

Welcome

NCRBC

Fire Resistant Construction R302



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Board Rule: 21 NCAC 12B .0301 Course Requirements

Disclaimer:

“THE NORTH CAROLINA LICENSING BOARD FOR GENERAL CONTRACTORS HAS APPROVED THIS COURSE ONLY AS TO ITS RELEVANCE TO THE PRACTICE OF GENERAL CONTRACTING IN NORTH CAROLINA. THE COURSE PROVIDER AND INSTRUCTOR ARE RESPONSIBLE FOR THE ACCURACY OF THE CONTENT AND COMPLIANCE WITH ALL STATE AND FEDERAL LAWS DURING THE ADMINISTRATION OF THE COURSE”.

A FEW HOUSE KEEPING RULES



1. Each credit hour consists of 50 minutes instruction and 10-minute break
2. Class will consist of 6 hours of elective CE and 2 hours of board mandatory CE training
3. Each credit hour consists of 50 minutes instruction and 10-minute break
4. Open discussion knowledge reviews
5. Certificate of completion emailed after class along with a feedback survey
6. Facility amenities



NCRBC Life Safety Requirements

Course is intended to cover in depth the 2018 NCRBC requirements Section R302 Fire Resistant Construction

- Fire separation distance
- Dwelling unit separations
- Fire resistant penetrations
- Dwelling / garage separation
- Under-stair protection
- Fireblocking
- Draftstopping



Purpose of the Codes

Section 101.3 Purpose: Both the Building Code and the Residential Code state the purpose of the code is to establish minimum requirements to safeguard public safety, health and general welfare through:

- Affordability
- Structural strength.
- Facilitating means of egress.
- Stability.
- Sanitation.
- Light and ventilation.
- Energy conservation.
- **Safety to life and property** from fire and other hazards attributed to the built environment.

Earthquake



Hurricanes
or High
Wind Events

Structural
Fire



Life Safety Elements in the NCRBC

Building Code

Chapters 1-15 (Life Safety Requirements)

Commercial

- **Alarms**
 - Sprinklers
 - Fire-Rated Corridors
 - Exit Access
 - # of Exits
 - Egress Widths
 - Occupant Loads
 - Elevator Recall
 - **Means of Egress**
 - **Emergency Escape and Rescue Opening**
- *Smoke Control
 - *Fire-Rated Stairwells
 - *Fireproofing of Structural Members
 - *Egress Lighting
 - ***Fire-Resistive Const.**
 - *Fire/Smoke Dampers
 - *Emergency Power
 - *Opening Protection
 - *Guards



Residential Building Code

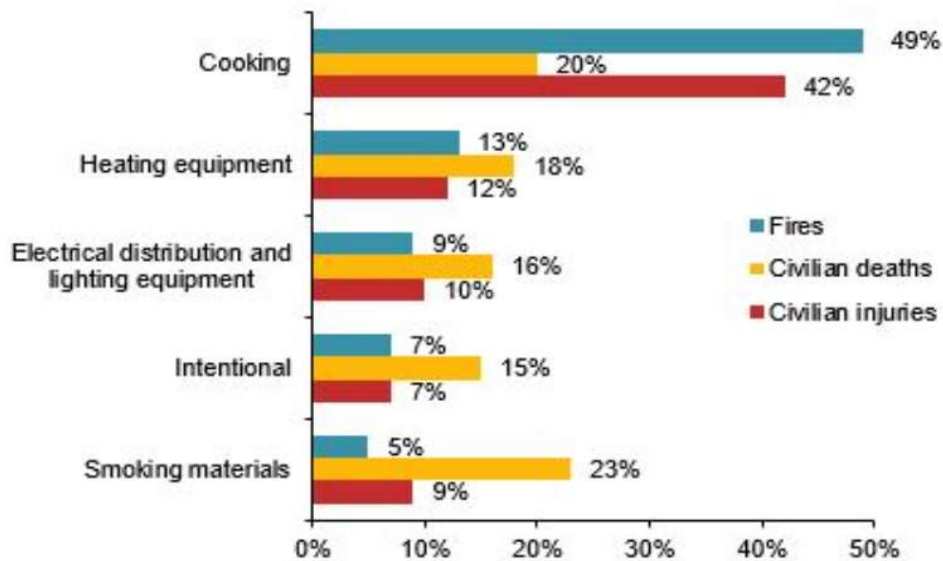
Chapter 3 (Life Safety Requirements)

Residential

- **Alarms**
 - **Means of Egress**
 - **Guards**
 - **Emergency Escape & Rescue Openings**
- ***Fire-Resistive Const.**

R302 FIRE-RESISTANT CONSTRUCTION

Leading causes of home structure fires: 2015–2019



Report highlights

- More than one-quarter (26%) of reported fires in 2015-2019 occurred in homes. Even worse, three-quarters (75%) of civilian fire deaths and almost three-quarters (72%) of all reported injuries were caused by home fires.
- During this five-year period, US fire departments responded to an estimated average of 346,800 home structure fires per year. These fires caused an annual average of 2,620 civilian deaths; 11,070 civilian fire injuries; and \$7.3 billion in direct property damage.

An estimated 358,500 home fires occur every year. **50% of these fires start in the kitchen**, 7% begin in the bedroom, and 6% are chimney fires, 4% of all residential home fires start in the living room, while 3% start from the laundry room.

Source: NFPA.org

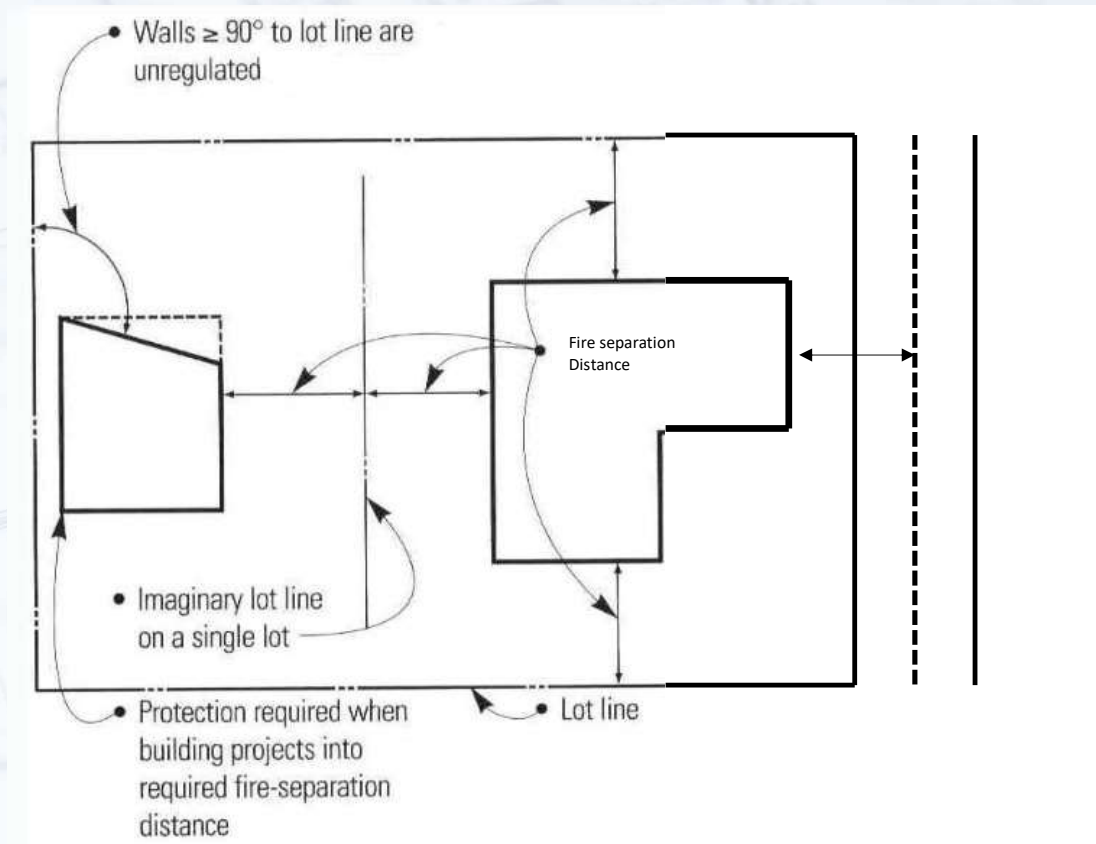
FIRE SEPARATION DISTANCE (Chapter 2 Def.)

[RB] FIRE SEPARATION DISTANCE.

The distance measured from the building face to one of the following:

1. To the closest interior **lot line**.
2. To the **centerline** of a **street, an alley or public way**.
3. To an **imaginary line** between two buildings on the **lot**.

The distance shall be measured at a **right angle** from the face of the wall.



BUILDING, DWELLING & DWELLING UNIT (Chapter 2 Def.)

BUILDING. Building shall mean any one- and two- family dwelling or portion thereof, including *townhouses*, that is used, or designed or intended to be used for human habitation, for living, sleeping, cooking or eating purposes, or any combination thereof, and shall include *accessory structures* thereto.

DWELLING. Any **building** that contains one or **two dwelling units** used, intended, or designed to be built, used, rented, leased, let or hired out to be occupied, or that are occupied for living purposes.

