction Co., Inc. 278 Kent Road New Milford, CT 06776 Melvin McBreairty President  
Phone: 860.355.2115

Ralph Camputaro & Son Excavating 2 Enterprise Drive North Branford, CT 06471 Ralph Camputaro President  
Phone: 203.483.0330

Gregory C. Seigworth, CPE  
15 Farmstead Lane  
West Simsbury, CT 06092

**Environmental:**

Tyree Environmental Corp. 208 Route 109 Farmingdale, NY 11735-1556 Stephen Tyree President  
Phone: 631 249-3150

Loureiro Contractors, Inc. 100 Northwest Drive Plainville, CT 06062 Debbie Brown Chief Estimator  
Phone: 860.410.2953

Kessler Construction Company, Inc. 244 Prospect Avenue Hartford, CT 06106 Raymond Kessler President  
Phone: 860.236.0833

Maralex Trucking, Inc. 520 Burnham Street South Windsor, CT 06074 Averil A. Higgins President  
Phone: 860.610.9015

**Finishes:**

Eastern Painting Corporation P.O. Box 1164 Glastonbury, CT 06033 Ed Doyle President Phone: 860.633.3070

**Communication:**

World Fiber Technologies, Inc. 4205 Trotters Way – Suite B Alpharetta, GA 30004 Mark L. Battle President  
Phone: 770.619.0118

**Major Demolition:**

National Waste & Recycling Services LLC 225 Turnbull Avenue Hamilton, NJ 08610 Phil Abdalla Director  
Business Development Phone: 570.906.9414



# WOOD STUD PARTITIONS

## Interior – Load Bearing

# Attachment B

SOUND TRANSMISSION CLASS (STC)	CONSTRUCTION	DESCRIPTION	DESIGN NUMBER/ TEST REPORTS
<b>FIRE RESISTANCE RATING: 1h (continued)</b>			
52	<p>Thickness: 187mm (7 3/8") Weight: 47 kg/m<sup>2</sup> (9.7 lb/ft<sup>2</sup>)</p>	<p><b>System WPE152</b> 15.9mm (5/8") CertainTeed Type X products, 1 layer, 1 side of staggered 38mm x 89mm (2 x 4) wood studs. Other side, 2 layers. CertainTeed's Sustainable Insulation™ 89mm (3 1/2") within cavity.</p> <p>Fasten base layers vertically or horizontally using 41mm (1 1/2") screws spaced 300mm (12") o.c.; or 38mm (1 1/2") nails spaced 200mm (8") o.c. Fasten face layer to one side vertically or horizontally using 51mm (2") screws spaced 300mm (12") o.c.; or 51mm (2") nails spaced 200mm (8") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.</p>	<p>FIRE: NBCC (2010) Table A-9.10.3.1.A Wall W8a</p> <p>SOUND: NBCC (2010) Table A-9.10.3.1.A Wall W8a</p>
54	<p>Thickness: 235mm (9 1/4") Weight: 42 kg/m<sup>2</sup> (8.6 lb/ft<sup>2</sup>)</p>	<p><b>System WPE154</b> ← <i>this one</i> 15.9mm (5/8") CertainTeed Type X products, 1 layer, each side of double row of 38mm x 89mm (2 x 4) wood studs. CertainTeed's Sustainable Insulation™ 89mm (3 1/2") within cavity, 1 side.</p> <p>Set plates 25mm (1") apart. Fasten boards vertically or horizontally using 41mm (1 1/2") screws spaced 300mm (12") o.c.; or 38mm (1 1/2") nails spaced 200mm (8") o.c. Joints must be offset. Tape and finish joints with CertainTeed products.</p>	<p>FIRE: NBCC (2010) Table A-9.10.3.1.A Wall W13c</p> <p>SOUND: NBCC (2010) Table A-9.10.3.1.A Wall W13c</p>
56	<p>Thickness: 200mm (7 7/8") Weight: 47 kg/m<sup>2</sup> (9.7 lb/ft<sup>2</sup>)</p>	<p><b>System WPE156</b> 15.9mm (5/8") CertainTeed Type X products, 1 layer, 1 side of staggered 38mm x 89mm (2 x 4) wood studs on common 38mm x 140mm (2" x 6") plate. Other side, 2 layers on resilient channels. CertainTeed's Sustainable Insulation™ 89mm (3 1/2") within cavity.</p> <p>Fasten board vertically or horizontally to one side with 41mm (1 1/2") screws spaced 300mm (12") o.c. Attach resilient channels with tabs downwards, horizontally at 400mm (16") or 600mm (24") o.c. to studs on opposite side with 32mm (1 1/4") screws. Upper channel 150mm (6") from top, lower channel 400mm (16") up from bottom and at the bottom of the partition, install an inverted channel. Fasten base layer vertically to the resilient channels with 25mm (1") screws spaced 300mm (12") o.c. Fasten face layer vertically or horizontally with 41mm (1 1/2") screws spaced 300mm (12") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.</p>	<p>FIRE: NBCC (2010) Table A-9.10.3.1.A Wall W11a</p> <p>SOUND: NBCC (2010) Table A-9.10.3.1.A Wall W11a</p>
57	<p>Thickness: 251mm (9 7/8") Weight: 53 kg/m<sup>2</sup> (10.9 lb/ft<sup>2</sup>)</p>	<p><b>System WPE157</b> 15.9mm (5/8") CertainTeed Type X products, 1 layer, 1 side of double row of 38mm x 89mm (2 x 4) wood studs. Other side, 2 layers. CertainTeed's Sustainable Insulation™ 89mm (3 1/2") within cavity, 1 side.</p> <p>Set plates 25mm (1") apart. Fasten base layers vertically or horizontally using 41mm (1 1/2") screws spaced 300mm (12") o.c.; or 38mm (1 1/2") nails spaced 200mm (8") o.c. Fasten face layer to one side vertically or horizontally using 51mm (2") screws spaced 300mm (12") o.c.; or 51mm (2") nails spaced 200mm (8") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.</p>	<p>FIRE: NBCC (2010) Table A-9.10.3.1.A Wall W14c</p> <p>SOUND: NBCC (2010) Table A-9.10.3.1.A Wall W14c</p>
61	<p>Thickness: 251mm (9 7/8") Weight: 56 kg/m<sup>2</sup> (11.4 lb/ft<sup>2</sup>)</p>	<p><b>System WPE161</b> 15.9mm (5/8") CertainTeed Type X products, 1 layer, 1 side of double row 38mm x 89mm (2 x 4) wood studs. Other side, 2 layers. CertainTeed's Sustainable Insulation™ 89mm (3 1/2") within cavity, both sides.</p> <p>Set plates 25mm (1") apart. Fasten base layers vertically or horizontally using 41mm (1 1/2") screws spaced 300mm (12") o.c.; or 38mm (1 1/2") nails spaced 200mm (8") o.c. Fasten face layer to one side vertically or horizontally using 51mm (2") screws spaced 300mm (12") o.c.; or 51mm (2") nails spaced 200mm (8") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.</p>	<p>FIRE: NBCC (2010) Table A-9.10.3.1.A Wall W14a</p> <p>SOUND: NBCC (2010) Table A-9.10.3.1.A Wall W14a</p>

\* Note: For other high STC assemblies see 1 1/2 and 2 hour fire ratings.

# AREA SEPARATION FIREWALLS

## Non-Load Bearing

SOUND  
TRANSMISSION  
CLASS (STC)

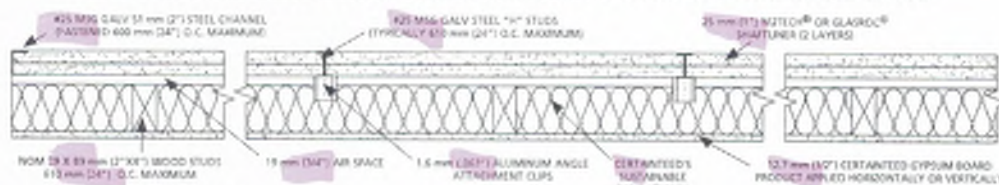
CONSTRUCTION

DESIGN NUMBER/  
TEST REPORTS

FIRE RESISTANCE RATING: **2h**

System  
**57 WAH257**

EXPOSED TO FIRE FROM AREA SEPARATION FIREWALL SIDE ONLY



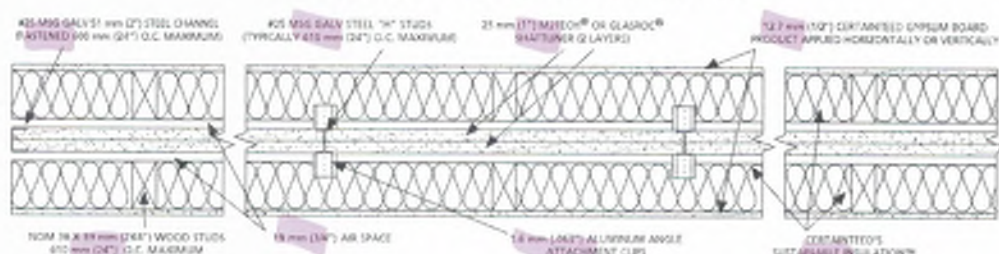
Thickness: 172 mm (6 3/4")  
Weight: 49 kg/m<sup>2</sup> (10 psf)

FIRE: ULC W311  
ITS Report No.  
100260628SAT-006A, 006B

SOUND:  
RAL-TL00-177

System  
**61 WAH261**

EXPOSED TO FIRE FROM EITHER SIDE



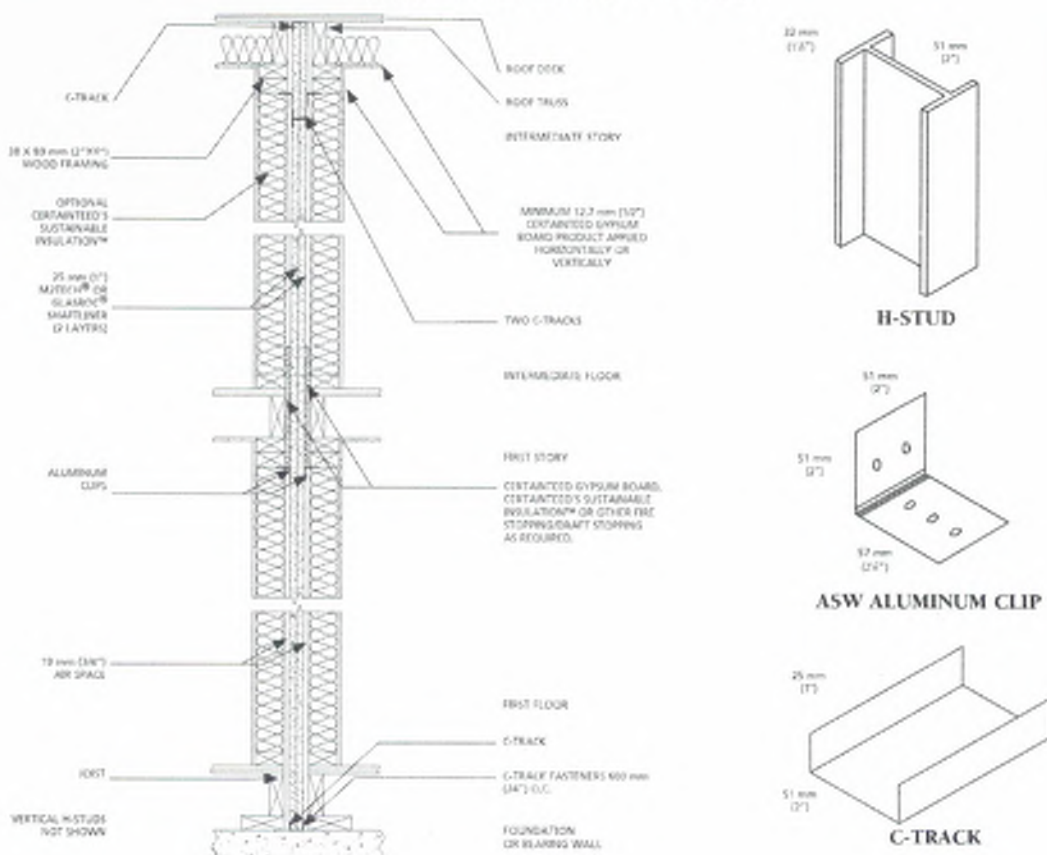
Thickness: 292 mm (11 1/2")  
Weight: 63 kg/m<sup>2</sup> (13 psf)

FIRE: ULC W311  
ITS Report No.  
100260628SAT-006A, 006B

SOUND:  
RAL-TL00-176

*this one*

### TYPICAL INSTALLATION DETAILS



# Sheetrock® Gypsum Liner Panels Attachment C

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## Mold Tough™



### High-performance panels with moisture and mold resistance

- Score and snap easily; no special handling required
- UL Classified as to fire resistance, surface burning characteristics and noncombustibility
- Comprehensive product and system testing assures long-term performance and safety

### Description

Sheetrock® brand Mold Tough™ gypsum panels have a noncombustible, moisture- and mold-resistant gypsum core that is encased in moisture- and mold-resistant, 100 percent recycled blue face and back papers. The panels are UL Classified as to fire resistance (Type SLX) and feature double beveled edges for easy installation. Panel may be substituted for Sheetrock gypsum liner panels in all Sheetrock shaft wall and area separation wall systems. **Note:** These Sheetrock gypsum liner panels have been comprehensively tested for fire resistance, structural performance and sound control *only* when used with Sheetrock shaft wall and area separation wall framing components. All Sheetrock shaft wall and area separation wall system components must be used together to ensure superior system performance and safety. Substitutions of any components are not recommended and are not endorsed by the United States Gypsum Company.

### Limitations

1. Avoid exposure to sustained temperatures exceeding 125 °F (52 °C).
2. Avoid exposure to excessive, repetitive or continuous moisture before, during and after installation. Eliminate sources of moisture immediately.
3. Non-load bearing.

### Product Data lengths.

**Size:** Panels are 1/2" (25.4 mm) thick x 24" (609.6 mm) wide and available in 8'-12' (2438-4267 mm)

**Weight:** Approx. 4.0 lbs/sf (4000 lbs/msf)

**Labeling:** Each panel bears the Underwriters Laboratories, Inc. mark as evidence of UL Classifications as to fire resistance, surface burning characteristics and noncombustibility.

### Test Data

#### Moisture and Mold Resistance

Per ASTM C473, the average water absorption for panels is not greater than 5 percent by weight after two-hour immersion.

In independent lab tests conducted on 1/2" Sheetrock Mold Tough gypsum liner panels at the time of manufacture per ASTM D3273, "Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber," the panel score was 10.

This ASTM lab test may not accurately represent the mold performance of building materials in actual use. Given unsuitable project conditions during storage, installation or after completion, any building material can be overwhelmed by mold. To manage the growth of mold, the best and most cost-effective strategy is to protect building products from water exposure during storage and installation and after completion of the building. This can be accomplished by using good design and construction practices.

### Compliance

Sheetrock Mold Tough gypsum liner panels comply with ASTM C1396.  
Per ASTM E136, noncombustible gypsum core.  
Per ASTM E84, flame spread is 20; smoke developed is 0.

Submittal Approvals	Job Name
	Contractor

**Product Information**

See [usg.com](http://usg.com) for the most up-to-date product information.

**Trademarks**

The following trademarks used herein are owned by United States Gypsum or a related company: Mold Tough, Sherrock, USg

**Notice**

We shall not be liable for incidental and consequential damages, directly or indirectly sustained, nor for any loss caused by application of these goods not in accordance with current printed instructions or for other than the intended use. Our liability is expressly limited to replacement of defective goods. Any claim shall be deemed waived unless made in writing to us within thirty (30) days from date it was or reasonably should have been discovered.

**Safety First!**

Follow good safety/industrial hygiene practices during installation. Wear appropriate personal protective equipment. Read MSDS and literature before specification and installation.



# HIGH-PERFORMANCE PANELS

## CROSS REFERENCE Attachment C

**LIGHTWEIGHT  
PANELS**

1/2" Lightweight Panels	USG Sheetrock® Brand UltraLight Panels <sup>1</sup>	LIGHTROC® Lightweight Gypsum board	Easi-Lite™ Lightweight Gypsum board	Liflite®	ToughRock® Lite-Weight Gypsum board	Gold Bond® High Strength LITE™	PABCO LITECORE™
1/2" Lightweight Mold-Resistant Panels	USG Sheetrock® Brand UltraLight Panels MoldTough™	None	None	None	None	None	None
1/2" Lightweight Plaster-Base Panels	USG Sheetrock® Brand UltraLight Panels Base Imperial™	None	Easi-Lite™ Veneer Plaster Base	None	ToughRock® Lite-Weight Veneer Plaster Base	Gold Bond® Kai-Kore™ LITE™ Plaster Base	None
5/8" Lightweight Regular Core Panels	USG Sheetrock® Brand UltraLight Panels Firecode 30™	None	Easi-Lite™-30 Lightweight Gypsum Board	None	None	Gold Bond® High Strength Fire-Shield™ LITE 30	None
5/8" Lightweight Type X Panels	USG Sheetrock® Brand UltraLight Panels Firecode X™	None	None	None	ToughRock® Lite-Weight Fire-Rated Gypsum Board	Gold Bond® High Strength Fire-Shield™ LITE™	None
5/8" Lightweight Mold-Resistant Panels	USG Sheetrock® Brand UltraLight Panels Mold Tough Firecode X™	None	None	None	None	None	None

**REGULAR  
PANELS**

1/4" Regular Panels	USG Sheetrock® Brand Gypsum Panels	CLASSICROC® Gypsum Wallboard	Regular Gypsum Board	Regular	ToughRock® Gypsum Board	Gold Bond® Gypsum Board	PABCO® Regular Gypsum Board
3/8" Regular Panels	USG Sheetrock® Brand Gypsum Panels	CLASSICROC® Gypsum Wallboard	Regular Gypsum Board	Regular	ToughRock® Gypsum Board	Gold Bond® Gypsum Board	PABCO® Regular Gypsum Board
1/2" Regular Panels	USG Sheetrock® Brand Gypsum Panels	CLASSICROC® Gypsum Wallboard	Regular Gypsum Board	Regular	ToughRock® Gypsum Board	Gold Bond® Gypsum Board	PABCO® Regular Gypsum Board
1/4" Flex Panels	USG Sheetrock® Brand Gypsum Panels	None	1/4" Flex Gypsum Board	Regular	ToughRock® Flexroc Gypsum Board	Gold Bond® HighFlex™ Gypsum Board	None
1/2" Interior Ceiling Boards	USG Sheetrock® Brand UltraLight Panels <sup>1</sup>	Interior Ceiling Gypsum Board	Interior Ceiling Gypsum Board	Sagcheck™	ToughRock® Span 24™ Ceiling Board	Gold Bond® HighStrength™ Ceiling Board	PABCO® Interior Ceiling Board

1. ICC Evaluation Service certified for ceiling installation. ESR-3365

2. USG Sheetrock® Brand UltraLight Panels Firecode™ X are available in one of two UL Type Designations (Type ULX and Type ULX), depending on the market.

3. Available in 1/2" lightweight gypsum panel: USG Sheetrock® Brand UltraLight Panels.

**FIRE-RESISTANT  
TYPE X PANELS**

1/2" Type C Panels	USG Sheetrock® Brand Firecode™ C	FIREBLOC® Type C Gypsum Board	Type C Gypsum Board	Firecheck™ Type C	ToughRock® Fireguard C™ Gypsum Board	Gold Bond® Fire-Shield C™ Gypsum Board	PABCO FLAME CURB Super™
5/8" Type X Panels	USG Sheetrock® Brand Firecode™ X	FIREBLOC® Type X Gypsum Board	Type X Gypsum Board	Firecheck™ Type X	ToughRock® Fireguard X™ Gypsum Board	Gold Bond® Fire-Shield X™ Gypsum Board	PABCO FLAME CURB Type X™
5/8" Type C Panels	USG Sheetrock® Brand Firecode™ C	FIREBLOC® Type C Gypsum Board	Type C Gypsum Board	Firecheck™ Type C	ToughRock® Fireguard C™ Gypsum Board	Gold Bond® Fire-Shield C™ Gypsum Board	PABCO FLAME CURB Type C™
3/4" Panels	USG Sheetrock® Brand Ultracode™ Core	None	None	None	None	None	None

4. Available in 5/8" lightweight gypsum panel: USG Sheetrock® Brand UltraLight Panels Firecode™ X.

**MOLD-RESISTANT  
PANELS**

1/2" Panels	USG Sheetrock® Brand Mold Tough™	M-BLOC® Gypsum Board	M2Tech® Moisture & Mold Resistant Gypsum Board	Mold Defense	ToughRock® Mold-Guard™ Gypsum Board	Gold Bond® XP® Gypsum Board	PABCO MOLD CURB PLUS™
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5. Available in 1/2" lightweight gypsum panel: USG Sheetrock® Brand UltraLight Panels Mold Tough.

		USG	America Gypsum	CertainTeed	Continental Building Products	George-Pacifi	National Gypsum	PABCO Gypsum
MOLD-RESISTANT PANELS CONT.	5/8" Type X Panels	USG Sheetrock® Brand Mold Tough® Firecode® X <sup>1</sup>	M-BLOC® Type X Gypsum Board	M2Tech® Type X Moisture & Mold Resistant Gypsum Board	Mold Defense® Type X	ToughRock® Fireguard X™ Mold-Guard™ Gypsum Board	GoldBond® XP Fire-Shield® Gypsum Board	PABCOMOLD CURB PLUS Type X
	5/8" Type C Panels	USG Sheetrock® Brand Mold Tough® Firecode® C	M-BLOC Type C Gypsum Board	None	None	None	Gold Bond® XP Fire-Shield CGypsum Board	None
	3/4" Panels	USG Sheetrock® Brand Mold Tough® Ultracode® Core	None	None	None	None	None	None
	1/2" Glass-Mat Interior Panels	USG Sheetrock® Brand Glass-Mat Panels Mold Tough®	None	None	Weather Defense® Platinum Interior	DensArmor Plus® Interior Panel	Gold Bond® eXP® Interior Extreme®	None
	5/8" Glass-Mat Interior Panels	USG Sheetrock® Brand Glass-Mat Panels Mold Tough® Firecode X	None	None	Weather Defense® Platinum Interior Type X	DensArmor Plus® Fireguard®	GoldBond® eXP® Interior Extreme-5® Fire- Shield Type X	None
6. Available in 5/8" lightweight gypsum panel. USG Sheetrock® Brand Ultralight Panels Mold Tough® Firecode... X								
PLASTER-BASE PANELS	3/8" Panels	USG Imperial Gypsum Base	None	Veneer Plaster Base Gypsum Board	Plasterbase	ToughRock® Veneer Plaster Base	Gold Bond® Kai-Core® Plaster Base	None
	1/2" Interior Ceiling Boards	USG Imperial Sag- Resistant Interior Ceiling Gypsum Base	None	None	None	None	None	None
	1/2" Type C Panels	USG Imperial Gypsum Base Firecode® C	None	Veneer Plaster Base Gypsum Board	None	None	Gold Bond® Kai-Core® Fire-Shield® C Plaster Base	None
	5/8" Type X Panels	USG Imperial Gypsum Base Firecode® X	None	Veneer Plaster Base Gypsum Board	Firecheck® Plasterbase Type X	ToughRock® Fireguard® Veneer Plaster Base	Gold Bond® Kai-Core® Fire- Shield Plaster Base	None
ABUSE-RESISTANT PANELS	Abuse-Resistant Panels (Regular)	USG Sheetrock® Brand Gypsum Panels AR Firecode® X	None	None	None	ToughRock® Fireguard X™ Abuse-Resistant Gypsum Board	Gold Bond® Hi-Abuse® XP® Gypsum Board	None
	Gypsum-Fiber Panels (Mold-Resistant)	USG Fiberock® AR Interior Panels	None	None	None	None	None	None
	Abuse-Resistant Panels (Mold-Resistant)	USG Sheetrock® Brand Mold Tough® AR Firecode® X	M-BLOC® Abuse Resistant Type X Gypsum Board	AirRenew® Extreme Abuse Resistant Gypsum Board	Protecta® AR100 Type X with Mold Defense-	None	Gold Bond® Hi-Abuse® XP® Gypsum Board	PABCO ABUSE CURB®
	Abuse-Resistant High Impact Panels (Mold-Resistant)	USG Sheetrock® Brand Mold Tough® VH Firecode® X	M-BLOC® Impact Resistant Type X Gypsum Board	AirRenew® Extreme Impact Resistant Gypsum Board	Protecta®-HIR 300 Type X with Mold Defense-	ToughRock® Fireguard X™ Mold-Guard™ Abuse- Resistant Gypsum Board	Gold Bond® Hi-Impact® XP® Gypsum Board	PABCO High Impact
	Glass-Mat Abuse-Resistant Panels (Mold-Resistant)	USG Sheetrock® Brand Glass-Mat Panels Mold Tough® AR Firecode® X	None	None	None	DensArmor Plus® Abuse- Resistant Interior Panel	Gold Bond® eXP® Interior Extreme® AR Gypsum Panel	None
	Glass-Mat Very High Impact Panels (Mold-Resistant)	USG Sheetrock® Brand Glass-Mat Panels Mold Tough® VH Firecode® X	None	None	None	DensArmor Plus® Impact- Resistant Interior Panel	Gold Bond® eXP® Interior Extreme® IR Gypsum Panel	None
LINER PANELS	Shaftwall Liner Panels	USG Sheetrock® Brand Gypsum Liner Panels	Shaft Liner	ProRoc® Shaftliner	Shaftliner® Type X	ToughRock® Shaftliner	Gold Bond® Fire-Shield® Shaftliner XP-	PABCORE® Shaftliner
	Shaftwall Liner Panels (Mold-Resistant)	USG Sheetrock® Brand Mold Tough® Gypsum Liner Panels	M-BLOC® Shaft Liner Panel	M2Tech® Shaftliner Type X	Mold Defense® Shaftliner Type X	None	Gold Bond® Fire-Shield® Shaftliner XP-	PABCORE® MOLD CURB® Plus Shaftliner
	Glass-Mat Shaftwall Liner Panels (Mold-Resistant)	USG Sheetrock® Brand Glass-Mat Liner Panels Mold Tough®	M-GLASS® Shaft Liner	GlasRoc® Shaftliner Type X	Weather Defense® Platinum Shaftliner Type X	DensGlass® Shaftliner	Gold Bond® eXP® Shaftliner	PABCO GLASS® Shaftliner

	USG	American Gypsum	CertainTeed	Continental Building Products	Georgia-Pacific	National Gypsum	PABCO Gypsum
TILE BACKERBOARD	Cement-Based Tile Backer	USG Durock® Brand Cement Board	None	Fiber Cement Backerboard	None	None	PermaBase® Cement Board
	Gypsum Fiber Tile Backer	USG Fiberock® Underlayment and Tile Backerboard	None	None	None	None	None
	Glass-Mat Tile Backer	USG Durock™ Brand Glass-Mat Tile Backerboard	None	Diamondback® GlasRoc®-Tile Backer	None	DensShield® Tile Backer	Gold Bond® eXP® Tile Backer
7. For specific information, refer to USG literature USG Backerboard and Underlayment Product Comparison Guide (C8757)							
EXTERIOR CEILING BOARD	1/2" Regular Panels	USG Sheetrock® Brand Ultralight Panels Mold Tough®	Exterior Soffit Gypsum Board	Exterior Soffit Board	Soffitboard	None	Gold Bond® Exterior Soffit Board
	5/8" Type X Panels	USG Sheetrock® Brand Mold Tough® Firecode® X	Exterior Soffit Gypsum Board	ProRoc® Exterior Soffit Type X	Firecheck™ Soffitboard Type X	None	Gold Bond® Exterior Soffit Board
	5/8" Type C Panels	USG Sheetrock® Brand Mold Tough® Firecode® C	Exterior Soffit Gypsum Board (special order only)	ProRoc® Exterior Soffit Type C	Firecheck® Soffitboard Type C	ToughRock® Fireguard C® Soffit Board	None
EXTERIOR SHEATHING PANELS	1/2" Paper-Faced Gypsum Sheathing	USG Sheetrock® Brand Gypsum Sheathing	Exterior Gypsum Sheathing	Sheathing Treated Core	None	ToughRock® Sheathing	Gold Bond® Gypsum Sheathing
	1/2" Glass-Mat Sheathing	USG Securock® Brand Glass-Mat Sheathing	M-GLASS® Exterior Sheathing	GlasRoc® Sheathing	Weather Defense® Platinum Sheathing	DensGlass® Sheathing	Gold Bond® eXP® Sheathing
	5/8" Type X Paper-Faced Gypsum Sheathing	USG Sheetrock® Brand Gypsum Sheathing Firecode® X	Exterior Gypsum Sheathing	Sheathing Treated Core Type X	None	ToughRock® FireGuard X Sheathing	Gold Bond® Gypsum Fire-Shield (Type X) Sheathing
	5/8" Type X Glass-Mat Sheathing	USG Securock® Brand Glass-Mat Sheathing Firecode® X	M-GLASS® Exterior Sheathing	GlasRoc® Sheathing Type X	Weather Defense® Platinum Sheathing Type X	DensGlass® FireGuard® Sheathing	Gold Bond® eXP® Fire-Shield (Type X) Sheathing
	5/8" Integrated Gypsum Sheathing with Fluid Air-Barrier Membrane	Securock ExoAir 430 System	None	None	None	None	None

**PRODUCT INFORMATION**

See usg.com for the most up-to-date product information.

**TRADEMARKS**

The trademarks USG, DUROCK, FIBEROCK, FIRECODE, FIRECODE 30, IMPERIAL, MOLD TOUGH, SECUROCK, SHEETROCK, ULTRACODE, IT'S YOUR WORLD, BUILD IT, the USG logo, the design elements and colors, and related marks are trademarks of USG Corporation or its affiliates.

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**NOTE**

Products described here may not be available in all geographic markets.

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usg.com

IT'S YOUR WOR 



# INTERNATIONAL RESIDENTIAL CODE FIRE SPRINKLER COALITION

February 15, 2018

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

## **VIA EMAIL**

Subject: Proposed Adoption of IRC Section, R313.1, Townhouse Fire Sprinklers

Chairman Free and Members of the Codes and Standards Committee:

Please accept this document as a supplement to comments offered in my testimony at the public hearing on January 24, 2018 on behalf of the International Residential Code (IRC) Fire Sprinkler Coalition and in cooperation with the National Fire Sprinkler Association. This document provides extensive technical evidence in support of the current recommendation of the Codes and Standards Committee to retain IRC Section R313.1 in the Connecticut code and require townhouses to be provided with residential fire sprinkler systems.

**Background:** I have been personally involved discussions related to townhouse fire sprinkler systems for over 20 years, bringing to that discussion a unique combination of personal perspectives as a licensed professional engineer, fire official, firefighter and as a consultant to the National Multi Housing Council (NMHC), which is the national trade association representing the multifamily construction industry. As NMHC's consultant since the late-1990s until my recent resignation, I was charged with advocating support of mandatory fire sprinkler requirements for all multifamily occupancies, including townhouses, based on fair and reasonable construction incentives in codes that help to offset the cost of sprinkler installations.

Given the success of that model in the International codes, which encompasses 15 years of code development and 6 editions of the IBC and 10 years of code development and 4 editions of the IRC, it is disheartening that we continue to see the relentless efforts by a relatively small number of local builders and builders' association representatives to undermine adoption of the IRC's townhouse fire sprinkler requirement, in Connecticut and some other states. Nevertheless, I understand that the Codes and Standards Committee, as the agency charged with overseeing adoption of the IRC for the State of Connecticut, requires a valid basis for rejecting builders' requests to amend the IRC by removing Section R313.1. In that regard, I offer the following.

**The issue of cost:** Arguments of affordability versus safety are fundamental to the process of developing codes, and they usually involve the question of whether cost increases are justified by safety concerns. In the "traditional" debate process, those arguing against safety will offer greatly inflated cost estimates to make the safety



benefit seem unreasonably expensive, particularly when there are no offsets provided to otherwise reduce the net cost of construction modifications.

