

**PLANNING AND DEVELOPMENT SERVICES – BUILDING INSPECTION****INSPECTION GUIDELINES:
FIREBLOCKING AND DRAFTSTOPPING****INSPECTION CODE:** N/A**SCOPE:** COMMERCIAL AND MULTI-FAMILY**APPLICABLE CODES:** 2019 CBC, CRC, CPC, CMC, CEC, CALGreen, CEnC, and PAMC

The information provided in this document is general and intended as a guide only. Each project is unique and additional requirements may be enforced as deemed appropriate.

RESIDENTIAL

For residential requirements, please see the “Roof, Exterior Sheathing, and Structural Framing” inspection checklist.

COMMERCIAL AND MULTI-FAMILY**FIREBLOCKING**

In combustible construction, fireblocking shall be installed to cut off concealed draft openings (both vertical and horizontal) and shall form an effective barrier between floors, between a top story and a roof or attic space. (CBC 718.2)

- Fireblocking shall consist of the following materials (CBC 718.2.1):
 - 2-inch nominal lumber
 - Two thicknesses of 1-inch nominal lumber with broken lap joints
 - One thickness of 0.719-inch wood structural panels with joints backed by 0.719-inch wood structural panels
 - One thickness of 3/4-inch particleboard with joints backed by 3/4-inch particle-board
 - 1/2-inch gypsum board
 - 1/4-inch cement-based millboard
 - Batts or blankets of mineral wool, mineral fiber or other approved materials installed in such a manner as to be securely retained in place
 - Cellulose insulation installed as tested for the specific application

- Notes regarding fireblocking materials:
 - Batts or blankets of mineral wool or mineral fiber or other approved nonrigid materials shall be permitted for compliance with the 10 feet horizontal fireblocking in walls constructed using parallel rows of studs or staggered studs. (CBC 718.2.1.1)
 - Unfaced fiberglass batt insulation used as fireblocking shall fill the entire cross section of the wall cavity to a minimum height of 16 inches measured vertically. Where piping, conduit or similar obstructions are encountered, the insulation shall be packed tightly around the obstruction. (CBC 718.2.1.2)
 - Loose-fill insulation material, insulating foam sealants and caulk materials 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. (CBC 718.2.1.3)
 - Batts or blankets of mineral or glass fiber or other approved nonrigid materials shall be allowed as fireblocking in walls constructed using parallel rows of studs or staggered studs. (CBC 718.2.1.5)

- Fireblocking shall be provided in concealed spaces of stud walls and partitions, including furred spaces, and parallel rows of studs or staggered studs, as follows (CBC 718.2.2):
 - Vertically at the ceiling and floor levels
 - Horizontally at intervals not exceeding 10 feet

- Fireblocking shall be provided at interconnections between concealed vertical stud wall or partition spaces and concealed horizontal spaces created by an assembly of floor joists or trusses, and between concealed vertical and horizontal spaces such as occur at soffits, drop ceilings, cove ceilings and similar locations. (CBC 718.2.3)