DWELLING UNIT. A single unit providing complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

TOWNHOUSE (Chapter 2 Def.)

TOWNHOUSE. A single-family dwelling unit constructed in a group of two ~~three~~ or more attached units separated by property lines in which each unit extends from foundation to roof and with a yard or public way on not less than two sides.

The delayed effective date of this Rule is January 1, 2023. The Statutory authority for Rule-making is G. S. 143-136; 143-138.



TWO-FAMILY DWELLING (Chapter 2 Def.)?

What's a Two-Family Dwelling definition? There is no definition of a Two-Family Dwelling (DUPLEX) or a Single-Family Dwelling just the definition of Dwelling and Family.

DWELLING. Any **building** that contains one or **two dwelling units** used, intended, or designed to be built, used, rented, leased, let or hired out to be occupied, or that are occupied for living purposes.

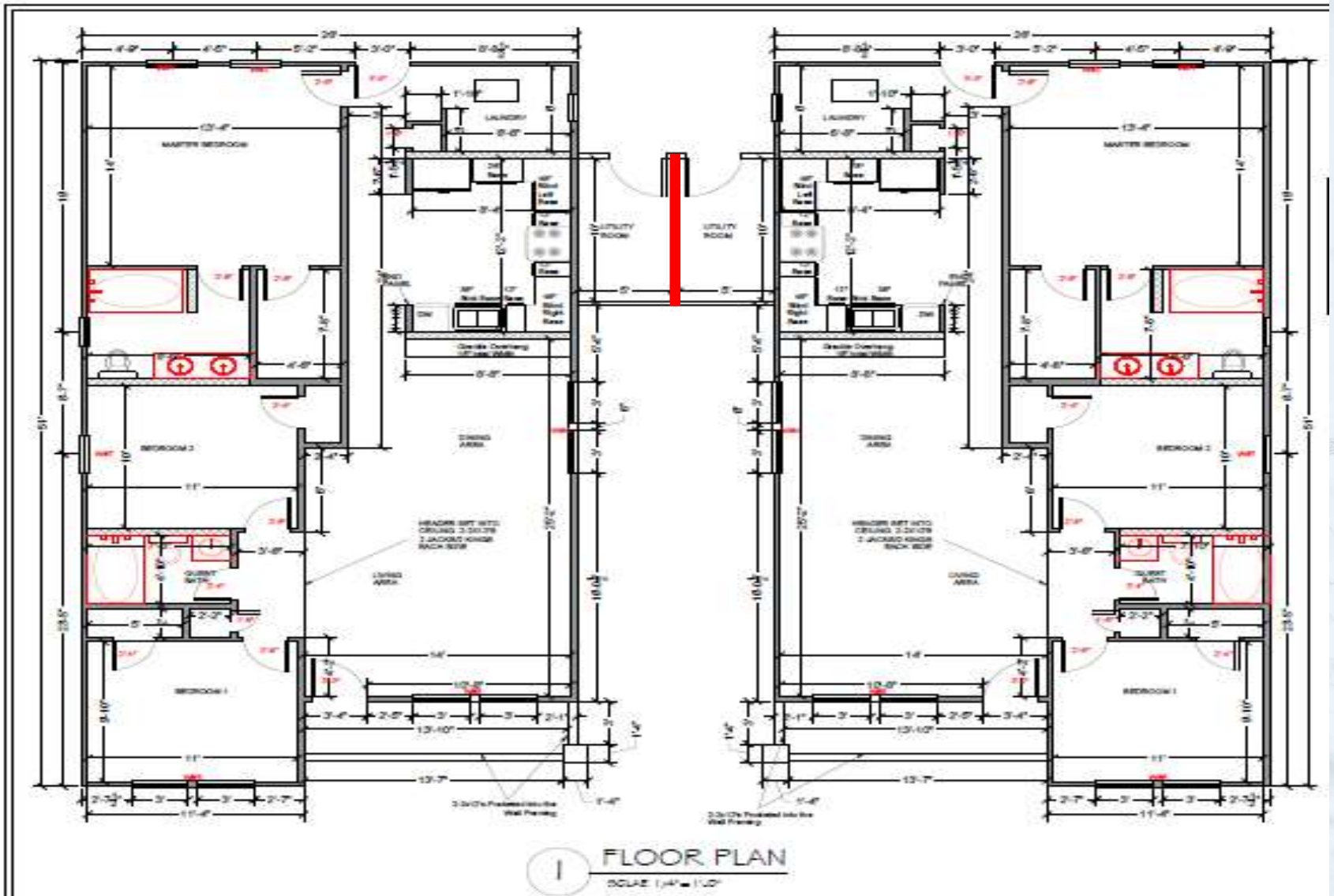
DWELLING UNIT. A single unit providing complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

FAMILY. Family is an **individual, two or more** persons related by **blood, marriage or law**, **OR** a group of not more than any **five eight** persons living together in a **dwelling unit**. Servants having common housekeeping facilities with a family consisting of an individual, or more persons related by blood, marriage or law, are a part of the family for this code.

The delayed effective date of this Rule is January 1, 2021. The Statutory authority for Rule-making is G. S. 143-136; 143-138.



TWO FAMILY



SECTION R302

FIRE-RESISTANT CONSTRUCTION

Single Family

R302.1 Exterior walls. Construction, projections, openings and penetrations of *exterior walls* of *dwelling*s and *accessory buildings* shall comply with Table R302.1.

Exceptions:

1. **Walls, projections, openings or penetrations** in walls perpendicular to the line used to determine the *fire separation distance*. Townhouse eave projections shall comply with Sections R302.2.5 and R302.2.6.
2. **Walls** of *dwelling*s and *accessory buildings* located on the *same lot*.
3. **Detached** tool sheds and storage sheds, playhouses and similar structures **exempted from permits** are not required to provide wall protection based on location on the *lot*. Projections beyond the *exterior wall* shall not extend over the *lot line*.
4. **Detached** garages accessory to a *dwelling* located within 2 feet (610 mm) of a *lot line* are permitted to have roof eave projections not exceeding 4 inches (102mm).
5. **Foundation vents** installed in compliance with this code are permitted.

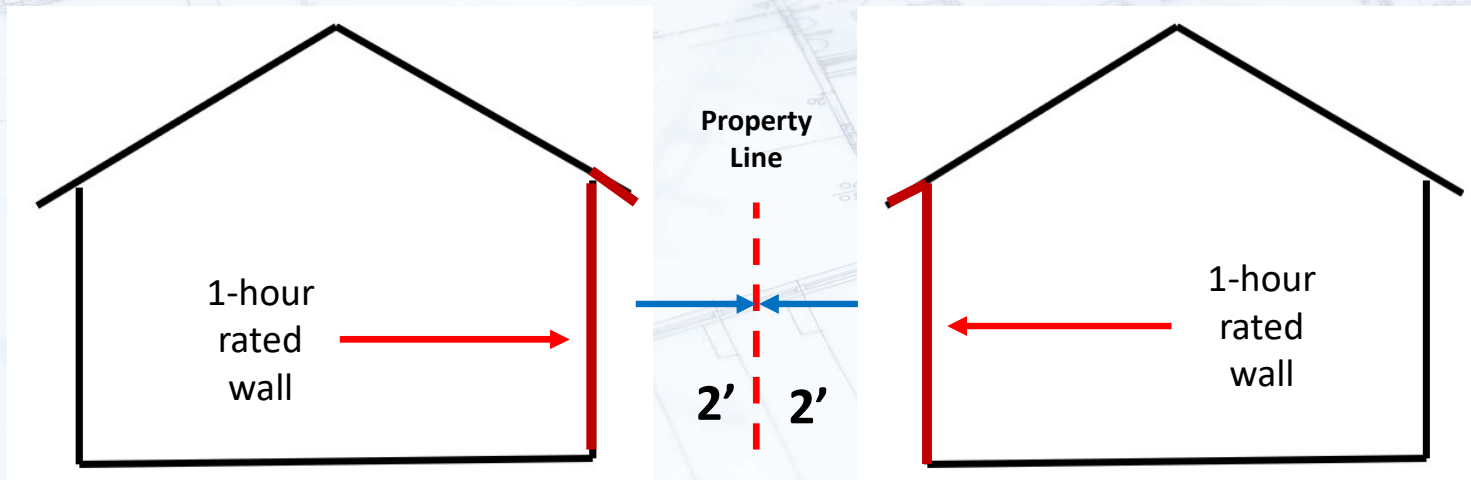
Table R302.1 Exterior Walls

TABLE R302.1
EXTERIOR WALLS

EXTERIOR WALL ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Walls	Fire-resistance rated	1 hour—tested in accordance with ASTM E119 or UL 263 with exposure from both sides	< 3 feet
	Not fire-resistance rated	0 hours	≥ 3 feet
Projections	Fire-resistance rated	1 hour on the underside	< 3 feet
	Not fire-resistance rated	0 hours	3 feet
Openings in walls	Not allowed	N/A	< 3 feet
	Unlimited	0 hours	3 feet
Penetrations	All	Comply with Section R302.4	< 3 feet
		None required	3 feet

Houses or single-family homes

Rated Separation for single family related to how close to the lot or property line the home is located