However, in the case of townhouse sprinklers, cost offsets are offered by the IRC and IFC, and the net cost of providing fire sprinklers is significantly reduced as a result. They include:

- Reducing the required fire-resistive rating of separation walls from 2-hour to 1-hour.
- Eliminating the requirement to provide fire resistance for unprotected engineered or light-weight floor-ceiling assemblies separating basements from first stories above grade
- Reducing the required width of fire apparatus access roads
- Reducing the required fireflow provided by fire hydrants
- Reducing the number of fire hydrants

It is important to note that townhouse communities, unlike many single-family home communities, are typically developed and constructed by a single builder/developer that benefits from the infrastructure incentives related to reduction of road widths, fireflow and fire hydrants. These savings reduce the net cost of construction for the community, which in turn reduces the average cost of construction for each townhouse unit beyond the savings associated with building construction features.

To no great surprise, Connecticut builders have offered up inflated cost estimates for sprinkler installations to scare up affordable housing concerns. But, their objective of inflating the appearance of overall net cost was complicated by a need to also deflate savings associated with the IRC's construction incentives.

When challenged, builders' sprinkler cost estimates were adjusted downward, but unnecessary add-ons and mistakes in calculations have never been properly addressed in their estimates. These points were raised in comments submitted by the National Fire Sprinkler Association, so I won't repeat them here.

However, I do want to specifically comment on builders' deflated estimates of cost savings associated with reducing the fire rating of separation walls, which were never suitably documented or substantiated. In contrast, I previously submitted a fully-documented spreadsheet with estimates for reasonable worst-case, most-likely, and best-case cost models. When the cost estimates for savings based on wall-rating reductions in this model were questioned, I went a step further by hiring a licensed construction cost estimator who lives and works in Connecticut to provide an independent third-party perspective on Connecticut-specific construction costs. The results, provided as Attachment A herewith, validate significant savings associated with reducing separation wall ratings, which far exceeded the deflated, unsubstantiated estimate that builders provided to your committee.

With respect to sprinkler costs, you have already seen that initial estimates provided by builders came down dramatically when additional bids from Connecticut contractors were provided. However, I am providing herewith in Attachment B a bid from a major sprinkler contractor operating in the Washington, DC, Maryland and

Pennsylvania regional market, where IRC Section R313.1 has been adopted, to demonstrate realistic cost expectations for Connecticut when Connecticut adopts this requirement. Bear in mind that this quote, which is a current quote for the sample building in the Connecticut market, is actually higher than what it would have been in the D.C. market area because this contractor would just be starting out in the Connecticut market.

**The issue of owner choice:** Builders often argue that fire sprinklers should be optional, left to the homebuyer as a choice based on a homebuyer's personal risk tolerance. But when it comes to multifamily occupancies, such as townhouses, there is simply no basis to support that position.

In a townhouse, multiple families live under the same roof in the same structure, but nobody gets to pick their neighbors or have any control over whether their neighbors live safely. Furthermore, because neighbors' smoke alarms don't interconnect in townhouses, there is no early warning of a fire for anyone other than in the unit of origin. If nobody is home, the fire will quickly grow to endanger people, pets and property in other units, and the fire department won't be notified until smoke and fire exit the building, severely diminishing the fire department's ability to rescue occupants and limit fire extension into multiple units when they finally arrive on scene.

The argument of personal choice for townhouse sprinklers isn't akin to someone's individual right to wear seat belts or put on a motorcycle helmet. It's about one person's choice to not wear a helmet impacting everyone else. In a sense, everyone living in the same building is forced to ride on a neighbor's motorcycle, without a helmet and with the neighbor driving, even if they don't want to ride a motorcycle at all, simply because of one neighbor's choice to not wear a helmet.

Finally, with respect to builders' arguments that they will install a sprinkler system when a buyer wants one, I have just started compiling case examples where this can be proven as untrue, regardless of the buyer's willingness to pay an inflated cost floated by the builder to discourage the buyer's interest. In the past month, I've already received documentation of these practices proving the unwillingness of Pulte and Toll Brothers to honor home buyer requests to install sprinklers because they are not required to do so (Attachment C). In the Pulte case, the buyer was quoted a \$30,000 price for a relatively small tract home to scare her, but when she persisted, the builder finally admitted that they simply refused to install the system.

Actually, this isn't surprising. Production home builders build homes like cars in a factory. Envision yourself asking Chevrolet to install a backup camera or collision avoidance system on a new car that isn't set up on the production line to offer these as options. You'd be told no, even if you offered to send your own contractor to the factory to install the system for you. Likewise, some builders will resist changing their assembly line to accommodate the installation of fire sprinkler systems unless they are required by law to do so. And, even if they are ultimately required to offer the system as an option, they retain the ability to assign a ridiculous price to the option to discourage buyers from asking for it. No model code in the country allows

townhouse sprinklers to be optional, and Connecticut would be well served by following that precedent.

**Why builders fight sprinkler requirements:** It's reasonable to ask, if the net cost of adding sprinklers isn't significant for townhouses, or can even result in an overall cost savings, why are builders opposed? The answer is two-fold.

First, it's important to point out that the national association representing multifamily builders did not and does not oppose IRC Section R313.1. On the contrary, this section was added to the code at the request of a major multifamily builder, Avalon Bay Communities, for the exclusive reason of getting the IRC to allow the 2-hour to 1-hour reduction in fire separations, and it was supported by NMHC on behalf of the multifamily building industry. In addition, 10 states have already adopted Section R313.1 at the state level, and the section has been adopted by many local jurisdictions in states that do not have mini-max state codes.

Second, momentum is difficult to overcome. In my experience, builders tend like doing what they're accustomed to doing, and they resist, particularly when it's being mandated by regulations. If you think about it, when has a builders' association ever supported any change to a regulation that was viewed as being more restrictive. I personally cannot think of an example.

**Summary:** When you look at the cumulative information before you, it is clear that the best path forward for the citizens of Connecticut is to adopt IRC Section R313.1 without amendment. The burden of demonstrating the need for a state amendment to the model code should be on those requesting the change, not on those defending a model code requirement that has been validated by a nationally recognized consensus process where all parties had a chance to voice their opinions. And in this case, the model code requirement has been through that process, not just once, but in four consecutive code cycles and four code editions.

Nevertheless, Connecticut building code officials, fire officials, firefighters, burn safety advocates and others have provided a comprehensive basis on which you have a defensible basis for retaining the model code provisions for townhouse sprinklers. I am pleased to have been able to serve as a resource in these discussions and remain available to answer any additional questions that may arise prior to completion of the code adoption process.

Sincerely yours,



Jeffrey M. Shapiro, P.E., FSFPE  
Executive Director

JMS:de

Attachments

# Attachment A

Gregory C. Seigworth, CPE CERT  
15 Farmstead Lane  
West Simsbury, CT 06092 - 2414

January 15, 2018

Pages via email: 16

Jeffrey M. Shapiro, P.E., FSFPE  
International Code Consultants  
8207 Asmara Drive  
Austin, TX 78750

Re: Construction estimating for comparison of wood framed 1-hour vs 2-hour interior partitions.

Dear Mr. Shapiro:

I am a construction estimator with over 37 years of experience. I routinely prepare general construction estimates that include 1-hour and 2-hour wood framed partitions. My 1-page resume is included herein. A 3-page partial client list is included as **Attachment A**.

Attached to this 3-page cover letter are two 1-page cost summaries. One summary shows costs associated with constructing interior partitions based on the Certainteed System WPE154 fire resistance rating design: 1-hour wall type with an STC rating of 54. The other summary shows costs associated with constructing interior partitions based on the Certainteed System WAH261 fire resistance rating design: 2-hour wall type with an STC rating of 61.

Material costs included in my estimates are taken from an extensive data base accumulated while preparing hundreds of estimates on both private and commercial construction projects. It is standard operating practice for me to solicit hard material pricing from retail vendors in proximity to the project when practical. The material pricing in the form of a quote is used to update my material data base.

Labor rates used to prepare my estimates are derived from my extensive labor rate data base. Contractor clients provide me with their proprietary hourly labor, benefit and insurance rates for both General Liability and Workmen's Compensation.

#### QUALIFICATIONS:

The attached estimate(s) are based upon the following hypothetical assumptions regarding the structure:

Number of stories:	3
Floor to floor height:	10 vertical feet
Number of units:	5
Interior partition total length estimated:	720 lineal feet

Gregory C. Seigworth, CPE CERT  
15 Farmstead Lane  
West Simsbury, CT 06092 - 2414

January 15, 2018 Cost differential between 1-hour vs 2-hour interior partitions. Page 2 of 3

Assuming a 60 ft depth, and 6 in 12  
center peak attic = 112.5 sqsf of wall  
in attic space per wall for a total of: 450 square feet

Baseboard, taping, sanding, primer and finish coats for painting is not included as commonality applies to wall types.

Wood waste factor is 5 percent.  
Gypsum board waste factor is 8 percent.  
Insulation waste factor is 4 percent.  
Stud spacing is 16 inches on center.

Waste factor is added to material cost.

All costs as shown based upon experienced work crew using pneumatic tools.

#### EXCLUSIONS:

Overhead and profit. Radical differences exist between regions in the continental USA.  
Performance, Material and Payment Bond costs.  
Sales taxes. Radical differences exist between regions in the continental USA.  
Prevailing wages normally referred to as Davis-Bacon wage rates.  
Regional cost multipliers.  
Costs associated with regional design differences related to architectural preferences outside of CT.  
Costs associated with regional design differences related to weather or code requirements outside of CT.  
Costs due to inflation and or market fluctuations due to supply and demand.  
Firestopping at the interface with floor joist construction. Cost to be included in floor.

#### COMMENTS:

Costs included in my work product are based upon details as shown on CertainTeed assemblies shown in **Attachment B**. Assemblies included in my cost comparison are noted as wall type detail System WPE154 for 1-hour fire rating and System WAH261 for 2-hour fire rating.

Note: I was unable to obtain pricing of the CertainTeed materials namely M2TECH and GLASROCK SHAFT LINER. CertainTeed did not respond to my solicitations for pricing. I instead contacted US Gypsum a competitor. US Gypsum furnished pricing on materials known in the industry as "an equal". Product data including a *cross over comparison chart* was sent to your attention earlier this date via email. The attached estimate for the 2-hour design includes US Gypsum *Moldtough Shaft Liner Panel*. Liner Panel and Cross Over Chart: 5-pages included as **Attachment C**.

Gregory C. Seigworth, CPE CERT  
15 Farmstead Lane  
West Simsbury, CT 06092 - 2414

January 15, 2018 Cost differential between 1-hour vs 2-hour interior partitions. Page 3 of 3

## CONCLUSION:

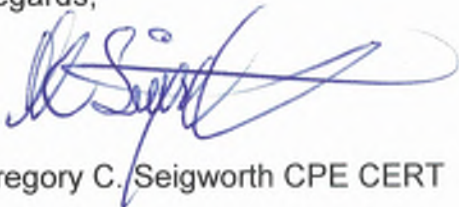
It is with a reasonable degree of professional certainty that I find:

The cost to furnish and install 1-hour rated partitions is \$7.03 per square foot. The total amount is \$50,628.80

The cost to furnish and install 2-hour rated partitions is \$11.50 per square foot. The total amount is \$82,771.97

If you have any questions or concern's, please contact me immediately.

Regards,



Gregory C. Seigworth CPE CERT

1-HR > PROBABLE COST FOR CONSTRUCTION

PROJECT: 1-HR vs. 2-HR INTERIOR PARTITIONS

ITEM #	SECTION #	SCOPE OF WORK DESCRIPTION	BID (Y=1)	PROPOSED QUANTITY	UM	CHECK 4 UNIT COST OR BID	TOTAL LABOR	TOTAL EQUIP	TOTAL MATT	TOTAL SUB-CONTR	AMOUNT
1	H = 10'-0"	STUD FRAMING > 2-IN X 4-IN KILN DRIED	1	1440	LF	18.80	19261.32	1902.93	5902.31	0.00	27,066.56
2	1 LAYER	BATT INSULATION 3 1/2-IN	1	7200	SF	1.05	3129.88	82.50	4343.04	0.00	7,555.42
3		5/8-IN TYPE X GYPSUM WALL BOARD	1	14250	SF	1.12	8026.55	716.63	7264.65	0.00	16,008.82
4			1	0		0.00	0.00	0.00	0.00	0.00	0.00
5			1	0		0.00	0.00	0.00	0.00	0.00	0.00
6			1	0		0.00	0.00	0.00	0.00	0.00	0.00
7			1	0		0.00	0.00	0.00	0.00	0.00	0.00
8			1	0		0.00	0.00	0.00	0.00	0.00	0.00
9			1	0		0.00	0.00	0.00	0.00	0.00	0.00
10			1	0		0.00	0.00	0.00	0.00	0.00	0.00
11			1	0		0.00	0.00	0.00	0.00	0.00	0.00
12			1	0		0.00	0.00	0.00	0.00	0.00	0.00
13			1	0		0.00	0.00	0.00	0.00	0.00	0.00
14			1	0		0.00	0.00	0.00	0.00	0.00	0.00
15			1	0		0.00	0.00	0.00	0.00	0.00	0.00
16			1	0		0.00	0.00	0.00	0.00	0.00	0.00
17			1	0		0.00	0.00	0.00	0.00	0.00	0.00
18			1	0		0.00	0.00	0.00	0.00	0.00	0.00
19			1	0		0.00	0.00	0.00	0.00	0.00	0.00
20			1	0		0.00	0.00	0.00	0.00	0.00	0.00
21			1	0		0.00	0.00	0.00	0.00	0.00	0.00
22			1	0		0.00	0.00	0.00	0.00	0.00	0.00
23			1	0		0.00	0.00	0.00	0.00	0.00	0.00
24			1	0		0.00	0.00	0.00	0.00	0.00	0.00
25			1	0		0.00	0.00	0.00	0.00	0.00	0.00
26			1	0		0.00	0.00	0.00	0.00	0.00	0.00
27			1	0		0.00	0.00	0.00	0.00	0.00	0.00
28			1	0		0.00	0.00	0.00	0.00	0.00	0.00
29			1	0		0.00	0.00	0.00	0.00	0.00	0.00
30			1	0		0.00	0.00	0.00	0.00	0.00	0.00
31			1	0		0.00	0.00	0.00	0.00	0.00	0.00
32			1	0		0.00	0.00	0.00	0.00	0.00	0.00
33			1	0		0.00	0.00	0.00	0.00	0.00	0.00
34			1	0		0.00	0.00	0.00	0.00	0.00	0.00
35			1	0		0.00	0.00	0.00	0.00	0.00	0.00
36			1	0		0.00	0.00	0.00	0.00	0.00	0.00
37			1	0		0.00	0.00	0.00	0.00	0.00	0.00
38			1	0		0.00	0.00	0.00	0.00	0.00	0.00
39			1	0		0.00	0.00	0.00	0.00	0.00	0.00
40			1	0		0.00	0.00	0.00	0.00	0.00	0.00
41			1	0		0.00	0.00	0.00	0.00	0.00	0.00
42			1	0		0.00	0.00	0.00	0.00	0.00	0.00
43			1	0		0.00	0.00	0.00	0.00	0.00	0.00
44			1	0		0.00	0.00	0.00	0.00	0.00	0.00
45			1	0		0.00	0.00	0.00	0.00	0.00	0.00
46			1	0		0.00	0.00	0.00	0.00	0.00	0.00

TOTALS	\$30,416.74	\$2,702.05	\$17,510.00	\$0.00	\$50,628.80
PERCENT	60.08%	5.34%	34.59%	0.00%	100.00%



\$11.50

## 2-HR &gt; PROBABLE COST FOR CONSTRUCTION

ITEM #	ITEM #	SCOPE OF WORK DESCRIPTION	BID (Y=1)	PROPOSED QUANTITY	UM	CHECK 4 UNIT COST OR BID	TOTAL LABOR	TOTAL EQUIP	TOTAL MATT	TOTAL SUB-CONTR	AMOUNT
47	H = 10'-0"	STUD FRAMING > 2-IN X 4-IN KILN DRIED	1	1440	LF	18.80	19281.32	1902.93	5902.31	0.00	27,066.56
48	2 LAYERS	BATT INSULATION 3 1/2-IN	1	14400	SF	1.05	6289.75	165.00	8886.09	0.00	16,110.83
49	0	1/2-IN TYPE X GYPSUM WALL BOARD	1	14250	SF	1.04	8025.55	716.63	8033.45	0.00	14,775.62
50	0	1-IN SHAFTLINER BOARD - DOUBLE LAYER	1	14400	SF	1.79	9732.03	869.00	15217.92	0.00	25,818.96
51	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
52	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
53	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
54	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
55	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
56	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
57	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
58	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
59	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
60	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
61	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
62	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
63	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
64	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
65	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
66	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
67	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
68	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
69	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
70	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
71	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
72	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
73	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
74	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
75	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
76	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
77	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
78	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
79	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
80	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
81	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
82	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
83	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
84	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
85	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
86	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
87	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
88	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
89	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
90	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
91	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00
92	0		1	0		0.00	0.00	0.00	0.00	0.00	0.00

TOTAL BUDGET PAGE 2 :

PAGE 2

TOTALS	\$43,278.65	\$3,653.55	\$35,839.76	\$0.00	\$82,771.97
PERCENT	52.29%	4.41%	43.30%	0.00%	100.00%

GREGORY C. SEIGWORTH, CPE CERT  
15 Farmstead Lane  
West Simsbury, CT 06092

Fax: 860.408.9517  
Phone: 860.916.8527

### CONSTRUCTION EXECUTIVE

Successful construction management professional with 37 years of progressively more responsible positions in administration and operations. Persistent, dependable and adaptable problem-solver with proven track record of results. Excellent communicator and facilitator. **Solid background in construction oversight, expert witness, cost estimating and claim preparation.** References available upon request.

#### NET - WORK INK, LLC.

West Simsbury, CT

President - December, 1994 to Present. Provide Cost Estimating, Claim Preparation, Expert Witness and Project Management services for a variety of clients.

#### ENVIRONMENTAL REMEDIATION, INC.

East Hartford, CT

Chief Estimator/Project Executive - June, 1994 to December, 1994. General and Environmental Construction.

#### KESSLER CONSTRUCTION COMPANY

Hartford, CT

Chief Estimator/Project Executive - May, 1989 to June, 1994. General and Heavy Construction.

#### COSTELLO INDUSTRIES

Newington, CT

Senior Estimator/Project Manager - November, 1986 to May, 1989. General and Heavy Construction.

#### MILES DEVELOPING AND CONTRACTING

Clarion, PA

Project Manager / Estimator - June, 1981 to October, 1986. General and Heavy Construction.

### EDUCATION

Boyce Community College, Monroeville, PA  
Major: Economics and Accounting

1972 - 1973

Edinboro State College, Edinboro, PA  
Major: Economics and Accounting

1973 - 1974

Texas A&M University, College Station, TX  
Major: Wildlife and Fisheries Sciences

1977 - 1981

### ASSOCIATIONS:

American Society of Professional Estimators. Certified Professional Estimator. CPE.  
American Arbitration Association. Former Panel of Arbitrators and Contributing Member.  
Construction Estimators Roundtable. CERT.

Gregory C. Seigworth, CPE  
15 Farmstead Lane  
West Simsbury, CT 06092

Attachment A: Contractor client references. 3 pages.

**General Construction:**

Malala Management Consulting LLC 6 High Street Poughkeepsie, NY 12601 Bernard Daisley President  
Phone: 845.417.8294

Corporation for Independent Living 157 Charter Oak Avenue-3<sup>rd</sup> Floor Hartford, CT 06106  
Tom Conetta Vice President Construction Services Phone: 860.509.6746

Bruno Architecture 36 Main Street Blue Hill, Maine 04614 Blas Bruno President Phone: 207.374.5574

Newfield Construction 225 Newfield Avenue Hartford, CT 06016 Chuck Grabowski Chief Estimator  
Phone: 860.953.1477

Crosskey Architects, LLC 1 Union Place Hartford, CT 06103 Phone: 860.651.5177 Peter Ernst P.E.

VESTA Corp. 175 Powder Forest Weatogue, CT 06089 Margo Kelleher Vice President Phone: 860.325.1700

Lupachino & Salvatore 15 Northwood Drive Bloomfield, CT 06002 John J. Salvatore President  
Phone 860.243.1751

LaRosa Building Group, LLC 163 Research Parkway Meriden, CT 06450 Kyma H. Ganzer Project Manager  
James LaRosa President Phone: 203.235.1770

Amaya Architects 284 Racebrook Road Orange, CT 06477 Rafael A. Amaya II, AIA President  
Phone: 203.795.5656

Cariati Developers, Inc. 507 Brownstone Ridge Meriden, CT 06451 Don Cariati President Phone: 203.238.9846

Connecticut Carpentry Corporation 1850 Silas Deane Highway Rocky Hill, CT 06067 Frank Di Bacco President  
Phone: 860.571.8812

Falls Village Fire Department 35 Railroad Street Falls Village, CT 06031 John B. Allyn President Hazel K.  
McGuire Assistant Phone: 860.824.0533

Versatile Construction 301 Watertown Road Morris, CT 06763 David Robert President Phone: 860.459.4281

Henry M. Osowiecki & Sons, Inc. 48 Clay Street Thomaston, CT 06787-0905 Henry Osowiecki President  
Phone: 860.282.9474

AXELA Development Group 558 Chase Avenue Waterbury, CT 06704 Yitz Rabinowitz Vice President  
Phone: 203.573.9870

Pioneer Builders of Newington, Inc. 336 Stamm Road Newington, CT 06111 Marco Caminito President  
Phone: 860.666.2320

Phone: 860.916.8527 Facsimile: 860.408.9517 net-work.ink@comcast.net

Gregory C. Seigworth, CPE  
15 Farmstead Lane  
West Simsbury, CT 06092

**Site and Structural Concrete:**

Lawton Adams Construction Corp. 260 Route 10 Somers, NY 10589 Lawton Adams, Jr. President  
Phone: 914.490.2592

RP Builders & Sons LLC 994 North Colony Road Suite 152 Wallingford, CT 06492 Rod Pandolfo President  
Phone: 203.537.8577

M.F. Moore Concrete 87 Somerset Street Elmwood, CT Mike Moore President Phone: 860.232.6150

LaRosa Construction Company, Inc. 1400 Old North Colony Road Meriden, CT 06450 John LaRosa President  
Phone: 203.237.5409

**Sitework:**

LaRosa Construction Company, Inc. 1400 Old North Colony Road Meriden, CT 06450 John LaRosa President  
Phone: 203.237.5409

Coastland Enterprises LLC 140 West Street Middlefield, CT 06455 Steve McLarty President  
Phone: 860.828.6890

Laydon Industries 51 Longhini Lane New Haven, CT 06519 Jeffery Laydon President Phone: 203.562.7283

Carroll Construction Corp. PO Box 482 Ridgefield, CT 06877 Christopher Carroll President Phone: 203.313.1552

J. Iapaluccio, Inc. 425 Federal Road Brookfield, CT 06804 Douglas P. Burdick Vice President  
Phone: 203.775.1437

Roger Arnow & Sons, Inc. 773 High Ridge Road Stamford, CT 06905 Roger Arnow President  
Phone: 203.322.2656

Paganelli Construction Corp. 51 Lawnacre Road Windsor Locks, CT 06096 Michael Daddario Project Manager  
Phone: 860.883.1873

B & L Construction, Inc. 756 Middlesex Turnpike Old Saybrook, CT 06475 Allen E. Hull President  
Phone: 860.388.9665

M & O Construction Co., Inc. 278 Kent Road New Milford, CT 06776 Melvin McBreairty President  
Phone: 860.355.2115

Ralph Camputaro & Son Excavating 2 Enterprise Drive North Branford, CT 06471 Ralph Camputaro President  
Phone: 203.483.0330

Gregory C. Seigworth, CPE  
15 Farmstead Lane  
West Simsbury, CT 06092

**Environmental:**

Tyree Environmental Corp. 208 Route 109 Farmingdale, NY 11735-1556 Stephen Tyree President  
Phone: 631 249-3150

Loureiro Contractors, Inc. 100 Northwest Drive Plainville, CT 06062 Debbie Brown Chief Estimator  
Phone: 860.410.2953

Kessler Construction Company, Inc. 244 Prospect Avenue Hartford, CT 06106 Raymond Kessler President  
Phone: 860.236.0833

Maralex Trucking, Inc. 520 Burnham Street South Windsor, CT 06074 Averil A. Higgins President  
Phone: 860.610.9015

**Finishes:**

Eastern Painting Corporation P.O. Box 1164 Glastonbury, CT 06033 Ed Doyle President Phone: 860.633.3070

**Communication:**

World Fiber Technologies, Inc. 4205 Trotters Way – Suite B Alpharetta, GA 30004 Mark L. Battle President  
Phone: 770.619.0118

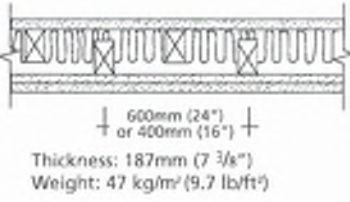
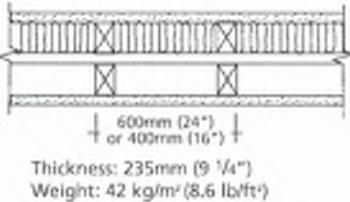
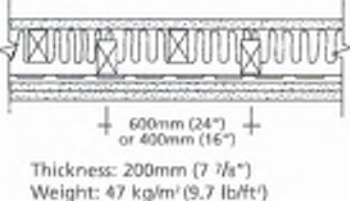
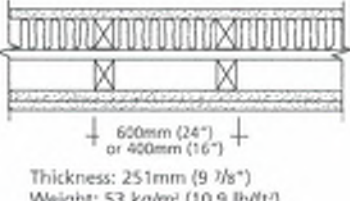
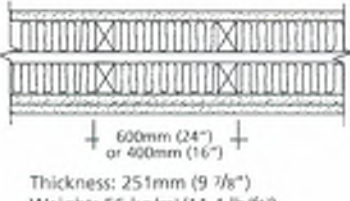
**Major Demolition:**

National Waste & Recycling Services LLC 225 Turnbull Avenue Hamilton, NJ 08610 Phil Abdalla Director  
Business Development Phone: 570.906.9414

# WOOD STUD PARTITIONS

## Interior – Load Bearing

# Attachment B

SOUND TRANSMISSION CLASS (STC)	CONSTRUCTION	DESCRIPTION	DESIGN NUMBER/ TEST REPORTS
<b>FIRE RESISTANCE RATING: 1h (continued)</b>			
52	 <p>Thickness: 187mm (7 3/8") Weight: 47 kg/m<sup>2</sup> (9.7 lb/ft<sup>2</sup>)</p>	<p><b>System WPE152</b> 15.9mm (5/8") CertainTeed Type X products, 1 layer, 1 side of staggered 38mm x 89mm (2 x 4) wood studs. Other side, 2 layers. CertainTeed's Sustainable Insulation™ 89mm (3 1/2") within cavity.</p> <p>Fasten base layers vertically or horizontally using 41mm (1 1/2") screws spaced 300mm (12") o.c.; or 38mm (1 1/2") nails spaced 200mm (8") o.c. Fasten face layer to one side vertically or horizontally using 51mm (2") screws spaced 300mm (12") o.c.; or 51mm (2") nails spaced 200mm (8") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.</p>	<p>FIRE: NBCC (2010) Table A-9.10.3.1.A Wall W8a</p> <p>SOUND: NBCC (2010) Table A-9.10.3.1.A Wall W8a</p>
54	 <p>Thickness: 235mm (9 1/4") Weight: 42 kg/m<sup>2</sup> (8.6 lb/ft<sup>2</sup>)</p>	<p><b>System WPE154</b> ← <i>this one</i> 15.9mm (5/8") CertainTeed Type X products, 1 layer, each side of double row of 38mm x 89mm (2 x 4) wood studs. CertainTeed's Sustainable Insulation™ 89mm (3 1/2") within cavity, 1 side.</p> <p>Set plates 25mm (1") apart. Fasten boards vertically or horizontally using 41mm (1 1/2") screws spaced 300mm (12") o.c.; or 38mm (1 1/2") nails spaced 200mm (8") o.c. Joints must be offset. Tape and finish joints with CertainTeed products.</p>	<p>FIRE: NBCC (2010) Table A-9.10.3.1.A Wall W13c</p> <p>SOUND: NBCC (2010) Table A-9.10.3.1.A Wall W13c</p>
56	 <p>Thickness: 200mm (7 7/8") Weight: 47 kg/m<sup>2</sup> (9.7 lb/ft<sup>2</sup>)</p>	<p><b>System WPE156</b> 15.9mm (5/8") CertainTeed Type X products, 1 layer, 1 side of staggered 38mm x 89mm (2 x 4) wood studs on common 38mm x 140mm (2" x 6") plate. Other side, 2 layers on resilient channels. CertainTeed's Sustainable Insulation™ 89mm (3 1/2") within cavity.</p> <p>Fasten board vertically or horizontally to one side with 41mm (1 1/2") screws spaced 300mm (12") o.c. Attach resilient channels with tabs downwards, horizontally at 400mm (16") or 600mm (24") o.c. to studs on opposite side with 32mm (1 1/4") screws. Upper channel 150mm (6") from top, lower channel 400mm (16") up from bottom and at the bottom of the partition, install an inverted channel. Fasten base layer vertically to the resilient channels with 25mm (1") screws spaced 300mm (12") o.c. Fasten face layer vertically or horizontally with 41mm (1 1/2") screws spaced 300mm (12") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.</p>	<p>FIRE: NBCC (2010) Table A-9.10.3.1.A Wall W11a</p> <p>SOUND: NBCC (2010) Table A-9.10.3.1.A Wall W11a</p>
57	 <p>Thickness: 251mm (9 7/8") Weight: 53 kg/m<sup>2</sup> (10.9 lb/ft<sup>2</sup>)</p>	<p><b>System WPE157</b> 15.9mm (5/8") CertainTeed Type X products, 1 layer, 1 side of double row of 38mm x 89mm (2 x 4) wood studs. Other side, 2 layers. CertainTeed's Sustainable Insulation™ 89mm (3 1/2") within cavity, 1 side.</p> <p>Set plates 25mm (1") apart. Fasten base layers vertically or horizontally using 41mm (1 1/2") screws spaced 300mm (12") o.c.; or 38mm (1 1/2") nails spaced 200mm (8") o.c. Fasten face layer to one side vertically or horizontally using 51mm (2") screws spaced 300mm (12") o.c.; or 51mm (2") nails spaced 200mm (8") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.</p>	<p>FIRE: NBCC (2010) Table A-9.10.3.1.A Wall W14c</p> <p>SOUND: NBCC (2010) Table A-9.10.3.1.A Wall W14c</p>
61	 <p>Thickness: 251mm (9 7/8") Weight: 56 kg/m<sup>2</sup> (11.4 lb/ft<sup>2</sup>)</p>	<p><b>System WPE161</b> 15.9mm (5/8") CertainTeed Type X products, 1 layer, 1 side of double row 38mm x 89mm (2 x 4) wood studs. Other side, 2 layers. CertainTeed's Sustainable Insulation™ 89mm (3 1/2") within cavity, both sides.</p> <p>Set plates 25mm (1") apart. Fasten base layers vertically or horizontally using 41mm (1 1/2") screws spaced 300mm (12") o.c.; or 38mm (1 1/2") nails spaced 200mm (8") o.c. Fasten face layer to one side vertically or horizontally using 51mm (2") screws spaced 300mm (12") o.c.; or 51mm (2") nails spaced 200mm (8") o.c. Joints must be offset. Tape and finish outer layer joints with CertainTeed products.</p>	<p>FIRE: NBCC (2010) Table A-9.10.3.1.A Wall W14a</p> <p>SOUND: NBCC (2010) Table A-9.10.3.1.A Wall W14a</p>

\* Note: For other high STC assemblies see 1 1/2 and 2 hour fire ratings.

