

# FIREBLOCKING AND DRAFTSTOPPING

R302 International Residential Code

presented by: russell thornburg



In Reference to all: Materials / Products / Illustrations / Pictures  
of this Presentation

***“DO NOT ASSUME:”***

- ...that any picture in this presentation is in compliance of code, manufacturer's listing etc...
- ...that any product has been fully researched to the intent of the code
- ...that any product that can be sold / purchased meets any code requirements
- ...that any one product has been tested and meets the intent of any past/current adopted codes
- ...that any product has been properly installed unless you have done a complete research of that product through the manufacturer's installation instruction, approved acceptable tested listing, and have reviewed its current evaluation report requirements.

# INSTRUCTOR:

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## Background:

Building Contractor 1984 \_ over 30 years

Building Inspector Technician - 1997 - 1999

Field Inspector – 1998 \_ present

Plans Examiner – 1999 \_ present

Code Development Committee – 2006 \_ present

Code Trainer – 2001 \_ present

Code Consultant – 2008 \_ present



Shining Light On Code

# COURSE APPROVAL

## Fireblocking & Draftstopping

**ICC Course Approval # 5504 – 3 Hrs**  
3 hours

### **State of Michigan**

Program Approval Number: CP-19-00195  
Class Title: Fireblocking & Draftstopping – 2015 Michigan Residential Code  
Class Category: Technical  
Registration Category: BO, BI, PI, MI, EI & PR  
Hours Approved: 03 Technical

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## PRESENTATION

→ The text in this presentation does not necessarily represent actual code language. The presented text may be summarize, highlight or generalize the code section. Additional provisions or exceptions may be included in the actual code section. General references to the code sections are given for the purpose of verifying the complete provisions of the code section for your further review. ←



# Housekeeping

➤ Breaks



➤ Lunch



➤ Locations of restrooms



➤ Interruptions



➤ Closing



# REFERENCES

**E84—2016: Standard Test Method for Surface Burning Characteristics of Building Materials**

[R202](#), [R302.9.3](#), [R302.9.4](#), [R302.10.1](#), [R302.10.2](#), [R316.3](#), [R316.5.9](#), [R316.5.11](#), [R507.2.2.2](#),  
[R703.14.3](#), [R802.1.5](#), [M1601.3](#), [M1601.5.2](#), [P2801.6](#)

**E814—2013A: Standard Test Method for Fire Tests of Penetration Firestop Systems**

[R302.4.1.2](#)

**E136—2016: Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C**

[R202](#), [R302.11](#)

**E119—2016: Test Methods for Fire Tests of Building Construction and Materials**

Table [R302.1\(1\)](#), Table [R302.1\(2\)](#), [R302.2.1](#), [R302.2.2](#), [R302.3](#), [R302.4.1](#), [R302.11.1](#),  
[R606.2.2](#)



# FIRE BLOCKING



R302.11 Fireblocking required for wood-construction  
Fireblocking material shall meet Section R302.11.1

# FIRE BLOCKING

## DEFINITIONS

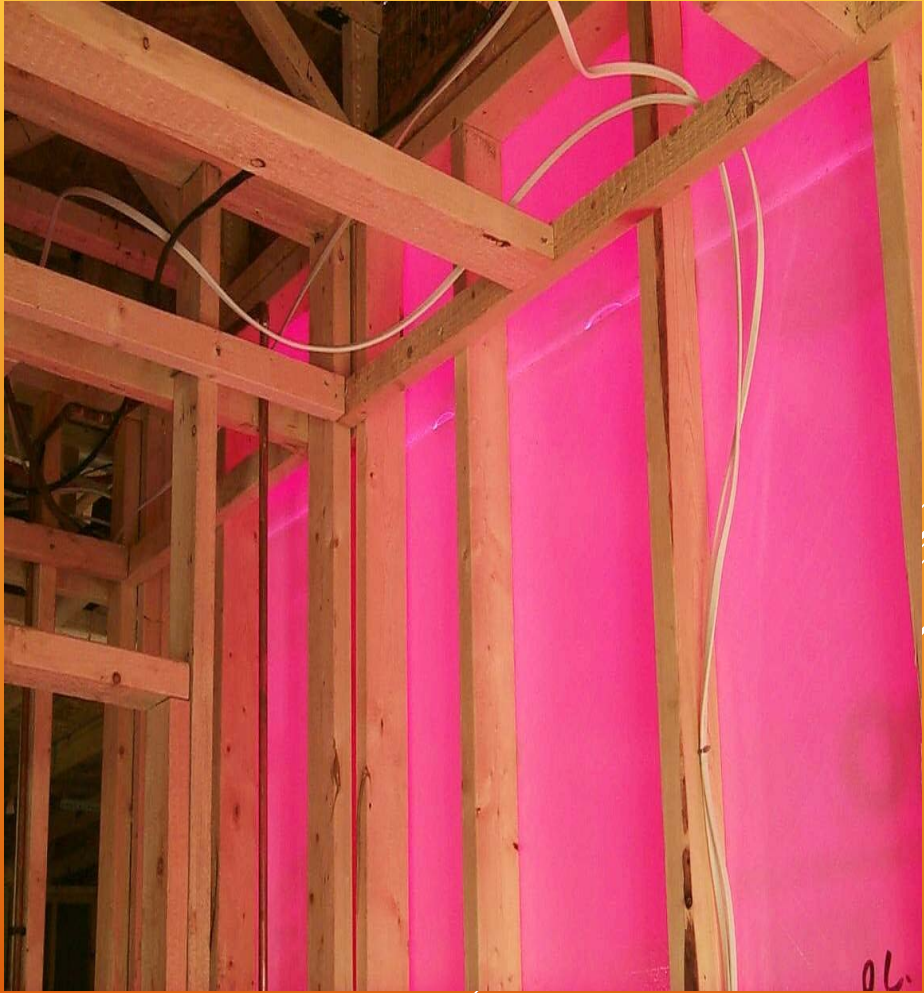
- **Draft stop**: to divide a large concealed spaces into smaller compartment (Intent: limit the movement of air w/n the cavity, reducing the potential rapid fire spread)
- **Fire block**: resist free passage of fire to other conceal spaces (Intent: to isolate movement from vertical to horizontal concealed areas)
- **Fire stop**: is a opening protection in rated assemblies
- **Fire barrier**: fire-resistance-rated wall assembly of materials designed to restrict the spread of fire in which continuity is maintained.



# FIREBLOCKING

## ■ Combustible construction

1. Fireblocking shall be provided to cut off **both**
  - a. vertical and horizontal concealed draft openings **and**
  - b. to form an effective fire barrier between stories, **and**
  - c. between a top story and the roof space



# FIRE BLOCKING

## WHERE REQUIRED

- Concealed spaces of stud walls **and** partitions, furred spaces **and** parallel rows of studs **or** staggered studs:

Vertically at the ceiling and floor levels

Horizontally at intervals not exceeding 10'



R302.9

# FIRE BLOCKING

## WHERE REQUIRED

- All interconnections between concealed vertical and horizontal spaces **such as** soffits, drop ceilings & cove ceilings.