R302.1.1 Soffit protection

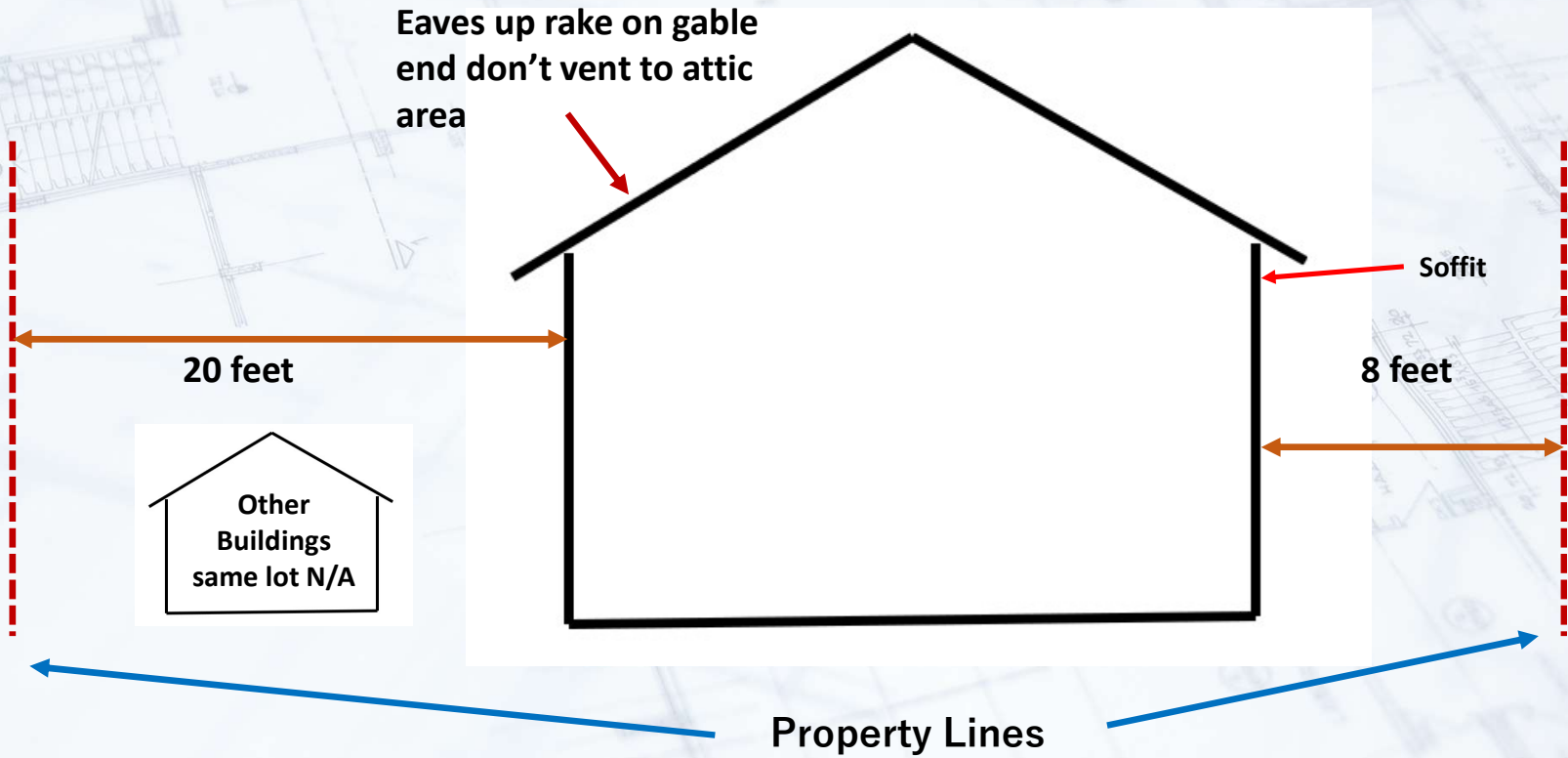
R302.1.1 Soffit protection. In construction using vinyl or aluminum soffit material, the following application shall apply. Soffit assemblies located on buildings with less than a 10 feet (3048 mm) fire separation distance shall be securely attached to framing members and applied over fire-retardant-treated wood, 23/32-inch (18.3 mm) wood sheathing or 5/8-inch (15.9 mm) exterior grade or moisture resistant gypsum board. Venting requirements shall be provided in both soffit and underlayment's. Vents shall be either nominal 2-inch (51 mm) continuous or equivalent intermittent and shall not exceed the minimum net free air requirements established in Section R806.2 by more than 50 percent. *Townhouse* construction shall meet the additional requirements of Sections R302.2.5 and R302.2.6.

Exceptions:

1. Any portion of soffits having 10 feet (3048 mm) or more *fire separation distance*.
2. Roof rake lines where the soffit **does not communicate** to the attic are not required to be protected per this section.
3. Soffits with **less than 3 feet** (914 mm) *fire separation distance* shall meet the projection fire rating requirements of Table R302.1.
4. Soffits between **buildings located on the same lot**.

R302.1.1 Soffit protection

Eaves up rake on gable end don't vent to attic area



20 feet

8 feet

Other Buildings same lot N/A

Property Lines

R302.1.2 Flame spread

Vinyl siding and vinyl soffit materials shall have a **flame spread index** of 25 or less as tested in accordance with **ASTM E84**.

What Is Flame Spread Rating

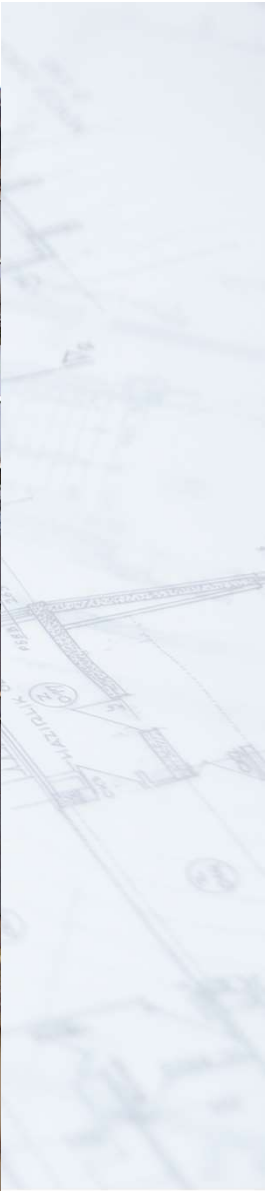
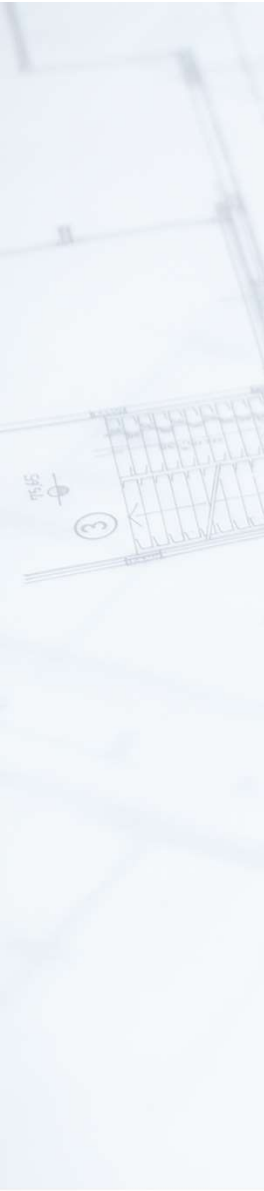
Flame spread rating **measures how fast and far a flame spreads over a certain material.**

Testing for flame spread rating involves burning materials under controlled conditions and measuring the speed and extent of flame spread. The resulting number is the flame spread index

[ASTM E84 Steiner Tunnel Test-by SGC](#)

NC
Townhouse
Fire









R302.2 Townhouses. Each townhouse shall be considered a separate building and shall be separated by fire-resistance rated wall assemblies meeting the requirements of Section R302.1 for exterior walls. R302.2.1 or R302.2.2.

R302.2.1 Double walls. Each townhouse shall be separated by two 1-hour fire resistance-rated wall assemblies tested in accordance with ASTM E119, UL263 or Section 703.3 of the 2018 NC Building Code.

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 and be tight against exterior walls and the underside of the roof sheathing. Electrical installations shall be in accordance with Chapters 34 through 43. Penetrations of the membrane of common walls for electrical outlet boxes shall be in accordance with Section R302. 4.

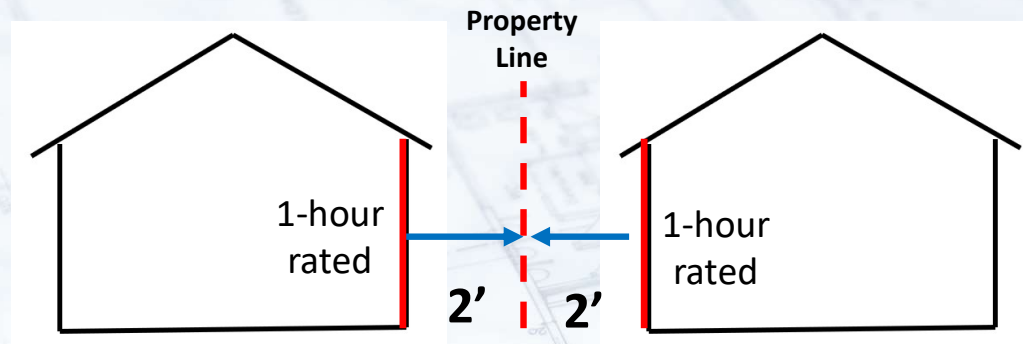
1. Where a fire sprinkler system in accordance with Section P2904 is provided, the common wall shall be not less than a 1-hour fire-resistance-rated wall assembly tested in accordance with ASTM E119, UL 263 or Section 703.3 of the 2018 NC Building Code.
2. Where a fire sprinkler system in accordance with Section 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 2018 NC Building Code.