# AREA SEPARATION FIREWALLS

## Non-Load Bearing

SOUND  
TRANSMISSION  
CLASS (STC)

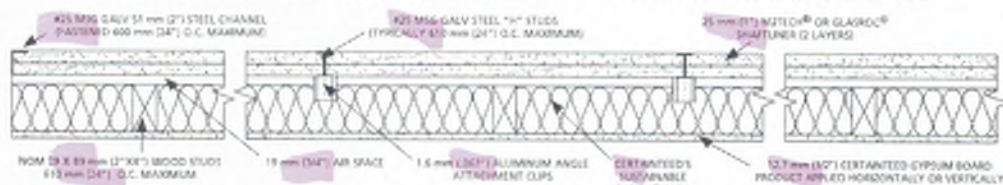
CONSTRUCTION

DESIGN NUMBER/  
TEST REPORTS

FIRE RESISTANCE RATING: **2h**

System  
**57** WAH257

EXPOSED TO FIRE FROM AREA SEPARATION FIREWALL SIDE ONLY



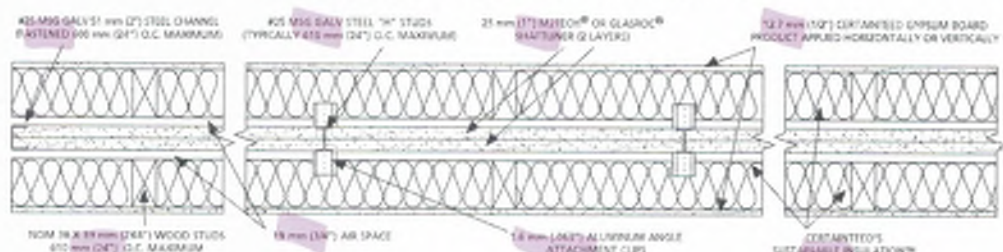
Thickness: 172 mm (6 3/4")  
Weight: 49 kg/m<sup>2</sup> (10 psf)

FIRE: ULC W311  
ITS Report No.  
100260628SAT-006A, 006B

SOUND:  
RAL-TL00-177

System  
**61** WAH261

EXPOSED TO FIRE FROM EITHER SIDE



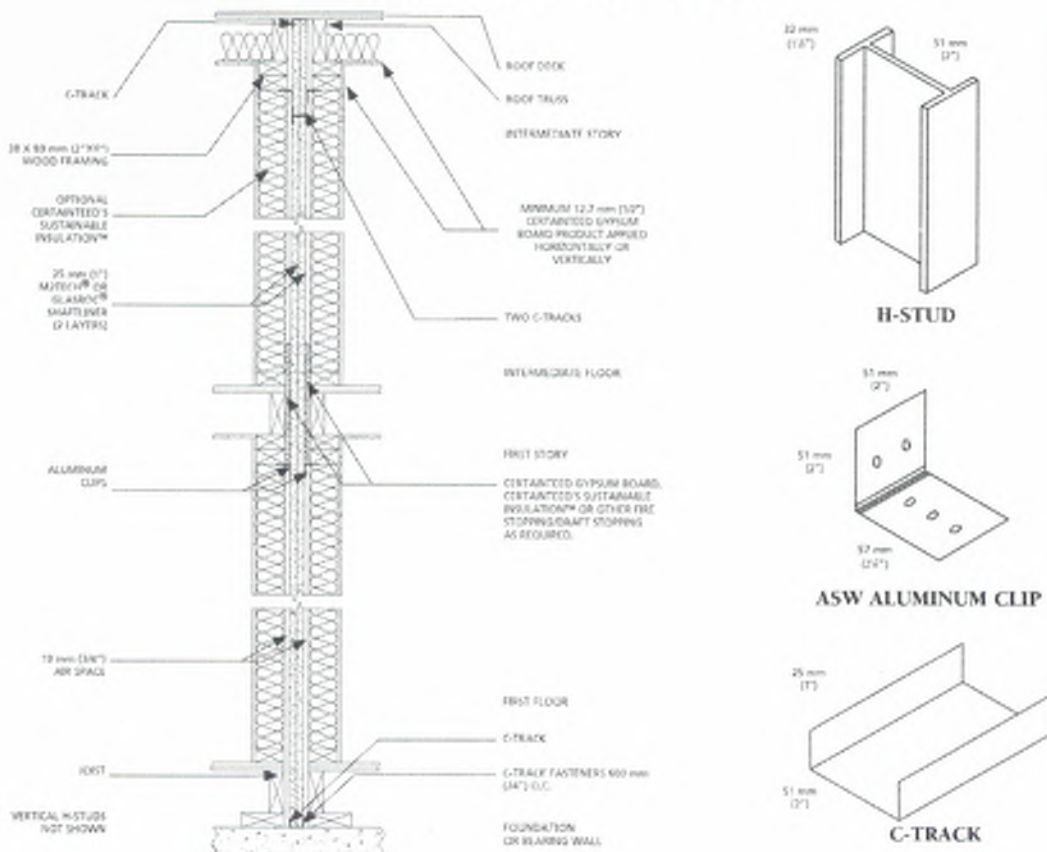
Thickness: 292 mm (11 1/2")  
Weight: 63 kg/m<sup>2</sup> (13 psf)

FIRE: ULC W311  
ITS Report No.  
100260628SAT-006A, 006B

SOUND:  
RAL-TL00-176

*this one*

### TYPICAL INSTALLATION DETAILS



# Sheetrock® Gypsum Liner Panels Attachment C

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## Mold Tough™



### High-performance panels with moisture and mold resistance

- Score and snap easily; no special handling required
- UL Classified as to fire resistance, surface burning characteristics and noncombustibility
- Comprehensive product and system testing assures long-term performance and safety

### Description

Sheetrock® brand Mold Tough™ gypsum panels have a noncombustible, moisture- and mold-resistant gypsum core that is encased in moisture- and mold-resistant, 100 percent recycled blue face and back papers. The panels are UL Classified as to fire resistance (Type SLX) and feature double beveled edges for easy installation. Panel may be substituted for Sheetrock gypsum liner panels in all Sheetrock shaft wall and area separation wall systems. **Note:** These Sheetrock gypsum liner panels have been comprehensively tested for fire resistance, structural performance and sound control *only* when used with Sheetrock shaft wall and area separation wall framing components. All Sheetrock shaft wall and area separation wall system components must be used together to ensure superior system performance and safety. Substitutions of any components are not recommended and are not endorsed by the United States Gypsum Company.

### Limitations

1. Avoid exposure to sustained temperatures exceeding 125 °F (52 °C).
2. Avoid exposure to excessive, repetitive or continuous moisture before, during and after installation. Eliminate sources of moisture immediately.
3. Non-load bearing.

### Product Data lengths.

**Size:** Panels are 1/2" (25.4 mm) thick x 24" (609.6 mm) wide and available in 8'-12' (2438-4267 mm)

**Weight:** Approx. 4.0 lbs/sf (4000 lbs/msf)

**Labeling:** Each panel bears the Underwriters Laboratories, Inc. mark as evidence of UL Classifications as to fire resistance, surface burning characteristics and noncombustibility.

### Test Data

#### Moisture and Mold Resistance

Per ASTM C473, the average water absorption for panels is not greater than 5 percent by weight after two-hour immersion.

In independent lab tests conducted on 1/2" Sheetrock Mold Tough gypsum liner panels at the time of manufacture per ASTM D3273, "Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber," the panel score was 10.

This ASTM lab test may not accurately represent the mold performance of building materials in actual use. Given unsuitable project conditions during storage, installation or after completion, any building material can be overwhelmed by mold. To manage the growth of mold, the best and most cost-effective strategy is to protect building products from water exposure during storage and installation and after completion of the building. This can be accomplished by using good design and construction practices.

### Compliance

Sheetrock Mold Tough gypsum liner panels comply with ASTM C1396.  
Per ASTM E136, noncombustible gypsum core.  
Per ASTM E84, flame spread is 20; smoke developed is 0.



Submittal Approvals	Job Name
	Contractor

**Product Information**

See [usg.com](http://usg.com) for the most up-to-date product information.

**Trademarks**

The following trademarks used herein are owned by United States Gypsum or a related company: Mold Tough, Sherrock, USg

**Notice**

We shall not be liable for incidental and consequential damages, directly or indirectly sustained, nor for any loss caused by application of these goods not in accordance with current printed instructions or for other than the intended use. Our liability is expressly limited to replacement of defective goods. Any claim shall be deemed waived unless made in writing to us within thirty (30) days from date it was or reasonably should have been discovered.

**Safety First!**

Follow good safety/industrial hygiene practices during installation. Wear appropriate personal protective equipment. Read MSDS and literature before specification and installation.



# HIGH-PERFORMANCE PANELS

## CROSS REFERENCE Attachment C

### LIGHTWEIGHT PANELS

1/2" Lightweight Panels	USG Sheetrock Brand UltraLight Panels <sup>1</sup>	LIGHTROC <sup>2</sup> Lightweight Gypsum board	Easi-Lite <sup>3</sup> Lightweight Gypsum board	Liflite <sup>3</sup>	ToughRock <sup>4</sup> Lite-Weight Gypsum board	Gold Bond <sup>5</sup> High Strength LITE <sup>6</sup>	PABCO LITECORE <sup>7</sup>
1/2" Lightweight Mold-Resistant Panels	USG Sheetrock Brand UltraLight Panels MoldTough <sup>1</sup>	None	None	None	None	None	None
1/2" Lightweight Plaster-Base Panels	USG Sheetrock Brand UltraLight Panels Base Imperial <sup>1</sup>	None	Easi-Lite <sup>3</sup> Veneer Plaster Base	None	ToughRock <sup>4</sup> Lite-Weight Veneer Plaster Base	Gold Bond <sup>5</sup> Kai-Kore <sup>6</sup> LITE <sup>6</sup> Plaster Base	None
5/8" Lightweight Regular Core Panels	USG Sheetrock Brand UltraLight Panels Firecode 30 <sup>1</sup>	None	Easi-Lite <sup>3</sup> 30 Lightweight Gypsum Board	None	None	Gold Bond <sup>5</sup> High Strength Fire-Shield <sup>6</sup> LITE 30	None
5/8" Lightweight Type X Panels	USG Sheetrock Brand UltraLight Panels Firecode X <sup>1</sup>	None	None	None	ToughRock <sup>4</sup> Lite-Weight Fire-Rated Gypsum Board	Gold Bond <sup>5</sup> High Strength Fire-Shield <sup>6</sup> LITE <sup>6</sup>	None
5/8" Lightweight Mold-Resistant Panels	USG Sheetrock Brand UltraLight Panels Mold Tough Firecode X <sup>1</sup>	None	None	None	None	None	None

### REGULAR PANELS

1/4" Regular Panels	USG Sheetrock Brand Gypsum Panels	CLASSICROC <sup>2</sup> Gypsum Wallboard	Regular Gypsum Board	Regular	ToughRock <sup>4</sup> Gypsum Board	Gold Bond <sup>5</sup> Gypsum Board	PABCO <sup>7</sup> Regular Gypsum Board
3/8" Regular Panels	USG Sheetrock Brand Gypsum Panels	CLASSICROC <sup>2</sup> Gypsum Wallboard	Regular Gypsum Board	Regular	ToughRock <sup>4</sup> Gypsum Board	Gold Bond <sup>5</sup> Gypsum Board	PABCO <sup>7</sup> Regular Gypsum Board
1/2" Regular Panels	USG Sheetrock Brand Gypsum Panels <sup>1</sup>	CLASSICROC <sup>2</sup> Gypsum Wallboard	Regular Gypsum Board	Regular	ToughRock <sup>4</sup> Gypsum Board	Gold Bond <sup>5</sup> Gypsum Board	PABCO <sup>7</sup> Regular Gypsum Board
1/4" Flex Panels	USG Sheetrock Brand Gypsum Panels	None	1/4" Flex Gypsum Board	Regular	ToughRock <sup>4</sup> Flexroc Gypsum Board	Gold Bond <sup>5</sup> HighFlex <sup>6</sup> Gypsum Board	None
1/2" Interior Ceiling Boards	USG Sheetrock Brand UltraLight Panels <sup>1</sup>	Interior Ceiling Gypsum Board	Interior Ceiling Gypsum Board	Sagcheck <sup>3</sup>	ToughRock <sup>4</sup> Span24 <sup>4</sup> Ceiling Board	Gold Bond <sup>5</sup> HighStrength <sup>6</sup> Ceiling Board	PABCO <sup>7</sup> Interior Ceiling Board

1. ICC Evaluation Service certified for ceiling installation. ESR-3365

2. USG Sheetrock Brand UltraLight Panels Firecode X are available in one of two UL Type Designations (Type ULX and Type ULX), depending on the market.

3. Available in 1/2" lightweight gypsum panel. USG Sheetrock Brand UltraLight Panels.

### FIRE-RESISTANT TYPE X PANELS

1/2" Type C Panels	USG Sheetrock Brand Firecode C <sup>1</sup>	FIREBLOC <sup>2</sup> Type C Gypsum Board	Type C Gypsum Board	Firecheck <sup>3</sup> Type C	ToughRock <sup>4</sup> Fireguard C <sup>4</sup> Gypsum Board	Gold Bond <sup>5</sup> Fire-Shield C <sup>6</sup> Gypsum Board	PABCO FLAME CURB Super <sup>7</sup>
5/8" Type X Panels	USG Sheetrock Brand Firecode X <sup>1</sup>	FIREBLOC <sup>2</sup> Type X Gypsum Board	Type X Gypsum Board	Firecheck <sup>3</sup> Type X	ToughRock <sup>4</sup> Fireguard X <sup>4</sup> Gypsum Board	Gold Bond <sup>5</sup> Fire-Shield <sup>6</sup> Gypsum Board	PABCO FLAME CURB Type X
5/8" Type C Panels	USG Sheetrock Brand Firecode C <sup>1</sup>	FIREBLOC <sup>2</sup> Type C Gypsum Board	Type C Gypsum Board	Firecheck <sup>3</sup> Type C	ToughRock <sup>4</sup> Fireguard C <sup>4</sup> Gypsum Board	Gold Bond <sup>5</sup> Fire-Shield C <sup>6</sup> Gypsum Board	PABCO FLAME CURB Type C
3/4" Panels	USG Sheetrock Brand Ultracode Core	None	None	None	None	None	None

4. Available in 5/8" lightweight gypsum panel. USG Sheetrock Brand UltraLight Panels Firecode X.

### MOLD-RESISTANT PANELS

1/2" Panels	USG Sheetrock Brand Mold Tough <sup>1</sup>	M-BLOC <sup>2</sup> Gypsum Board	M2Tech <sup>3</sup> Moisture & Mold Resistant Gypsum Board	Mold Defense	ToughRock <sup>4</sup> Mold-Guard <sup>4</sup> Gypsum Board	Gold Bond <sup>5</sup> XP <sup>6</sup> Gypsum Board	PABCO MOLD CURB PLUS
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5. Available in 1/2" lightweight gypsum panel. USG Sheetrock Brand UltraLight Panels Mold Tough.

		USG	America Gypsum	CertainTeed	Continental Building Products	George-Pacifi	National Gypsum	PABCO Gypsum
MOLD-RESISTANT PANELS CONT.	5/8" Type X Panels	USG Sheetrock® Brand Mold Tough® Firecode® X <sup>1</sup>	M-BLOC® Type X Gypsum Board	M2Tech® Type X Moisture & Mold Resistant Gypsum Board	Mold Defense® Type X	ToughRock® Fireguard X™ Mold-Guard™ Gypsum Board	GoldBond® XP Fire-Shield® Gypsum Board	PABCOMOLD CURB PLUS Type X
	5/8" Type C Panels	USG Sheetrock® Brand Mold Tough® Firecode® C	M-BLOC Type C Gypsum Board	None	None	None	Gold Bond® XP Fire-Shield CGypsum Board	None
	3/4" Panels	USG Sheetrock® Brand Mold Tough® Ultracode® Core	None	None	None	None	None	None
	1/2" Glass-Mat Interior Panels	USG Sheetrock® Brand Glass-Mat Panels Mold Tough®	None	None	Weather Defense® Platinum Interior	DensArmor Plus® Interior Panel	Gold Bond® eXP® Interior Extreme®	None
	5/8" Glass-Mat Interior Panels	USG Sheetrock® Brand Glass-Mat Panels Mold Tough® Firecode X	None	None	Weather Defense® Platinum Interior Type X	DensArmor Plus® Fireguard®	GoldBond® eXP® Interior Extreme-5® Fire- Shield Type X	None
6. Available in 5/8" lightweight gypsum panel. USG Sheetrock® Brand Ultralight Panels Mold Tough® Firecode... X								
PLASTER-BASE PANELS	3/8" Panels	USG Imperial Gypsum Base	None	Veneer Plaster Base Gypsum Board	Plasterbase	ToughRock® Veneer Plaster Base	Gold Bond® Kai-Core® Plaster Base	None
	1/2" Interior Ceiling Boards	USG Imperial Sag- Resistant Interior Ceiling Gypsum Base	None	None	None	None	None	None
	1/2" Type C Panels	USG Imperial Gypsum Base Firecode® C	None	Veneer Plaster Base Gypsum Board	None	None	Gold Bond® Kai-Core® Fire-Shield® C Plaster Base	None
	5/8" Type X Panels	USG Imperial Gypsum Base Firecode® X	None	Veneer Plaster Base Gypsum Board	Firecheck® Plasterbase Type X	ToughRock® Fireguard® Veneer Plaster Base	Gold Bond® Kai-Core® Fire- Shield Plaster Base	None
ABUSE-RESISTANT PANELS	Abuse-Resistant Panels (Regular)	USG Sheetrock® Brand Gypsum Panels AR Firecode X	None	None	None	ToughRock® Fireguard X™ Abuse-Resistant Gypsum Board	Gold Bond® Hi-Abuse® XP® Gypsum Board	None
	Gypsum-Fiber Panels (Mold-Resistant)	USG Fiberock® AR Interior Panels	None	None	None	None	None	None
	Abuse-Resistant Panels (Mold-Resistant)	USG Sheetrock® Brand Mold Tough® AR Firecode® X	M-BLOC® Abuse Resistant Type X Gypsum Board	AirRenew® Extreme Abuse Resistant Gypsum Board	Protecta® AR100 Type X with Mold Defense-	None	Gold Bond® Hi-Abuse® XP® Gypsum Board	PABCO ABUSE CURB®
	Abuse-Resistant High Impact Panels (Mold-Resistant)	USG Sheetrock® Brand Mold Tough® VH Firecode® X	M-BLOC® Impact Resistant Type X Gypsum Board	AirRenew® Extreme Impact Resistant Gypsum Board	Protecta®-HIR 300 Type X with Mold Defense-	ToughRock® Fireguard X™ Mold-Guard™ Abuse- Resistant Gypsum Board	Gold Bond® Hi-Impact® XP® Gypsum Board	PABCO High Impact
	Glass-Mat Abuse-Resistant Panels (Mold-Resistant)	USG Sheetrock® Brand Glass-Mat Panels Mold Tough® AR Firecode X	None	None	None	DensArmor Plus® Abuse- Resistant Interior Panel	Gold Bond® eXP® Interior Extreme® AR Gypsum Panel	None
	Glass-Mat Very High Impact Panels (Mold-Resistant)	USG Sheetrock® Brand Glass-Mat Panels Mold Tough® VH Firecode® X	None	None	None	DensArmor Plus® Impact- Resistant Interior Panel	Gold Bond® eXP® Interior Extreme® IR Gypsum Panel	None
LINER PANELS	Shaftwall Liner Panels	USG Sheetrock® Brand Gypsum Liner Panels	Shaft Liner	ProRoc® Shaftliner	Shaftliner® Type X	ToughRock® Shaftliner	Gold Bond® Fire-Shield® Shaftliner XP-	PABCORE® Shaftliner
	Shaftwall Liner Panels (Mold-Resistant)	USG Sheetrock® Brand Mold Tough® Gypsum Liner Panels	M-BLOC® Shaft Liner Panel	M2Tech® Shaftliner Type X	Mold Defense® Shaftliner Type X	None	Gold Bond® Fire-Shield® Shaftliner XP-	PABCORE® MOLD CURB® Plus Shaftliner
	Glass-Mat Shaftwall Liner Panels (Mold-Resistant)	USG Sheetrock® Brand Glass-Mat Liner Panels Mold Tough®	M-GLASS® Shaft Liner	GlasRoc® Shaftliner Type X	Weather Defense® Platinum Shaftliner Type X	DensArmor Plus® Shaftliner	Gold Bond® eXP® Shaftliner	PABCO GLASS® Shaftliner

	USG	American Gypsum	CertainTeed	Continental Building Products	Georgia-Pacific	National Gypsum	PABCO Gypsum
TILE BACKERBOARD	Cement-Based Tile Backer	USG Durock® Brand Cement Board	None	Fiber Cement Backerboard	None	None	PermaBase® Cement Board
	Gypsum Fiber Tile Backer	USG Fiberock® Underlayment and Tile Backerboard	None	None	None	None	None
	Glass-Mat Tile Backer	USG Durock™ Brand Glass-Mat Tile Backerboard	None	Diamondback® GlasRoc®-Tile Backer	None	DensShield® Tile Backer	Gold Bond® eXP® Tile Backer
7. For specific information, refer to USG literature USG Backerboard and Underlayment Product Comparison Guide (C8757)							
EXTERIOR CEILING BOARD	1/2" Regular Panels	USG Sheetrock® Brand Ultralight Panels Mold Tough®	Exterior Soffit Gypsum Board	Exterior Soffit Board	Soffitboard	None	Gold Bond® Exterior Soffit Board
	5/8" Type X Panels	USG Sheetrock® Brand Mold Tough® Firecode® X	Exterior Soffit Gypsum Board	ProRoc® Exterior Soffit Type X	Firecheck™ Soffitboard Type X	None	Gold Bond® Exterior Soffit Board
	5/8" Type C Panels	USG Sheetrock® Brand Mold Tough® Firecode® C	Exterior Soffit Gypsum Board (special order only)	ProRoc® Exterior Soffit Type C	Firecheck® Soffitboard Type C	ToughRock® Fireguard C® Soffit Board	None
EXTERIOR SHEATHING PANELS	1/2" Paper-Faced Gypsum Sheathing	USG Sheetrock® Brand Gypsum Sheathing	Exterior Gypsum Sheathing	Sheathing Treated Core	None	ToughRock® Sheathing	Gold Bond® Gypsum Sheathing
	1/2" Glass-Mat Sheathing	USG Securock® Brand Glass-Mat Sheathing	M-GLASS® Exterior Sheathing	GlasRoc® Sheathing	Weather Defense® Platinum Sheathing	DensGlass® Sheathing	Gold Bond® eXP® Sheathing
	5/8" Type X Paper-Faced Gypsum Sheathing	USG Sheetrock® Brand Gypsum Sheathing Firecode® X	Exterior Gypsum Sheathing	Sheathing Treated Core Type X	None	ToughRock® FireGuard X Sheathing	Gold Bond® Gypsum Fire-Shield (Type X) Sheathing
	5/8" Type X Glass-Mat Sheathing	USG Securock® Brand Glass-Mat Sheathing Firecode® X	M-GLASS® Exterior Sheathing	GlasRoc® Sheathing Type X	Weather Defense® Platinum Sheathing Type X	DensGlass® FireGuard® Sheathing	Gold Bond® eXP® Fire-Shield (Type X) Sheathing
	5/8" Integrated Gypsum Sheathing with Fluid Air-Barrier Membrane	Securock® ExoAir® 430 System	None	None	None	None	None

**PRODUCT INFORMATION**

See usg.com for the most up-to-date product information.

**TRADEMARKS**

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**NOTE**

Products described here may not be available in all geographic markets.

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Manufactured by  
United States  
Gypsum Company  
550 West Adams Street  
Chicago, IL 60661

800 USG 4YOU  
800 (874-4966)  
usg.com

IT'S YOUR WOR 

## Attachment B



Carrier Group Inc.  
68A S. Canal Street  
Plainville, CT 06062

Date: 12/18/2017  
Estimate No.: 65539

**Project/Job**

Yorkshire Court (31)

**Model**

Custom

**Residential Sprinkler System**

1. This system shall be designed and installed per the requirements of NFPA 13D and the Town of Farmington Fire Marshal's office.
2. This quote includes all material, manpower and permit fees to complete the system, based on the plans provided, dated 8/24/2016.  
Note, pricing is per unit.
3. This quote is based on an adequate public water supply.  
If available water supply is not sufficient to supply sprinkler system, additional charges may apply.
4. Sprinkler heads bid are white, semi-recessed pendants on lower floors with sidewalls on upper floor.  
For concealed heads, please add \$432.00 to price below.  
\*\*Unless otherwise indicated above (initial/circle/etc), signed proposal indicates selection of standard head. Upgraded selections after receipt of signed proposal may result in an increase of the added cost specified above.\*\*
5. Price shall remain in effect for (60) days from date of proposal.
6. Upon acceptance of this proposal, the undersigned must provide Metropolitan with a signed Job Description Sheet for the project, which will include the following information:  
a copy of the building permit, AutoCAD drawings, site plan, estimated start date(s) and underground piping information.
7. Please allow adequate time for design and submittal to Authority Having Jurisdiction. Be aware some offices have as much as a 3-4 week turnaround for approval of permit and sprinkler drawings.
8. Option Pricing: Please add the following additional cost, as they may apply.  
\*\*\*Booster Pump - \$750.00  
\*\*\*Booster Pump & 300 Gallon Vertical Water Storage Tank - 35" x 81" (D x H) - \$1,500.00

Excluded from this proposal: Painting, patching, freeze protection (insulation), electrical wiring, coverage in unconditioned attic space, coverage in garage, backflow preventor, underground piping and any code, framing or permit changes made after the date of this proposal. Any ceiling treatments, ceiling fans and bulkheads not shown on plans provided will be additionally charged.

With the description and provisions listed above, your price to install this system shall be listed in the unit price below:

**Estimate Total \$4,242.00**

By signing below, you agree to the terms and we shall begin the process of the work described herein. This proposal shall be made a part of any contract which the parties enter into. Our standard per unit draw schedule is 20% due upon completion of the system design, 70% upon completion of the rough-in, and 10% due upon completion of the final trim out. The undersigned may terminate the use of Metropolitan Fire Protection's services at any time without cause and without further obligation except for payment due for services prior to date of such termination. Contract terminations must be submitted in writing. Past due invoices are subject to a 1.5% monthly interest fee. Fair & reasonable collection fees may be added to all past due invoices. All major credit card payments accepted, subject to a convenience fee of 3%.

Signature

Metropolitan Fire Protection

Print Title/Company

7179 Old Alexandria Ferry Road • Clinton • Maryland • 20735 • • 888-442-8100 • • www.metfire.com



Carrier Group Inc.  
68A S. Canal Street  
Plainville, CT 06062

Date: 12/18/2017  
Estimate No.: 65540

**Project/Job**

Yorkshire Court (33)

**Model**

Custom

**Residential Sprinkler System**

1. This system shall be designed and installed per the requirements of NFPA 13D and the Town of Farmington Fire Marshal's office.
2. This quote includes all material, manpower and permit fees to complete the system, based on the plans provided, dated 8/24/2016.  
Note, pricing is per unit.
3. This quote is based on an adequate public water supply.  
If available water supply is not sufficient to supply sprinkler system, additional charges may apply.
4. Sprinkler heads bid are white, semi-recessed pendants on lower floors and sidewall heads on upper floor.  
For concealed heads, please add \$432.00 to price below.  
\*\*Unless otherwise indicated above (initial/circle/etc), signed proposal indicates selection of standard head. Upgraded selections after receipt of signed proposal may result in an increase of the added cost specified above.\*\*
5. Price shall remain in effect for (60) days from date of proposal.
6. Upon acceptance of this proposal, the undersigned must provide Metropolitan with a signed Job Description Sheet for the project, which will include the following information:  
a copy of the building permit, AutoCAD drawings, site plan, estimated start date(s) and underground piping information.
7. Please allow adequate time for design and submittal to Authority Having Jurisdiction. Be aware some offices have as much as a 3-4 week turnaround for approval of permit and sprinkler drawings.
8. Option Pricing: Please add the following additional cost, as they may apply.  
\*\*\*Booster Pump - \$750.00  
\*\*\*Booster Pump & 300 Gallon Vertical Water Storage Tank - 35" x 81" (D x H) - \$1,500.00

Excluded from this proposal: Painting, patching, freeze protection (insulation), electrical wiring, coverage in unconditioned attic space, coverage in garage, backflow preventor, underground piping and any code, framing or permit changes made after the date of this proposal. Any ceiling treatments, ceiling fans and bulkheads not shown on plans provided will be additionally charged.

With the description and provisions listed above, your price to install this system shall be listed in the unit price below:

**Estimate Total \$4,038.00**

By signing below, you agree to the terms and we shall begin the process of the work described herein. This proposal shall be made a part of any contract which the parties enter into. Our standard per unit draw schedule is 20% due upon completion of the system design, 70% upon completion of the rough-in, and 10% due upon completion of the final trim out. The undersigned may terminate the use of Metropolitan Fire Protection's services at any time without cause and without further obligation except for payment due for services prior to date of such termination. Contract terminations must be submitted in writing. Past due invoices are subject to a 1.5% monthly interest fee. Fair & reasonable collection fees may be added to all past due invoices. All major credit card payments accepted, subject to a convenience fee of 3%.

Signature

Metropolitan Fire Protection

Print Title/Company

7179 Old Alexandria Ferry Road • Clinton • Maryland • 20735 • • 888-442-8100 • • www.metfire.com



Carrier Group Inc.  
68A S. Canal Street  
Plainville, CT 06062

Date: 12/18/2017  
Estimate No.: 65541

**Project/Job**

Yorkshire Court (35)

**Model**

Custom

**Residential Sprinkler System**

1. This system shall be designed and installed per the requirements of NFPA 13R and the Town of Farmington Fire Marshal's office.
2. This quote includes all material, manpower and permit fees to complete the system, based on the plans provided, dated 8/24/2016.  
Note, pricing is per unit.
3. This quote is based on an adequate public water supply.  
If available water supply is not sufficient to supply sprinkler system, additional charges may apply.
4. Sprinkler heads bid are white, semi-recessed pendants on lower floors and sidewall heads on upper floor.  
For concealed heads, please add \$432.00 to price below.  
\*\*Unless otherwise indicated above (initial/circle/etc), signed proposal indicates selection of standard head. Upgraded selections after receipt of signed proposal may result in an increase of the added cost specified above.\*\*
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8. Option Pricing: Please add the following additional cost, as they may apply.  
\*\*\*Booster Pump & 300 Gallon Vertical Water Storage Tank - 35" x 81" (D x H) - \$1,500.00

Excluded from this proposal: Painting, patching, freeze protection (insulation), electrical wiring, coverage in unconditioned attic space, coverage in garage, backflow preventor, underground piping and any code, framing or permit changes made after the date of this proposal. Any ceiling treatments, ceiling fans and bulkheads not shown on plans provided will be additionally charged.

With the description and provisions listed above, your price to install this system shall be listed in the unit price below:

**Estimate Total \$4,162.00**

By signing below, you agree to the terms and we shall begin the process of the work described herein. This proposal shall be made a part of any contract which the parties enter into. Our standard per unit draw schedule is 20% due upon completion of the system design, 70% upon completion of the rough-in, and 10% due upon completion of the final trim out. The undersigned may terminate the use of Metropolitan Fire Protection's services at any time without cause and without further obligation except for payment due for services prior to date of such termination. Contract terminations must be submitted in writing. Past due invoices are subject to a 1.5% monthly interest fee. Fair & reasonable collection fees may be added to all past due invoices. All major credit card payments accepted, subject to a convenience fee of 3%.

Signature

Metropolitan Fire Protection

Print Title/Company

1719 Old Alexandria Ferry Road • Clinton • Maryland • 20735 • • 888-442-8100 • • www.metfire.com





Carrier Group Inc.  
68A S. Canal Street  
Plainville, CT 06062

Date: 12/15/2017  
Estimate No.: 65542

**Project/Job**

Yorkshire Court (37)

**Model**

Custom

**Residential Sprinkler System**

1. This system shall be designed and installed per the requirements of NFPA 13R and the Town of Farmington Fire Marshal's office.
2. This quote includes all material, manpower and permit fees to complete the system, based on the plans provided, dated 8/24/2016.  
Note, pricing is per unit.
3. This quote is based on an adequate public water supply.  
If available water supply is not sufficient to supply sprinkler system, additional charges may apply.
4. Sprinkler heads bid are white, semi-recessed pendants on lower floors and sidewall heads on upper floor.  
For concealed heads, please add \$432.00 to price below.  
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7. Please allow adequate time for design and submittal to Authority Having Jurisdiction. Be aware some offices have as much as a 3-4 week turnaround for approval of permit and sprinkler drawings.
8. Option Pricing: Please add the following additional cost, as they may apply.  
\*\*\*Booster Pump - \$750  
\*\*\*Booster Pump & 300 Gallon Vertical Water Storage Tank - 35" x 81" (D x H) - \$1,500.00

Excluded from this proposal: Painting, patching, freeze protection (insulation), electrical wiring, coverage in unconditioned attic space, coverage in garage, backflow preventor, underground piping and any code, framing or permit changes made after the date of this proposal. Any ceiling treatments, ceiling fans and bulkheads not shown on plans provided will be additionally charged.