R302.11

# FIRE BLOCKING

## WHERE REQUIRED CONTINUED

- Concealed spaces between stair stringers at the top and bottom
- Along the side of stairs **IF** under stairs unfinished
- Openings around vents, pipes ducts chimneys and fireplaces

IBC & IRC includes line “with approved material to resist the free passage of flame and products of combustion”





R316.4

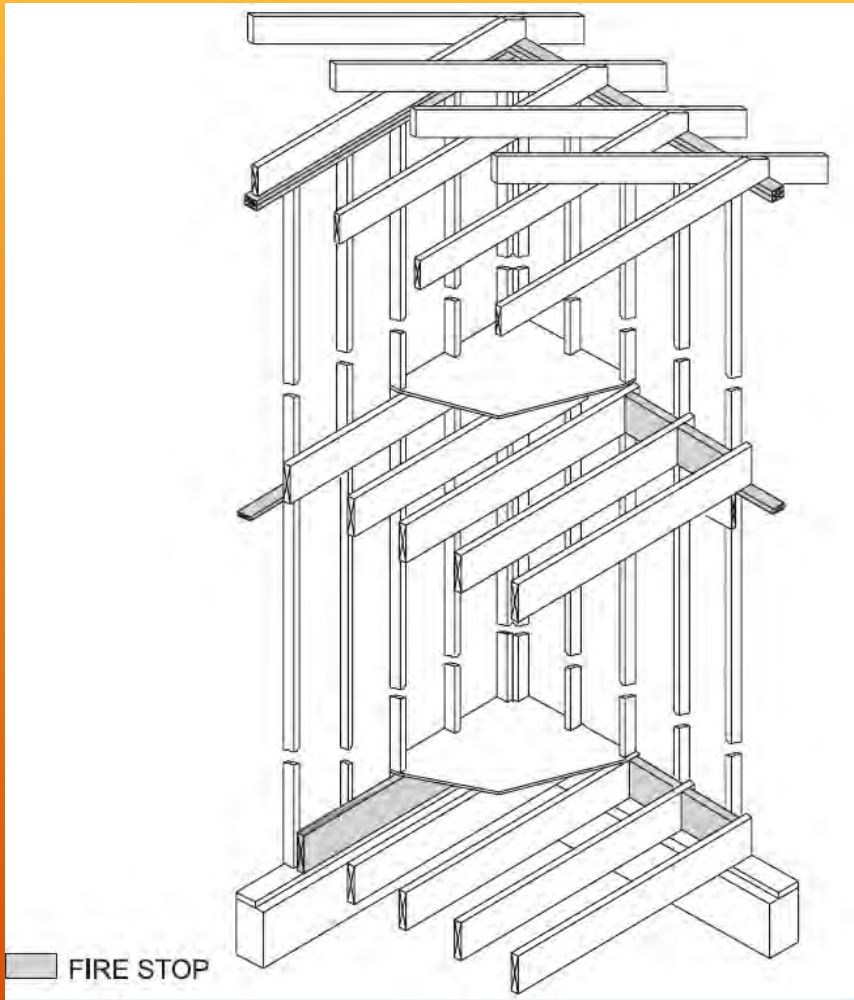
# FIRE BLOCKING

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

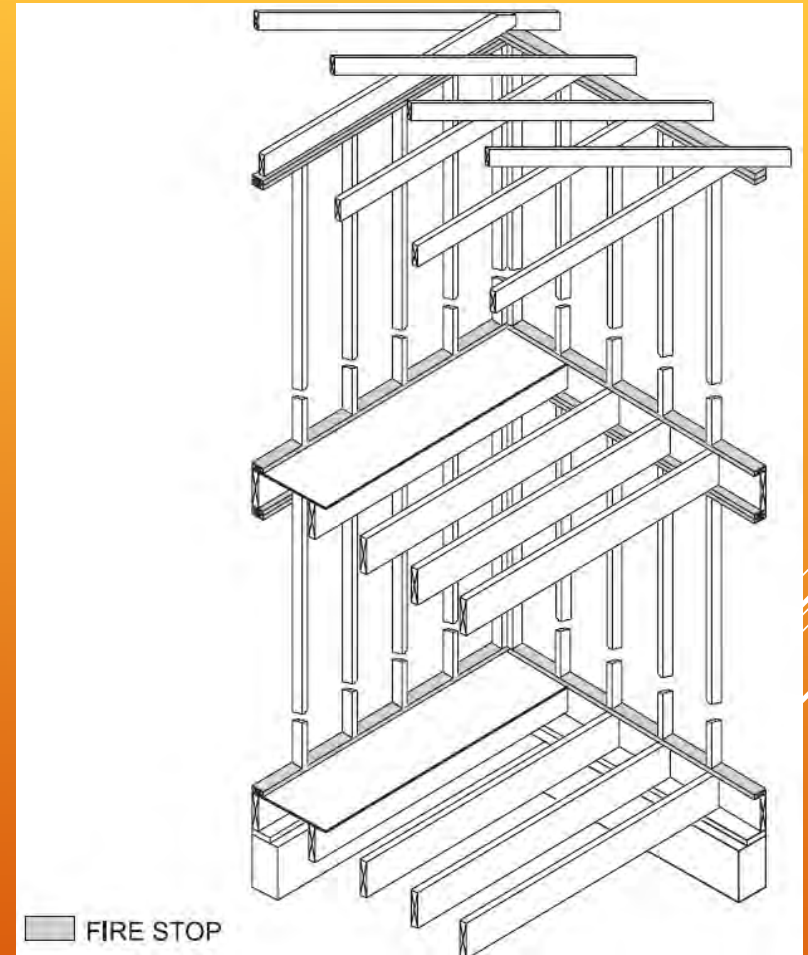


R302.11

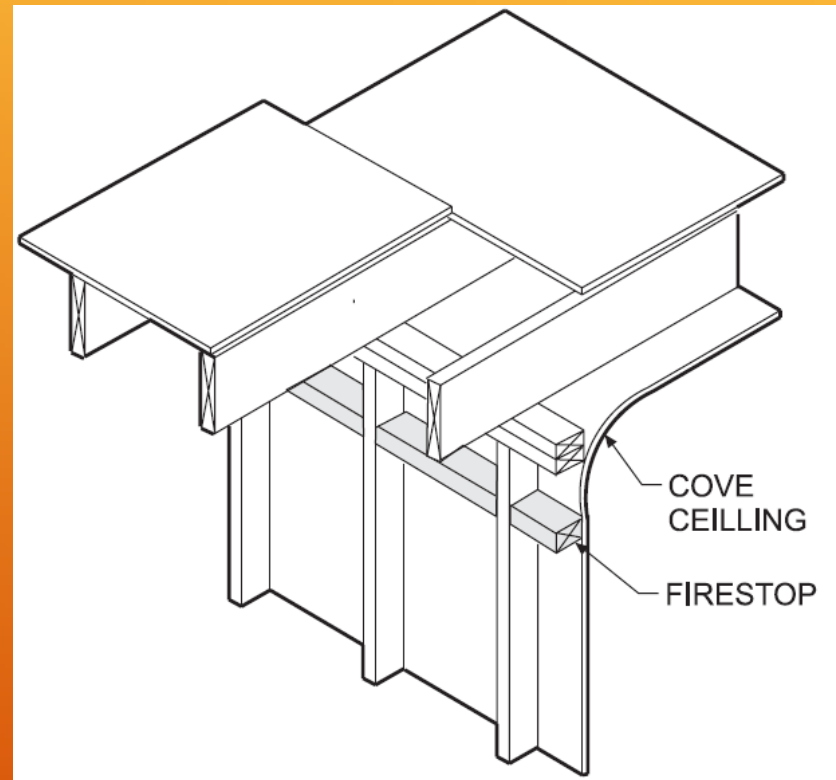
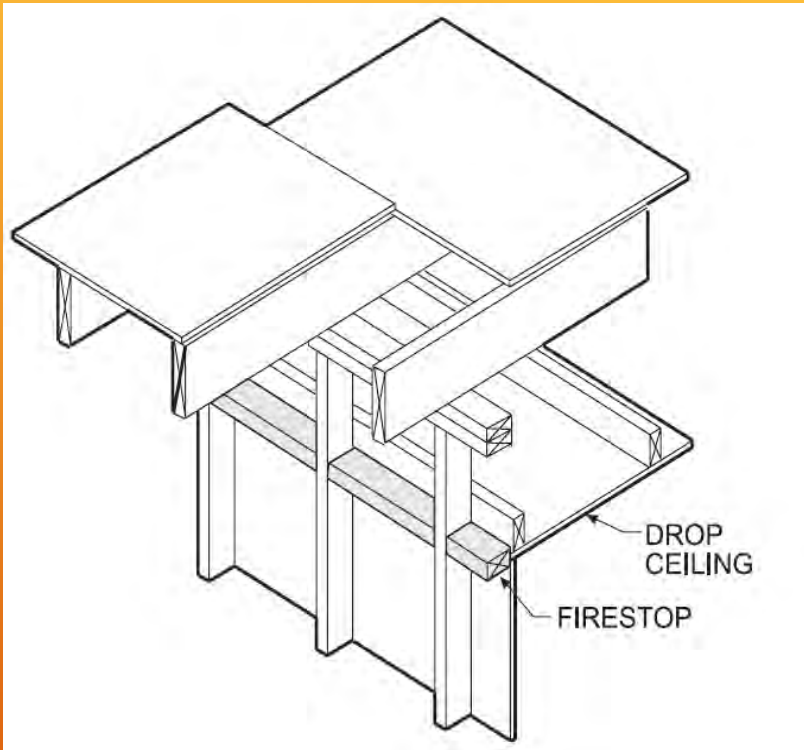