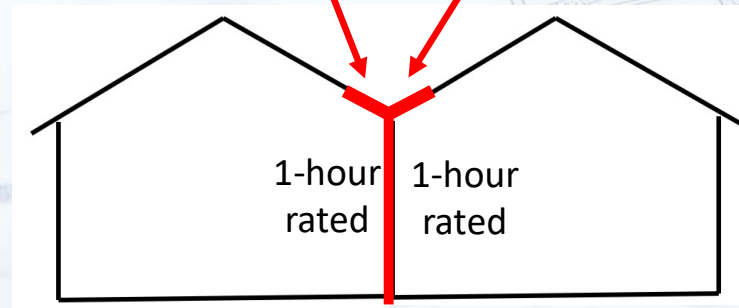
*Code
Amendment
January 2023*

Rated construction for Townhouses is similar to two houses close to a property line but attached

Houses

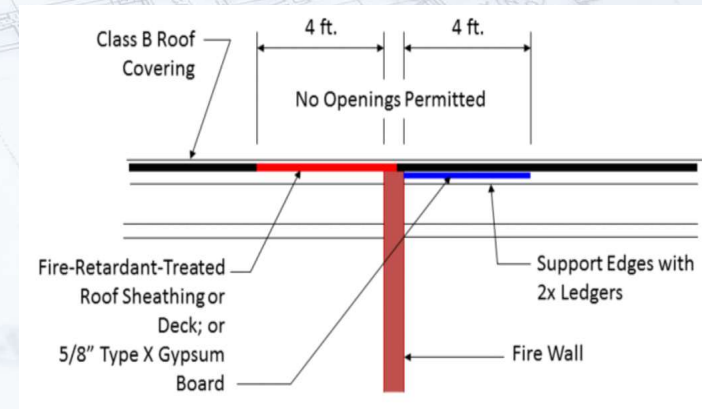
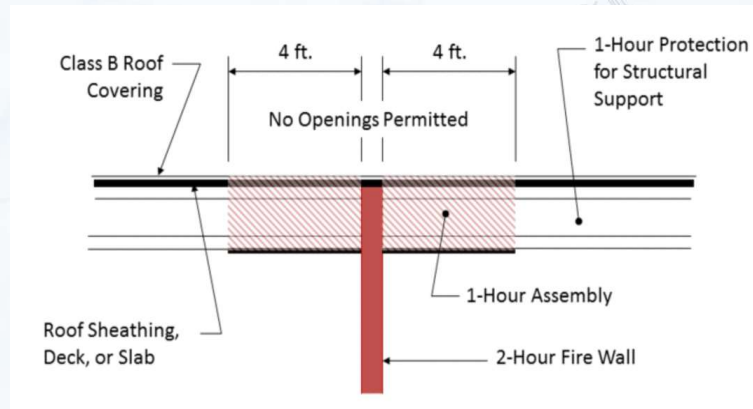
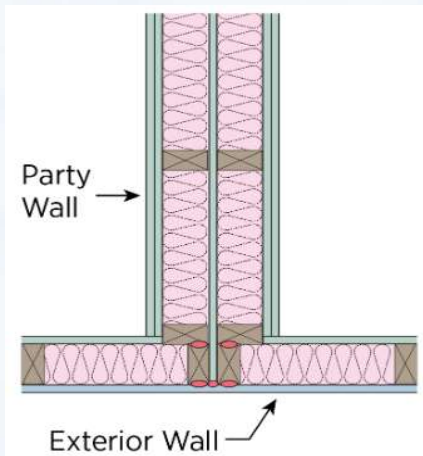


Townhouses



R302.2.1 Continuity (Townhouses)

R302.2.1 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, or **exterior wall sheathing**. The fire-resistance rating shall extend the full length of the wall or assembly, **including wall extensions through and separating attached enclosed accessory structures**.



R302.2.2 Parapets

R302.2.2 Parapets for townhouses. Parapets constructed in accordance with Section R302.2.3 shall be constructed for *townhouses* as an extension of exterior walls or common walls in accordance with the following:

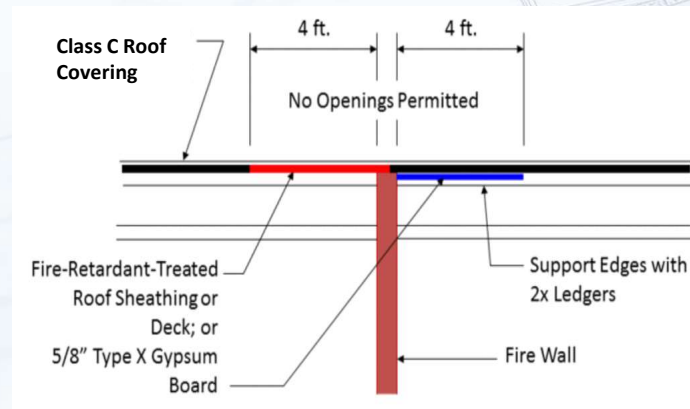
1. Where roof surfaces adjacent to the wall or walls are at the same elevation, the parapet shall extend not less than 30 inches above the roof surfaces.
2. Where roof surfaces adjacent to the wall or walls are at different elevations and the higher roof is not more than 30 inches above the lower roof, the parapet shall extend not less than 30 inches above the lower roof surface.

(These provisions only for townhouses.)



R302.2.2 Parapets (continued)

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 **approved fire-retardant-treated wood** for a distance of 4 feet on each side of the wall or walls, **or** one layer of **5/8-inch Type X gypsum board** is installed directly beneath the roof decking or sheathing, supported by not less than nominal 2-inch ledgers attached to the sides of the roof framing members, **for a distance of not less than 4 feet 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.**



TOWNHOUSES

R302.3 Two-family Dwellings

R302.3 Two-family dwellings. *Dwelling units* in two-family dwellings shall be separated from each other by wall and floor assemblies having not less than a **1-hour fire-resistance rating** where 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 from the foundation to the underside of the roof sheathing.

Exceptions:

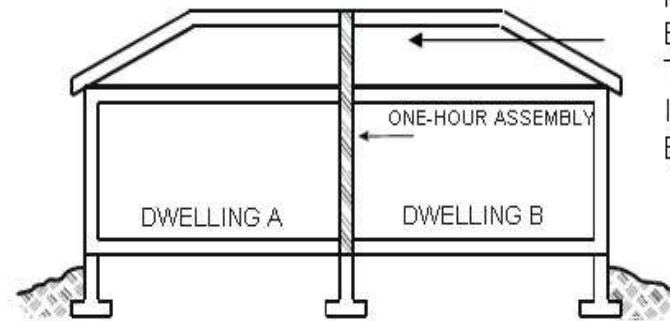
1. A fire-resistance rating of 1/2 hour shall be permitted in buildings equipped throughout with an automatic sprinkler system installed in accordance with **NFPA 13**.
2. Wall assemblies need not extend **through attic** spaces where the **ceiling is protected by not less than 5/8-inch Type X** gypsum board, an *attic* draft stop constructed as specified in Section R302.12.1 is provided above and along the wall assembly separating the *dwellings* and the structural framing supporting the ceiling is protected by not less than 1/2-inch gypsum board or equivalent.



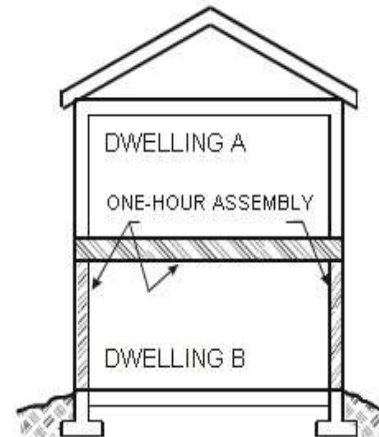
R302.3 Two-family Dwellings

R302.3.1 Supporting construction.

Where **floor assemblies** are required to be fire-resistance rated by Section R302.3, the supporting construction of such assemblies shall have an **equal or greater** fire-resistance rating.