With the description and provisions listed above, your price to install this system shall be listed in the unit price below:

**Estimate Total \$4,371.00**

By signing below, you agree to the terms and we shall begin the process of the work described herein. This proposal shall be made a part of any contract which the parties enter into. Our standard per unit draw schedule is 20% due upon completion of the system design, 70% upon completion of the rough-in, and 10% due upon completion of the final trim out. The undersigned may terminate the use of Metropolitan Fire Protection's services at any time without cause and without further obligation except for payment due for services prior to date of such termination. Contract terminations must be submitted in writing. Past due invoices are subject to a 1.5% monthly interest fee. Fair & reasonable collection fees may be added to all past due invoices. All major credit card payments accepted, subject to a convenience fee of 3%.

Signature

Metropolitan Fire Protection

Print Title/Company

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# Attachment C

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Virginia / Northern Virginia / Aldie / Willowsford / Alder

# Alder

Series: Manor Collection

\$629,990  
Starting From

\$3,525 /mo  
Starting From



4-5  
Beds

2.5-3.5  
Bathrooms

2 Car  
Garage

3,228+  
Sq. Ft.

---

## Sprinkler system

6 messages

---

**Jennifer Gould** <jeneleh@gmail.com>

Mon, Oct 2, 2017 at 1:56 PM

To: [REDACTED]@pulte.com>

[REDACTED]

Can you please provide me with the cost breakdown for the addition of a fire sprinkler system for our new house?

Thanks,  
Jen

---

[REDACTED]@pulte.com>

Tue, Oct 3, 2017 at 7:01 AM

To: Jennifer Gould <jeneleh@gmail.com>

Hi Jennifer,

\$30,000, I have never sold one. I have to check to see if we can still get it. It takes a special permit.

I will try to find out today. I am off but will send an email to the office.

Thanks,

[REDACTED]



[REDACTED]

Sales Consultant | Pulte Homes at Willowsford

[REDACTED]

[www.pulte.com/willowsford](http://www.pulte.com/willowsford)

Sales Office & Model: **41011 Spanglegrass Court, Aldie, VA 20105**

Homeowners Inspire Pulte Life Tested<sup>®</sup> Home Designs: Watch the video.

**From:** Jennifer Gould [mailto:jeneleh@gmail.com]

**Sent:** Monday, October 2, 2017 1:57 PM

**To:** [REDACTED]@Pulte.com>

**Subject:** Sprinkler system

[Quoted text hidden]

---

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---

Jennifer Gould <jeneleh@gmail.com>

Tue, Oct 3, 2017 at 7:46 AM

To: [REDACTED]@pulte.com>

I appreciate it. Can you also find out and let me know the breakdown of costs (design, materials, installation, permit fees, etc) that is adding up to the \$30,000 cost? For an NFPA 13D system, that is extremely expensive.

[Quoted text hidden]



---

Jennifer Gould <jeneleh@gmail.com>

Fri, Oct 6, 2017 at 7:41 AM

To: [REDACTED]@pulte.com>

[REDACTED]

Have you been able to get information for me yet?

Thanks,  
Jen

[Quoted text hidden]

---

[REDACTED]@pulte.com>

Fri, Oct 6, 2017 at 3:57 PM

To: Jennifer Gould <jeneleh@gmail.com>

Hi Jennifer,

We haven't sold any in 4 years and they don't want to spin that wheel again with only 6 homes remaining.

Thanks,



[REDACTED]

Sales Consultant | Pulte Homes at Willowsford

[REDACTED]

[www.pulte.com/willowsford](http://www.pulte.com/willowsford)

Sales Office & Model: **41011 Spanglegrass Court, Aldie, VA 20105**

Homeowners Inspire Pulte Life Tested<sup>®</sup> Home Designs: Watch the video.

**From:** Jennifer Gould [mailto:jeneleh@gmail.com]

**Sent:** Friday, October 6, 2017 7:41 AM

To: [REDACTED]@Pulte.com>  
Subject: Re: Sprinkler system

[REDACTED]

Have you been able to get information for me yet?

Thanks,  
Jen

On Tue, Oct 3, 2017 at 7:46 AM Jennifer Gould <jeneleh@gmail.com> wrote:

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Hi Jennifer,

\$30,000, I have never sold one. I have to check to see if we can still get it. It takes a special permit.

I will try to find out today. I am off but will send an email to the office.

Thanks,  
[REDACTED]

[REDACTED]  
Sales Consultant | Pulte Homes at Willowsford  
[REDACTED]

[www.pulte.com/willowsford](http://www.pulte.com/willowsford)

Sales Office & Model: **41011 Spanglegrass Court, Aldie, VA 20105**

**Homeowners Inspire Pulte Life Tested<sup>®</sup> Home Designs:** Watch the video.

**From:** Jennifer Gould [mailto:jeneleh@gmail.com]  
**Sent:** Monday, October 2, 2017 1:57 PM  
**To:** [REDACTED]@Pulte.com>  
**Subject:** Sprinkler system

[REDACTED]

Can you please provide me with the cost breakdown for the addition of a fire sprinkler system for our new house?

Thanks,

Jen

---

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---

[REDACTED]@pulte.com>  
To: Jennifer Gould <jeneleh@gmail.com>

Fri, Oct 6, 2017 at 4:24 PM

Jennifer,

In my experience in this industry builders typically don't do these well. We just don't sell enough of them to get it right. You are right they are extremely expensive as well for the system.

What I learned was that it was put in one model home out here, we have had a new Division President and new VP of sales take over during that time. So the start up again on that option, when they haven't done one in 4 years, and is complex for a builder to get right in the first place was deemed not prudent.

Sorry – on the lights I have sent my purchasing manager an email to confirm the correct standard.

Thanks,



[REDACTED]

Sales Consultant | Pulte Homes at Willowsford

[REDACTED]

[www.pulte.com/willowsford](http://www.pulte.com/willowsford)

Sales Office & Model: **41011 Spanglegrass Court, Aldie, VA 20105**

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**From:** Jennifer Gould [mailto:jeneleh@gmail.com]  
**Sent:** Friday, October 6, 2017 7:41 AM  
**To:** [REDACTED]@Pulte.com>  
**Subject:** Re: Sprinkler system

[REDACTED]

Have you been able to get information for me yet?

Thanks,

Jen

On Tue, Oct 3, 2017 at 7:46 AM Jennifer Gould <jeneleh@gmail.com> wrote:

I appreciate it. Can you also find out and let me know the breakdown of costs (design, materials, installation, permit fees, etc) that is adding up to the \$30,000 cost? For an NFPA 13D system, that is extremely expensive.

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Hi Jennifer,

\$30,000, I have never sold one. I have to check to see if we can still get it. It takes a special permit.

I will try to find out today. I am off but will send an email to the office.

Thanks,

[REDACTED]

[REDACTED]

Sales Consultant | Pulte Homes at Willowsford

[REDACTED]

[www.pulte.com/willowsford](http://www.pulte.com/willowsford)

Sales Office & Model: **41011 Spanglegrass Court, Aldie, VA 20105**

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**From:** Jennifer Gould [mailto:jeneleh@gmail.com]

**Sent:** Monday, October 2, 2017 1:57 PM

**To:** [REDACTED]@Pulte.com>

**Subject:** Sprinkler system

[REDACTED]

Can you please provide me with the cost breakdown for the addition of a fire sprinkler system for our new house?



Thanks,

Jen

---

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Mon 1/15, 12:22 PM

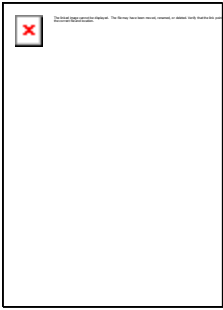
Bert Fleming

Hello,

Unfortunately we have to decline the request. Please note options and offerings are different in other markets. While we would love to accommodate you and your family, we do not offer this type of system in our homes nor are we set up to offer such systems.

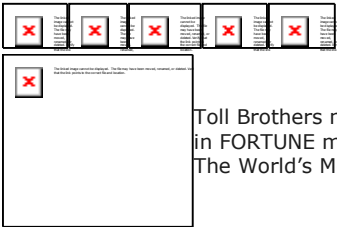
Please advise how you would like to proceed. I know this is not what you want to hear but I do want to make sure I can do everything possible to meet your needs with your new home here in Coastal Oaks.

Sincerely,



Carrie Fife  
 Sales Manager – Coastal Oaks of Nocatee, Florida  
 Toll Brothers, America's Luxury Home Builder  
 (904) 386-5364 • [cfife@tollbrothers.com](mailto:cfife@tollbrothers.com)

I am out of the office Thursdays and Fridays. If you need immediate assistance please reach out to Cindy Kuglar at [ckuglar@tollbrothers.com](mailto:ckuglar@tollbrothers.com) or 904-285-5550.



Toll Brothers named **#1 Home Builder**  
 in FORTUNE magazine 2016 Survey of  
 The World's Most Admired Companies

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n 1/15, 11:24 AM

Carrie Fife <[cfife@tollbrothers.com](mailto:cfife@tollbrothers.com)>

[Toll Brother Press Release.pdf](#)

[148 KB](#)

Download

Carrie

I feel the knife going deeper...I have attached an article from few years back regarding toll and our supplier. Please share with your Senior PM as I plan on taken it further up the ladder to come to some sort of agreement.

Thanks for you understanding as it not that difficult to do and don't feel it is much to ask.

Bert

Bert Fleming

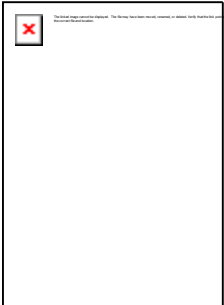
Sent from my Verizon, Samsung Galaxy smartphone

San Tropez and Anna Maria Options

Carrie Fife <cfife@tollbrothers.com>

Reply all |  
Mon 1/15, 10:55 AM  
Bert Fleming

I completely understand. I did approach my Senior Project Management team with the request. Please know, we look at all custom requests for consideration; however, we cannot accommodate this custom request as we are not set up for this type of product and it is not currently a part of our option program.



Carrie Fife  
Sales Manager – Coastal Oaks of Nocatee, Florida  
Toll Brothers, America's Luxury Home Builder  
(904) 386-5364 • cfife@tollbrothers.com

I am out of the office Thursdays and Fridays. If you need immediate assistance please reach out to Cindy Kuglar at [ckuglar@tollbrothers.com](mailto:ckuglar@tollbrothers.com) or 904-285-5550.



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Any lot with preserves would work.

The fire sprinkler situation is very disappointing that you guys would not offer Fire sprinklers as it is an IBC and ICC national code. I understand it is not a requirement in Florida but more so that you guys would not consider it for the life safety of any family. It will be difficult to purchase without a fire sprinkler system. Is there any way to work this up the ladder?

Bert Fleming

Sent from my Verizon, Samsung Galaxy smartphone

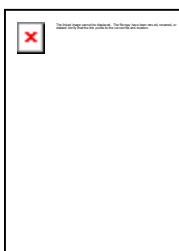
----- Original message -----

From: Carrie Fife <cfife@tollbrothers.com>  
Date: 1/15/18 10:30 AM (GMT-05:00)  
To: Bert Fleming <bffleming@metfire.com>  
Subject: RE: San Tropez and Anna Maria Options

Good morning Bert,

Thank you for the email. We can definitely review the home sites again. Are you okay with preserve only and no water?

Additionally, I did confirm that we are not equipped to offer the fire sprinkler system in our homes as it's not part of our option program. Is this a deal breaker?



Carrie Fife  
Sales Manager – Coastal Oaks of Nocatee, Florida  
Toll Brothers, America's Luxury Home Builder  
(904) 386-5364 • cfife@tollbrothers.com

I am out of the office Thursdays and Fridays. If you need immediate assistance please reach out to Cindy Kuglar at [ckuglar@tollbrothers.com](mailto:ckuglar@tollbrothers.com) or 904-285-5550.



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**HOME BUILDERS & REMODELERS ASSOCIATION  
OF CONNECTICUT, INC.**

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*Your  
Home  
Is Our  
Business*

January 24, 2018

**To:** Joseph V. Cassidy, P.E., State Building Inspector  
William Abbott, State Fire Marshal  
All Members of the State Codes & Standards Committee

**From:** Bill Ethier, CAE, Chief Executive Officer

**Re:** Opposition to Adoption of the State Building Code with the Inclusion of  
Section R313.1 of the IRC

On behalf of the HBRA of CT, while we thank you for removing section R313.2 from the 2015 IRC (applicable to 1&2 family homes), we strongly urge you to also remove Section R313.1, IRC, from the State Building Code (applicable to town houses).

For all of the reasons stated below, and by the members of our organization and allied organizations who will appear before you today, requiring fire sprinklers in all new town houses is not warranted by both any facts or rational policy argument, and is contrary to the state's policy of promoting affordable housing.

**Background**

Since the inclusion of the mandatory requirement for residential sprinklers in the 2009 edition of the International Residential Code, more than 42 states have amended or passed legislation prohibiting communities from mandating residential sprinklers in new one- and two-family dwellings. Only two states have adopted mandatory sprinkler requirements for 1&2 family, and only a handful of others have done so for town houses. **Connecticut should not join the few which have done this.**

Indeed, in the 2016 state legislative session, the General Assembly's Public Safety & Security Committee considered proposals to mandate fire sprinklers in 1& 2 family new homes, with one such proposal to allow local adoption of such a requirement. The only bill that proceeded to a vote in the 25-member committee was substitute language that would have mandated fire sprinklers in 2-family homes only. Despite the support, urging and favorable vote of both committee co-chairs, that bill died on a 7-18 vote. **We cannot understate the significance of this legislative committee vote. It's an overwhelming rejection of the sprinkler mandate proposal by the committee of jurisdiction over building codes.** This expression of legislative policy as applied to 2 family homes, which are not all that different from townhouses from a practical policy perspective, should be instructive. That is, we believe the legislature would not support this mandate for townhouses.

### IRC Commentary

The IRC clearly states, "The purpose of this code is to provide minimum requirements to safeguard life or limb, health and public welfare." The IRC Commentary states that the IRC is intended to provide reasonable minimum standards that reduce the factors of hazardous and substandard conditions that would otherwise put the public at risk to damaging their health, safety or welfare. **Any imposition of a mandated sprinkler requirement is excessive and is not a reasonable minimum standard for meeting the "purpose" of the code.** It is important to remember that the code is composed of many life-safety standards that have been proven to meet the "purpose" of the code. Proposals to mandate sprinklers as a requirement in the body of the IRC rather than an adoptable appendix (i.e., section P2904) exceed this "purpose" and should not be approved.

### Practical and Technical Issues Not Yet Addressed

We are also well aware, as you are, of the technical difficulties facing a mandate requirement, which are the same as those for a mandate in 1&2 family homes. Even if the proponents could figure out solutions to all those issues that have been outlined in reports you have produced or reviewed (**solutions that have yet to be offered**) we would continue to urge you and the state legislature to oppose a sprinkler mandate in 1&2 family and town houses for all the other reasons in this testimony.

### Costs and Home Buyer Choice

- **The added cost for individual new town home buyers is excessive, just as it is in 1&2 family homes.** Town house builders will appear before you today to explain these costs. Suffice it to say here, installation costs are much higher than proponents make them out to be. The argument of proponents that the financial impact of townhouse sprinklers cannot be equated to the impacts on 1&2 family dwellings (which we're gratified to see proponents finally admit) makes no sense when the relative markets for town houses versus 1&2 family homes is understood. (see the proponent's Aug 8, 2017, proposed code change submission for reinserting section R313.1 into the code). Proponents base their position on the presumed fact that town houses are less expensive to build than single family homes. But, someone looking to buy a town house can afford just so much. Someone looking to buy a single family home also can afford just so much. These are likely different segments of the consumer market. So, adding costs to town houses, even if they are less expensive to build, can be just as significant to town house buyers as adding costs to single family construction is to a single family buyers. Consider also that proponents rarely, if ever, calculate builder profits,

annual maintenance and inspection costs, or the additional construction time that will add to total costs to consumers. And, on sq. ft. per unit basis, sprinkler costs in townhouses are higher than the same system installed in single family homes because certain costs, e.g., required water service changes, monitoring equipment, maintenance and inspection, will remain the same for a 1,200 sq. ft. town home or a 3,000 sq. ft. single family home.

- **Proponents of sprinklers citing one national multifamily builder as justification because that builder wanted leeway to reduce the fire-rated wall separation in its units is hardly compelling logic to change all of Connecticut's policy on this issue.** Perhaps the leeway on unit separation makes sense for this one "national multifamily builder" given the varied economics of land development and construction costs and consumer markets this builder faces in the multiple jurisdictions in which it works. It should not translate, however, into a policy for all Connecticut town house builders and buyers, especially when in many cases here, Connecticut builders would not want to reduce townhouse separation from 2-hour to 1-hour walls for other market driven reasons, e.g., sound barrier. Consider also that this national multifamily builder did not need to get a change in the IRC for its townhouse projects because it can always – if it chooses – build them under the IBC with sprinklers. So, was there another motive for seeking the IRC change? You'll have to ask them.
- **Town homes are a growing popular option for people either trying to enter the housing market or downsizing from a single family home. Adding costs to new town homes could keep potential buyers in older homes, potentially increasing their risk of fire-related injuries or death.** Nationally, every \$1,000 in increased price for a home knocks 217,000 buyers out of that market. Some portion of those buyers will, therefore, be forced to stay put in older homes or choose a less expensive, perhaps older, existing home versus a new home. **Since the vast majority of fire-related deaths occur in older homes, requiring sprinklers in newly constructed homes – or even just 2-family homes or town houses – could actually increase a person's risk of injury and death from a home fire by keeping them in an older home.**
- **The need for more affordable housing options is critically acute in this state.** I am a member of the state's Fair Housing Working Group, and while I cannot speak for this group here, we are focusing on the need to promote the construction of more affordable housing. Why? Because fair housing opportunities begins with the availability of more affordable housing options in more communities. **Adding the significant costs of sprinkler installation to town houses removes town houses from the affordable housing mix many communities need and desire.**



- **Fire sprinklers are a choice that home buyers, including town home buyers, should make for themselves.** All home builders would be happy to install a fire sprinkler system in a new home if requested to do so by their customer – and all home builders must by law inform every buyer about fire sprinklers. But, almost ALL home buyers DO NOT WANT sprinklers; they're viewed as a liability. The solution for proponents to gain more market acceptance is to conduct an education or marketing campaign to convince more buyers to request their installation. Again, builders will install them if their buyers want them. And, by removing town house sprinklers from the proposed new code under the IRC section, and given that some builders choose to build town houses under the IBC (i.e., with sprinklers), consumers will continue to have that choice. We urge you to maintain that choice and delete section R313.1 from the IRC.

**Benefits of a Sprinkler Mandate Are Not What Proponents Claim and Are Not Cost Effective**

- **Just as with NEW 1&2 family homes, requiring sprinklers in NEW town houses will not save the lives proponents claim** because most residential fires (88 – 90%) and almost all fire deaths and serious injuries occur in units that are 30 or more years old. The bottom line, even if a sprinkler mandate is adopted, most residential fire deaths in Connecticut will continue to occur because the vast majority are in much older homes built to prior codes.
- **Just as installing sprinklers in new 1&2 family homes addresses the wrong homes, installing them in new town houses addresses the wrong town homes. Units built to older codes, i.e., prior to the mid-1980s, are far more dangerous. New units are simply built better than they used to be,** incorporating better fire stopping materials, better electrical systems and installations, better egress (i.e., ways to get out of a home), and the hard wired, interconnected (with battery backup) smoke detectors. New homes and town houses built today will not become like the thirty-year old units that exist today. The argument by proponents that we have to start somewhere misses the point and would be true only if codes never changed. But new homes and town houses built today will retain all the fire safety features that have been adopted since the mid-1980s. **Also, light frame (i.e., truss) construction – blamed by sprinkler proponents for safety issues – is not new; it's been used in home construction for over 50 years.** Despite that, the 2012 IRC as now adopted in CT, requires fire protection on I-joists as of Oct. 1, 2016. Another safety feature that will continue. **And, rationalizing a need for sprinklers on the proposition that new units are filled with new, more flammable furniture is specious at best, ridiculous at worst.** It could only be accurate if everybody living in older units never bought new furniture and everybody living in new units never brought with

them older furniture to the new unit. This just defies reality and common sense. In either case, the argument calls for looking into the regulation of furniture manufacturing, not sprinkler installation in all new town houses.

- **Fire deaths in homes have been decreasing nationally and recent data shows one death for every 92,000 homes in CT.** Therefore, even if we ignored the reality that the vast majority of fire deaths occur in much older homes, we will have to put sprinklers in at least 92,000 new homes to protect, on average, that one life. That's a societal cost of far over \$1 billion per life saved. And, this assumes sprinklers work 100% of the time (**which they don't**) and that home owners pay for necessary annual maintenance (**which they won't**). Also, the complexity of access for annual inspections in town house units complicates the management of town house properties, as well as adding unknown liability issues. **Add in the fact that most deadly fires occur in homes built before 1985, the societal cost of requiring sprinklers in new homes or even town houses would be, on average per life saved, in the multi-billions of dollars.** Nothing, not autos, not chemicals or hazardous waste, not anything that can lead to loss of life or serious injury is regulated to a level with these associated costs.
- **A local option mandate would destroy 45 plus years of having a statewide mandatory building code.** Our statewide and mandatory building code is one of the few regulatory benefits available in CT to the building and design industry. **So, we urge you to NOT adopt a sprinkler mandate even by local option** (just in case proponents urge this as an option).

#### Damage to Affordable Housing Goals and Adverse Impacts to the State's Economy

Finally, we urge you to not further damage Connecticut's economy by unnecessarily increasing housing costs. Circling back to the need to control the continuous regulation of housing, you should know that housing in Connecticut is still hurting, despite the national headlines that report that builder confidence and housing production is up. Not so here.

Total housing permits in Connecticut continue a downward trend and we're exceeding ten years of a housing depression. We are, in fact, at or close to all-time lows in total housing production. Permits issued in CT from January thru November in 2017 total 3,522 permits for the entire state. This was down from the same period in 2016 (3,905 permits). In the entire nation, 13 states saw total permit declines from 2016 to 2017, and of those CT saw the highest decline on a percentage basis. We have not yet seen Dec. 2017 permit numbers. This negative trend continues from the prior year. January thru Nov. of 2016 was down 20.4% from the same period in 2015 (4,903 permits). The new housing industry cannot absorb any more regulatory hits to its gut.

We note a recent op-ed article by an accountant, Robert Lally, in the Hartford Courant, titled, "Connecticut: Not So Bad for Business, Companies Doing Well." Jan. 14, 2018. We don't know if Mr. Lally is an operative for the political status quo and how much credibility is to be attributed to his opinion piece, but a telling line in his article is, "The solid results go right across industries. ... Only home builders on our client list are languishing."

And, academic research that has looked at differences across the nation, evaluating why people move to different regions, what makes different regions prosper more than others, confirms the adverse impact of our very high regulatory costs. See for example,

- Ed Glaeser, Economics Professor, Harvard University, in *Economix*, "Housing regulations, more than those that bind standard businesses, explain the Sun Belt's population growth. If [northeast states] want to stop losing Congressional seats, then they must revisit the rules that make it so difficult to build."
- Peter Francese, a New Hampshire based demographer, in *The Atlantic*, "Housing is brutally expensive in Connecticut. Millennials just say, 'This is a joke – there's no reason for me to stay. I can never get paid enough to pay for a house.'"
- Chang-Tai Hsieh and Enrico Moretti, Economics Professors at, respectively, University of Chicago School of Business and University of California, Berkeley, in the *NY Times*, "Because of the prohibitive cost of housing caused by these regulations, innovative companies ... do not grow as much as they could, and new businesses do not get created. This means slower economic growth, fewer jobs and lower wages ...." While they were discussing zoning regulations, it makes no difference whether \$6,000 to \$10,000 or more added to the cost of a housing unit comes from zoning or the building code. The adverse impacts on an economy would be the same.
- As reported at [wnpr.com](http://wnpr.com) a few years ago, the Partnership for Strong Communities, Hartford, CT, a housing advocacy organization, states there is too little affordable housing in Connecticut. David Fink, the organization's then policy director, explained, "The problem is that in Connecticut, housing is too expensive, and too scarce. Too many people have to spend too much for housing. That's bad for them, and it's bad for the state's economy."

Please do not add to Connecticut's housing cost burden by imposing more unnecessary costs for a safety feature that will not save any lives, is unwanted by most consumers, the installation of which is complicated by unaddressed technical problems, and which will limit the ability of some within the dwindling base of Connecticut home buyers from pursuing townhomes as their choice of housing.

Again, we strongly urge you to remove all of section R313 from the proposed 2015 IRC.

Thank you for considering our comments on this important topic.



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**A Solution to Fire Deaths and Injuries – Far Better Than Mandatory Sprinklers**

The National and Connecticut Sprinkler Coalitions (made up primarily of fire service personnel, sprinkler manufacturers and sprinkler installers) has long sought to mandate the installation of fire sprinklers in 1&2 family homes (and townhomes built under the same 1&2 family building code).

We have opposed this mandate for many reasons, including the fact that the vast majority of residential fire deaths and serious injuries occur in homes built before 1985. Since then, the state's building codes have substantially changed to require many fire safe construction practices, including interconnected, hard-wired and battery backup smoke detectors, better egress requirements, much safer electrical systems, fire stopping for all wall and floor penetrations, and most recently (2017) - to address the so-called "light weight" construction practice that has existed for fifty years – CT requires fire proofing of floor joist assemblies. Other reasons include the huge cost of installation, much higher than sprinkler proponents claim, and numerous technical and logistical issues still not properly addressed.

The constant barrage of efforts by the sprinkler coalition to impose this costly requirement on new home owners ignores well-known facts that make the 1&2 family and townhouse sprinkler mandate defy common sense. Ask professionals who study fire science if the following is true:

- Medical calls makeup greater than 80% of all calls to fire departments
- Of the fire calls responded to, less than 10% are active fires
- Fire deaths occur in CT homes at a rate of about 1 in every 92,000 homes, and almost all are older homes (i.e., built pre-1985). CT builders currently are building 2,050 1&2 family homes per year.
- The lack of smoke detectors causes many more deaths than sprinklers will ever save. It's very common to find smoke alarms missing or disabled.
- Increased inspections of smoke alarms would reduce deaths and serious injuries. Thus, greater education of home owners about the need to inspect smoke detectors and about fire safe practices in the home would produce far better outcomes.
- Firefighting itself is changing. It is now focused on saving people and not the structure. Once it is confirmed that the building is unoccupied, fire fighters pull back and fight the fire from the exterior. There is much less risk to fire fighters being harmed by collapsing buildings using this technique.
- The design of entire fire departments is changing. Staffing, equipment, volunteer vs paid fire fighters all impact safety. The money proponents want society to spend on fire sprinklers in residential homes could be spent in these different areas of fire safety, as well as home owner education, and would save far more lives.
- Technology changes in the home are constantly improving home fire safety, making sprinklers even more irrelevant. These include smart stoves that auto shut off if left unattended or overheat, and induction cooktops that greatly reduce stovetop fires as flammable materials will not ignite if placed on the stovetop. Finally, if furnishings today are more of a fire hazard than older furniture, doesn't that call for regulating furniture manufacturing to target this hazard source?

Mandating fire sprinklers in 1&2 family homes and townhouses is chasing the wrong solution to the fire safety problem. Please, say NO to the sprinkler coalition and work on better solutions.



# CT FIRE CHIEFS ASSOCIATION

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January 24, 2018

Thank you for the chance to represent the fire service before this committee today. My name is KEVIN E. COONEY and I am PRESIDENT of the CT FIRE CHIEF'S ASSOCIATION. We, CT's Fire Chief's encourage this committee to vote to require fire sprinklers in all new townhomes in this state. Fire Safety and model codes are developed by experts from local communities around the country based on the current knowledge around fire safety. Unfortunately, the codes currently in place in Connecticut are hugely inadequate compared to national codes and those adopted in other states. This committee has the opportunity to begin closing that gap, and take a step toward enhancing the safety of families and first responders in our state. Voting to require fire sprinklers in new townhomes won't get us where we need to be, but by taking a step in the right direction we can show Connecticut that their safety is important to us. Please join my fellow Fire Chiefs, Fire Marshals and Firefighters do everything you can to protect our friends and neighbors in this state.

Most Respectfully,

Kevin E. Cooney, President

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January 25, 2018

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

To All Members of the State Codes and Standards Committee,

On behalf of the Lumber Dealers Association of Connecticut (LDAC), which represents independent lumber and building material dealers, manufacturers, wholesalers, distributors, and other associated businesses in the state of Connecticut and employs more than 12,500 residents, we would like to express our concerns with the notice of proposed rulemaking by the Department of Administrative Services regarding adoption of the 2018 Building, Fire Safety and Fire Prevention Codes.

LDAC understands the need to update the State's code, but cautions the department to adopt the 2018 version in its entirety. The sprinkler requirements in the 2018 code will dramatically increase the costs to consumers, who are already struggling to find new affordable housing in the State.

The requirement to install a sprinkler system in new construction of townhomes will cost at least \$10,000, depending on the size of the unit and the necessary equipment that needs to be installed to operate a sprinkler system. Homes without access to municipal water would require the extreme costs of additional water tanks that can reach the needed pressure to run a sprinkler system, as well as the continued costs of upkeep and maintenance for those tanks. When Massachusetts was considering the sprinkler requirement in their building code, the State Fire Marshall estimated that installing an automatic fire sprinkler system on a residence not connected to municipal water would cost approximately \$8,000 to \$12,000, depending upon whether or not a tank system is needed. There are many areas of the State that do not have access to municipal water, which would make installing a sprinkler system cost prohibitive.

When deliberating changes to the building code, it is critical for the Department to consider costs. In Connecticut, the cost to build new housing units continues to rise making home ownership less affordable for our State's residents.

It is for the above-mentioned reasons that LDAC urges the Department to reject the adoption of the 2018 Building, Fire Safety and Fire Prevention Codes in their entirety. As independently-owned building material



**NRLA Mission:** To unite, lead, represent, train and provide a forum for the successful evolution of the independent lumber and building material dealers of the Northeast.

dealers and associated building material companies that are the primary suppliers of construction projects, it is imperative that the State make every effort not to increase the costs of construction. It not only hurts our businesses, but hurts the home builders, and most importantly, it hurts the consumers. Connecticut needs to find ways to keep construction costs under control – avoiding mandatory installation of fire sprinklers will help achieve that goal.

If there are any questions, please feel free to contact Ashley Ranslow, Manager of Government Affairs, at 518-880-6350 or email her at [aranslow@nrla.org](mailto:aranslow@nrla.org).

Sincerely,



Ashley E. Ranslow  
Manager of Government Affairs  
Northeastern Retail Lumber Association



Joe Ccarelli  
Legislative Chair  
Lumber Dealers Association of Connecticut



January 25, 2018

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

### **Support of Sprinkler Provisions for Townhouse Dwellings in Connecticut**

I am providing this letter in support of the provision of residential sprinkler protection in townhouse properties as outlined in the proposed State Building Code. My name is Robert Duval, and I am the Northeast Regional Director and Senior Fire Investigator for the National Fire Protection Association (NFPA) (as well as a state resident and the Chief of the Atwood Hose Fire Company in the village of Wauregan, CT).

A Building Code without such provisions would be in direct contrast to all model building and life safety codes, which have been developed through open and voluntary consensus processes by the leading code development organizations in this country. A code without such sprinkler protection would withhold the life-saving benefits of fire sprinklers to those living in townhouse dwellings in Connecticut.

Each year, approximately 3,000 people die in home fires. The risk of dying in a home fire decreases by approximately 80% when sprinklers are present. Those residents especially at risk are children and older adults who can most benefit from the additional escape time provided by sprinkler protection. Home fires, which number over 400,000 result in billions of dollars of direct property damage each year. Sprinkler protection has long been mandated in many types of buildings. The presence of sprinklers plays a significant role in limiting life and property loss when a fire occurs, reducing property damage by approximately 71%. In fact, the National Fire Protection Association (NFPA) has no record of a multiple fatality in a fully sprinklered building when the system operates. The approximately 400 communities nationwide that have enacted some type of home fire sprinkler requirement share similar achievement in reducing destruction from fire when compared to communities with no sprinkler requirements.

In 2006 three major NFPA codes were revised to include the requirement for home fire sprinklers in new construction of one and two family dwellings. In 2008, the International Code Council (ICC) voted to add a similar provision to the 2009 edition of International Residential Code. Opponents ask that we do not rush into things. These provisions have been in model codes since 2006-2009 and the technology has been around for hundreds of years and well vetted.