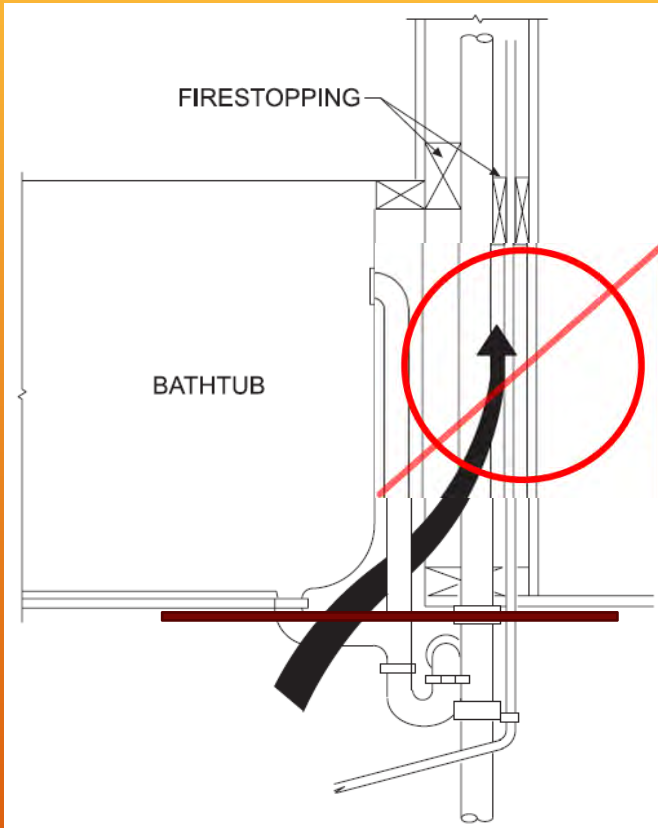


Balloon Framing

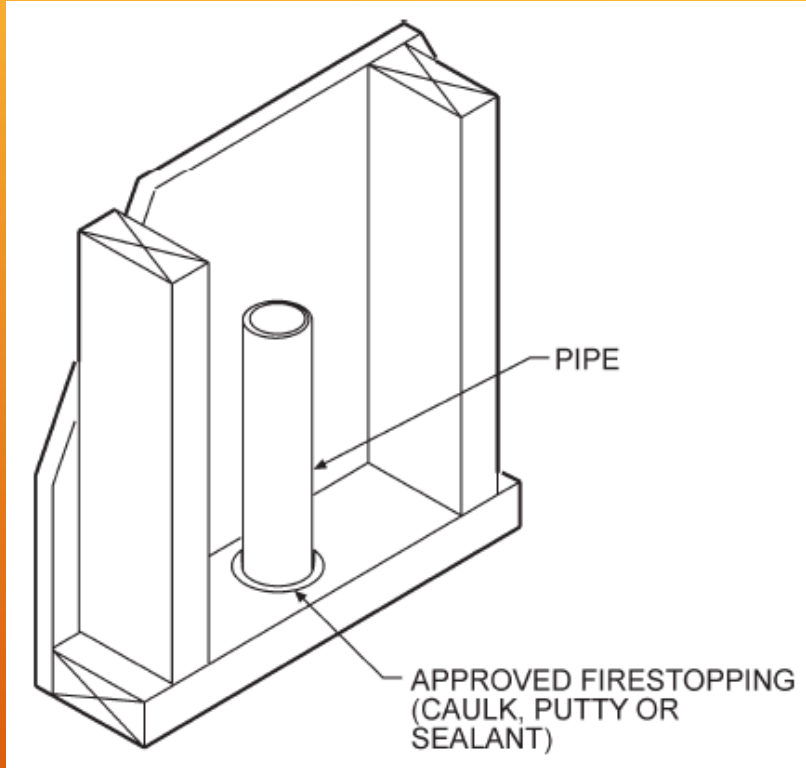
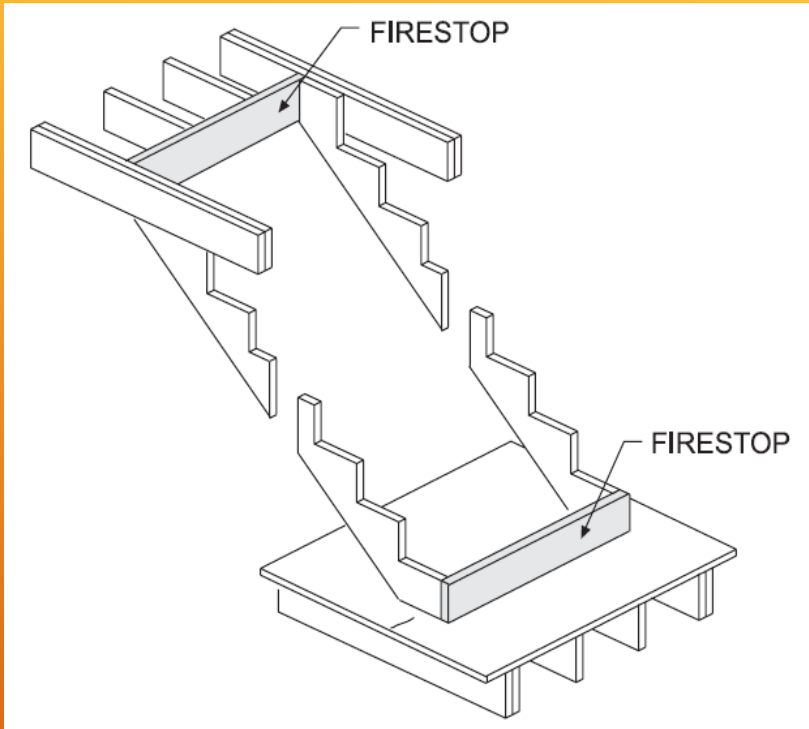