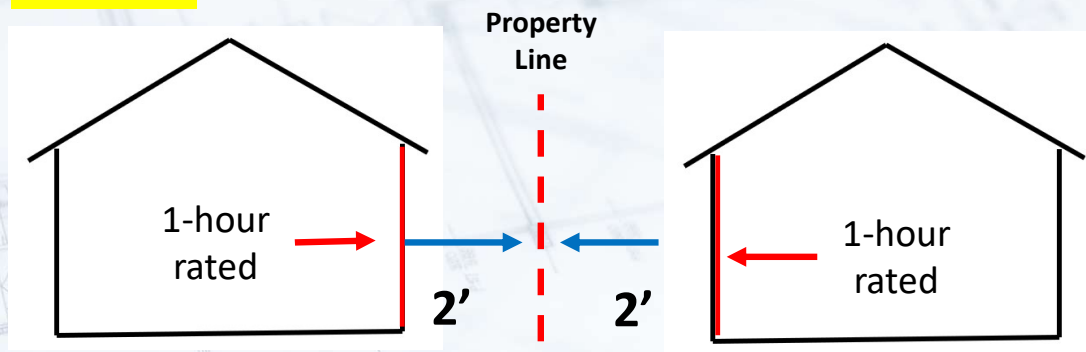
SEPARATION AT THE ATTIC MAY BE PROVIDED BY GYPSUM BOARD IF THE UNDERSIDE OF THE CEILING BELOW THE ATTIC IS PROTECTED WITH GYPSUM BOARD.



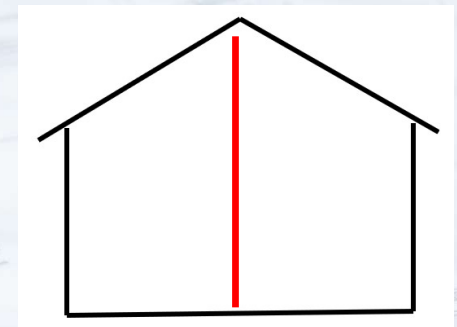
NOTE:
THE STRUCTURAL SYSTEM SUPPORTING THE RATED FLOOR/CEILING MUST ALSO HAVE A ONE HOUR RATING.

Rated separations

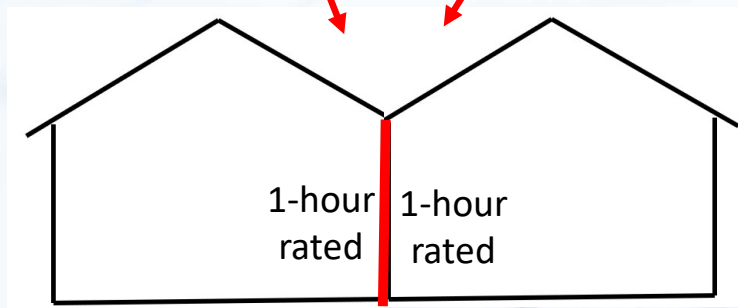
Houses



Duplexes



Townhouses

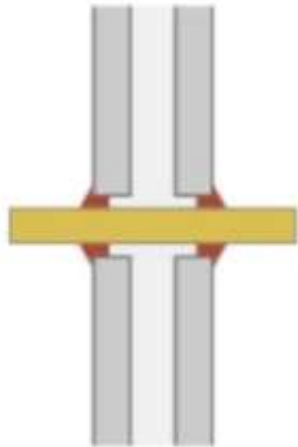


2-1Hour walls or 1 common 2 Hour wall

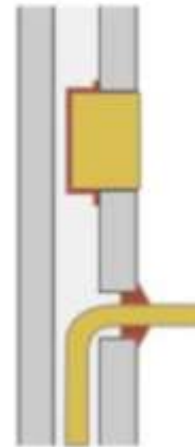
R302.4 Dwelling unit rated penetrations

R302.4 Dwelling unit rated penetrations. Penetrations of wall or floor-ceiling assemblies required to be fire-resistance rated in accordance with Section R302.2 or R302.3 shall be protected in accordance with this section.

Through Penetration



Membrane Penetration



Penetration testing

R302.4 Dwelling unit rated penetrations

R302.4.1 Through penetrations. Through penetrations of fire-resistance-rated wall or floor assemblies shall comply with Section R302.4.1.1 or R302.4.1.2.

Exception: Where the penetrating items are steel, ferrous or copper pipes, tubes or conduits, the annular space shall be protected as follows:

1. In concrete or masonry wall or floor assemblies, concrete, grout or mortar shall be permitted where installed to the full thickness of the wall or floor assembly or the thickness required to maintain the fire-resistance rating, provided that both of the following are complied with:

1.1. The nominal diameter of the penetrating item is not more than 6 inches.

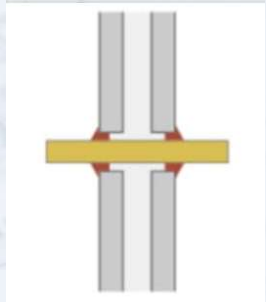
1.2. The area of the opening through the wall does not exceed 144 square inches.

2. The material used to fill the annular space shall prevent the passage of flame and hot gases sufficient to ignite cotton waste where subjected to **ASTM E119 or UL 263** time temperature fire conditions under a positive pressure differential of not less than 0.01 inch of water (3 Pa) at the location of the penetration for the time period equivalent to the fire-resistance rating of the construction penetrated.

R302.4.1.1 Fire-resistance-rated assembly. Penetrations shall be **installed as tested** in the *approved* fire resistance-rated assembly.

R302.4.1.2 Penetration firestop system. Penetrations **shall be protected** by an *approved* penetration firestop system installed as tested in accordance with **ASTM E814 or UL 1479**, with a positive pressure differential of not less than 0.01 inch of water (3 Pa) and shall have an F rating of not less than the required fire-resistance rating of the wall or floor-ceiling assembly penetrated.

Through Penetration



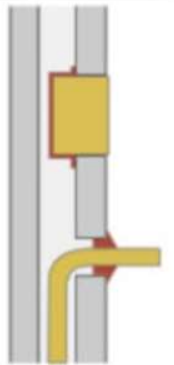
R302.4 Dwelling unit rated penetrations

R302.4.2 Membrane penetrations. Membrane penetrations shall comply with Section R302.4.1. Where walls are required to have a fire-resistance rating, recessed fixtures shall be installed so that the required fire-resistance rating will not be reduced.

Exceptions:

1. Membrane penetrations of **not more than 2-hour fire-resistance-rated walls** and partitions by **steel** electrical boxes that do not exceed **16 square inches** in area provided that the aggregate area of the openings through the membrane does not exceed **100 square inches** in any **100 square feet of wall area**. The annular space between the wall membrane and the box shall not exceed 1/8 inch. Such boxes on opposite sides of the wall shall be separated by one of the following:
 - 1.1. By a horizontal distance of not less than **24 inches** where the wall or partition is constructed with individual noncommunicating stud cavities.
 - 1.2. By a horizontal distance of not less than the depth of the wall cavity where the wall cavity is **filled with cellulose loose-fill, rockwool or slag mineral wool insulation**.
 - 1.3. By solid **fireblocking** in accordance with Section R302.11.
 - 1.4. By protecting both boxes with **listed putty pads**.
 - 1.5. By **other listed** materials and methods.

Membrane Penetration



R302.4 Dwelling unit rated penetrations (continued)

2. Membrane penetrations by *listed electrical boxes* of any materials provided that the boxes have been tested for use in fire-resistance-rated assemblies and are installed in accordance with the instructions included in the *listing*. The annular space between the wall membrane and the box shall not exceed **1/8 inch** (3.1 mm) unless *listed* otherwise. Such boxes on opposite sides of the wall shall be separated by one of the following:
- 2.1. By the horizontal distance specified in the *listing* of the electrical boxes.
 - 2.2. By solid **fireblocking** in accordance with Section R302.11.
 - 2.3. By protecting both boxes with *listed putty pads*.
 - 2.4. By other *listed* materials and methods.
3. The annular space created by the penetration of a **fire sprinkler** provided that it is covered by a metal **escutcheon plate**.

R302.5 Dwelling-garage opening and penetration protection

R302.5 Dwelling-garage opening and penetration protection. Openings and penetrations through the walls or ceilings separating the *dwelling* from the garage shall be in accordance with Sections R302.5.1 through R302.5.3.

- Walls are not a fire resistance rated assembly.
- Penetrations also not rated, just need to be tight.
- Installation of gypsum board on the garage side provides limited resistance to the spread of fire.



R302.5 Dwelling-garage opening and penetration protection

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

Exception: A disappearing/pull-down stairway to uninhabited attic space with minimum 3/8-inch (nominal) fire-retardant-treated structural panel is equivalent to the separation requirement from attics in Table R302.6.



R302.5 Dwelling-garage opening and penetration protection

R302.5.2 Duct penetration. Ducts in the garage and ducts penetrating the walls or ceilings separating the *dwelling* from the garage shall be constructed of a minimum No. 26 gage sheet steel or other *approved* material and shall not have openings into the garage.

R302.5.3 Other penetrations. Penetrations through the separation required in Section R302.6 shall be protected as required by Section R302.11, Item 4.



R302.6 Dwelling Separation from Garage

R302.6 Dwelling-garage fire separation. The garage shall be separated as required by Table R302.6. Openings in garage walls shall comply with Section R302.5. The wall separation provisions of Table R302.6 shall not apply to garage walls that are perpendicular to the adjacent *dwelling unit* wall.