You have heard testimony claiming that the cost to install such protection is excessive especially in a depressed housing market. A recent study conducted by the Fire Protection Research Foundation revealed that the cost of installing home fire sprinklers averages \$1.35 per square foot for new construction, nationally. A study by the CT Residential Fire Sprinkler Working Group found the cost to install residential sprinklers around \$1.83 in CT. Would you consider this cost excessive for equipment that provides around the clock protection for the residents and serves to reduce property losses in the event of a fire? Another recent study has shown no impact on housing starts in counties with residential sprinkler ordinances when compared to those counties without such ordinances. The State of California required all new homes to be equipped with residential sprinklers effective in January, 2011. The housing market in that state did not collapse, as some would have you believe it would. Residential sprinklers have been required by county code in Maryland for many years. Again, the housing market there is on par with the rest of the region.

Residential fire sprinklers respond quickly to a fire, giving residents valuable time to escape, while also suppressing and in many cases extinguishing the fire. Up to 90% of the time, fires are contained by the operation of just one sprinkler. (Contrary to what Hollywood and television would have you believe, every sprinkler head does not go off at once or when a fire alarm is activated.)

An additional benefit of the protection provided by residential sprinklers is fire fighter safety. If a fire is not suppressed or controlled upon the arrival of fire department and fire fighters enter the building to search for unaccounted for residents and/or the seat of the fire, they run the risk of being injured or killed in a building collapse or rapid fire development. Contrary to the popular belief "New homes do burn," and when they burn they burn hotter and collapse more rapidly than older construction. Research has shown this. Modern building construction has become lightweight and the contents of today's households are more combustible than in the past. As a result, research and field experience has shown that residential sprinklers give fire fighters an extra measure of protection and allow extra time to locate victims within the building and fully extinguish any remaining fire. As a member of the fire service for over 35 years, this benefit is near and dear to me and the members of my fire company.

You will also hear the arguments that smoke detectors provide enough protection without sprinklers. An NFPA report titled U.S Home Structure Fires, by Marty Ahrens, published in January 2009 concludes that 63% of reported fire deaths from 2003-2006 resulted from fires in homes with no smoke alarm or no working smoke alarms. Residential fire sprinkler opponents are certain that this proves their case that smoke alarms are enough to eliminate the fire problem in North America. What opponents won't tell you is that the other 37% of people who died in homes, did so in homes equipped with smoke alarms, both battery operated and hardwired.

Persons dying in these fires were more likely to have been in the area of origin, were trying to fight the fire themselves, or were at least 65 years old. Children under 5 and older adults face the highest risk of home fire death. Alcohol or other drugs, disabilities, and age-related limitations are all factors contributing to risk. Persons in these high risk groups are especially likely to have difficulty escaping a fire. What about these lives? Maybe this question should be posed to the families of the victims. Not one more needless death should be the mantra that drives this policy decision.

More than 95% of homes currently have smoke alarms yet there are still people who die in home fires. That is because smoke alarms provide an early warning of danger giving occupants time to get out. But do nothing to control the fire or to reduce the amount of toxic smoke and gases. Those that perish are often those at greatest risk because they cannot get out by themselves – young children, older adults, people with disabilities. If we are to further reduce the fire death problem and better protect families and their property from fire we have to do more. They keep the atmosphere tenable to allow the additional escape time required for escape, or for firefighters to arrive and rescue those occupants that have been unable to escape.

Smoke alarms are an important component in a home's fire protection system. They have worked well and have saved thousands of lives. NFPA will continue its public education efforts to make sure that smoke alarms are installed and properly maintained in new and existing properties. The addition of fire sprinklers as a safety feature in new homes will save thousands more lives.

Beware of misleading percentages on survival and death involving smoke alarms vs. residential sprinklers:

Fire sprinkler opponents have been using a statistic of 99.45 percent to illustrate the effectiveness of smoke alarms in reducing home fire deaths. This NFPA statistic estimates the likelihood of surviving a home fire when a working smoke alarm is present. Taken completely out of context a number like 99.45% sounds very high. But consider this:

- The total home fire death toll of roughly 3,000 deaths a year occurs in roughly 400,000 reported home fires a year. Therefore, the likelihood of surviving a home fire is over 99% without regard to the presence of smoke alarms or any other fire safety provisions. Does that mean 3,000 deaths are acceptable? Most people would say no.
- Each year, there are an estimated 41,000 deaths due to motor vehicle accidents and an estimated 6 million reported motor vehicle accidents. The likelihood of surviving a motor vehicle accident is 99.4%. Does that mean 41,000 deaths are acceptable? Most people would say no.
- Each year, 2.4 million people die of any cause in the country compared to a total U.S. resident population of 300 million. The likelihood of surviving every hazard, threat and illness for a year is 99.2%. Does that mean 2.4 million deaths are acceptable– that nothing at all should be done to protect Americans from anything, especially when technology exists that could save lives? Most people would say no.

Keep in mind that this current discussion is not a unique one. In June, 1976 the National Association Homebuilders went on record in opposition of several “new” building code and zoning requirements that added up to \$ 4,000 to the price of a new home. These regulations included; wider streets, outdoor electrical outlets and...smoke detectors.

The US Fire Administration also supports residential fire sprinklers. From a message from the USFA dated June 1, 2009 – “The time has come to use this affordable, simple, and effective technology to save lives and property where it matters most – in our homes”

Home builders, developers and realtors will testify that consumers do not want sprinklers. The fact is the average consumer is not aware of the lifesaving benefits of having sprinklers in their homes. Once educated on the benefits many opt for the protection.

Opponents will use potential water damage as an excuse for not installing sprinklers. Sprinklers discharge less than 20 gallons a minute when activated by a fire. Fire department hose streams will discharge 180-250 gallons per minute.

Frozen pipes are also used as a scare tactic to dissuade people from considering sprinklers. If the temperatures drop low enough to freeze pipes in a home, it will not only be the sprinkler piping but all of the other domestic water pipes that will be exposed as well. Sprinkler pipe is no more susceptible to freezing than the other piping in a home.

If local water authority regulations are too expensive or burdensome, the option of a self-contained pump/tank unit is an alternative, and eliminates the reliance on the water authority for fire protection water. The unit amounts to a one time cost at the time of installation and does not carry a “tap fee” and monthly “stand-by fees charged by the water authority.

Look at sprinklers as a cure for a terrible disease (death by fire). Would you withhold this cure for the sake of arguments by a few who would not benefit directly from the cure?

Please consider your committee’s actions and work to increase home fire sprinkler protection in all of the state’s communities through the adoption of these important fire and life safety requirements included in the model codes.

NFPA is committed to working with this board and the fire and building stakeholders within the State of Connecticut on establishing residential sprinkler requirements in the State Building Code in this code cycle and in the future.

Thank you for the opportunity to submit this testimony today.

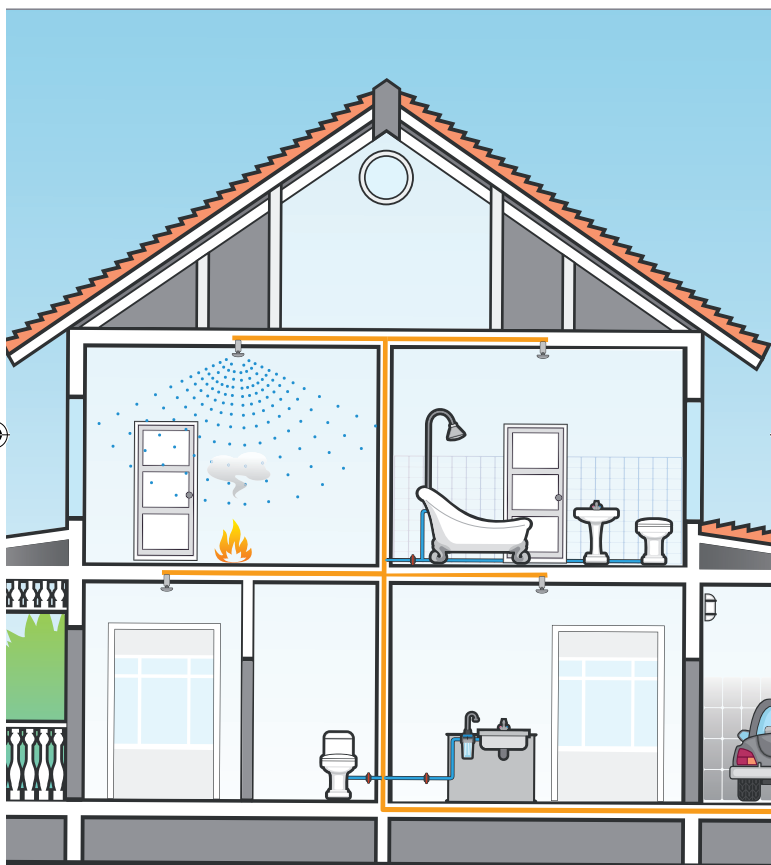
Sincerely,

A rectangular box with a thin black border, used to redact the signature of Robert F Duval.

Robert F Duval  
Northeast Regional Director/Senior Fire Investigator  
NFPA

# The Benefits of Home Fire Sprinklers


IN ONE- AND TWO-FAMILY HOMES



**Connecticut  
Fire Sprinkler  
Coalition**



FIRE SPRINKLER INITIATIVE  
Bringing Safety Home



# Understanding Fire Sprinkler Protection for Homes

Fire kills more people in the United States annually than all natural disasters combined. Ironically, most fire deaths occur in the very place where we feel safest — our own homes. Those at highest risk are very young children, older adults and people with disabilities, who may have difficulty making a quick escape.

Home fire sprinklers provide powerful protection from fire. They work automatically and immediately, before a fire spreads.

## DO SPRINKLERS REALLY SAVE LIVES?

Sprinklers are the most effective fire safety devices ever invented. The National Fire Protection Association reports that smoke alarms reduce the risk of dying in a home fire by about one-third. Having both sprinklers and smoke alarms installed reduces the risk of dying in a home fire by about 80%.

## DO SPRINKLERS SAVE PROPERTY?

Home fire sprinklers are of the quick-response type which means they are designed to save lives. Since they control fires so quickly, they also reduce damage to the property and other valuables. Fire reports nationwide show that property damage is significantly lower in sprinklered homes.



In a home fire  
you have less than  
**3** minutes to escape.



Fire sprinklers can  
stop a fire in less than  
**1½** minutes.



**Saving**  
you,  
your family  
and your property.



# Deceptive Myths

## “SPRINKLERS LEAK.”

FALSE! Sprinklers and their piping are pressure-tested to at least the same level as your plumbing system. Like your plumbing pipes, sprinkler pipes are not exposed to cold areas so they are protected from freezing. Additionally, unlike faucets and other fixtures that are operated often throughout their lives, fire sprinklers remain closed until needed and do not receive the wear and tear of daily use.

## “ALL THE SPRINKLERS IN THE ROOM ACTIVATE AT ONCE.”

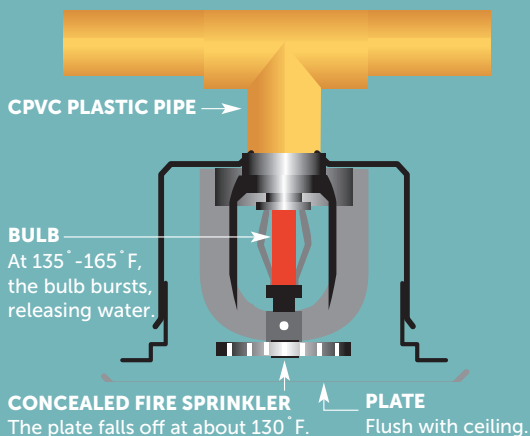
FALSE! Only heat from a fire will activate the sprinkler closest to the fire. Typically, there is not enough heat to activate other sprinklers.

So why, then, do people think that all of the sprinklers in the room activate at the same time?

There are two reasons. First, Hollywood gag writers show all of them activating for comic or dramatic effect. They have shown this happening from someone merely lighting



A sprinkler covers a minimum 12 x 12-foot area. Extended coverage sprinklers can cover a maximum area of 20 x 20 feet.



a cigar or pulling a fire alarm switch. Those actions cannot even make one sprinkler activate, let alone all of them.

The second reason is that a lot of people mistakenly think that smoke will activate a sprinkler. They have seen smoke spread throughout a room, so they conclude that smoke will affect all the sprinklers in the room. Once people understand that only heat can activate a sprinkler, it's easier for them to understand why multiple sprinklers will not activate, even in a smoke-filled room.







# Deceptive Myths

## “WATER WILL CREATE MORE DAMAGE THAN THE FIRE.”

FALSE! One of the myths about sprinklers is that they will cause water damage. While this may seem logical, fire records show that the reverse is actually true. A home fire sprinkler sprays only 13 to 18 gallons of water per minute and is designed to operate early in a fire to control it. The hoses used by firefighters flow ten times that amount, 250 gallons per minute. If sprinklers are not present, fires typically burn until firefighters arrive. Two things happen to cause more damage than a sprinkler. First, more of your possessions have already been destroyed before the firefighters have intervened, and then you have much more water being discharged at a very high pressure on your remaining property.

It is the combination of the sprinkler's quick response, the lesser water flow, and the lower pressure that significantly reduces property damage. Also, there is less recovery potential.

**\$7.8 Billion in Direct  
Property Loss From Fire  
in the U.S.\***

young children, older adults  
with disabilities are at the g

\*National Fire Protection Association

# Reduced Water Damage



VS.



sprinklered

nonsprinklered

Think about it. A wet sofa can be dried and cleaned as opposed to one that is consumed in a fire. This is even more critical when the possessions that are burned in a fire have sentimental value such as portraits, photographs, heirlooms or antiques. Without sprinklers, the heat and smoke damages furniture, furnishings, and possessions as it spreads unimpeded throughout the house. When sprinkler protection is provided, the nearest sprinkler stops the fire before it can develop into a catastrophic incident.



# 9/10

structure fire deaths happen  
at home

ts and people  
e greatest risk



# Benefits

## INSURANCE PREMIUMS

Although a review of the insurance policies associated with several major insurance carriers identified a wide variance in the industry, discounts can range from 5% to 45% depending on the design of the fire sprinklers and the areas to be protected. The higher discounts are more likely available when sprinkler protection is combined with other features like smoke detection, monitoring of the systems, installation of fire extinguishers, and deadbolt locks. Surveys of the local insurance industry indicate the majority of insurance carriers will offer some type of discount, with the average being approximately 10% for approved home fire sprinkler protection.

## LESSER LOSS FROM A FIRE

Many communities across the U.S. are seeing impressive results from installing home fire sprinklers in all new construction. In Scottsdale, Arizona, fire sprinklers have been required in all new homes since 1986. Today, more than half the homes in Scottsdale are protected with sprinklers. A 15-year study of fire loss concluded that the average fire loss per sprinklered incident was \$2,166 compared to more than \$45,000 loss per fire in homes without fire sprinklers.

In Prince George's County, Maryland, fire sprinklers have been required since 1992. A 15-year study of fire loss concluded that the damages averaged \$4,883 per incident in a home protected with sprinklers compared to \$49,503 per incident when there was a fatality in a home without sprinklers.

# Deaths and Fire-Related Injuries



**89 %** of total fire deaths occurred in residential dwellings

**101** people died in single-family home and townhouse fires with no fire sprinklers

**328** civilian injuries in single-family home and townhouse fires with no fire sprinklers

**0** fire deaths in homes protected with fire sprinklers

Prince George's County 15-Year History with its Residential Dwelling Fire Sprinkler Ordinance. 2009.

## PEACE OF MIND

There is tremendous confidence in fire sprinklers that boosts an almost perfect success record. According to a report highlighting a sprinkler ordinance in Prince George's County, Maryland, there were 13,494 fires in single-family dwellings. In the fires that occurred in dwellings without fire sprinklers, 328 persons were injured and 101 died, whereas only six were injured and no one died in the fires in the dwellings protected with sprinklers.

# Are Sprinklers Affordable?

Fire sprinklers add about 1.5% to the cost of a new home. This is about the same cost as an upgrade to the carpeting. But carpets often are replaced every 10 years, while fire sprinklers last for the life of the home. Compared with the cost of carpeting, fire sprinklers give you peace of mind for a bargain price.

For instance, in Connecticut, the average installation cost for the typical 2,500-square-foot colonial home on a municipal water system is \$1.84 per square foot. The average installation cost for the typical 2,500-square-foot colonial home on a well system is \$1.82 per square foot. (Source: The Connecticut Residential Fire Sprinkler Research Working Group)

Costs can vary with a number of construction factors. National Fire Protection Association studies have reported that nationally the average cost to homebuilders, in dollars per sprinklered square foot, has decreased to \$1.35 in 2013. They attribute this downward drive of the cost of home fire sprinklers to increased demand and cheaper materials.



Sidewall Sprinkler

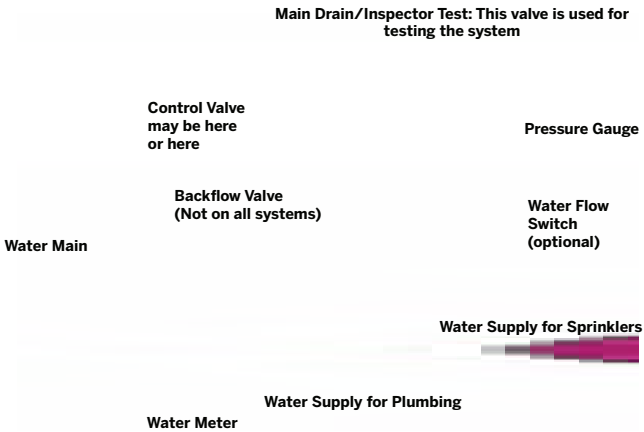


Concealed Sprinkler



Pendent Sprinkler

# Care and Upkeep



Home fire sprinklers are relatively maintenance-free. There are a few simple items that are recommended and they can be accomplished by the homeowner.

The most important items include the following:

- Keep the main water valve open.
  - It is important to know the location of the main valve so it can very simply be visually inspected.
- Do not hang items from the sprinklers.
- Make sure the fire sprinklers do not get painted or obstructed.

A homeowner may also opt to employ the services of a sprinkler contractor who performs maintenance services professionally.



# Home Fire Sprinkler<sup>®</sup>

## COALITION

Protect What You Value Most<sup>™</sup>

[www.homefiresprinkler.org](http://www.homefiresprinkler.org)

1-877-550-4372

The **Home Fire Sprinkler Coalition** is a charitable organization and the leading resource for independent, noncommercial information about home fire sprinklers. The Home Fire Sprinkler Coalition offers educational material with details about installed home fire sprinklers, how they work, why they provide affordable protection and answers to common myths and misconceptions about their operation.

For more information on the Home Fire Sprinkler Coalition, visit **HomeFireSprinkler.org**.

The **Connecticut Fire Sprinkler Coalition** is dedicated to promoting home fire sprinklers.

This voluntary coalition is a resource for information about home fire sprinklers in the state of Connecticut. The coalition actively works to educate stakeholder groups on home fire sprinklers and collaborates with key state fire service organizations to address and overcome barriers to home fire sprinkler requirements.

For more information or to join the coalition, visit **FireSprinklerInitiative.org/Connecticut** or contact **Chair Keith Flood at 203-937-3710**.

For further information or questions, contact the **Connecticut Office of the State Fire Marshal, 860-713-5750**.

**Connecticut  
Fire Sprinkler  
Coalition**



FIRE SPRINKLER INITIATIVE<sup>™</sup>  
Bringing Safety Home

---

**From:** Mike Roke <Mike@FireSystemsCT.com>  
**Sent:** Monday, January 29, 2018 11:45 AM  
**To:** CodesStandards, DAS  
**Cc:** Wendy Callahan  
**Subject:** FW: • Support the adoption of the 2015 International Residential Building Code without amendments, as written.

---

**From:** Mike Roke  
**Sent:** Monday, January 29, 2018 11:41 AM  
**To:** 'das.codesandstandards@ct.gov' <das.codesandstandards@ct.gov>  
**Cc:** 'Wendy Callahan' <wendy.afsa@yahoo.com>  
**Subject:** • Support the adoption of the 2015 International Residential Building Code without amendments, as written.

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

RE: State Building and Fire Code

I respectfully request the Committee to support the following:


- Support the adoption of the 2015 International Residential Building Code without amendments, as written.
- The inclusion, as currently written, the 2015 IRC R313.1 requirement for fire sprinklers in all newly built townhouses.
- The restoration of the 2015 IRC R313.2 requirement for fire sprinklers in all new one-two family dwellings.

Sincerely,

*Michael P Roke, Owner*

## ***Fire System Services, LLC***

PO Box 146  
Cheshire, CT 06410

 203-427-3910

 [Mike@fireSystemsCT.com](mailto:Mike@fireSystemsCT.com)



---

**From:** Wendy Callahan <wendy.afsa@yahoo.com>  
**Sent:** Monday, January 29, 2018 11:53 AM  
**To:** CodesStandards, DAS  
**Subject:** I Support Fire Sprinkler Installation in Newly Built Townhouses

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

RE: State Building and Fire Code

I respectfully request the Committee to support the following:

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- The inclusion, as currently written, the 2015 IRC R313.1 requirement for fire sprinklers in all newly built townhouses.
- The restoration of the 2015 IRC R313.2 requirement for fire sprinklers in all new one-two family dwellings.

Thank you for your time.

Sincerely,  
Wendy Callahan

-----  
**Wendy Callahan**  
**Executive Director**  
**Connecticut Chapter & Patriot Chapter**  
**American Fire Sprinkler Association**  
**85 Townsend Farm Road**  
**Boxford, MA 01921**  
**wendy.afsa@yahoo.com**  
**Mobile 978.855.6495**

**Fire Sprinklers Save Lives!!!**

---

**From:** Tasse Kyle <Kyle.Tasse@viega.us>  
**Sent:** Monday, January 29, 2018 12:07 PM  
**To:** CodesStandards, DAS  
**Subject:** State Building and Fire Code in CT

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

RE: State Building and Fire Code

I respectfully request the Committee to support the following:

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- The restoration of the 2015 IRC R313.2 requirement for fire sprinklers in all new one-two family dwellings.

Regards,

**Kyle Tasse**

---

CONFIDENTIALITY NOTICE: This message contains confidential information which is legally privileged. It is intended only for the recipient named above. If you are not the intended recipient, you cannot disclose, copy, distribute, or take any action in reliance on the contents of this message. If you received this message in error, please notify me by email and delete this message.

**BRAKE FIRE PROTECTION, INC.**AUTOMATIC FIRE SPRINKLER SYSTEMS  
CT Lic. FRP.0040385-F130 Sperry Ave.  
Stratford, CT 06615  
(203) 378-9834 (phone)  
(203) 380-0205 (fax)  
[www.BRAKEFIRE.com](http://www.BRAKEFIRE.com)  
1/30/2018Department of Administrative Services  
Codes and Standards Committee  
Office of the State Building Inspector  
450 Columbus Boulevard, Suite 1303  
Hartford, CT 06103

RE: State Building and Fire Code

I respectfully request the Committee to support the following:

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- The restoration of the 2015 IRC R313.2 requirement for fire sprinklers in all new one-two family dwellings.

Very truly yours  
BRAKE FIRE PROTECTION, INC.

A handwritten signature in blue ink that reads "James H. Brake". The signature is written in a cursive, flowing style.

James H. Brake  
President

---

**From:** Bob Wiedenmann <bob@sunwooddevelopment.com>  
**Sent:** Tuesday, January 30, 2018 4:44 PM  
**To:** CodesStandards, DAS  
**Subject:** proposed code amendment requiring fire sprinklers in town homes (R131.1)

Department of Administrative Services  
Codes and Standards Committee  
Office of the State Building Inspector  
450 Columbus Boulevard, Suite 1303  
Hartford, CT 06103  
Phone: 860-713-5900  
Fax: 860-713-7410

Dear Codes and Standards Committee,  
Please accept this email as a request for removal of the proposed code amendment requiring fire sprinklers in town homes (R131.1).

Town homes are the least expensive form of new construction available in Connecticut. With the well-known need for more affordable homes in the state we need to do everything possible to keep housing costs down. Increased costs of housing only forces people to continue living in less safe homes. No one can argue that a new home is less safe than an old home.

Besides increasing the cost of town homes, fire sprinklers create many additional problems for homeowners. There are ongoing maintenance, inspection and service costs they must bear. The likelihood of frozen pipes is a real concern. Unlike plumbing pipes that can be kept out of exterior walls and ceiling areas, sprinklers need to be located in these areas to provide complete coverage of a structure. The slightest imperfection in the insulation is bound to create a problem.

Building town homes with sprinklers raises many questions that I have not heard answered-

- How do we address changes made by buyers during construction? Will changes require a review and possible redesign of the sprinkler system?
- Will adding things like additional cabinets, shelving and tray ceilings require redesign of the sprinkler system to provide proper coverage?

Living in a town home with sprinklers will also require owners or tenants to change how they use their home-

- Will furnishings or window treatments block sprinklers from providing proper coverage?
- Will owners be liable to adjoining unit owners if their fire sprinkler fails?

Remodeling of town homes with sprinkler systems will also become more complicated-

- How will remodelers know where sprinkler pipes are run?
- How will a remodeler get modifications to a sprinkler system designed and approved?

Some proponents of fire sprinklers have made outrageous statements. Here are just a few-

- Dave LaFond- suggested the builders want fires to increase remodeling opportunities. You have got to be kidding!
- Rick Russo, a fire sprinkler installer, thinks builders only care about profits. Maybe he'll install sprinkler systems at his cost as he believes this to be a public safety issue.

- One supporter stated that the ultimate goal of the fire community is to get sprinklers in single family homes (no surprise there).

Very few states require sprinklers in town homes, what makes Connecticut town homes so different? Proponents have been fighting for residential fire sprinklers for nearly 20 years, yet they are still unable to provide proof that there is need for this costly mandate. Please do not burden or citizens by increasing the cost of housing unnecessarily.

Robert G. Wiedenmann, Jr.                      Phone 203-269-0325 Fax 203-265-3676  
Sunwood Development Corp.                      Website [www.sunwooddevelopment.com](http://www.sunwooddevelopment.com)  
273 North Colony Street, Suite 2                      E-mail [bob@sunwooddevelopment.com](mailto:bob@sunwooddevelopment.com)  
Wallingford, CT 06492  
Graduate Master Builder, Graduate Master Remodeler,  
Aging-in-Place Specialist, Certified Green Professional  
To subscribe to our Newsletter [Click Here](#).

January 31, 2018

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

RE: State Building and Fire Code

I respectfully request the Committee to support the following:

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- The restoration of the 2015 IRC R313.2 requirement for fire sprinklers in all new one-two family dwellings.

Thank you for your consideration.

Kyle Evans  
Senior Estimator – K&M Fire Protection Services, Inc.  
8 West Street, Plantsville CT 06479

January 31, 2018

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

RE: State Building and Fire Code

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Thank you for your consideration.

Brent Renius  
Designer at K&M Fire Protection Services, Inc.  
44 Candlewood Dr  
Enfield, CT 06082

1/31/2018

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

RE: State Building and Fire Code

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- The restoration of the 2015 IRC R313.2 requirement for fire sprinklers in all new one-two family dwellings.

Thank you for your consideration.



Kurt Livziew  
Service and Inspection Lead  
K&M Fire Protection  
8 West ST.  
Plantsville, CT. 06479



01/31/18

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

RE: State Building and Fire Code

I respectfully request the Committee to support the following:

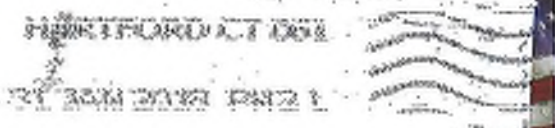
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- The restoration of the 2015 IRC R313.2 requirement for fire sprinklers in all new one-two family dwellings.

Thank you for your consideration.

Tony Burling  
Administrative Assistant  
295 Camp St  
Bristol, CT 06010

**K&M Fire Protection Services, Inc**

8 West Street Plantsville, CT 06479



Department of Administrative Services

450 Columbus Blvd  
Suite 1303  
Hartford, CT 06103

February 1, 2018

RECEIVED

FEB 05 2018

Office of the State Building Inspector

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

RE: State Building and Fire Code

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- The restoration of the 2015 IRC R313.2 requirement for fire sprinklers in all new one-two family dwellings.

Thank you for your consideration.



Mark F. Seeger  
Retired Fire Chief / Fire Marshal  
20 Country Hollow Road  
Naugatuck, Ct. 06770

CITY OF SHELTON  
FIRE MARSHAL  
54 HILL STREET  
SHELTON CONN, 06484

JAMES M TORTORA  
FIRE MARSHAL  
203-924-1555 EXT. 1340  
(C) 203-943-9374  
[j.tortora@cityofshelton.org](mailto:j.tortora@cityofshelton.org)

02/01/2018

TO: State Building Inspector Joe Cassidy  
Department of Administrative Services  
450 Columbus Boulevard Suite 1303  
Hartford Ct 06103

ROBERT ALBERT  
DEPUTY FIRE MARSHAL  
203-924-1555 EXT. 1396  
[r.albert@cityofshelton.org](mailto:r.albert@cityofshelton.org)

CHRIS FAR  
DEPUTY FIRE MARSHAL  
203-924-1555 EXT. 1394

Thank you for the opportunity to provide comment today. My name is Robert Albert Deputy Fire Marshal for the City of Shelton. Today I'm asking you to vote to require fire sprinklers in all new Connecticut townhomes. I put my life on the line every day to protect Connecticut families, and that job is made harder by Connecticut's outdated building code, which unnecessarily puts lives at risk by not requiring fire sprinklers in all new town homes.

KEVIN LANTOWSKY  
FIRE CODE INSPECTOR  
203-924-1555 EXT. 1346  
[k.lantowsky@cityofshelton.org](mailto:k.lantowsky@cityofshelton.org)

JOSEPH KINGSTON  
FIRE CODE INSPECTOR  
203-924-1555 EXT.1341  
[j.kingston@cityofshelton.org](mailto:j.kingston@cityofshelton.org)

DARLENE COOPER  
ADMINISTRATIVE SECRETARY  
203-924-1555 EXT 1339  
[d.cooper@cityofshelton.org](mailto:d.cooper@cityofshelton.org)

Home fire sprinklers are a proven, life-saving technology required by national model safety codes and adopted in several other states. In fact, sprinklers cut the risk of dying in home fires by an astounding *80 percent*. Connecticut needs to catch up. It is a matter of life and death. I thank you in advance for your support on this important issue.

A handwritten signature in black ink, appearing to read "R. Albert", written in a cursive style.

Robert Albert

Deputy Fire Marshal

---

**From:** Paul Interlandi <builderpal@gmail.com>  
**Sent:** Thursday, February 01, 2018 6:58 PM  
**To:** CodesStandards, DAS  
**Subject:** 2015 I-Codes CT Amendment for July 1, 2018,

As a Home Builder and HBRA member, I oppose the 2015 I Code amendment requiring fire sprinkler systems in New Town Homes. The current codes and the means in which they are enforced have done an excellent job of preventing fires. Statistics show that the majority of these units are owner occupied. They also show that home owners are people who invest a great deal of time and money into where they live. These people are diligent about protecting their investment and keeping their homes safe. The later is really what has kept the occurrence of house fires low throughout the country for decades. Even long before current codes or means of modern construction applicable today.

Paul

--

Paul Interlandi  
Waterford Builders  
[builderpal@gmail.com](mailto:builderpal@gmail.com)  
P) 203-554-1625  
F) 203-968-0070

---

**From:** Petersfisherman <petersfisherman@aol.com>  
**Sent:** Thursday, February 01, 2018 5:45 PM  
**To:** CodesStandards, DAS  
**Subject:** sprinklers

i would like to note my opposition to the proposed code to include sprinklers in new townhomes peter sullivan east  
brook const co inc 370 shippan ave stamford ct 06902

---

**From:** Mike Mastronunzio <Mike@BromBuilders.com>  
**Sent:** Thursday, February 01, 2018 5:30 PM  
**To:** CodesStandards, DAS  
**Cc:** Joe Mastro; Rico Mastro; Hanner Greg; Dan Mastro; Mastro Carol; Lane Cindy  
**Subject:** State Building Code Plan to Adopt the 2015 I-Codes with CT-Specific Amendments

To: Joseph V. Cassidy, P.E., State Building Inspector; William Abbott, State Fire Marshal; All Committees in Charge

I am one of the owners of BROM Builders from Waterford CT. For 40 years we have been building single family homes, and created and built many developments and condominiums in CT. Since 1978 we have built over 600 homes and about 350 multi-family residences along with many other commercial and residential construction projects. That equals about 25 housing units per year that BROM built in CT over 40 years so you can see we are a serious size home builder and hope you understand that our comments and concerns regarding adopting new code changes comes from our vast experience.