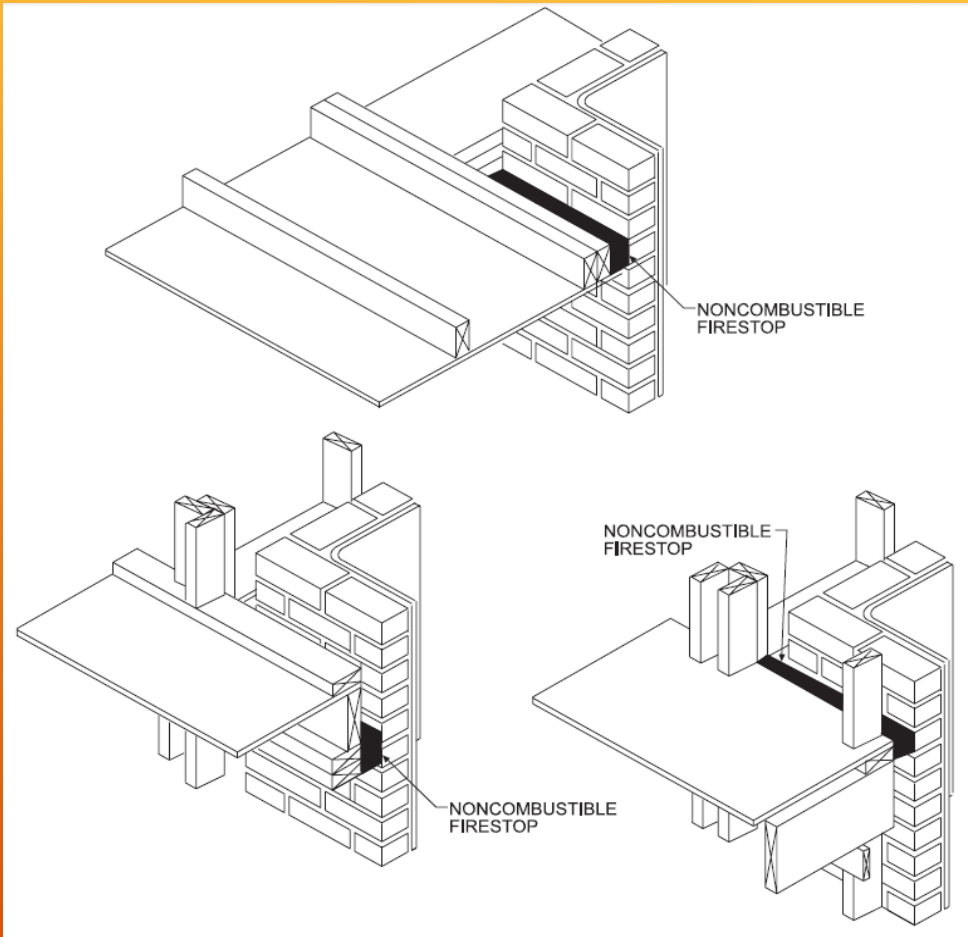
Platform Framing





R302.11





R302.11 & R1003.19



# FIRE BLOCKING

## FIRE BLOCK CONSTRUCTION

- 2 x nominal lumber
- 2-1" nominal lumber with broken lap joints
- 23/32 WSP w/ joints backed (.715 thickness)
- 3/4" type 2-M particleboard with joints backed

# FIRE BLOCKING

## CONSTRUCTION CONTINUED

- ½" Gypsum
- ¼" Cement fiber board
- Batts or blankets of mineral or glass fiber or installed to be securely retained in place

NOT USED

- Loose fill insulation unless specifically tested



# FIRE BLOCKING

## OTHER ITEMS BEING USED

- Sheathing material *if* listed in other standards or third party testing
- Spray foams *if* listed and labeled:
  - Class I flame spread
  - 0-25 range

# FIRE BLOCKING

## FIRE BLOCK CONSTRUCTION

Unfaced fiberglass batt insulation used as fireblocking shall fill the entire cross section of the wall cavity to a minimum height of 16"

When obstructions are encountered, the insulation shall be packed tightly around the obstruction

# FIRE BLOCKING IRC

R302.11.1.1 Batts or blankets of mineral or glass fiber

R302.11.1.2 Unfaced fiberglass.

R302.11.1.3 Loose-fill insulation material – **Shall Not**

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



# FIREBLOCKING

## ASTM 136 & 814

R302.10.2 Loose-fill insulation.

Loose-fill insulation materials that cannot be mounted in the ASTM E 84 or UL 723 apparatus without a screen or artificial supports shall comply with the flame spread and smoke-developed limits of Section R302.10.1 when tested in accordance with CAN/ULC S102.2.

Exception: Cellulose loose-fill insulation shall not be required to be tested in accordance with CAN/ULC S102.2, provided such insulation complies with the requirements of Section R302.10.1 and Section R302.10.3.



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 sq.ft.



# DRAFTSTOPPING

R302.12

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.