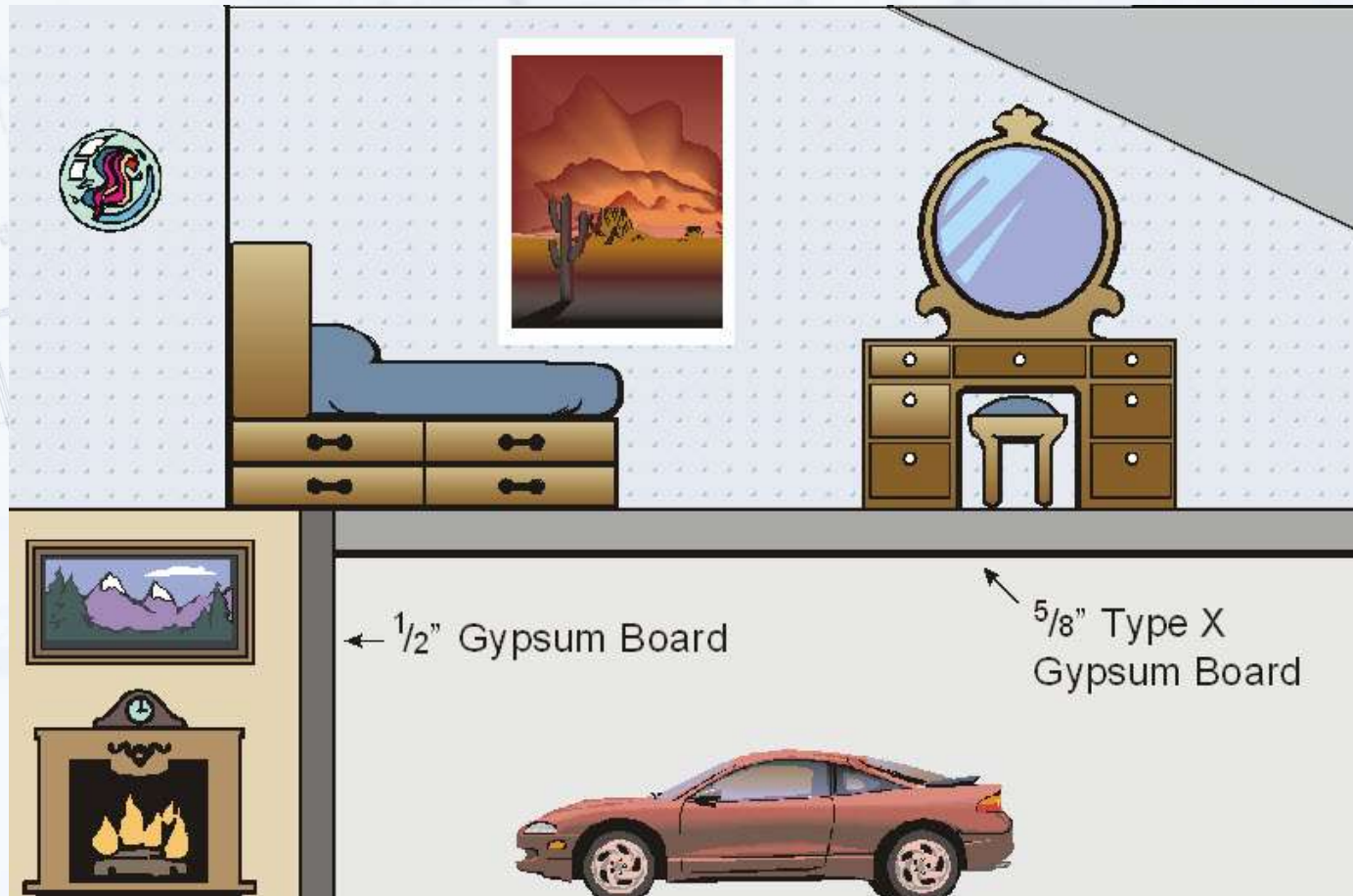
TABLE R302.6
DWELLING-GARAGE SEPARATION^a

SEPARATION	MATERIAL
From the residence and attics	Not less than 1/2-inch gypsum board or equivalent applied to the garage side
From habitable rooms above the garage ^a	Not less than 5/8-inch Type X gypsum board or equivalent
Structure(s) supporting floor/ceiling assemblies used for separation required by this section	Not less than 1/2-inch gypsum board or equivalent
Garages located less than 3 feet from a dwelling unit on the same lot	Not less than 1/2-inch gypsum board or equivalent applied to the interior side of exterior walls that are within this area

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. For dwelling units constructed prior to the 2012 North Carolina Residential Code edition, 1/2 inch or greater existing gypsum board on the bottom side of the garage ceiling shall be acceptable. Joints shall be taped.

R302.6 Dwelling/Garage Fire Separation



R302.7 Under-stair protection

R302.7 Under-stair protection. Enclosed accessible space under stairs shall have walls, under-stair surface and any soffits protected on the enclosed side with 1/2-inch gypsum board.



R302.9 Flame spread index and smoke-developed index for wall and ceiling finishes

R302.9 Flame spread index and smoke-developed index for wall and ceiling finishes. Flame spread and smoke developed indexes for wall and ceiling finishes shall be in accordance with Sections R302.9.1 through R302.9.4.

R302.9.1 Flame spread index. Wall and ceiling finishes shall have a **flame spread index of not greater than 200**.

Exception: Flame spread index requirements for finishes shall not apply to trim defined as picture molds, chair rails, baseboards and handrails; to doors and windows or their frames; or to materials that are less than 1/28 inch in thickness cemented to the surface of walls or ceilings if these materials exhibit flame spread index values not greater than those of paper of this thickness cemented to a noncombustible backing.



R302.9 Flame spread index and smoke-developed index for wall and ceiling finishes (continued)

R302.9.2 Smoke-developed index. Wall and ceiling finishes shall have a **smoke-developed index of not greater than 450**.

R302.9.3 Testing. Tests shall be made in accordance with **ASTM E84 or UL 723**.



R302.9.4 Alternative test method. As an alternative to having a flame spread index of not greater than 200 and a smoke-developed index of not greater than 450 where tested in accordance with ASTM E84 or UL 723, wall and ceiling finishes shall be permitted to be tested in accordance with NFPA 286. Materials tested in accordance with NFPA 286 shall meet the following criteria.

The interior finish shall comply with the following:

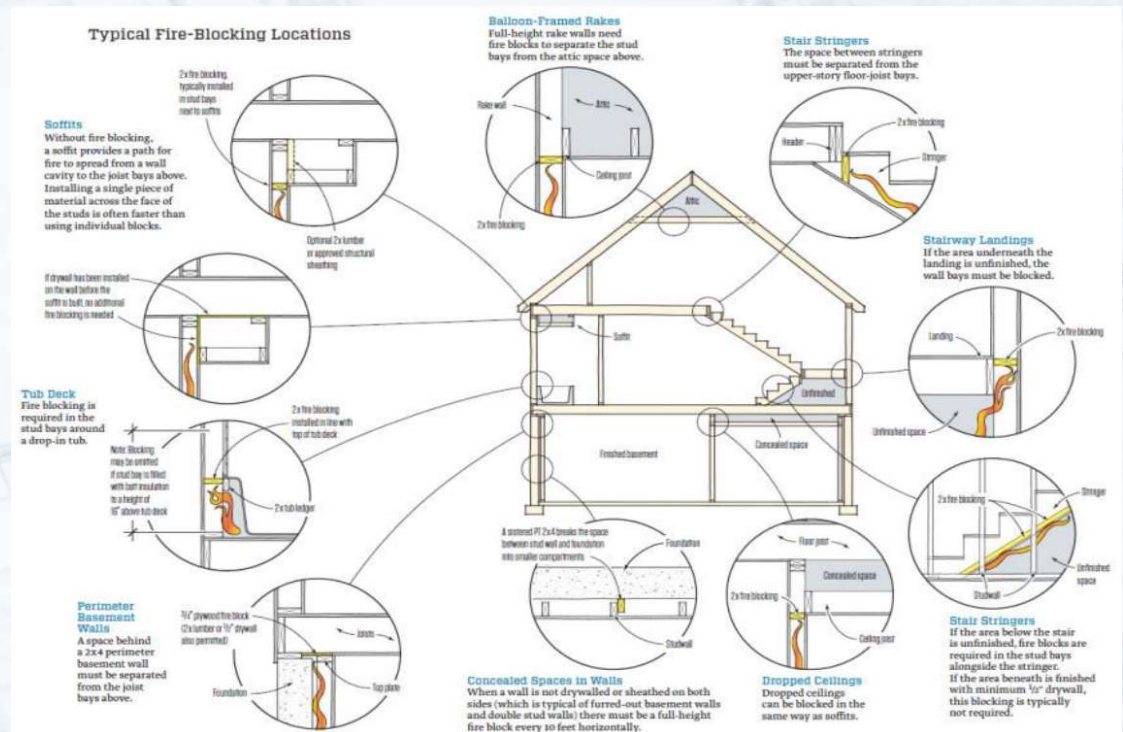
1. During the 40kW exposure, flames shall not spread to the ceiling.
2. The flame shall not spread to the outer extremity of the sample on any wall or ceiling.
3. Flashover, as defined in NFPA 286, shall not occur.
4. The peak heat release rate throughout the test shall not exceed 800 kW.
5. The total smoke released throughout the test shall not exceed 1,000 m².