We strongly object and oppose the proposed new code amendments regarding fire sprinkler requirements for town houses. We also oppose the exterior building envelope thermal break requirement for increased energy efficiency for homes that is being considered with new CT code changes. In fact, we object to adopting ANY new building code changes at this time that will increase the cost of housing.

Both of these proposals are not well thought out, are not practical, and are not necessary. Not only that, fire sprinklers will add at least \$15,000 per residential unit (\$30,000 for a duplex) to the cost. We estimate that all the components and trade costs for the thermal break for the exterior building envelope will add another \$7,000 per residential unit!

The 2016 Code changes already added about \$7,000-\$10,000 to the cost of each residential unit! Since the 2016 Code was adopted, our new home sales are down 70% from previous years! Our potential new clients are simply deciding not to build new homes in CT due to the excessive costs.

Here's just one example of a 2016 CT Code change that was not well thought out and is a waste of time and money that home buyers get zero added value to the home: The requirement to use water to test the waste/vent plumbing vs. the ages old air test method. It now costs an additional \$600 for our plumbers to do that and we expect them to increase the charge for that after all the headaches of implementing it last year. They must now bring 30-50 gallons of water to the job and pump it in, and then out of the pipes after the inspection. In winter they have to be careful not to let the water freeze in the pipes and traps!

We urge you to seriously consider the extreme negative economic impact that the unnecessary additional costs of another CT building code change will do to our State! Businesses and people are struggling to survive in this State, and as you know, are already closing up and moving out of CT. Please don't add more excessive building regulations and fuel to this fire or soon you too will be unemployed by the very people who pay for out of control taxes that pay your salaries!

Thank you for your consideration of our objections to any new code changes now in CT.

Sincerely,

Mike Mastronunzio  
Partner & Purchasing Mgr.  
BROM Builders, Inc.  
www.BromBuilders.com  
163 Boston Post Rd.  
Waterford, CT 06385  
Tel: 860.333.6015, x204  
Cell: 860.625.6003

---

**From:** Rico Mastronunzio <ricojohn@brombuilders.com>  
**Sent:** Thursday, February 01, 2018 1:07 PM  
**To:** CodesStandards, DAS  
**Cc:** Joe Mastronunzio; Mike Mastronunzio (Mike Mastronunzio); Carol Mastronunzio; Greg@BromBuilders.com; 'Dan Mastronunzio'; Home Builders & Remodelers Association of Eastern Connecticut  
**Subject:** oppose Sprinkler provision in new code

Dear Sir or Madam,

This email is to inform you of my opposition to the proposed code revision that will now require sprinklers in Condos /Town Homes. This is the next step toward making them mandatory in all new single family Homes. The code changes in CT over the last 10 years has devastated new construction due to steadily increased costs at the same time existing home values have been flat at best and in many locations decreased in value. A simple look at permit activity for new construction single family homes in CT since 2008 should be an EYE OPENER! Please don't contribute to the near death spiral of the CT economy. This change will surely add to our states embarrassing leadership causing the exodus of jobs and population.

Respectfully submitted,

**Rico Mastronunzio**, *Partner & Design Mgr.*



[RicoJohn@BromBuilders.com](mailto:RicoJohn@BromBuilders.com)

163 Boston Post Rd.  
Waterford, CT 06385  
Tel: 860.333.6015

*CT Home Builders Assoc. Award Winner 2017 – 9 Years In A Row!*



---

**From:** Joe Mastronunzio <JoeM@BromBuilders.com>  
**Sent:** Thursday, February 01, 2018 12:20 PM  
**To:** CodesStandards, DAS  
**Subject:** Opposition to Proposed New Code requiring Sprinklers in Town Homes

To whom this may concern:

I wish to go on record that I am strongly opposed to the newly proposed code revision that would require sprinklers for Town Homes:

1. The new building and energy code requirements that have been implemented over the last 10 years have placed an excessive financial burden on new home buyers which has had a negative effect on new home starts in CT as a result of a lack of affordability.
2. The minimal amounts of injuries and/or deaths resulting from fires in home that lack sprinklers, do not justify requiring sprinklers for all town homes.
3. The CT building industry has been devastated over the last 10 years due to the Great Recession, compounded by excessive burden of over-regulation.
4. Finally, if nothing is preventing home-owners from installing sprinklers in their new homes now, if they really felt they were warranted for safety purposes.

Therefore, I respectfully request that you deleted the Sprinkler requirement from the proposed new code revisions. Thank you.

Sincerely,

**Joe Mastronunzio, President**



*An Affirmative Action-Equal Opportunity Employer*

[joem@brombuilders.com](mailto:joem@brombuilders.com)

163 Boston Post Rd.

Waterford, CT 06385

tel: 860-333-6015

fax: 860-574-9052

mobile: 860-625-0263

*CT Home Builders Assoc. Award Winner 2017 – 9 Years In A Row!*

---

**From:** Russ Smith <russ.amitycd@gmail.com>  
**Sent:** Thursday, February 01, 2018 12:24 PM  
**To:** CodesStandards, DAS  
**Subject:** Residential sprinkler code

Good Morning

I would like to express my define opposition to the potential inclusion of code required residential sprinkler systems for new homes in Connecticut.

Thus will only further put out of reach the ideal of home ownership of our younger generations and drive up new housing costs unnecessarily.

Russ Smith, pres.  
Amity Construction & Design  
Ph: 860.434.5500  
Fax: 860.434.0830  
E Mail: [russ.amitycd@gmail.com](mailto:russ.amitycd@gmail.com)

*\* Please note my new email address. I will still receive mail to old address.*

---

**From:** Gary Merrigan <garym2389@aol.com>  
**Sent:** Thursday, February 01, 2018 12:15 PM  
**To:** CodesStandards, DAS  
**Subject:** Fire Sprinklers in 1 & 2 Family Code

This proposal would have dire implications in the cost and maintenance to the homeowner going forward. The current code is more than sufficient to protect occupants. Gary S. Merrigan President ok'd M&L Development Corporation

Sent from my iPhone

---

**From:** Joanne Carroll <joanne@jmcresources.com>  
**Sent:** Thursday, February 01, 2018 11:32 AM  
**To:** CodesStandards, DAS  
**Subject:** Proposed Sprinkler Mandate

Dear Codes & Standards Committee,

I live in Guilford and I have been involved in the home building industry for 35 years. I originally worked for an architectural firm, Zane Yost & Associates, and we built townhouses throughout Connecticut and New England. There was not then, nor is there now, any justification for requiring sprinklers in townhouses. Any imposition of a mandated sprinkler requirement is excessive and is not a reasonable minimum standard for meeting the purpose of the code.

I am aware that since the inclusion of the mandatory requirement for residential sprinklers in the 2009 edition of the IRC, at least 42 states have amended or passed legislation **prohibiting** the mandating of residential sprinklers in new one and two family dwellings. Townhouses are certainly not that different from two family homes, and there is a mandated fire rated wall separating them.

The need for **more affordable housing options** is critically acute in this state, and town homes are a growing option for people trying to enter the housing market.

The added cost of sprinklers to new town home buyers would be excessive, just as it would be in 1&2 family homes.

Requiring sprinklers in NEW town houses **will not** save lives, because most residential fires, and almost all fire deaths and serious injuries occur in homes and units that are over 30 years old. Fire deaths in homes have been decreasing nationally, and recent data shows one death for every 92,000 homes in Connecticut.

Please do not add to Connecticut's housing cost burden by imposing more unnecessary costs for a safety feature that will not save any lives and is unwanted by most consumers. **I urge you to remove all of section R313 from the proposed 2015 IRC.**

Sincerely,

Joanne Carroll

Joanne Carroll, MIRM  
Editor/Publisher, [Connecticut Builder](#)  
Producer, HBRACT [HOBI Awards](#)  
Chairman, HBRACT Sales & Marketing Council  
[JMC Resources](#)  
1078 Main Street Unit 4  
Branford, CT 06405  
Tel. 203 453-5420

---

**From:** Diane Rodrigues <dianer.absolutefiresprinklers@gmail.com>  
**Sent:** Thursday, February 01, 2018 11:15 AM  
**To:** CodesStandards, DAS  
**Subject:** 2015 International Building Code

Hello,

I support the adoption of the 2015 International Residential Building Code without amendments as written.

Thank you,  
Diane

---

**From:** Vernon Proctor <vbp@hdsegur.com>  
**Sent:** Thursday, February 01, 2018 10:59 AM  
**To:** CodesStandards, DAS  
**Subject:** Fire Sprinkler requirement in all new 1 and 2 Family homes

The cost of living in CT is high enough mandating that a new home have sprinklers should be up the buyer of the new home alone!

*Vernon B. Proctor*

Vernon B. Proctor, CPCU,AAI,CIC  
Account Executive



H.D. Segur, Inc. | 156 Knotter Drive, Cheshire, CT 06410

Main Office: 203-699-4500 | Direct Line: 203-699-4539 | Email: [vbp@HDSegur.com](mailto:vbp@HDSegur.com)



---

**From:** Alyssa Paradis <aparadis@ccfp-inc.com>  
**Sent:** Thursday, February 01, 2018 10:34 AM  
**To:** CodesStandards, DAS  
**Subject:** Fire Sprinklers Save Lives

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

RE: State Building and Fire Code

I respectfully request the Committee to support the following:

- Support the adoption of the 2015 International Residential Building Code without amendments, as written.
- The inclusion, as currently written, the 2015 IRC R313.1 requirement for fire sprinklers in all newly built townhouses.
- The restoration of the 2015 IRC R313.2 requirement for fire sprinklers in all new one-two family dwellings.

Thank you,

Alyssa Paradis

**Alyssa Paradis**  
**Central Connecticut Fire Protection, Inc.**  
**P.O. Box 1825**  
**Meriden, CT 06450**  
**p . (203)238-2122**  
**f . (203)238-2262**

+



---

**From:** Dave Cooper <dcooper@ctvalleyhomes.com>  
**Sent:** Friday, February 02, 2018 10:19 AM  
**To:** CodesStandards, DAS  
**Subject:** Residential Fire Sprinkler Concerns

I have been in hearings where fire marshall's from CT have testified they anticipate the cost to be a mere \$1/SF but officially they provided **no substantiating evidence**. In my history, residential sprinklers add about \$10/SF to cost. This increase will be enough to keep some people from entering the housing market. Connecticut is in bad enough shape as it is. Privately, I heard one fire marshall off-the-record say the imposition of the requirement would provide a lot of part-time work for firefighters. They talk safety in public meetings and **are self-serving off the record**. Speaking of public safety, there are statistics available on-line about how many lives could be saved with residential sprinklers. In my opinion, the cost/benefit ratio of residential sprinklers is way out of whack. Look up the numbers and make your own decision.

Regards,

Dave

**David R. Cooper II**



1949 Post Road, Fairfield CT. 06824  
Tel: (203) 690-1678 [www.ctvalleyhomes.com](http://www.ctvalleyhomes.com)

Office Hours:

**Fairfield Design Studio:** Tue - Wed 10am - 3pm (Appointments only)  
Fri - Sat 10am - 3pm (Appointments only)

**Model Home Center:** Monday - Friday: 10am - 5pm  
Sat & Sun: 10am - 3pm

**Westerly RI Design Studio:** By Appointment to serve you better

<https://www.youtube.com/user/CTValleyHomes/videos>





# **Hampshire**

## **Fire Protection LLC**

507 Southampton Rd • Westfield, MA 01085 • Tele: 413.642.3287 • Fax: 413-642-3792  
[www.hampshirefirellc.com](http://www.hampshirefirellc.com)

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

RE: State Building and Fire Code

As a fire sprinkler contractor for almost 40 years, I have dedicated my professional career and business to saving lives & property through the installation, service, & inspections of fire sprinkler systems. Knowing full well that most fire deaths occur in the home, I fully support & respectfully request the Committee to support the following:

- Support the adoption of the 2015 International Residential Building Code without amendments, as written.
- The inclusion, as currently written, the 2015 IRC R313.1 requirement for fire sprinklers in all newly built townhouses.
- The restoration of the 2015 IRC R313.2 requirement for fire sprinklers in all new one-two family dwellings.

Thank you for your time, consideration, and most importantly your support for this most important legislation.

**\*\*FIRE SPRINKLERS SAVE LIVES\*\***

Sincerely,

*William J. Rhodes*

William J. Rhodes  
President



**AUTOMATIC SPRINKLER LLC**

LIC. #F1-040237



330 Sharon Turnpike  
P.O. Box 82  
Goshen, CT 06756  
T 860-491-1484  
F 860-491-9332

Monday, February 05, 2018

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

RE: State Building and Fire Code

I respectfully request the Committee to support the following:

- Support the adoption of the 2015 International Residential Building Code without amendments, as written.
- The inclusion, as currently written, the 2015 IRC R313.1 requirement for fire sprinklers in all newly built townhouses.
- The restoration of the 2015 IRC R313.2 requirement for fire sprinklers in all new one-two family dwellings.

Respectfully submitted,

Scott Tillmann  
Member/Manager

HTH Automatic Sprinkler LLC  
330 Sharon Turnpike  
PO Box 82  
Goshen, CT 06756-0082

Phone: 860-491-1484  
Fax: 860-491-9332  
Email: scotthth@optonline.net

---

**From:** Richard Wildermuth <[rwildermuth@ctvalleyhomes.com](mailto:rwildermuth@ctvalleyhomes.com)>  
**Sent:** Tuesday, February 06, 2018 1:46 PM  
**To:** CodesStandards, DAS  
**Subject:** opposing proposed code to mandate fire sprinklers in 1-2 family homes

To the Decision Makers:

Re: The State Codes and Standards Committee, the state agency that writes the State Building Code, will soon adopt the 2015 I-Codes with CT-specific amendments that will mandate the inclusion of fire sprinklers in townhouses.

I am opposed to this expansion of the fire sprinkler mandate for the following reasons:

- Nearly any Google search with historic statistics reflect that the number of lives lost due to home fires is very low.
- Yes, any life lost is regrettable but we as a society put dollar value on lives every day in the form of life insurance and accept that practice.
- I have been a home builder for 45 years and the cost to add a residential sprinkler system has run close to \$10 per square foot. The average size of a new home built in the USA in 2017 was about 2500 square feet. The sprinklers would add \$25,000 to the cost of an average home.
- Statistically every dollar added to the cost of a new home financially eliminates some portion of the population from owning a new home. Adding \$25,000 to the cost of a new home eliminates a lot of people.
- It makes little sense to me make new homes less attainable in a state and country with an increasing homeless population.
- New homes are already safer than older existing homes due to more stringent building codes and inspections yet this proposed change does nothing to mandate upgrades to existing housing stock.
- To suddenly impose a change of this magnitude will crush the new home market because, due to natural supply and demand, there is not enough purveyors of sprinkler system designers, installers and educated inspectors to satisfy a sudden increase in demand.

Quite simply, the cost outweighs the benefit.

Sincerely,

Richard Wildermuth, NAHB Certified Green Professional  
Builder/President  
Connecticut Valley Homes  
128 Boston Post Road  
East Lyme, CT 06333  
T: 800-468-6284  
P: 860-739-6913  
F: 860-739-8141  
[rwildermuth@ctvalleyhomes.com](mailto:rwildermuth@ctvalleyhomes.com)  
[www.ctvalleyhomes.com](http://www.ctvalleyhomes.com)

---

**From:** John Fecke <[john@thekitchencompany.com](mailto:john@thekitchencompany.com)>  
**Sent:** Thursday, February 08, 2018 4:51 PM  
**To:** CodesStandards, DAS  
**Subject:** Public comment fire sprinklers

Department of Administrative Services  
Codes and Standards Committee  
Office of the State Building Inspector

I would like to comment on the proposed sprinkler codes under consideration. We all want to save lives. However, if the public had accurate information as to the true cost sprinklers would add to a home or town house, they would not approve. It is smoke that kills more people by far and with proper smoke detectors the public does not need sprinklers added to the cost of a new home. The homebuilding industry has been devastated, along with all the suppliers and trades people that work in the industry, since the housing collapse. Business and jobs are leaving Connecticut. The current economic climate in our state is one of the worst in the country. We need a growing vibrant economy in Connecticut, if we ever hope to meet our financial commitments.

I do not support the proposed code requirement for residential sprinklers.

Best regards,

**John Fecke**

Designer/Owner

203-288-3866 x 101

370 Sackett Point Road North Haven, CT 06473

<http://thekitchencompany.com>

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---

**From:** Catherine Taylor <ctaylor@ctvalleyhomes.com>  
**Sent:** Wednesday, February 14, 2018 7:50 PM  
**To:** CodesStandards, DAS  
**Subject:** Strongly Against Sprinkler Systems Being Included in the Building Code

To the Decision Makers:

Re: The State Codes and the Department of Public Safety, the state agency that writes the State Building Code, will soon adopt the 2015 I-Codes with CT-specific amendments that will mandate the inclusion of fire sprinklers in townhouses.

I am strongly opposed to this expansion of the fire sprinkler mandate for the following reasons:

- Nearly any Google search with historic statistics reflect that the number of lives lost due to home fires is **very** low.
- I have been a home builder for 35 years and the cost to add a residential sprinkler system has run close to \$10 per square foot. The average size of a new home built in the USA in 2017 was about 2500 square feet. The sprinklers would add \$25,000 to the cost of an average home.
- Statistically, every dollar added to the cost of a new home financially eliminates some portion of the population from owning a new home. Adding \$25,000 to the cost of a new home eliminates a lot of Connecticut residents from home ownership.
- In addition, sprinkler systems are inherently difficult to operate and maintain when the source of water is a well.
- It makes little sense to make new homes less attainable in a state and country with an increasing housing shortage for working-class families.
- New homes are already safer than older existing homes due to more stringent building codes and inspections yet this proposed change does nothing to mandate upgrades to existing housing stock.
- To suddenly impose a change of this magnitude **will crush the new home market**, starting with town homes. Due to natural supply and demand, there are not enough purveyors of sprinkler system designers, installers and educated inspectors to satisfy a sudden increase in demand.

Connecticut is already one of the most unaffordable states in the nation. It is imperative that a huge additional cost is not added to the cost of a new home making it significantly more out of reach for young families.

Sincerely,

Catherine R. Taylor  
Vice President  
Connecticut Valley Homes  
T: [800-468-6284](tel:800-468-6284)  
P: [860-739-6913](tel:860-739-6913)  
F: [860-739-8141](tel:860-739-8141)  
[ctaylor@ctvalleyhomes.com](mailto:ctaylor@ctvalleyhomes.com)  
[www.ctvalleyhomes.com](http://www.ctvalleyhomes.com)  
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February 14, 2018

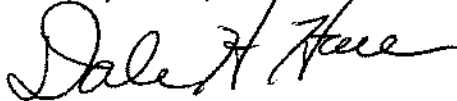
Department of Administrative Services  
Codes and Standards Committee  
Office of the State Building Inspector  
450 Columbus Boulevard, Suite 1303  
Hartford, CT 06103

RE: State Building and Fire Code

I respectfully request the Committee to support the following:

- Support the adoption of the 2015 International Residential Building Code without amendments, as written.
- The inclusion, as currently written, the 2015 IRC R313.1 requirement for fire sprinklers in all newly built townhouses.
- The restoration of the 2015 IRC R313.2 requirement for fire sprinklers in all new one-two family dwellings.

Thank you for your consideration.



Dale H. Hall  
Service Supervisor, SimplexGrinnell  
429 Hayden Station Rd.  
Windsor, CT. 06095

---

**From:** George McPherson <gmcpherson@ctvalleyhomes.com>  
**Sent:** Wednesday, February 14, 2018 7:42 PM  
**To:** CodesStandards, DAS  
**Subject:** Opposition to Proposed Code Change - Mandating Fire Sprinklers in 1-2 Family Homes

To the Decision Makers:

Re: The State Codes and Standards Committee, the state agency that writes the State Building Code, will soon adopt the 2015 I-Codes with CT-specific amendments that will mandate the inclusion of fire sprinklers in 1-2 family homes.

I am opposed to this expansion of the fire sprinkler mandate for the following reasons:

- Nearly any Google search with historic statistics reflect that the number of lives lost due to home fires is very low.
- Yes, any life lost is regrettable but we as a society put dollar value on lives every day in the form of life insurance and accept that practice.
- I have been a home designer for over 34 years and the cost to add a residential sprinkler system has run close to \$10 per square foot. The average size of a new home built in the USA in 2017 was about 2500 square feet. The sprinklers would add \$25,000 to the cost of an average home.
- Statistically every dollar added to the cost of a new home financially eliminates some portion of the population from owning a new home. Adding \$25,000 to the cost of a new home eliminates a lot of first time homeowners.
- It makes little sense to make new homes less attainable in a state and country with an increasing homeless population.
- New homes are already safer than older existing homes due to more stringent building codes and inspections yet this proposed change does nothing to mandate upgrades to existing housing stock.
- To suddenly impose a change of this magnitude will crush the new home market, due to natural supply and demand, there are not enough purveyors of sprinkler system designers, installers and educated inspectors to satisfy a sudden increase in demand.

Quite simply, the cost outweighs the benefit.

Regards,

George E. McPherson Jr.

--

**George McPherson**  
Head of Drafting Dept.  
Connecticut Valley Homes  
128 Boston Post Road  
East Lyme, CT 06333  
T: [800-468-6284](tel:800-468-6284)  
P: [860-739-6961](tel:860-739-6961)



F: [860-739-8141](tel:860-739-8141)

[gmcpherson@ctvalleyhomes.com](mailto:gmcpherson@ctvalleyhomes.com)

[www.ctvalleyhomes.com](http://www.ctvalleyhomes.com)

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2/14/2018

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

RE: State Building and Fire Code

I respectfully request the Committee to support the following:

- Support the adoption of the 2015 International Residential Building Code without amendments, as written.
- The inclusion, as currently written, the 2015 IRC R313.1 requirement for fire sprinklers in all newly built townhouses.
- The restoration of the 2015 IRC R313.2 requirement for fire sprinklers in all new one-two family dwellings.

Thank you for your consideration.

Jim Lord  
Complete Fire Protection  
Owner  
35 Woodland St.  
New Britain, CT. 06051



Robert V. Norton Jr., Fire Marshal  
Robin Denny, Dep. Fire Marshal  
Stan MacMillan, Dep. Fire Marshal

# Fire Marshal's Office

Town of North Canaan

100 Pease Street #9

Canaan, CT 06018

Office: 860-824-3132 X193

Fax: 860-824-3139

Email: [NorthCanaanFM@gmail.com](mailto:NorthCanaanFM@gmail.com)



February 14, 2018

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

RECEIVED

FEB 16 2018

Office of the State Building Inspector

My name is Robert V. Norton Jr. I am the Fire Marshal for the Town of North Canaan and a Deputy Fire Marshal in multiple communities. I am submitting this letter favoring the requirement of fire sprinklers for all new townhomes in Connecticut.

I attended the Public Hearing and yet again, we heard from the housing industry misinform everyone that fire sprinklers are cost prohibitive. For years, home builders have claimed to be the experts in building safe, affordable homes, but they push the responsibility onto homeowners when it suits them. By fighting against common sense fire safety measures like fire sprinklers, they fight for substandard housing to protect their bottom line. Their preferred housing requirements don't even meet the existing code for residential construction developed several years ago by experts across the country.

To show why fire sprinklers are absolutely necessary for today's homes, an investigative report showed that modern synthetic furniture burns hotter and 10 times faster than furniture from decades past, putting families at much higher risk for injury or death. The fact is, fire sprinklers are an effective, affordable solution to this problem. Studies have shown the cost for installing fire sprinklers is less than \$1.50 per square foot, and that they can easily be connected to existing water supplies, further limiting costs of installation. Please do not adhere to the special interests trying to protect their profits at the cost of family safety.

Fire Safety and model codes are developed by experts from local communities around the country based on the current knowledge around fire safety. Unfortunately, the codes currently in place in Connecticut are hugely inadequate compared to national codes and those adopted in other states. This committee can begin closing that gap and take a step toward enhancing the safety of families and first responders in our state. Voting to require fire sprinklers in new townhomes won't get us where we need to be, but by taking a step in the right direction we can show Connecticut that their safety is important to us.

Please vote to require fire sprinklers in new Connecticut townhomes.

Respectfully Submitted

Robert V. Norton Jr.

DATE 2/14/18

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

RE: State Building and Fire Code

I respectfully request the Committee to support the following:

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- The inclusion, as currently written, the 2015 IRC R313.1 requirement for fire sprinklers in all newly built townhouses.
- The restoration of the 2015 IRC R313.2 requirement for fire sprinklers in all new one-two family dwellings.

Thank you for your consideration.

Name Stefanie Demarais  
Title Operations Manager for Core and Main Fire Protection  
Your CT address 56 Paul Spring Rd Farmington CT, 06032

# TOWN OF MANSFIELD

## Mansfield Fire Department



---

### OFFICE OF FIRE MARSHAL

---

AUDREY P. BECK BUILDING, 4 SOUTH EAGLEVILLE ROAD, MANSFIELD, CT 06268-2599  
TELEPHONE (860) 429-3328 -- FACSIMILE (860) 429-3388 -- WWW.MANSFIELDCT.GOV

February 15, 2018

TO: Connecticut Codes and Standards Committee  
Via electronic mail: [DAS.CodesStandards@ct.gov](mailto:DAS.CodesStandards@ct.gov)

SUBJECT: Public comment in support of fire sprinklers

Dear Members of the Connecticut Codes and Standards Committee:

Thank you for the opportunity to provide written comment to this committee. As Fire Marshal for the Town of Mansfield, I am writing to express my support for requiring fire sprinklers in townhomes in Connecticut. As you are aware, national fire and building model codes have fire sprinklers included for residential occupancies. Now is the time to include fire sprinklers in the CT codes. It has been proven that fire sprinklers save lives by controlling fires, giving occupants more time to get out of the house. This also reduces the risk for firefighter injuries while fighting the fire. Many products found in today's homes are made of products, such as synthetic material and plastics, that burn faster and hotter than products decades ago. This increases the risk for injury or death from the effects of fire, however fire sprinklers assist in controlling those effects.

In closing now is time for this Committee to make the residents of CT safer by adopting, as written in the national model codes, the requirement for fire sprinklers in townhomes.

Yours in safety,

Adam B. Libros  
Deputy Chief/Fire Marshal

# H. H. S. MECHANICAL CONTRACTORS, INC.

80 COLONIAL ROAD, MANCHESTER, CT 06042

TEL. (860) 643-3939 FAX (860) 643-3977

February 15, 2018

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

RE: State Building and Fire Code

I respectfully request the Committee to support the following:

- Support the adoption of the 2015 International Residential Building Code without amendments, as written.
- The inclusion, as currently written, the 2015 IRC R313.1 requirement for fire sprinklers in all newly built townhouses.
- The restoration of the 2015 IRC R313.2 requirement for fire sprinklers in all new one-two family dwellings.

Thank you for your consideration.



Albert Harbec  
President

February 15, 2018

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

RE: State Building and Fire Code

I respectfully request the Committee to support the following:

- Support the adoption of the 2015 International Residential Building Code without amendments, as written.
- The inclusion, as currently written, the 2015 IRC R313.1 requirement for fire sprinklers in all newly built townhouses.
- The restoration of the 2015 IRC R313.2 requirement for fire sprinklers in all new one-two family dwellings.

Thank you for your consideration.

Anthony Medeiros  
77 Goodale Dr. Newington, CT 06111

---

**From:** Volovski, Daniel <daniel.volovski@uconn.edu>  
**Sent:** Thursday, February 15, 2018 2:46 PM  
**To:** CodesStandards, DAS  
**Subject:** Public comment in support of fire sprinklers in fire code

Thank you for the chance to submit a written comment to this committee. My name is Dan Volovski, and I work with the UConn Fire Department in the Fire Marshal and Building Inspector's Office. I am writing to urge this committee to require fire sprinklers in all new Connecticut townhomes. With advancements in fire safety technology it's easy to think families are safer in their homes than ever, but that is not the case. Research has proven that today's synthetic upholstered furniture and modern building materials burn hotter and faster than traditional lumber and older furniture made from natural materials. Voting to require fire sprinklers in new townhomes will bring Connecticut closer in line with requirements found in national model building codes, and is a necessary step to protect Connecticut families and first responders.

Thank you,

## ***Dan Volovski***

***Fire Inspector***

***UConn Division of Public Safety***

***Fire Marshal and Building Inspector Office***

***47 Weaver Road, U-5052***

***Storrs, Connecticut 06269-5052***

***[www.fmbio.uconn.edu](http://www.fmbio.uconn.edu)***

***Office: (860) 486-4878***

***Fax: (860) 486-4677***

***Cellular: (860) 576-4206***

***Direct: (860) 486-3278***



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**CITY OF ANSONIA**  
**ANSONIA FIRE DEPARTMENT**  
**OFFICE OF THE FIRE MARSHAL**  
PO BOX 421  
ANSONIA, CT 06401

Darrick Lundeen  
FIRE MARSHAL

TEL: (203) 734-3525  
FAX: (203) 736-6537  
EMAIL: [dlundeen@ansonfiact.org](mailto:dlundeen@ansonfiact.org)

**SUBJECT: Public comment in support of fire sprinklers in fire code**

Thank you for the chance to submit a written comment to this committee. My name is Darrick Lundeen, and I work with the City of Ansonia Fire Marshal's Office. I am writing to urge this committee to require fire sprinklers in all new Connecticut townhomes. With advancements in fire safety technology it's easy to think families are safer in their homes than ever, but that is not the case. Research has proven that today's synthetic upholstered furniture and modern building materials burn hotter and faster than traditional lumber and older furniture made from natural materials. Voting to require fire sprinklers in new townhomes will bring Connecticut closer in line with requirements found in national model building codes, and is a necessary step to protect Connecticut families and first responders.

Thank you,

---

**From:** James Tortora <j.tortora@cityofshelton.org>  
**Sent:** Thursday, February 15, 2018 10:32 AM  
**To:** CodesStandards, DAS  
**Subject:** SUBJECT: Public comment in support of fire sprinklers in fire code

Thank you for the opportunity to submit a written comment to this committee. My name is Jim Tortora, and I work as Fire marshal for the City of Shelton. I am writing to encourage this committee to vote to require fire sprinklers in all new townhomes in Connecticut. As you know, our state is far behind other states and the national fire safety and model codes. The reason most often cited for that is money, but we know now that special interests in the housing industry have dramatically inflated the estimated costs of installing fire sprinklers in new townhomes. Based on average home prices and cost per square footage in Connecticut, the cost of installing fire sprinklers averages about \$3,000.

I believe this committee has a responsibility to do everything in its power to protect kids and families, as well as our state's first responders. Voting to require fire sprinklers in new townhomes is a step in the right direction. I thank you for your support in this important fire safety endeavor.

Thank you,

*James M Tortora  
City of Shelton  
Fire Marshal  
54 Hill Street  
Shelton Conn 06484  
(w) 203-924-1555 x1340  
(c) 203-943-9374  
(fax) 203-924-7560*

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**From:** Jessica Zadrozny <jessicalynnzadrozny@gmail.com>  
**Sent:** Thursday, February 15, 2018 11:50 AM  
**To:** CodesStandards, DAS  
**Subject:** Opposition to R313.1.1

February 15, 2018

Department of Administrative Services  
Codes and Standards Committee  
Office of the State Building Inspector  
450 Columbus Boulevard, Suite 1303

RE: Opposition to R313.1.1

To whom it may concern,

I am writing in opposition to the implementation of Residential fire sprinklers in Town homes. I am very concerned of the impact this will have on the ability of the consumer to afford what is most traditionally a starter home, and in my experience, people are already stretching to get into. This would add a considerable expense, and in my opinion does not bring the safety benefits that warrant such cost.

I often question the special interests that accompany such proposals and could not help but wonder what factual data backs up such a decision. If these systems are so safe and are worth the cost, then why do we seldom see them being implemented today? What fire death data has been provided to show how Townhomes are less safe than traditional homes? How many deaths have occurred in CT, either in Townhomes or traditional homes, since the advances of hard wired smoke detectors, or the implementation of draft stopping, shaft walls and arc fault protection? I assume that there have been very little or no deaths, since I had trouble finding data to support either argument. The only notable case is the tragic one from Plainfield, but the final report has not been released to verify the cause or conditions.