# DRAFTSTOPPING

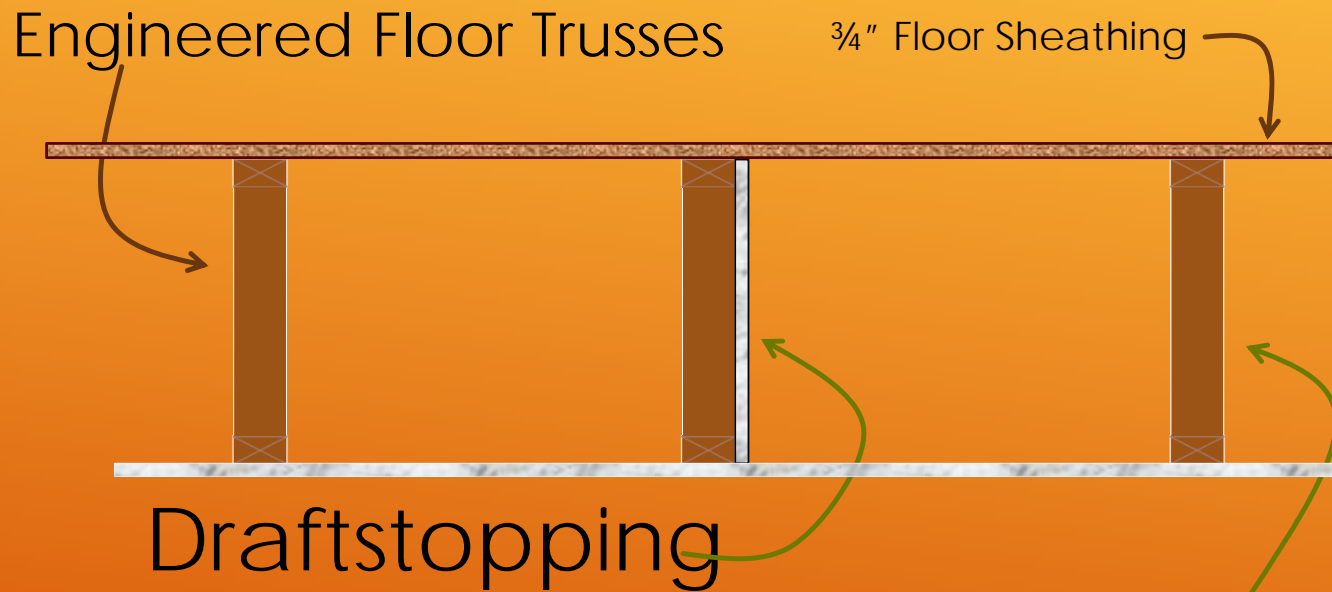






R109.1.4

# DRAFTSTOPPING IN FLOOR TRUSSES



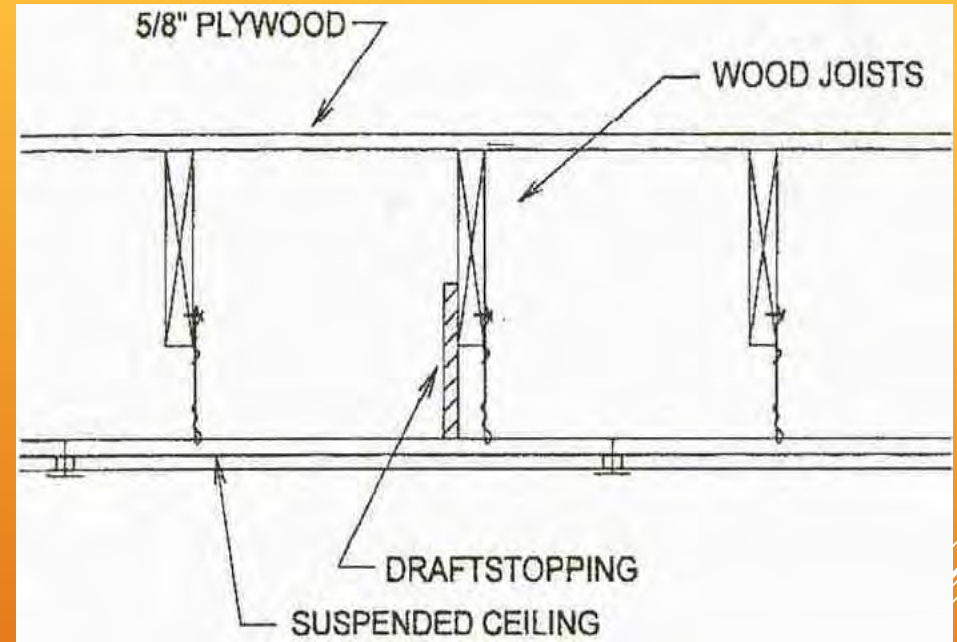
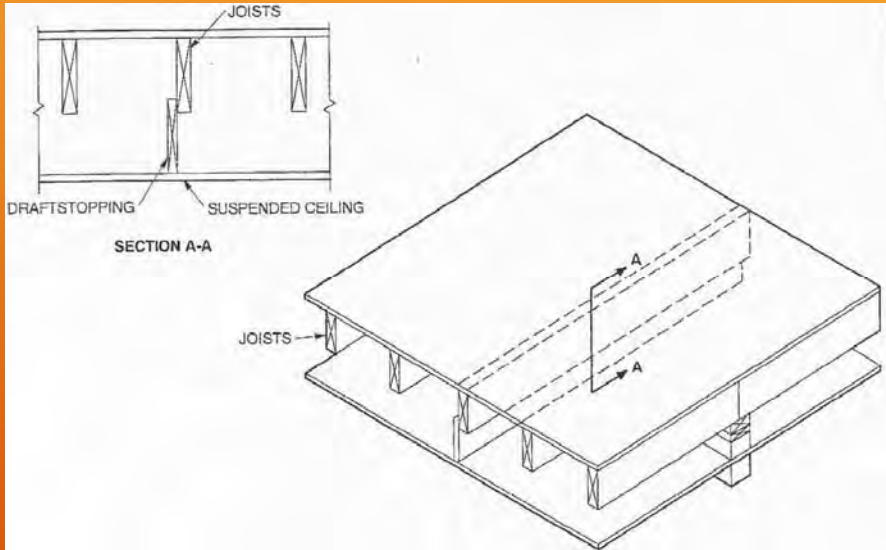
**Floor Truss Spec. Dead Load Required to be Adjusted.**

When is the proper time to inspect draftstopping?



Additional dead load required on truss spec/s





- Draftstopping materials shall not be less than ½" gypsum board,
- 3/8-inch WSP *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.

# DRAFTSTOPPING

- Combustible insulation shall be separated a minimum of 3" 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 N1102.4.4 of this code.

# DRAFTSTOPPING

R302.14 Combustible insulation clearance



R302.14 & N1102.4.5

# IBC ARCHITECTURAL TRIM

- Concealed spaces of exterior wall finish and other arch elements erected with combustible frames, at maximum intervals of 20'



## Exceptions

- Not required cornices in single family
- Only at line of dwelling separation
- Not required where installed on noncombustible exterior wall finish





07 84 16 - Annular Space Protection


Report Number	Org./Code	Manufacturer	Product	Codes	Links
ESR-1961 	ICC-ES	The Dow Chemical Company	Great Stuff™ Gaps & Cracks, Great Stuff™ Fireblock, Great Stuff™ Window & Door, Great Stuff™ Big Gap Filler, Great Stuff™ Pro Gaps & Cracks, Great Stuff™ Pro Window & Door, Great Stuff™ 10/16 Pound, Insta-seal™ 10/16 Pound and Enerfoam™	<div style="display: flex; flex-direction: column; gap: 5px;"> <div style="display: flex; gap: 5px;"> <div style="background-color: red; color: white; padding: 2px 5px;">15</div> <div style="background-color: red; color: white; padding: 2px 5px;">12</div> </div> <div style="display: flex; gap: 5px;"> <div style="background-color: red; color: white; padding: 2px 5px;">09</div> <div style="background-color: red; color: white; padding: 2px 5px;">06</div> </div> </div>	 Underwriters Laboratories

## ICC-ES Evaluation Report



**Underwriters Laboratories** ICC-ES/UL Dual Report

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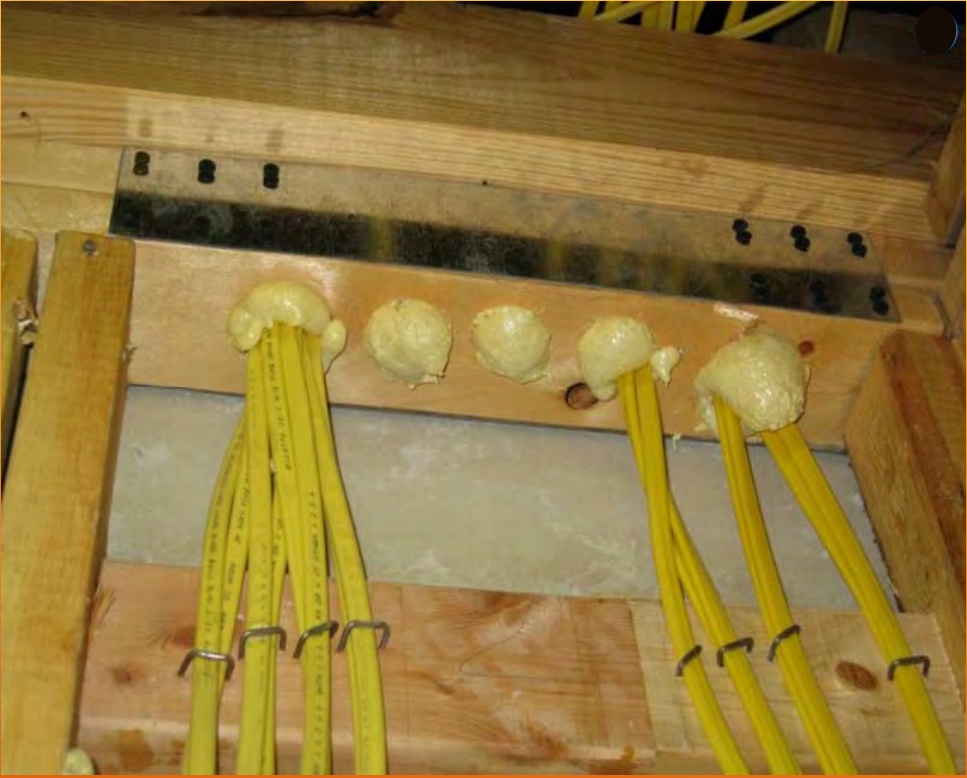