R302.11 Fireblocking

See DOI's white paper on Fireblocking in detail

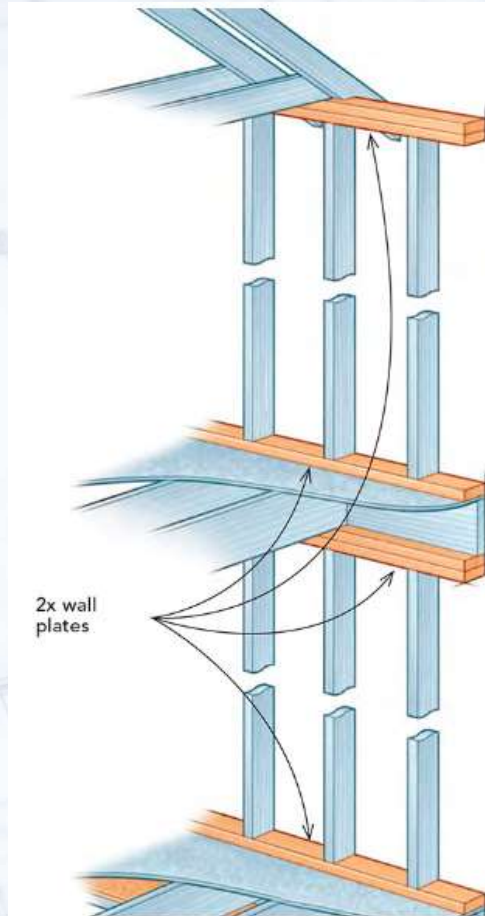
R302.11 Fireblocking. In **combustible construction**, Fireblocking shall be provided to **cut off both vertical and horizontal concealed** draft openings and to form an effective fire barrier between stories, and between a top *story* and the roof space. Fireblocking shall be provided **in wood-framed construction** in the following locations:

Let's look at the 6 locations specifically listed in the code



R302.11 Fireblocking

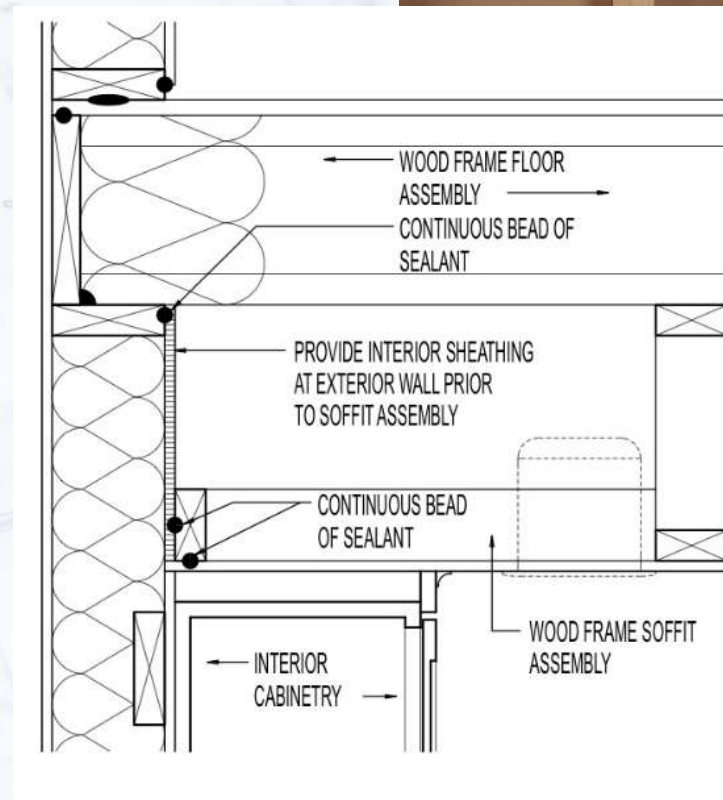
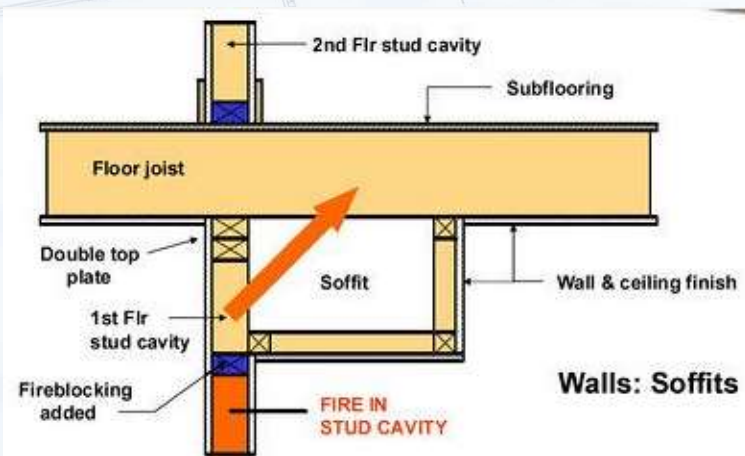
1. In concealed spaces of stud walls and partitions, as follows:
 - 1.1. Vertically at the **ceiling** and **floor** levels.
 - 1.2. **Horizontally** at intervals not exceeding 10 feet in furred spaces and parallel rows of studs or staggered studs.



See DOI's white paper on
Fireblocking in detail

R302.11 Fireblocking

2. At interconnections between concealed vertical and horizontal spaces such as occur at soffits, drop ceilings and cove ceilings.



R302.11 Fireblocking

- 2.** At interconnections between concealed vertical and horizontal spaces such as occur at soffits, drop ceilings and cove ceilings.

Code Violations?



R302.11 Fireblocking

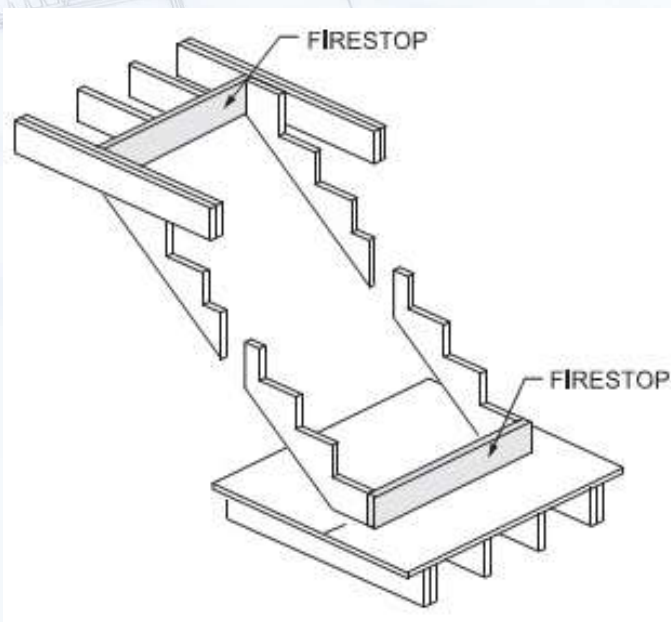
2. At interconnections between concealed vertical and horizontal spaces such as occur at soffits, drop ceilings and cove ceilings.

Code Violations?



R302.11 Fireblocking (locations)

3. In concealed spaces between stair stringers at the **top and bottom** of the run. Enclosed spaces under stairs shall comply with Section R302.7.



Required Fireblocking?

Any issues with missing Fireblocking?



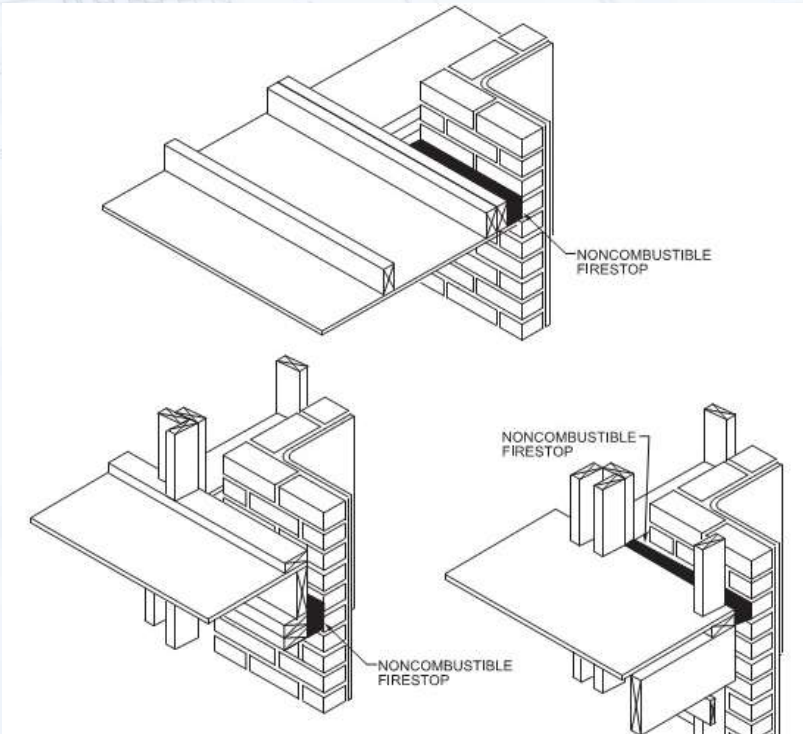
R302.11 Fireblocking (locations)

4. At openings around vents, pipes, ducts, cables and wires at ceiling and floor level, with an *approved* material to resist the free passage of flame and products of combustion. The material filling this annular space shall not be required to meet the ASTM E136 requirements.