This year is even with last year in overall housing starts, on record for the worst permit numbers since reported. If questions remain on implementation of R.313.1.1, is this the logical time to be placing this mandate on an already flattened housing market. This does push, with other requirements, buyers to the existing stock, which misses the advantages of so many other benefits of newer housing, from low maintenance, sustainability and energy efficiency.

Lastly, if the builders have dug in on one side, and the fire marshals on the other, has there been an attempt to come to some common-sense solutions that will not be so costly? I have experience with range hood suppression systems that are cost effective and go to the most prominent cause of fires. Although the Plainfield report is not out, it is believed that this is the cause of the fire in the home. I also have been part of town home new construction that has a central monitoring station that alerts authorities and the adjoining homeowners of a fire. The builder I work with states that this comes at 30-40% of the cost of individual sprinkler systems. Have either of these alternatives been discussed?

Kindly confirm that this email has been received.

Sincerely,

Jessica Zadrozny  
Real Estate Salesperson - Excel Realty, LLC  
117 Birch Street - Southington, CT 06489  
Office: 860-793-9626 - Fax: 860-793-0592

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**From:** John O'Brien <deputyfiremarshal@townofnorthbranfordct.com>  
**Sent:** Thursday, February 15, 2018 3:52 PM  
**To:** CodesStandards, DAS  
**Subject:** Sprinklers for Townhouses

**SUBJECT: Public comment in support of fire sprinklers in fire code – fire services representative**

Thank you for the opportunity to provide written comment to this committee. My name is John O'Brien, and I work with the Town of North Branford. I am writing to express my support for requiring fire sprinklers in all new townhomes in Connecticut. My fellow firefighters and I put our lives on the line every day to protect Connecticut families, but our state's outdated building codes make that job even more dangerous.

Fire sprinklers reduce the risk of death due to house fires by an astounding 80 percent. Requiring fire sprinklers in new townhomes is the right thing to do for Connecticut families and first responders. It is a matter of life and death.

Thank you,

John J. O'Brien  
Deputy Fire Marshal  
Town of North Branford

Office: 203-484-6016  
Fax: 203-484-6025  
Cell: 203-627-7306



February 14, 2018

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

RE: State Building and Fire Code

Dear Codes and Standards Committee Members,

The Connecticut Fire Sprinkler Coalition requests that the state adopt the International Residential Code recommended by the Codes and Standards Committee, and demand the adopted Code include a requirement for residential fire sprinklers for new townhome developments.

The current Code recommendation falls short of requiring fire sprinklers for all new home developments but reflects a compromise between concerns raised and the pursuit to save lives. For reference, we have included our white paper "Analysis of the Economic and Life-Saving Impact of a Residential Fire Sprinkler Requirement in Connecticut," submitted to the Connecticut Codes and Standards Committee at the start of the Code review process, at the bottom of this letter.

Unfortunately, fire sprinkler opponents and other special interests in the housing industry have repeatedly indicated that their bottom line is more important than saving lives. They continue to spread false information as part of the code adoption process, including at the January 24, 2018 public hearing, that we correct below.

First, it is important to remember that the vast majority of Connecticut's fire deaths and injuries each year happen at home. Requiring home fire sprinklers in new construction reduces the risk of death or injury from fire. Since 2009, every edition of the model building codes used in the U.S. includes the requirement to install fire sprinklers in new one- and two-family homes.

Unfortunately, Connecticut is not up-to-date on its code requirements, forcing the state's citizens to live with substandard construction requirements that needlessly lead to deaths. This committee has failed to adopt fire sprinkler requirements in the past two code adoption cycles and homes were built meeting those codes that later caught fire. In one tragic case, a little girl was killed in Plainfield, CT in a new home. Media coverage is included below for your reference. This might have been prevented if fire sprinklers were required, but instead a child died and the developer only agreed to install home fire sprinklers during the rebuild. We were too late to help this child, but we can act now to prevent similar tragedies by requiring home fire sprinklers in new home construction.

It is critical to maintain the proposed townhome fire sprinkler requirement in the code because:

- Townhouses are multifamily structures that include many unrelated individuals and families living under a single roof. The fire safety of at least one other family relies on the behavior of someone else who lives under the same roof. Residential fire sprinklers prevent such tragedies by keeping fires contained to the unit of origin, either controlling the fire or extinguishing it altogether.
- Townhouses also place significantly increased demand on fire service resources as compared to detached dwellings. Townhouses increase the complexity of rescue operations, and firefighting is hampered because fire spread into adjacent units cannot be easily followed by firefighters from unit to unit. There are no access openings in party walls allowing firefighters to pass back and forth between opposite sides when fighting a fire.
- Section 903.2.8 of the State Building Code requires all townhouses built under that code to be sprinklered. There is no technical basis for requiring fire sprinklers to be installed under the State Building Code yet exempt the same requirement under the State Residential Code. This proposal will provide equal protection to residents of all townhouses, regardless the code under which they are built.
- Research shows that the rate of fire growth in modern residential structures has increased, partly attributed to an increased heat release rate and an increased heat of combustion associated with modern synthetic materials used in household goods and furnishings. Faster fire growth in a multifamily structure means that occupants of adjacent units will be endangered more quickly than was the case with legacy furnishings.
- The IRC requirement for townhouses to have fire sprinklers was submitted by a major national multifamily builder, Avalon Bay Communities. This builder recognized that the cost of providing fire sprinklers in townhouses could be recaptured through the reduced cost of fire separations between units and other incentives offered by the code. With no significant cost impact (or perhaps even a cost savings), model code writers agreed that it simply made sense for all townhouses to have the protection of a residential fire sprinkler system.
- Sprinklered townhouses can be less expensive to build than nonsprinklered townhouses. The difference is attributed to incentives that are offered by the IRC and the International Fire Code (IFC) for sprinklered properties. The IRC's townhouse sprinkler requirement (RB66-07/08) was proposed by a major national multifamily builder, Avalon Bay Communities. Prior to the 2009 edition, the IRC didn't include an allowance to reduce the fire rating of townhouse separation walls from 2-hours to 1-hour, which had been permitted by the IBC. Avalon Bay Communities proposed adding the IBC wall reduction to the IRC with the quid pro quo of also adding the IBC's requirement to sprinkler all townhouses. Avalon Bay Communities knew that the cost savings associated with the reduced wall rating alone typically equaled or exceeded the cost of installing sprinklers. When combined with other incentives offered by the IFC for access roads and water supply, the company knew that they could actually save an estimated \$33,000 per unit by sprinklering townhouses.
- The requirement to install fire sprinklers in new townhouses, first published in the 2009 IRC, has been retained in the 2012, 2015 and 2018 editions and has been adopted by 10 states (California, Maine, Maryland, Massachusetts, Minnesota, New Hampshire, Oklahoma, Pennsylvania, West Virginia and Wisconsin, plus the District of Columbia) and many other local jurisdictions. The State of Maryland preceded the IRC by requiring all townhouses to have fire

sprinklers in 1989, yet in Maryland and other jurisdictions requiring townhouse sprinklers, there is no evidence of negative impacts on the townhouse market or home affordability.

- Fire sprinkler systems can be safely and affordably connected to a potable water supply. Expensive plumbing technology is not required to install fire sprinklers in new or existing homes. National plumbing codes never require backflow protection for home fire sprinkler systems fabricated with materials approved for household plumbing, such as CPVC, PEX or copper.

At the January 24, 2018 public hearing the following false statements were made regarding the proposed townhome requirement, which warrant correction:

- False Claim: The fire sprinkler requirement will create a new expense for new townhome development.

Truth: Because of the increased safety in a sprinklered home, other costly code requirements are eliminated or reduced. As referenced above, these offset the cost of installing fire sprinklers. The initial cost of protecting life and property is not free, but necessary to prevent larger catastrophic losses or death.

- False Claim: The fire sprinkler requirement will result in fewer new homes built in Connecticut.

Truth: Other states have required home fire sprinklers, and new home construction has not slowed as a result. Research below confirms that fire sprinkler requirements do not reduce the construction of new homes.

- False Claim: Installing fire sprinklers in townhomes will cost \$13,000 per home.

Truth: Research included below and estimates received from a Connecticut-based contractor show costs between \$4,000 and \$6,000 per unit. This cost does include savings from reductions in other building code requirements that are waived when fire sprinklers are installed.

- False Claim: Fire sprinklers will add new costly maintenance for homeowners.

Truth: Fire sprinklers are an appliance, and have the same maintenance cost of other appliances connected to home's potable water system.

- False Claim: Fire Sprinklers cause catastrophic damage when they malfunction:

Truth: Leaks or malfunctions from fire sprinklers are very rare, and no more likely than leaks from any other part of a home's plumbing system. Furthermore, fires in unsprinklered homes typically result in more significant damage than what follows a fire sprinkler activation.

False Claim: There is no data that justifies the cost for installing fire sprinklers.

Truth: Research below shows that fire sprinklers reduce the overall damage of fire and increase the likelihood of surviving a fire. They also reduce the overall damage caused by a fire and protect first responders trying to rescue family members. Lastly, Homeowners receive discounts

on their insurance policies and builders can save money after reductions in other building code requirements that are waived when fire sprinklers are installed.

- **False Claim:** Fire sprinklers have no return on investment and do not increase resale value.

**Truth:** The protection provided to property and assets by fire sprinklers give homeowners a huge return on investment in the case of a fire. Fire sprinklers can also result in lower insurance costs for homeowners, up to 13 percent lower according to the Fire Protection Research Foundation.

- **False Claim:** Homeowners do not want a home with sprinklers.

**Truth:** Research shows that nearly 80 percent of homeowners consider fire sprinklers essential for their homes. A similar percent of homeowners believe fire sprinklers provide the ultimate protection for residents. Three quarters of homeowners say they would be more likely to buy a home with fire sprinklers than without them, showing that fire sprinklers are seen as assets and are highly valued by homeowners today.

- **False Claim:** The fire sprinkler requirement is excessive.

**Truth:** The current code language for fire sprinklers is less restrictive than other states and international building code standards. Homes being built in Connecticut will continue to be substandard based on current recommended code.

- **False Claim:** The code adoption process has been held behind closed doors, was not transparent and deprived developers of due process.

**Truth:** The code was developed in public meetings with multiple opportunities for public comment, with developer representatives in attendance. The hearing held on January 24 was part of the public review process and the code has not yet been adopted.

- **False Claim:** Fire sprinklers will create new inspection issues and problems gaining additional access to the property.

**Truth:** The fire sprinkler requirement will fall under the same inspection requirements as other sections of the code.

- **False Claim:** Fire sprinklers will increase insurance costs.

**Truth:** The research below shows fire sprinklers can reduce the cost of insurance.

- **False Claim:** Municipalities will charge high amounts for water or may not have supply for fire sprinklers.

- **Truth:** Builders have several options to connect to existing water supply, and there are alternatives for local jurisdictions that require backflow prevention, eliminating the need to buy a separate water line. Fire sprinklers can be incorporated as part of a multipurpose plumbing



system that feeds both sprinklers and plumbing fixtures from a home's cold water plumbing pipes. They can be supplied by a separate water connection, with a toilet connected to the end of sprinkler piping to ensure that the piping is occasionally purged by flushing the toilet to prevent stagnant water. Where a yard irrigation system is installed, backflow prevention will be required because such systems are subject to backflow of non-potable water. They can share the irrigation backflow preventer, thereby eliminating the need for an additional device.

- **Truth:** Most fire sprinklers do not require more water than a home's existing plumbing. Fire sprinkler systems are often designed to use, at most, the same amount of water as a new home's plumbing system. A water supply adequate for a household's plumbing needs is also adequate for a fire sprinkler system. In rare cases when a larger pump or tank is needed, generic off-the-shelf items suitable for plumbing systems are permitted. Fire sprinkler systems are designed to operate easily within the requirements of national plumbing codes. Larger homes that require more water supply to accommodate more plumbing fixtures can also accommodate fire sprinklers.

Fire Sprinklers	Plumbing systems
Require 7 psi to operate a typical, pendant residential fire sprinkler	Require minimum of 8 psi to operate
Require 8 gallons per minute to operate	Require minimum 18 gallons per minute to operate

**False Claim:** Fire sprinkler pipes are more likely to freeze and burst.

**Truth:** Fire sprinklers act the same as other potable water systems in the home. They can be supplied by a separate water connection hooked up to a toilet, which allows water to flow.

- **False Claim:** There are unresolved issues from 20 years ago that have never been addressed in the model codes.

**Truth:** The fire sprinkler model code requirements have continued to evolve over the past decade. Through the standards development process, builders have helped make the model code more flexible to accommodate many of the concerns raised by developers in Connecticut, while making homes safer.

- **False Claim:** Fire Sprinklers will make building affordable housing more difficult.

**Truth:** Research below confirms that fire sprinkler requirements do not reduce the construction of new homes. Because of the increased safety in sprinklered homes other costly code requirements are eliminated or reduced. As referenced above, these offset the cost of installing fire sprinklers. In Plainfield, CT an affordable home that burned to the ground built by Habitat for Humanity did not have fire sprinklers. As a result, a child died in that fire. Habitat for Humanity voluntarily installed fire sprinklers during the rebuild.

- **False Claim:** Home fire Sprinkler will require quarterly inspections.

Truth: There are no required inspections for homeowners related to fire sprinklers. Recommended annual maintenance and inspections consist of do-it-yourself procedures by homeowners.

- False Claim: \$250 million in cost is too much to save one life.

Truth: Installing fire sprinklers in new townhomes can be done economically, and places value on the people those systems protect. If technology has the power to save lives, there is great value in requiring its use. Furthermore, according to the Sunnybrook Health Sciences Centre, the average costs of treating a burn victim from a fire in an unsprinklered home far exceeded the cost of installing sprinklers.

- False Claim: Fire sprinklers sound transmission issues between walls with the one-hour wall.

Truth: The change from a two hour to one-hour fire wall is an option for the developer to make. There are other options available to control sound between homes that are at the builders' discretion and are not restricted by the fire sprinkler requirement.

- False Claim: There are not enough skilled tradesmen to do this work.

Truth: As detailed below, there are currently 480 licensed F-1 contractors, 854 F-2 journeypersons, and 396 contractors with F-1/P-1 combination licenses in the state. Contractors with F-1 and P-1 licenses are permitted to install multipurpose systems.

Hundreds of U.S. communities and several states now require fire sprinklers in their one- and two-family homes. You have the power to give Connecticut residents the same level of protection at home. The state should protect Connecticut residents and firefighters from home fires for future generations.

Respectfully submitted,

*Keith Flood*

West Haven Fire Marshal  
Chairman, CT Fire Sprinkler Coalition

# Sprinklers installed in home rebuilt after tragic fire

By [Tina Detelj, WTNH Reporter](#) Published: December 5, 2017, 10:30 pm  
PLAINFIELD, Conn. (WTNH) — The home at 10 Winsor Avenue looks a little different than it used to.

It's being rebuilt by [Habitat for Humanity](#) after a tragic fire in September 2016 which [claimed the life of a 6 year old girl](#).

Orange pipes can be seen throughout the Plainfield home. They're part of a state of the art sprinkler system being installed.

"So that vile right there and that would allow the water," explains Dino Tudisca the project supervisor with Habitat for Humanity of Eastern Connecticut. "That would let that valve pop open and then the water would hit the back of this and disperse and fan throughout the room."

In last year's fire girl's mother Jeanette Lawyea and her young son escaped the flames. They will move back in once the rebuild is complete.

"This is a different style home than the one that was here before. It has a different floor plan and a different look completely. We thought that was an important part of having the family return to this location," said Terri O'Rourke, executive director for Habitat for Humanity of Eastern Connecticut.

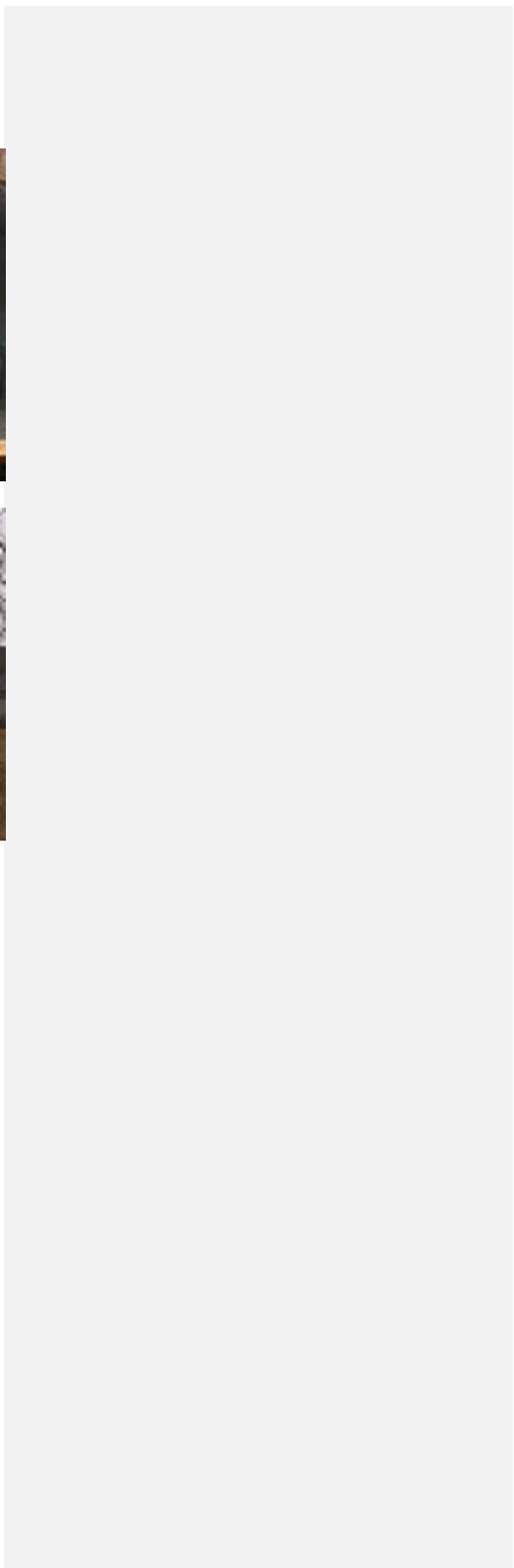
The change which may have the biggest impact could be the sprinkler system donated by [K & M Fire Protection Services](#) of Plantsville. A 400-hundred-gallon tank sits in the basement in case it is needed.

"Yes absolutely," said O'Rourke. "A little sense of security."

Habitat hopes to have the home rebuilt by June hiding the pipes behind the new walls. Only the sprinkler head will be visible. One in each room.

"Once one head deploys that is the only head that's active until is suppressed unless the fire was able to continue down," said Tudisca.

Habitat for Humanity can't install a huge elaborate sprinkler system like this one in every home, but volunteers are going to start putting in a smaller fire suppression system in the homes they build. It is called [Stovetop Firestop](#) which uses two little canisters placed right above the stove. They deploy a fire suppressant during cooking fires.



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**From:** Mark Nimons <MNimons@easthavenfire.com>  
**Sent:** Thursday, February 15, 2018 12:57 PM  
**To:** CodesStandards, DAS  
**Subject:** Public comment in support of fire sprinklers in fire code

Thank you for the chance to submit a written comment to this committee. My name is Mark Nimons, and I work with East Haven Fire Department. I am writing to urge this committee to require fire sprinklers in all new Connecticut townhomes. With advancements in fire safety technology it's easy to think families are safer in their homes than ever, but that is not the case. Research has proven that today's synthetic upholstered furniture and modern building materials burn hotter and faster than traditional lumber and older furniture made from natural materials. Voting to require fire sprinklers in new townhomes will bring Connecticut closer in line with requirements found in national model building codes, and is a necessary step to protect Connecticut families and first responders.

Thank you,

*Mark Nimons  
Fire Marshal / Deputy Chief  
East Haven Fire Department  
200 Main Street  
East Haven CT 06512  
(203) 468-3221*





# *Town of Glastonbury*

2155 MAIN STREET – PO BOX 6523 – GLASTONBURY, CT 06033

DIVISION OF COMMUNITY DEVELOPMENT - OFFICE OF THE FIRE MARSHAL  
860.652.7526, FAX 860.652.7523  
WWW.GLASTONBURY-CT.GOV

TO: [DAS.CodesStandards@ct.gov](mailto:DAS.CodesStandards@ct.gov)

SUBJECT: Public comment in support of fire sprinklers in fire code

Thank you for the opportunity to submit a written comment to this committee. My name is Michael Giantonio, and I am the Deputy Fire Marshal for the Town of Glastonbury. I am writing to encourage this committee to vote to require fire sprinklers in all new townhomes in Connecticut. As you know, our state is far behind other states and the national fire safety and model codes. The reason most often cited for that is money, but we know now that special interests in the housing industry have dramatically inflated the estimated costs of installing fire sprinklers in new townhomes. Based on average home prices and cost per square footage in Connecticut, the cost of installing fire sprinklers averages about \$3,000.

I believe this committee has a responsibility to do everything in its power to protect kids and families, as well as our state's first responders. Voting to require fire sprinklers in new townhomes is a step in the right direction.

Please do the right thing.

Thank you,

Michael Giantonio

860-368-9650

February 14, 2018

Department of Administrative Services  
Connecticut Codes and Standards Committee  
Office of the State Building Inspector  
450 Columbus Blvd. Suite 1303  
Hartford, CT 06103

SUBJECT: Public comment in support of fire sprinklers in fire code

Thank you for the opportunity to submit a written comment to this committee. My name is Deputy Fire Marshal Patrick Tourville, and I work for the Simsbury Fire District Fire Marshal's Office and serve as a Volunteer Fire Chief with the Simsbury Fire Company. I support the requirement for fire sprinklers in all new townhomes in Connecticut. Our state is far behind other states in the adoption of fire sprinklers in residential occupancies where our largest fire numbers occur. The reason most often cited for that is money, but we know now that special interests in the housing industry have dramatically inflated the estimated costs of installing fire sprinklers in new townhomes. Based on average home prices and cost per square footage in Connecticut, the cost of installing fire sprinklers averages about \$3,000. On October 13, 2010 the Codes Amendment Sub Committee of the Codes and Standards Committee requested a Connecticut Residential Fire Sprinkler Working Group conduct research into the various issues associated with the adoption of fire sprinklers in one and two Family homes and townhomes. I have attached a copy of a report provided on November 1, 2011.

I believe the Connecticut Codes and Standards Committee has a responsibility to do everything in its power to protect Connecticut's residents, visitors, as well as our state's first responders. This issue has been reviewed in 1997, 2010 and again now. The time and technology has been available for years, all the research has proven it is possible in Connecticut, the only thing holding it back is its adoption. Please see to do the right thing and embrace these technologies by voting to require fire sprinklers in new townhomes.

Thank you,



Patrick T. Tourville, CFI-I  
Simsbury Fire District  
871 Hopmeadow Street  
Simsbury, CT 06070

**Please submit a public comment to urge the Connecticut Codes and Standards Committee to vote to require fire sprinklers in new townhomes. Comments can be submitted electronically to: [DAS.CodesStandards@ct.gov](mailto:DAS.CodesStandards@ct.gov), or mailed to the address below, by February 16<sup>th</sup>**

Department of Administrative Services  
Office of the State Building Inspector  
450 Columbus Blvd. Suite 1303  
Hartford, CT 06103

**Draft comments are below for your use. Please feel free to submit one of these comments as is, including your information where indicated, or you may expand/personalize one of these to your preference before submitting. Thank you**

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**SUBJECT: Public comment in support of fire sprinklers in fire code – fire services representative**

Thank you for the opportunity to provide written comment to this committee. My name is Paul Burton, and I work with Hebron Fire Department. I am writing to express my support for requiring fire sprinklers in all new townhomes in Connecticut. My fellow firefighters and I put our lives on the line every day to protect Connecticut families, but our state's outdated building codes make that job even more dangerous.

Fire sprinklers reduce the risk of death due to house fires by an astounding 80 percent. Requiring fire sprinklers in new townhomes is the right thing to do for Connecticut families and first responders. It is a matter of life and death.

Thank you,

Paul Burton

**SUBJECT: Public comment in support of fire sprinklers in fire code**

Thank you for the opportunity to submit a written comment to this committee. My name is Paul Burton, and I work with Hebron Fire Department. I am writing to encourage this committee to vote to require fire sprinklers in all new townhomes in Connecticut. As you know, our state is far behind other states and the national fire safety and model codes. The reason most often cited for that is money, but we know now that special interests in the housing industry have dramatically inflated the estimated costs of installing fire sprinklers in new townhomes. Based on average home prices and cost per square footage in Connecticut, the cost of installing fire sprinklers averages about \$3,000.

I believe this committee has a responsibility to do everything in its power to protect kids and families, as well as our state's first responders. Voting to require fire sprinklers in new townhomes is a step in the right direction.

Thank you,

Paul Burton



**SUBJECT: Public comment in support of fire sprinklers in fire code**

Thank you for the chance to submit a written comment to this committee. My name is Paul Burton, and I work with Hebron Fire Department. I am writing to urge this committee to require fire sprinklers in all new Connecticut townhomes. With advancements in fire safety technology it's easy to think families are safer in their homes than ever, but that is not the case. Research has proven that today's synthetic upholstered furniture and modern building materials burn hotter and faster than traditional lumber and older furniture made from natural materials. Voting to require fire sprinklers in new townhomes will bring Connecticut closer in line with requirements found in national model building codes, and is a necessary step to protect Connecticut families and first responders.

Thank you,

Paul Burton

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**From:** pdtyc@aol.com  
**Sent:** Thursday, February 15, 2018 9:59 AM  
**To:** CodesStandards, DAS  
**Subject:** Fire Sprinklers

**SUBJECT: Public comment in support of fire sprinklers in fire code**

Thank you for the opportunity to submit a written comment to this committee. My name is Peter Tyc, and I work with the Middlefield Fire Marshals Office. I am writing to encourage this committee to vote to require fire sprinklers in all new townhomes in Connecticut. As you know, our state is far behind other states and the national fire safety and model codes. The reason most often cited for that is money, but we know now that special interests in the housing industry have dramatically inflated the estimated costs of installing fire sprinklers in new townhomes. Based on average home prices and cost per square footage in Connecticut, the cost of installing fire sprinklers averages about \$3,000.

I believe this committee has a responsibility to do everything in its power to protect kids and families, as well as our state's first responders. Voting to require fire sprinklers in new townhomes is a step in the right direction.

Thank you,

Peter Tyc

February 15, 2018

Department of Administrative Services  
Office of the State Building Inspector  
450 Columbus Blvd. Suite 1303  
Hartford, CT 06103

[DAS.CodesStandards@ct.gov](mailto:DAS.CodesStandards@ct.gov)

**SUBJECT: Public comment in support of fire sprinklers in the Connecticut Fire Code**

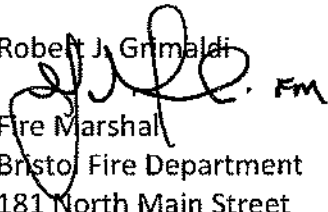
Thank you for the opportunity to submit a written comment to this committee. My name is Robert Grimaldi, and I work as the Fire Marshal for the City of Bristol Connecticut. I am writing to encourage this committee to vote to require fire sprinklers in all new townhomes in Connecticut for the following reasons:

- Research has proven that today's synthetic upholstered furniture and modern building materials burn hotter and faster than traditional lumber and older furniture made from natural materials.
- My fellow firefighters put their lives on the line every day to protect Connecticut families, but our state's outdated building codes make that job even more dangerous. Fire sprinklers reduce the risk of death due to house fires by an astounding 80 percent. Requiring fire sprinklers in new townhomes is the right thing to do for Connecticut families and first responders. It is a matter of life and death.
- As you know, our state is far behind other states and the national fire safety and model codes. The reason most often cited for that is money, but we know now that special interests in the housing industry have dramatically inflated the estimated costs of installing fire sprinklers in new townhomes. Based on average home prices and cost per square footage in Connecticut, the cost of installing fire sprinklers averages about \$3,000.

Voting to require fire sprinklers in new townhomes will bring Connecticut closer in line with requirements found in national model building codes, and is a necessary step to protect Connecticut families and first responders. I believe this committee has a responsibility to do everything in its power to protect children and their families, as well as our state's first responders. Voting to require fire sprinklers in new townhomes is a step in the right direction.

Sincerely,

Robert J. Grimaldi

 FM  
Fire Marshal  
Bristol Fire Department  
181 North Main Street  
Bristol CT 06010  
860-584-7964

---

**From:** Tom Donnelly <[tdonnelly@mfd8th.org](mailto:tdonnelly@mfd8th.org)>  
**Sent:** Thursday, February 15, 2018 3:58 PM  
**To:** CodesStandards, DAS  
**Cc:** Shawn Morris; Ken Roback  
**Subject:** Public comment in support of fire sprinklers in fire code

SUBJECT: Public comment in support of fire sprinklers in fire code

Thank you for the chance to submit a written comment to this committee.

My name is Thomas Donnelly, and I have worked for the Manchester Fire Department as a Fire Inspector for 6 years and also have worked for the Southington Fire Department for 27 years, currently as a Battalion Chief. I am writing to urge this committee to require fire sprinklers in all new Connecticut townhomes. With advancements in fire safety technology it's easy to think families are safer in their homes than ever, but that is not the case. Research has proven that today's synthetic furnishings and modern light weight building materials burn hotter and as much as 8x faster than traditional lumber and older furnishings made from natural materials. I have personally witnessed the devastating effects of these fast spreading fires and have heard the stories from citizens that have survived by just barely escaping in the nick of time. We have had smoke alarms for decades now and their effectiveness is unquestioned when everything is working and batteries are in place. What we continue to find though is that "human nature" can sometimes defeat the best efforts to protect. We still continually find smoke alarms without batteries or removed entirely. What we find is that the best way to ensure the safety of citizens is to engineer or to remove the human element. By this I mean that having an installed working sprinkler system in place will ensure that even if citizens are not maintaining their smoke alarms that they will still be protected by the sprinkler system. There is also evidence that shows that smoke alarms may not be alarming early enough in a fire in order to guarantee a safe evacuation for citizens. A citizen must take action immediately upon hearing the sound of a smoke alarm in order to escape. A sprinkler system in place will save lives by acting immediately to extinguish a fire without "human" intervention required.

A reason most often cited for the argument against installing sprinklers is the cost, but we know now that special interests in the housing industry have dramatically inflated the estimated costs of installing fire sprinklers in new townhomes. Based on average home prices and cost per square footage in Connecticut, the cost of installing fire sprinklers averages about \$3,000. How many new home builds in Connecticut have kitchen upgrades such as solid surface countertops or commercial stainless steel appliances that easily cost double or triple the amount of a sprinkler system and those costs are not even questioned by builders or prospective new home buyers.

Voting to require fire sprinklers in new townhomes will bring Connecticut closer in line with requirements found in national model building codes, and is a necessary step to protect Connecticut families and first responders.

Thank you,

Thomas J. Donnelly  
Battalion Chief  
Southington Fire Department  
(860) 621-3202 ext. 8234  
(860) 869-3882 cell  
[donnellyt@southington.org](mailto:donnellyt@southington.org)

Thomas Donnelly - Fire Inspector  
Manchester Fire Department 8th Utilities District  
[tdonnelly@mfd8th.org](mailto:tdonnelly@mfd8th.org)  
(860) 643-6209 extension 821



## Southington Fire Department

THOMAS R. WISNER  
Interim Fire Chief

310 North Main Street  
P.O. Box 289  
Southington, Connecticut 06489  
Telephone (860) 621-3202  
Fax (860) 628-4049

THOMAS R. WISNER  
Fire Marshal

February 15, 2018

Department of Administrative Services  
Office of the State Building Inspector  
450 Columbus Blvd. Suite 1303  
Hartford, CT 06103

RECEIVED  
FEB 16 2018  
Office of the State Building Inspector

Dear DAS:

**SUBJECT: Public comment in support of fire sprinklers in fire code**

Thank you for the chance to submit a written comment to this committee. My name is Thomas R. Wisner, and I am the Fire Marshal for the Town of Southington.. I am writing to urge this committee to require fire sprinklers in all new Connecticut townhomes. With advancements in fire safety technology it's easy to think families are safer in their homes than ever, but that is not the case. Research has proven that today's synthetic upholstered furniture and modern building materials burn hotter and faster than traditional lumber and older furniture made from natural materials. Voting to require fire sprinklers in new townhomes will bring Connecticut closer in line with requirements found in national model building codes, and is a necessary step to protect Connecticut families and first responders.