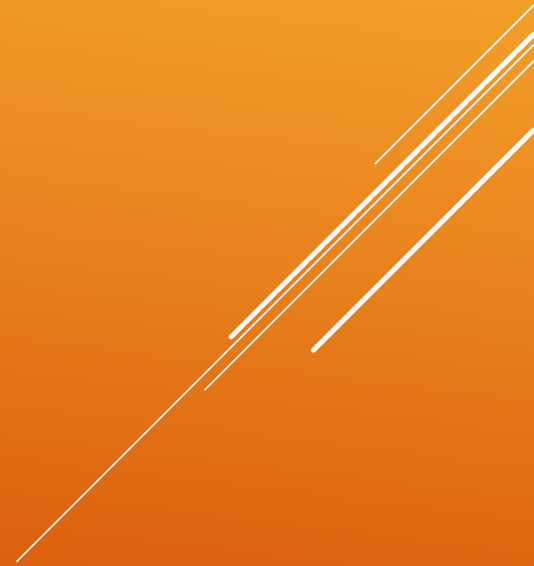
R302.11



R302.11











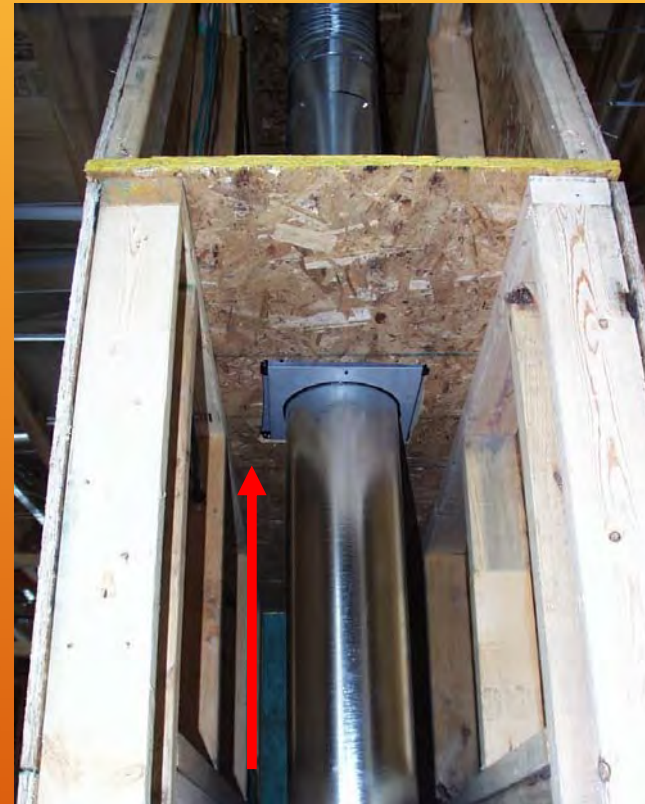




# FRAMING INSPECTION

**Fireblocking required.**

**“Shall be provided to cut off all concealed draft openings (both vertical and horizontal) and to form an effective fire barrier between stories, and between a top story and the roof space.”**

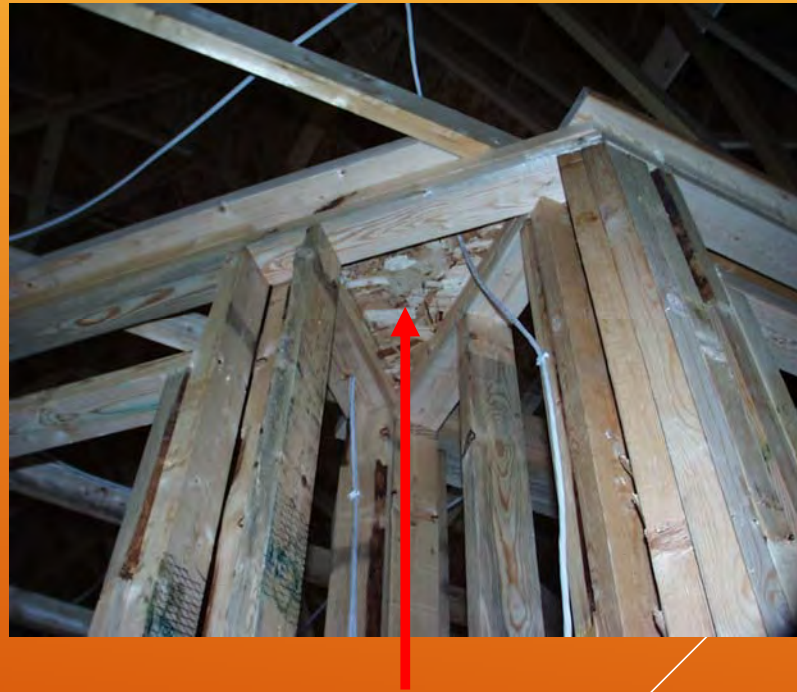


IRC section R302.11

# FRAMING INSPECTION

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IRC section R302.11



# FRAMING INSPECTION

## Fireblocking required.

“Shall be provided to cut off all concealed draft openings (both vertical and horizontal) and to form an effective fire barrier between stories, and between a top story and the roof space.”



IRC section R302.11, R602.8, R1001.12

# FIREBLOCKING

Unfaced fiberglass batt insulation used as fire blocking shall fill the entire cross section of the wall cavity to a minimum height of 16 inches measured vertically. When piping, conduit or similar obstructions are encountered, the insulation shall be packed tightly around the obstruction.



R302.11.1.2

# FIRE PROTECTION OF FLOORS.

- Floor assemblies, not required elsewhere in this code to be fire-resistance rated,
- **Shall** be provided with a ½" gypsum wallboard membrane,
- 5/8" wood structural panel membrane, *or*
- equivalent on the underside of the floor framing member.



# FIRE PROTECTION OF FLOORS

## Exceptions:

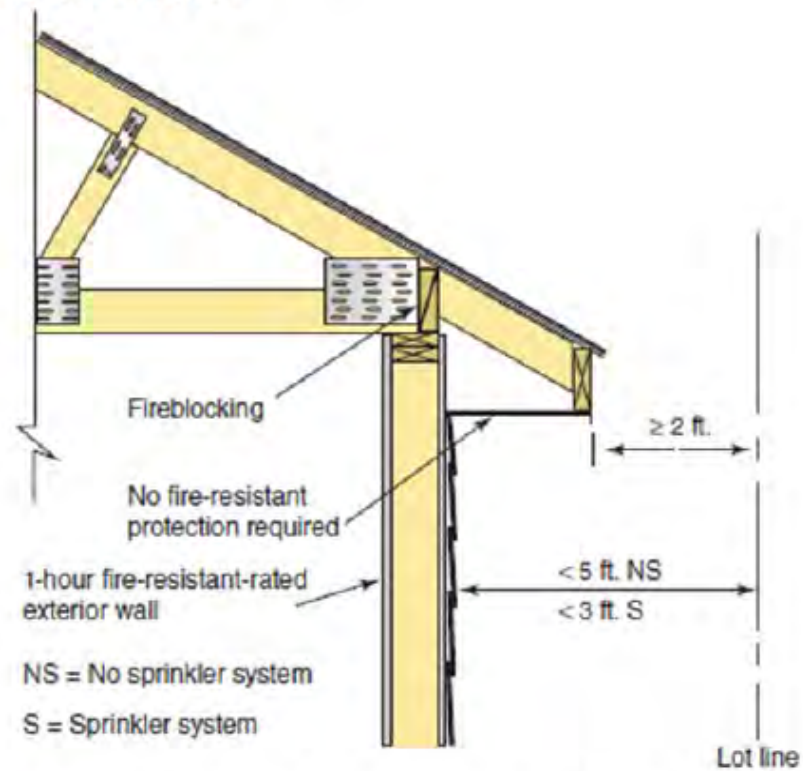
1. Floor assemblies protected by an automatic sprinkler . . .
2. Crawl space not intended for storage or fuel-fired or electrical-power heater appliances.
3. Portions of floor assemblies can be unprotected when complying with the following:
  - 3.1. The aggregate area of the unprotected portions shall not exceed 80sq ft per story
  - 3.2. Fire blocking in accordance with Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.
4. Wood floor assemblies using dimension lumber or structural composite lumber 2 X 10, or other approved floor assemblies demonstrating equivalent fire performance.