R302.11 Fireblocking (locations)

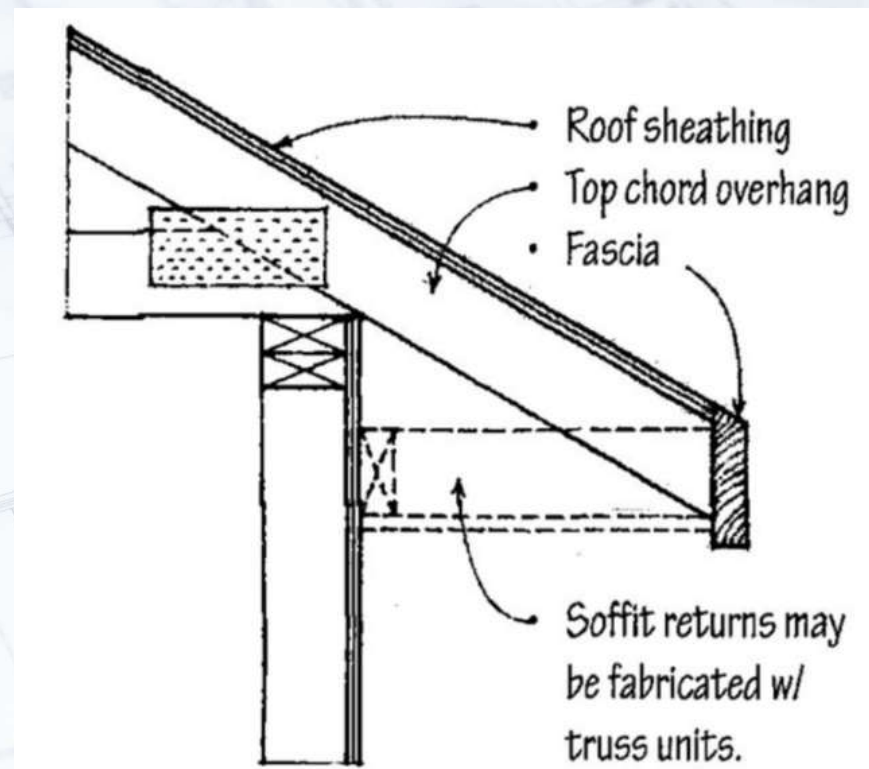
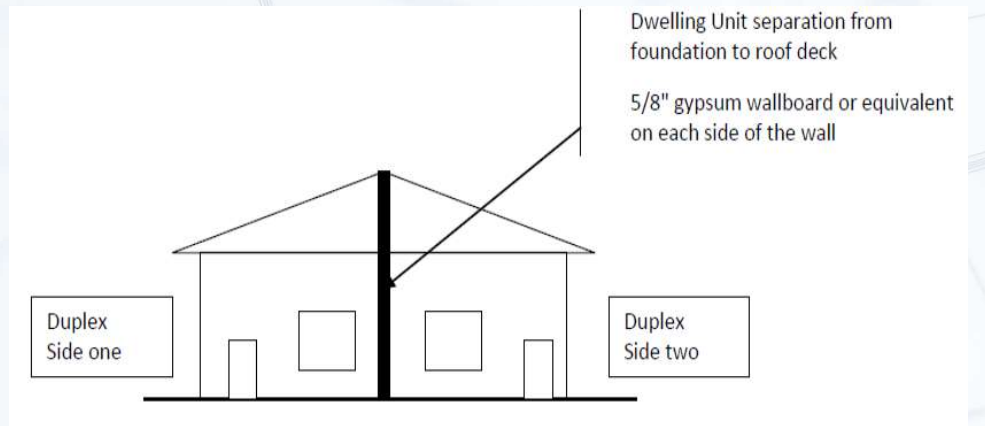
5. For the fireblocking of chimneys and fireplaces, see Section R1003.19.



R1003.19 Chimney fireblocking. Spaces between **chimneys** and **floors** and **ceilings** through which chimneys pass shall be fireblocked with **noncombustible material** securely fastened in place. The fireblocking of spaces between chimneys and wood joists, beams or headers shall be self-supporting or be placed on strips of metal or metal lath laid across the spaces between combustible material and the chimney.

R302.11 Fireblocking (locations)

6. Fireblocking of cornices of a two-family dwelling is required at the line of dwelling unit separation.



R302.11.1 Fireblocking materials

R302.11.1 Fireblocking materials. Except as provided in Section R302.11, Item 4, fireblocking shall consist of the following materials.

1. Two-inch nominal lumber.
2. Two thicknesses of 1-inch nominal lumber with broken lap joints.
3. One thickness of 23/32-inch wood structural panels with joints backed by 23/32-inch wood structural panels.
4. One thickness of 3/4-inch particleboard with joints backed by 3/4-inch particleboard.
5. One-half-inch gypsum board.
6. One-quarter-inch (6.4 mm) cement-based millboard.
7. Batts or blankets of mineral wool or glass fiber or other *approved* materials installed in such a manner as to be securely retained in place.
8. Cellulose insulation installed as tested in accordance with ASTM E119 or UL 263, for the specific application.

R302.11.1 Fireblocking materials (continued)

R302.11.1.1 Batts or blankets of mineral or glass fiber. Batts or blankets of mineral or glass fiber or other *approved* nonrigid materials shall be permitted for compliance with the 10-foot horizontal fireblocking in walls constructed using parallel rows of studs or staggered studs.

R302.11.1.2 Unfaced fiberglass. Unfaced fiberglass batt insulation used as fireblocking shall fill the entire cross section of the wall cavity to a height of not less than 16 inches (406 mm) measured vertically. Where piping, conduit or similar obstructions are encountered, the insulation shall be packed tightly around the obstruction.

R302.11.1.3 Loose-fill insulation material. Loose-fill insulation material shall not be used as a fireblock unless specifically tested in the form and manner intended for use to demonstrate its ability to remain in place and to retard the spread of fire and hot gases.

R302.11.2 Fireblocking integrity. The integrity of fireblocks shall be maintained.

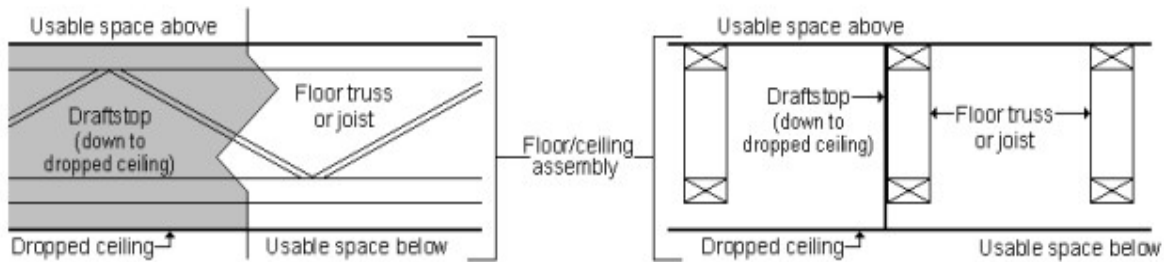
R302.12 Draftstopping

R302.12 Draftstopping. In combustible construction where there is usable space both above and below the concealed space of a floor-ceiling assembly, draftstops shall be installed so that the area of the concealed space does **not exceed 1,000 square feet**. Draftstopping shall divide the concealed space into approximately **equal areas**. Where the assembly is enclosed by a floor membrane above and a ceiling membrane below, draftstopping shall be provided in floor-ceiling assemblies under the following circumstances:

- 1. Ceiling is suspended under the floor framing.**
- 2. Floor framing is constructed of truss-type open-web or perforated members.**

R302.12.1 Materials. Draftstopping materials shall be not less than 1/2-inch (12.7 mm) gypsum board, 3/8-inch wood structural panels or other *approved* materials adequately supported. Draftstopping shall be installed parallel to the floor framing members unless otherwise *approved* by the *building official*. The integrity of the draftstops shall be maintained.

R302.12 Draftstopping (continued)



1. Ceiling is suspended under the floor framing.
2. Floor framing is constructed of truss-type open-web or perforated members.



R302.14 Combustible insulation clearance

R302.14 Combustible insulation clearance. Combustible insulation shall be separated not less than **3 inches** from recessed luminaires, fan motors and other heat-producing devices.

Exception: Where heat-producing devices are *listed for lesser clearances*, combustible insulation complying with the listing requirements shall be separated in accordance with the conditions stipulated in the listing.

Recessed luminaires installed in the *building thermal envelope* shall meet the requirements of Section N1102.4.5 of this code.

Knowledge Check

- The exterior walls of homes located 3' from a property line must have what hourly rating of the wall assembly with exposure from both sides?
- True or false, in combustible construction where there is usable space both above and below the concealed space of a floor-ceiling assembly, fireblocking shall be installed so that the area of the concealed space does not exceed 1,000 square feet.
- Supporting construction for two-family dwellings had to be _____ or _____ fire resistance construction?
- A townhouses can have separation walls that is either a _____ hour common wall or two _____ individual rated walls.



Questions?



Thank You!