Thank you,



Thomas R. Wisner  
Fire Chief/Fire Marshal

**OFFICE OF THE FIRE MARSHAL** *Monroe, Connecticut*



Fire Marshal  
William B. Davin  
203-452-2807 office

[www.monroect.org](http://www.monroect.org)

7 Fan Hill Road  
Monroe, CT 06468  
203-261-6197 fax

February 15, 2018

Department of Administrative Services  
Office of the State Building Inspector  
450 Columbus Blvd. Suite 1303  
Hartford, CT 06103

**SUBJECT: Public comment in support of fire sprinklers in fire code.**

To Whom It May Concern;

Thank you for the chance to submit a written comment to this committee. My name is William B. Davin, and I am the Fire Marshal in Monroe, CT. I am writing to urge this committee to require fire sprinklers in all new Connecticut townhomes. With advancements in fire safety technology it's easy to think families are safer in their homes than ever, but that is not the case. Research has proven that today's synthetic upholstered furniture and modern building materials burn hotter and faster than traditional lumber and older furniture made from natural materials. Voting to require fire sprinklers in new townhomes will bring Connecticut closer in line with requirements found in national model building codes, and is a necessary step to protect Connecticut families and first responders.

Thank you,



*William B. Davin*

---

**From:** Kessler, William <WKessler@fairfieldct.org>  
**Sent:** Thursday, February 15, 2018 12:19 PM  
**To:** CodesStandards, DAS  
**Subject:** Public Comment in Support of Fire Sprinklers for Townhomes in Fire Code

Thank you for the opportunity to submit a written comment to this committee. My name is William Kessler; I am an Assistant Fire Chief and Fire Marshal for the Town of Fairfield.

I am writing to encourage this committee to vote to require fire sprinklers in all new townhomes constructed in the State of Connecticut. The model national codes that Connecticut adopts have had this requirement for some time and many states and local jurisdictions have adopted them as written. Why has Connecticut consistently struck these provisions out from the model codes it adopts? One word – special interest groups that put forth the notion that adding sprinklers will add so much additional cost to a dwelling that many people will not be able to afford to buy. Nonsense! What is a life worth? Does not the potential to save lives (and property for that matter) outweigh the relatively minor cost of adding the fire sprinklers when the dwelling is constructed?

Another popular argument is that smoke alarms are sufficient for life safety. Many persons die in home fires each year where smoke alarms did not function because of dead/missing batteries or because the detectors were missing or disabled. Even if present and they operate, the contents of modern homes cause fires to burn hotter and faster. The very young, the elderly or the disabled may not be able to respond in time.

Voting to require fire sprinklers in new townhomes is at least a step in the right direction.

Thank you.

*Assistant Chief William Kessler*  
Fire Marshal  
Town of Fairfield

---

**From:** Elizabeth Gara <garallc@hotmail.com> on behalf of Elizabeth Gara  
<gara@gmlobbying.com>  
**Sent:** Friday, February 16, 2018 2:29 PM  
**To:** CodesStandards, DAS  
**Subject:** Comments - State Building Code  
**Attachments:** CWWA TESTIMONY fire sprinklers 2018.doc

The Connecticut Water Works Association (CWWA), a trade association of municipal, regional and private water utilities, opposes the inclusion of Section R313.1 of the IRC, which mandates the installation of fire sprinklers in all new town houses, in the State Building Code. Attached are CWWA's comments outlining these concerns.

Thank you.

Betsy Gara

CWWA

860-841-7350





To: Joseph V. Cassidy, PE  
State Building Inspector  
William Abbott, State Fire Marshal  
State Codes & Standards Committee

From: Elizabeth Gara, Executive Director, Connecticut Water Works Association

Date: February 16, 2018

Re: **Oppose – Proposed Section R313.1 of the IRC and its Inclusion in the State Building Code**

The Connecticut Water Works Association (CWWA), a trade association of municipal, regional and private water utilities, opposes the inclusion of Section R313.1 of the IRC, which mandates the installation of fire sprinklers in all new town houses, in the State Building Code.

As stewards of the state's water resources, water utilities are very concerned about issues that may affect the quality and safety of public water supplies. Fire Sprinkler systems can create potential contamination issues due to cross connections, compromising the safety and quality of drinking water.

When drinking water piping connects to various plumbing fixtures or water utilizing equipment a cross-connection is created. If improperly protected, contamination can result when a backflow event occurs; allowing contaminants to reverse flow from the fixture/equipment back into the drinking water piping. To help prevent this, a Double Check Valve Assembly (DCVA) or Reduced Pressure principle backflow preventer is mandatory on fire service lines fitted with a Siamese connection and on fire service lines to unheated areas where antifreeze is added. Unfortunately, the State Building Code does not reference the requirement that fire sprinkler systems include such back flow protection devices.

There have also been issues with certain fire sprinkler systems because the pressure and volume demands in a fire emergency can draw non-potable water into the public water supply system. It is our understanding that installers would only be permitted to install "flow through" sprinkler systems which are not terminated at a dead-ended section of pipe but connected to a plumbing fixture. This would prevent the back flow of non-potable water into the public water supply system but this provision is not reflected in the State Building Code.

In addition, in some cases, the pressure and volume demands required to support fire sprinkler systems may reduce the pressure and volume available for public health and economic development needs. For example, following adoption of a law requiring the installation of fire extinguishing systems in nursing homes, some nursing homes faced significant unexpected costs due to the need to install water main extensions, larger water main connections, or



underground water tank reservoirs to ensure that there was sufficient water to meet both fire protection and public health needs.

It is our understanding that there has been some discussion about allowing installers to connect the fire sprinkler systems to the domestic water line *before* the meter. This is contrary to existing practices because water companies are required to ensure that all water to a property is metered and that such meters meet certain requirements.

Currently, the Public Health Code requires that any person engaged in the installation or modification of an automatic fire extinguishing system in any building served by a public water system must notify the public water system of such installation and comply with all applicable rules of such public water system. Unfortunately, water companies are seldom advised of such installations until they perform cross connection inspections. Without such notification, water companies can't take steps to determine whether the system includes appropriate back flow preventers and meets other requirements and how the system may impact water pressure and volume.

Members of the Connecticut Section of the American Water Works Association Cross Connection Committee met with representatives of the Fire Sprinklers Association to review proposed designs and discuss concerns. However, the proposed designs would be connected to the domestic water supply, creating considerable concern about the impact on public water supplies. To address this concern, under the Public Health Code, fire lines must be installed and maintained as separate lines to the property.

Unfortunately, it appears that the State Fire Marshal's Office would determine design and installation requirements for fire suppression systems, allowing the installation of fire sprinklers to bypass the Public Health Code as well as the water systems' Rules and Regulations. Again, this will be detrimental to water quality and safety.

Clearly, the technical standards for installing and maintaining fire sprinkler systems are inadequate to address these concerns.

In addition to concerns regarding water quality, safety, and pressure, water utilities have raised questions regarding liability for any fire damage if water service is terminated for non-payment. If water utilities are prohibited from shutting off water in dwellings with a fire sprinkler, this will undermine the collection of unpaid accounts.

Given these concerns, CWNA urges the Standards and Codes Committee to delete Proposed Section R313.1 of the IRC from the State Building Code.

Thank you for the opportunity to comment.

In 2003, the elected Connecticut state legislature demonstrated extraordinary decisive leadership by requiring sprinkler protection, retroactively, in all long-term health care facilities following the tragic loss of many lives from fire in a Hartford nursing home.

Years later, when presented with the opportunity to adopt model codes developed through the expertise of a national consensus process, that would have included automatic sprinkler protection for new residences, the appointed Codes and Standards committee specifically supported deletion of the sprinkler requirement. As a direct consequence, a new residence was subsequently constructed without sprinkler protection, and in 2016, a family was ravaged by burn injuries and a child lost her life to an uncontrolled fire in that home.

The diversity of membership of the committee was intended to bring together their collective experience and expertise to work for the advancement of safety for the people of Connecticut through modern code requirements. In a forum where objective facts and unsubstantiated speculation are discussed with equal consideration, voting outcomes have shown a tendency to weigh economics, regulation, and organizational agendas as equivalent in importance to life safety.

The Connecticut home where a young family was devastated by uncontrolled fire is being rebuilt and this time it will include automatic sprinklers. The victims of fire are often the strongest advocates of sprinkler protection. With this present opportunity to protect townhouses, is it truly necessary to foster further personal tragedies to finally overcome the persistent committee resistance to available cost effective life safety technologies?

A handwritten signature in black ink that reads "Ignatius Kapeluszinski". The signature is written in a cursive style with a large initial 'I'.

Fire Protection Engineer

Fire Marshal

40 Years Experience

02/16/2018

---

**From:** Jamie DiPace <JDIPACE@avonct.gov>  
**Sent:** Friday, February 16, 2018 9:34 AM  
**To:** CodesStandards, DAS  
**Subject:** Support for fire sprinklers in the fire code

Good Morning

Thank you for the opportunity to provide written comment to this committee. My name is James DiPace, and I am the Fire Marshal in the Town of Avon. I am writing to express my support for requiring fire sprinklers in all new townhomes in Connecticut. My fellow firefighters and I put our lives on the line every day to protect Connecticut families, but our state's outdated building codes make that job even more dangerous. New homes and their furnishings are simply less safe than yesterday's homes. Today there is more nylon and polyester used in upholstery which burn differently and cause toxic fumes. The plastic content in modern homes is much higher than it used be and the lightweight construction is another troublesome issue

Fire sprinklers reduce the risk of death due to house fires by an astounding 80 percent. Requiring fire sprinklers in new townhomes is the right thing to do for Connecticut families and first responders. It is a matter of life and death.

Thank you,

James DiPace  
Fire Marshal  
Emergency Manager  
60 West Main St.  
Avon, Connecticut.  
W - 860-409-4319  
C - 860-221-5725  
[jdipace@avonct.gov](mailto:jdipace@avonct.gov)

Have a Fire Safe Day

CONFIDENTIALITY NOTICE: This message originates from the Town of Avon. This email is intended for the sole use of the individual(s) to whom it is addressed, and the information contained in this email and any files transmitted with it may be a confidential communication or may be otherwise privileged and confidential. You are hereby notified that any dissemination, duplication, or distribution of this transmission by someone other than the intended addressee or its designated agent is strictly prohibited. If you received this email in error, please notify the sender of the error and delete the message. Electronic records such as this email may be subject to the Freedom of Information Act and available for public distribution. Thank you.

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**From:** Liz Koiva <liz.koiva@gmail.com>  
**Sent:** Friday, February 16, 2018 1:34 PM  
**To:** CodesStandards, DAS  
**Subject:** Statement re: Adoption of State Building Code with inclusion of Section R313.1 of the IRC

I am writing I opposition to the adoption of State Building Code with inclusion of Section R313.1 of the IRC. I am one of the owners and members of Nordic Builders of Tolland, LLC as well as Ripley Hill Development LLC and we are builders for custom homes and townhomes. For the past 10+ years we have built several townhome complexes in Vernon and Manchester. The current building codes for new townhome construction provide for excellent safety measures in case of fires. Just as important is that the complexes are designed to provide affordable housing options and provide opportunity for these buyers to stay in Connecticut vs. having to relocate out of state to find affordable housing. 90% of our townhome buyers do not have any children and are looking for the chance to live and work within Hartford County. As it has been pointed out by other experts, the cost of installing sprinkler systems is expensive. These costs will increase the sales price making it more difficult to be able to afford to purchase. Also the addition of sprinkler systems between attached townhome units will comprise the sound barrier therefore we will incur additional cost beyond the sprinkler system to restore an adequate sound barrier between units with more added costs. These costs over the life of a 30 year mortgage could mean over \$30,000 of additional interest the owner would be paying. All of our contracts clearly state that the owner has an option to discuss fire sprinkler systems with us and to date no one has requested that information and/or requested that a fire sprinkler system be installed in the 87 townhomes we have sold to date. There is also the added expense the homeowner associations will incur to have these systems regularly inspected and the logistics of gaining entry into units. This too will impact their ability to afford new construction townhomes.

In summary, I do not feel requiring fire sprinklers in all new townhomes is warranted or necessary.

*Liz Koiva  
Nordic Builders  
860-871-9055  
860-871-2793 (fax)*

# STATE OF CONNECTICUT

## DEPARTMENT OF PUBLIC HEALTH



Raul Pino, M.D., M.P.H.  
Commissioner

Dannel P. Malloy  
Governor  
Nancy Wyman  
Lt. Governor

Drinking Water Section

February 16, 2018

Department of Administrative Services  
Office of the State Building Inspector  
450 Columbus Blvd. Suite 1303  
Hartford, CT 06103  
Fax number: 860-713-7410  
Email: [DAS.CodesStandards@ct.gov](mailto:DAS.CodesStandards@ct.gov)

**Subject: Notice of Intent to Adopt the 2018 Connecticut State Building and Fire Codes**

The Department of Public Health has the following comments in respect to the subject amendment specifically relative to dwelling fire sprinkler systems:

1. Engineers, builders and plumbers shall consult with the public water provider (i.e. local water company) before a fire sprinkler system is installed in a building;
2. Local building permits for dwelling unit fire sprinkler system should not be issued without the consent of the public water provider;
3. The multipurpose wet-pipe sprinkler system can't be used at buildings served by water providers that lack the supply capacity to meet the fire safety water demand;
4. The stand-alone fire sprinkler system (i.e. separate & independent of the building water distribution piping; also known as a tank & pump system) should be adequately labelled, tagged and colored to clearly distinguish it from the domestic water supply, and appropriate backflow prevention devices are installed as required.

The Department appreciates the opportunity to comment and stands ready to respond to any questions you may have.

Sincerely,

A handwritten signature in cursive script that reads "Lori J. Mathieu".

Lori Mathieu  
Public Health Section Chief



Phone: (860) 509-7333 • Fax: (860) 509-7359  
410 Capitol Avenue, P.O. Box 340308, MS#12DWS  
Hartford, Connecticut 06134-0308  
[www.ct.gov/dph/publicdrinkingwater](http://www.ct.gov/dph/publicdrinkingwater)

*Affirmative Action/Equal Opportunity Employer*





# TOWN OF DARIEN

## OFFICE OF FIRE MARSHAL

ROBERT J. BUCH  
FIRE MARSHAL

MARC P. McEWAN  
DEPUTY FIRE MARSHAL

DAVID R. FRANCIS  
FIRE INSPECTOR

SHAWN M. MURPHY  
FIRE INSPECTOR

**SUBJECT: Public comment in support of fire sprinklers in fire code**

Thank you for the chance to submit a written comment to this committee. My name is Robert J. Buch, and I am the Fire Marshal for the Town of Darien. I am writing to urge this committee to require fire sprinklers in all new Connecticut townhomes. With advancements in fire safety technology it's easy to think families are safer in their homes than ever, but that is not the case. Research has proven that today's synthetic upholstered furniture and modern building materials burn hotter and faster than traditional lumber and older furniture made from natural materials. Voting to require fire sprinklers in new townhomes will bring Connecticut closer in line with requirements found in national model building codes, and is a necessary step to protect Connecticut families and first responders.

Thank you,

A handwritten signature in blue ink, appearing to read 'Robert J. Buch', is written over a faint circular stamp.

Robert J. Buch  
Fire Marshal

any different than 1 & 2's presented? Did public workgroup tasked with addressing this issue specifically address town homes? Or ever take a vote on the Townhouse add back in amendment proposed? Public Workgroup Members were just as surprised to learn this had happened. Same could be said for sub-committee members who had never heard evidence or testimony or committee discussions that townhouses should be considered differently though are not treated differently in Model Code. Thus, all members except Fire Marshall proponents were blindsided at 8-7 meeting when a Code Amendment proposal was dropped on the members table. No public notice. Not acted upon as a letter of correspondence received by the committee and a vote taken to send to work group or to table to future meeting when all parties could be prepared to diligently discuss with facts instead of proponents prepared with uninformed and "fake costs" only presented. While Codes Committee members have the personal privilege of presenting Code Changes after the Public's 3/31 deadline, a common courtesy to fellow members would be to encourage the Committee to take up later so informed decision could be made. Good committee deliberations and due diligence would have been to table or postpone action till all were prepared to discuss. Instead a vote was taken. The previous meeting my motion was tabled so all could review the significance of not requiring Sprinklers in IRC. Is this Townhouse Amendment any less important for good governance, committee work and due diligence? This "Rush to Judgement" was unwarranted. The Committee waited 5 months for the report. What's the rush? Act without any deliberative and informed discussions? Isn't it bad policy to form a group and then ignore the group's actions which didn't include Townhouse separate actions? Taking actions without the Work groups endorsement of the Coalition Report or the subsequent Townhouse proposal presented seems reckless and bad policy making? Was the Work group with proponents and opponents and stakeholders heard from regarding the proposed Townhouse Amendment? Weren't they supposed to be the stakeholder group with balanced public expertise? Shouldn't the amendment be sent back to this group for a new discussion item as never discussed? And then a subsequent recommendation back to Codes? The Codes Sub Committee wanted an unbiased look at the issue and all they got was an Industry group biased written report. Waited for ever and then get a biased report that doesn't support their amendment. Sadly, if I had been at this meeting I would have asked for a tabling motion till the entire sprinkler work group had digested the amendment and other stakeholders could do their due diligence and could have 30 days noticed and kept the public aware all at the same time. "Rushing to Judgement" has negative consequences. It is not the way to make good sound regulations and legislators will feel just as uncomfortable as I am with the circumstances of this vote. Townhomes alone were added back in after a not close margin vote to eliminate Sprinklers entirely in IRC via CT Amendments. I believe in public participation stakeholder invited work groups and we need to get all stakeholders inputs. That group can make arguments for Townhomes only or propose to use a biased industry report (CT Fire Sprinkler Coalition Analysis) as consensus of the Workgroup output even though it ignores Townhomes thoroughly? I would posit that the Townhomes proposal was grabbed out of thin air when it was apparent that the impediments and cost benefit analysis would overwhelm the sprinkler advocates position and be turned down as has happened at every legislative hearing and at Codes and Standards multiple times where it has been proposed over the more than 19 years have served the State of CT.

Since 40 out of 50 states feel sprinklers are unwarranted, we would be in a small minority of states who support sprinklers. Only 2 embrace all sprinklered IRC buildings. We would be 8<sup>th</sup> state to touch townhomes. Was any evidence presented that the townhome programs are working there? What were the impediments they experienced? Minnesota is a cold climate. How have they dealt with frozen and broken sprinklers that CT had happen this winter? Did any of these states remove any tradeoffs that



were in because the buildings weren't sprinklered? Just recently we agreed to floor assembly protections due to sprinklers not present. Were they removed when sprinklers required? WAIT A MINUTE!!! There was no time to learn even these basic facts as the matter was brought up at start of meeting and voted on less than 2 hours later. Bad, bad policy making when done in the darkness of facts never sought or shared or learned. This rush and subsequent lack of effort to get the truth and rush to action is not excusable in my mind.

REASONS TO OVER TURN THE VOTE: More Questions needing answers

LACK OF: Public notice (transparency) about an entirely new amendment? timely notice for the public (30 days normally and none done)? timely notice for Committee Members (received/first written view of the proposed Amendment) at that meeting hours before the vote? Code proposal was not received/acted upon as new correspondence received after the agenda created and Noticed? did Committee vote to add to 8/9 agenda? or decide how to handle this new correspondence? Either send to work group for action and report back as I believe should have been done or add to agenda for 8-7 with Codes Committee approval by majority vote or set a time and date certain by tabling, if above fails to happen, so that reasoned, deliberative and fact filled discussion can be had. That didn't occur and is unacceptable committee process/governance and regulation promulgation. Having served thru 4 previous Code Adoption processes, I find the actions taken on 8-9-17 at the subcommittee level to be radically different than ever done in the past and reflects poorly on the transparent deliberative public policy development process the Committee is known and respected for. If you have time to rush and take short cuts you will need to find time to fix the mistakes.

On a more positive note, the P2094 section is the first positive step that only starts to address the over burdensome and not cost-effective requirements. When and if there are any new special licensed plumbers to do the work that will be positive. Licensing and training is still years off from solving that problem. The licensed designer statutory need is still a waste of money as we are told the design could be done by a home owner. The hybrid multipurpose system should be more economical and with less risks of freeze-ups and bursts in town homes as CT has experienced this winter.

Smoke detectors that work save lives. Sprinklers save property. Instead of \$16 million a year for sprinklers in town homes we should invest in more smokes for existing homes where the deaths do occur. With GFI's and costly AFCI's (average cost nearly \$2,000) in new homes, the potential for fires is greatly reduced. Let's find a better use for the millions proposed to be required and target to other life safety solutions.

Humbly submitted,

Bob Hanbury

February 16, 2018

To: Department of Administrative Services  
Codes and Standards Committee  
Office of the State Building Inspector  
450 Columbus Boulevard, Suite 1303  
Hartford, CT 06103  
email: [DAS.CodesStandards@ct.gov](mailto:DAS.CodesStandards@ct.gov)

From: Robert Powers, Nelson Construction Inc.  
75 West Street, Simsbury, CT 06070  
(860) 658-7600

Re: Proposed Requirement for Fire Sprinklers in Townhomes in Connecticut

I attended the public hearing on January 24, 2018 in Hartford regarding the adoption of the proposed building code in Connecticut. I listened intently to all those who spoke that day, particularly to those addressing their concerns (for and against) the proposal to require fire sprinklers in townhome construction. It was disappointing to hear several proponents of the proposed sprinkler requirement make disparaging remarks about Connecticut builders, to incorrectly characterize the motivation of builders to oppose the proposal, and to ignore facts and figures surrounding this issue. There were speakers – some from out-of-state – that were clearly unprepared to comment accurately and effectively on this important matter. I recall one even openly acknowledged this being a last-minute, short-notice thing to explain a lack of preparedness.

I was, however, pleased to see that many Connecticut residents from the real estate and building communities – folks who live, work, and raise their families here in our state – were able to provide meaningful, relevant, and well-prepared comments and information. It was key hearing from builders who were able to provide actual, real-world examples of experiences building with and without sprinkler systems, and of the true effectiveness and benefits of the 2-hour separation wall assemblies typically used in townhome construction to adequately protect neighboring units.

My company has been building homes – one and two family, townhomes, and multi-family – in central Connecticut for nearly 25 years. We pride ourselves on providing safe, comfortable, energy-efficient homes for all of our customers. The sales price of a new home is a major consideration for any potential homeowner. The true cost implications for requiring fire sprinklers in townhomes – based on Connecticut data and figures, and accounting for all costs from the original installation to residual costs including monthly water service fees to maintenance and inspection requirements – should not and cannot be ignored. Beyond the financial concerns and implications, several critical logistical issues remain unresolved including: no consistent policy from water purveyors on services and requirements for residential sprinkler systems, labor availability of qualified installers for residential sprinkler systems, and the establishment of practical maintenance and inspection procedures.

The emotional, life-safety, potentially life-saving aspect of this issue should also not be ignored. The tragic home fire in Plainfield in September, 2016, which took the life of a 6-year-old girl and seriously injured her mother, was certainly heart-wrenching to hear about and was, of course, an extraordinarily sad event. This was an unusual, rare occurrence here in Connecticut – a fire death in a newer built home. Very, very few fire deaths have occurred in Connecticut homes built in the last 30 years. The vast majority of home fire deaths have occurred in homes built more than 30 years ago. That offers little solace to the family, friends, and loved ones of that little girl who perished in Plainfield.

As committee members having to make the decision whether or not to require the inclusion of fire sprinklers in townhomes, I understand this is a difficult issue for you to contend with. The emotional aspect and devastating impact of fires to life and limb – in the few instances where it occurs in newer built homes, versus the millions and millions of dollars that would need to be spent to include full fire sprinkler system protection in all new townhomes to be built in Connecticut in the next decade, needs to be taken into account. Financial costs, life-saving benefits and, perhaps, alternative options should be considered.

#### FINANCIAL COSTS

- The addition of a residential sprinkler system to a townhome is a significant cost item that would increase construction costs resulting in an increased sales price to the prospective townhome buyer.
- The attached, bullet-point list “Residential Sprinklers in Townhomes” includes examples of the expected, realistic costs involved.
- Need to be sure to consider the anticipated costs here in Connecticut rather than relying on other, unrealistically low estimates from out-of-state sources.
- As builders, with respect to this issue, we are not looking to increase the sales price, we are not looking to increase our profit figure on each townhome sold, and we are not looking to build an unsafe product. Conversely, we are trying to keep our townhomes affordable for a broader range of prospective homebuyers, we are trying to maintain more reasonable townhome prices for our customers in a difficult and demanding Connecticut economic environment, and we are confident that current building code requirements with reasonable, incremental, fiscally viable future code cycle adjustments will continue to provide safe new homes for Connecticut residents for years to come.

#### LIFE-SAFETY CONSIDERATIONS

- In-state, historical fire death statistics for newer built townhomes should be considered. All multi-family (apartments), all mobile homes, all single-family homes, and all older homes should be excluded. That would provide a more realistic estimate of lives that could reasonably be expected to be saved.
- There have been no fire deaths reported in Connecticut townhomes that were built within the past 25 years.

### **ALTERNATIVE OPTIONS (Questions for the Committee)**

- Does the Codes and Standards Committee have to choose between only two options: a full residential sprinkler system in every newer built townhome or no sprinkler system at all?
- Should any additional fire protection requirement, incorporated into Connecticut's State Building Code, seek to address the most common causes/origination locations for home fires rather than trying to protect the entire residence?
- Is there a compromise position available that could provide some additional fire protection – at critical locations – that could be done at a significantly reduced cost compared to the currently contemplated full residential sprinkler system?
- Could this be accomplished by targeting kitchens (cooking equipment) and mechanical areas (heating equipment) with a minimal number of strategically placed sprinkler heads tied directly into the domestic plumbing system?
- Could residential range hoods with a self-contained fire suppression system address the cooking equipment fire source – the number one cause of residential fires in the United States?

On behalf of Connecticut's building community, Connecticut's real estate community, and Connecticut's prospective new townhome buyers, I urge you to reconsider your decision to require sprinkler systems in new townhomes. I would instead like to suggest and recommend that alternative, fiscally viable options and solutions be investigated and considered.

Thank you.

## Residential Fire Sprinklers in Townhomes

- Adds more than \$10,000 in construction costs for a typical 2,800 sq. ft. townhome in Connecticut (2,000 sq. ft. 1<sup>st</sup> and 2<sup>nd</sup> floor space, plus 800 sq. ft. basement) – based on a recently completed, local cost study at \$3.84 per square foot average cost.
- Nationally, on average, every \$1,000 increase in the cost of construction of a new home knocks as many as 217,000 potential buyers out of the market. A \$10,000 increase in construction costs would disqualify many potential new home buyers here in Connecticut.
- Adds more than \$12,000 to the sales price for a typical 2,800 sq. ft. townhome in Connecticut (once permit fees, real estate commissions, conveyance fees, and reasonable overhead and profit for the builder are included).
- A \$12,000 increase in sales prices equates to nearly \$22,000 of additional expense in a 30-year mortgage at a 4.5% interest rate.
- The vast majority of other states have NOT adopted the IRC sprinkler requirement for townhomes and one- and two-family dwellings.
- Of the very few home fire deaths experienced each year in Connecticut, nearly all of them have occurred in older homes – those built before 1985. Current 2016 State of Connecticut Building Code requirements provide reasonable and adequate protection from hazards, including fire, in keeping with the basic, inherent intent of any building code.

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**From:** Rocco Grosso <rrgrosso@gmail.com>  
**Sent:** Friday, February 16, 2018 2:38 PM  
**To:** CodesStandards, DAS  
**Subject:** Public comment in support of fire sprinklers in fire code

Dear Committee Members:

Thank you for the chance to submit a written comment to this committee. My name is Rocco Grosso, and I work with the Wilton Fire Department. I am writing to urge this committee to require fire sprinklers in all new Connecticut townhomes. With advancements in fire safety technology it's easy to think families are safer in their homes than ever, but that is not the case. Research has proven that today's synthetic upholstered furniture and modern building materials burn hotter and faster than traditional lumber and older furniture made from natural materials. Voting to require fire sprinklers in new townhomes will bring Connecticut closer in line with requirements found in national model building codes, and is a necessary step to protect Connecticut families and first responders.

Thank you,

Rocco Grosso

**TOWN OF WOODSTOCK  
OFFICE OF THE FIRE MARSHAL**

**DICK BARON  
420 ENGLISH NEIGHBORHOOD ROAD  
WOODSTOCK, CT 06281**

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**Telephone (860) 963-2347**

**SUBJECT: Public comment in support of fire sprinklers in fire code**

Thank you for the chance to submit a written comment to this committee. My name is Dick Baron, and I am the Fire Marshal in the town of Woodstock. I am writing to urge this committee to require fire sprinklers in all new Connecticut townhomes. With advancements in fire safety technology it's easy to think families are safer in their homes than ever, but that is not the case. Research has proven that today's synthetic upholstered furniture and modern building materials burn hotter and faster than traditional lumber and older furniture made from natural materials. Woodstock is a typical rural town using a volunteer fire force and does not have a pressurized hydrant system for immediate water demands for fire extinguishment. Having new town houses built with a full fire protection sprinkler system will slow down the advancement of fire which will greatly increase survivability for occupants to escape and help the local fire departments with extinguishment, creating a safer environment for them. I have been in the fire service for 44 years and in the Fire Marshals Office for 34 years. We are now in 2018 and I feel it is time to move forward in new construction safety requirements to make it safer for people to live. The bottom line is that adding the sprinkler system to the project will be part of the overall cost and "would be" a safety feature that many owners would want for their families. I personally do not see this as any type of financial hardship for the builder but rather a selling point for buyers.

I am encouraging all of you to look into the future and vote to require fire sprinklers in new townhomes which will bring Connecticut closer in line with requirements found in national model building codes, and is a necessary step to protect Connecticut families and first responders.

Thank you,

*Richard Baron*

Fire Marshal  
Town of Woodstock  
Office: 860-963-2347  
Cell: 860-450-6264

February 26, 2018

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

RE: State Building and Fire Code

I respectfully request the Committee to support the following:

- Support the adoption of the 2015 International Residential Building Code without amendments, as written.
- The inclusion, as currently written, the 2015 IRC R313.1 requirement for fire sprinklers in all newly built townhouses.
- The restoration of the 2015 IRC R313.2 requirement for fire sprinklers in all new one-two family dwellings.

Thank you for your consideration.



Alan Crabtree  
General Manager, K&M Fire Protection Services  
8 West Street, Plantsville, CT 06479



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**From:** Greg Hanner <Greg@BromBuilders.com>  
**Sent:** Thursday, February 01, 2018 4:07 PM  
**To:** CodesStandards, DAS  
**Subject:** International Residential Code (IRC) - OPPOSE Fire Sprinkler Systems In Single Family Homes and Condos / OPPOSE Added Insulation Requirements

To Whom Is Part of Code New IRC Code Review & Adoption,

**Fire Sprinkler Systems:** I have never written in opposition of a building code change, but that time has come. The new IRC code requirement that installing fire sprinkler systems in all new homes and condominiums is an unnecessary burden on builders and property Owners in CT. Many sites are on wells and that further complicates a sprinkler installation. Costs for these systems are up to \$15,000/home and even without that added cost, today's Buyers cannot afford what is being put into existing homes. Construction costs have risen dramatically and are getting out of control. We currently build safe homes and smoke/CO detectors work well in most cases.

**Wall Framing Thermal Break/Adding to Insulation Requirements Beyond Current Code:** While I have your ear, the continued push for tighter building envelopes and potential IRC request for wall framing thermal break via installation of polystyrene on the exterior walls is a HUGE problem. What are you trying to save in terms of energy? We have new 2,000sf – 3,000sf homes using between \$800-\$900 of energy to heat these homes. What would you save? Will the CT State Building Dept. step in and pay for damages to homes when we get condensation in the wall cavities since they can't breath. This potential change has the potential to be the next major housing problem after the foundation's concrete problem in central CT gets fixed.

I hope CT amends the IRC provisions in both these topics. If CT does adopt these changes, state and municipal building departments can start reducing staff now since there will be much less construction in our state.

Thank you in advance for considering the negative effects that added change will have.

Cordially,

**Greg Hanner**, *Proj. Mgr., Realtor, Broker & e-Pro*



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