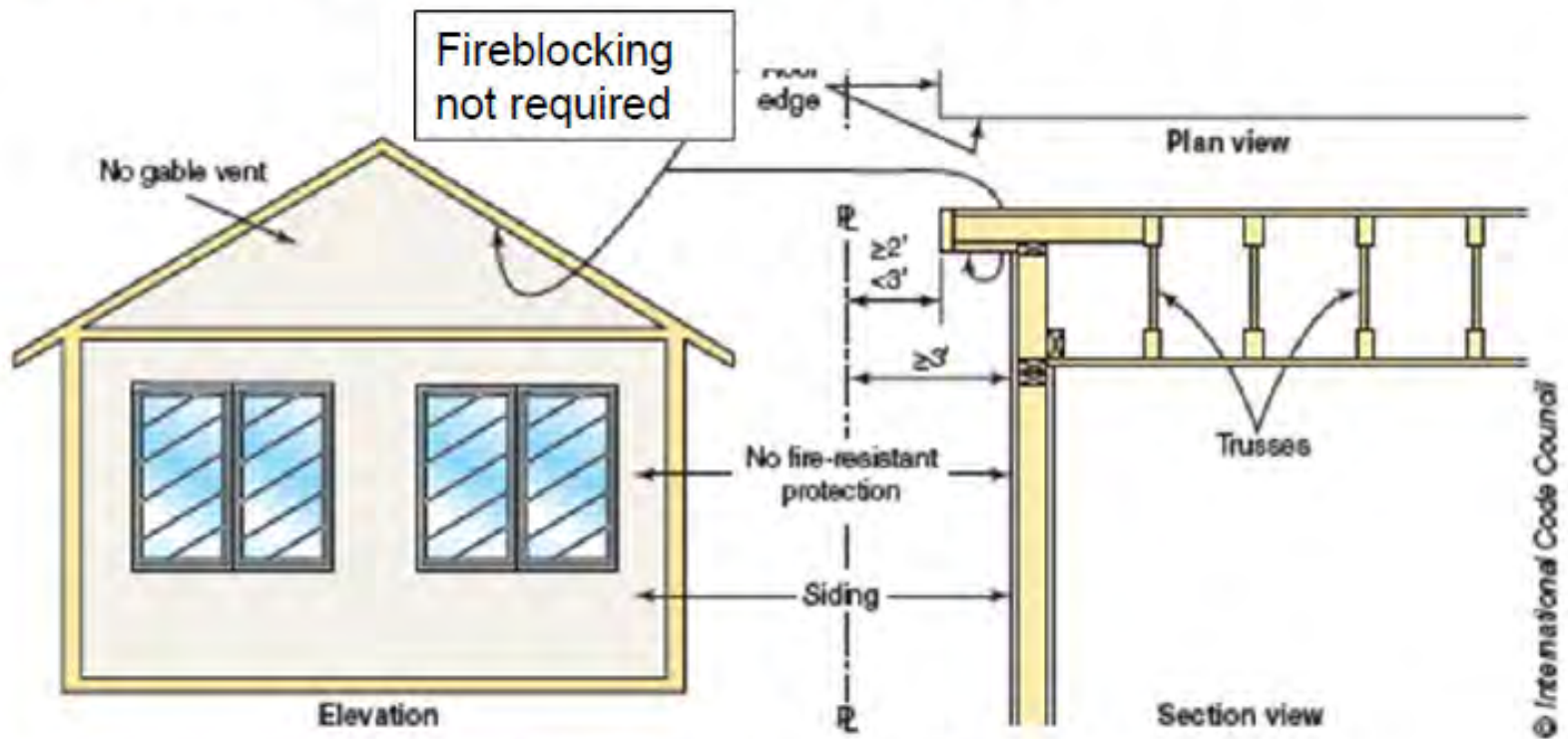
# R302.1 Exterior Walls

2015

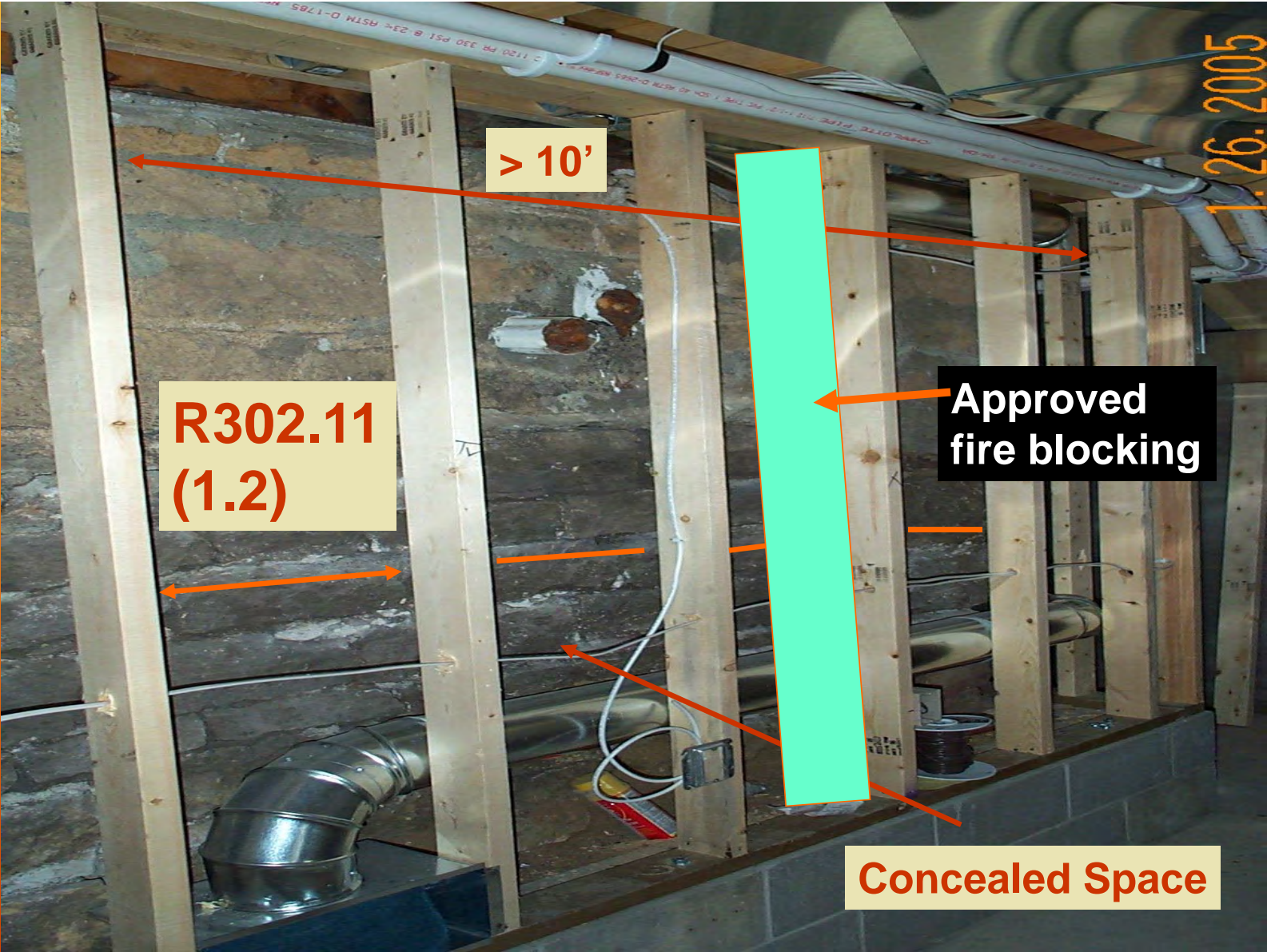


Fire resistance rating is not required for roof eave projections when fireblocking is installed.

# R302.1 Exterior Walls



Dwelling with automatic fire sprinkler system and gable end facing lot line





Fire Blocking





**Fire Blocking**

3. 22. 2005





**Fireblocking Per  
Section R602.8 &  
R302.11**





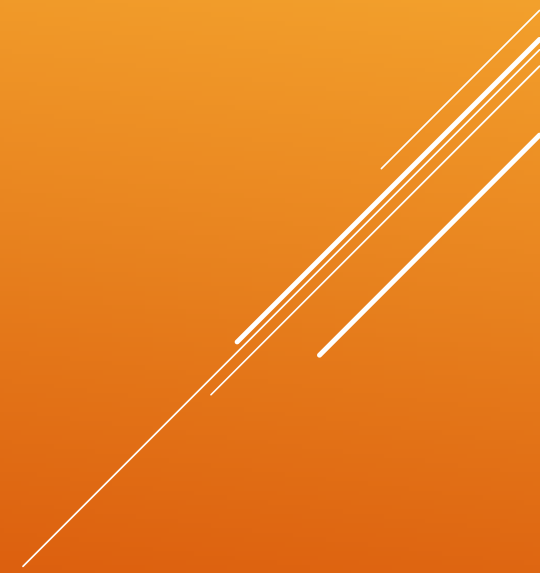
**APPROVED FIRE  
BLOCKING MATERIAL?  
SECTION R602.8.1**













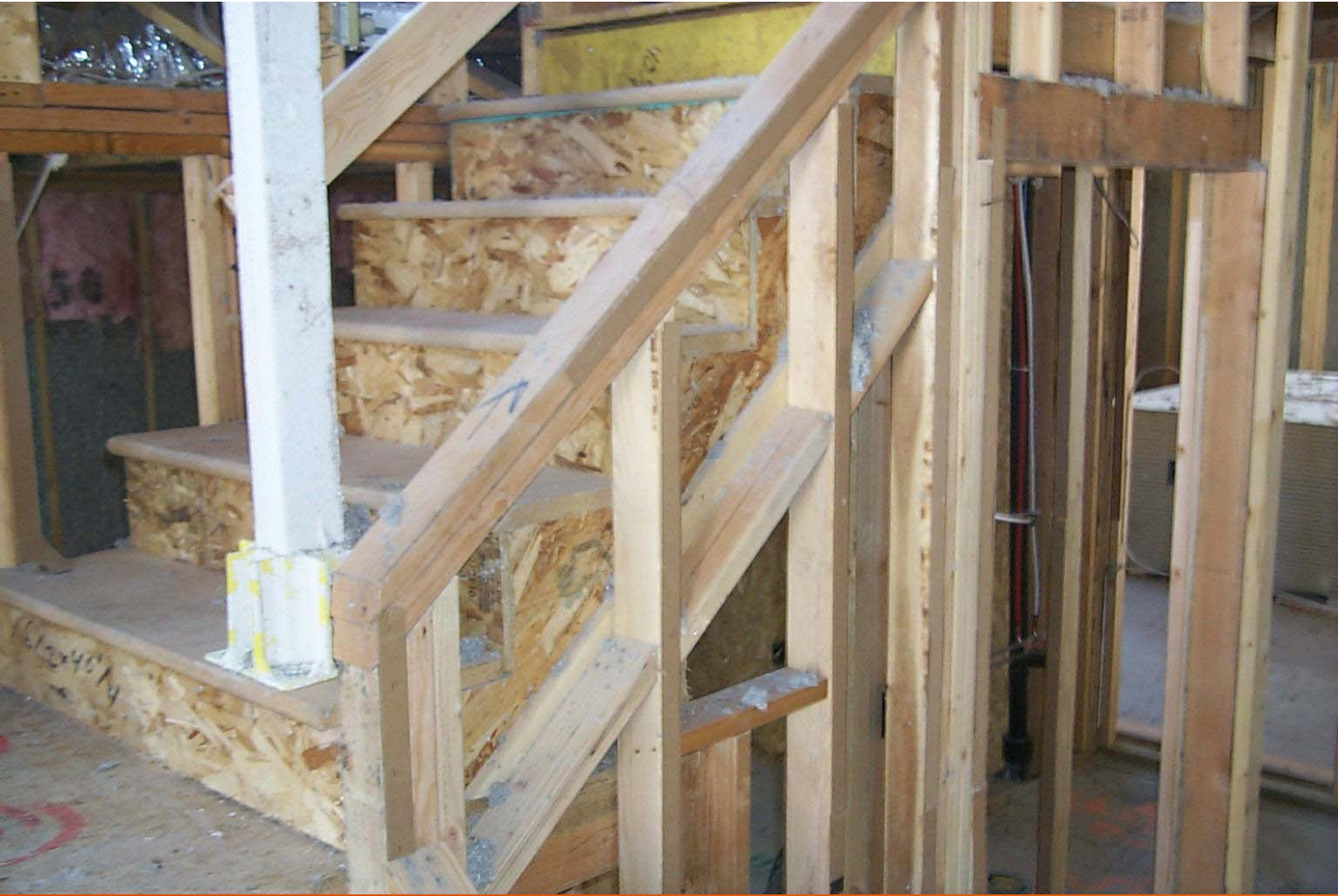


















# TOP OF STAIR STINGER

# ARSON



**FIRE STOPPED**







# FIREBLOCKING???





01/27/2006

# Draftstopping??? Or Fireblocking



## R109.1 Types of inspections.

Inspection of framing and masonry construction shall be made after the roof, masonry, framing, firestopping, draftstopping and bracing are in place and after the plumbing, mechanical and electrical rough inspections are approved.

R109.1.4 Frame and masonry inspection



# FIREBLOCKING





# FIREBLOCKING (OFFSET)





# CONCEALED SPACES & DRAFTSTOPPING



# CONCEALED SPACES & DRAFTSTOPPING



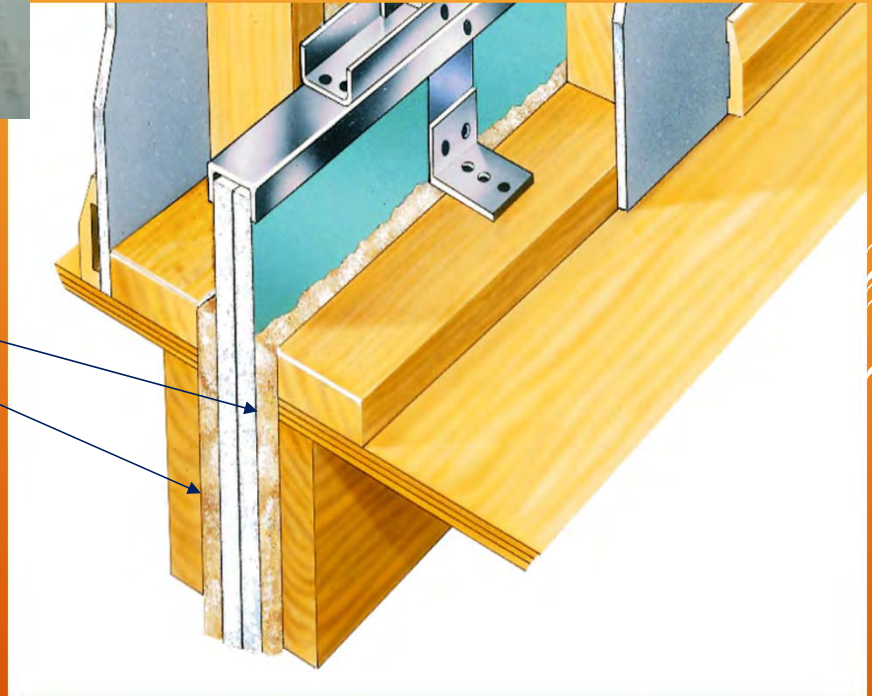
# FIREBLOCKING





Fire stopping:  
Rock wool or Insulation or  
Approved spray foam or  
Additional sheetrock

# FIREBLOCKING







Missing Fire  
stopping

# FIREWALLS







## DROPPED CEILING



# Fireblocking