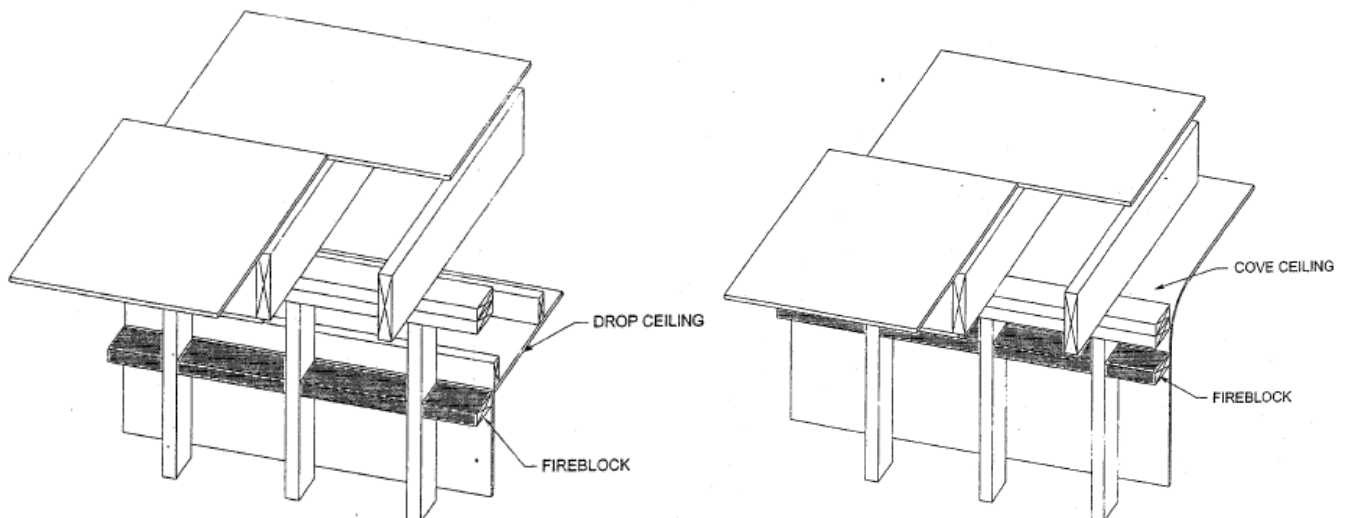


Figure 080 – Fireblocking for drop and cove ceilings

- Fireblocking shall be provided in concealed spaces between stair stringers at the top and bottom of the run. (CBC 718.2.4)

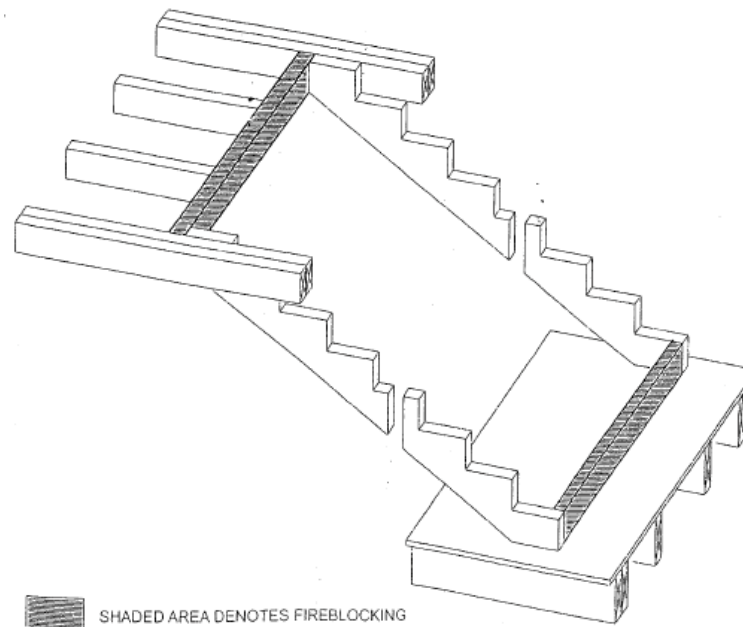


Figure 081 – Fireblocking for stairs

- Fireblocking of the annular space around vents, pipes, ducts, chimneys and fireplaces at ceilings and floor levels shall be installed with a material specifically tested in the form and manner intended for use to demonstrate its ability to remain in place and resist the free passage of flame and the products of combustion. (CBC 718.2.5)

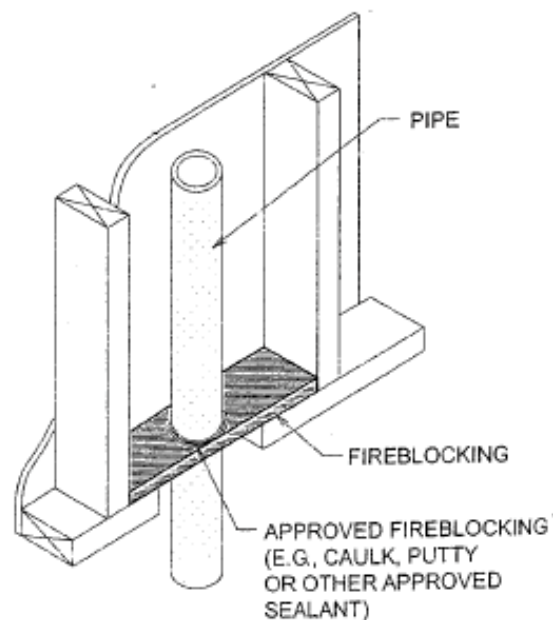


Figure 082 – Fireblocking for pipes

- Factory-built chimneys and fireplaces shall be fire-blocked in accordance with UL 103 and UL 127. (CBC 718.2.5.1)

- Fireblocking shall be installed within concealed spaces of exterior wall coverings and other exterior architectural elements where permitted to be of combustible construction or where erected with combustible frames. Fireblocking shall be installed at maximum intervals of 20 feet in either dimension so that there will be no concealed space exceeding 100 square feet between fireblocking. Where wood furring strips are used, they shall be of approved wood of natural decay resistance or preservative-treated wood. If noncontinuous, such elements shall have closed ends, with not less than 4 inches of separation between sections. (CBC 718.2.6)
 - Exceptions:
 - Fireblocking of cornices is not required in single-family dwellings. Fireblocking of cornices of a two-family dwelling is required only at the line of dwelling unit separation.
 - Fireblocking shall not be required where the exterior wall covering is installed on noncombustible framing and the face of the exterior wall covering exposed to the concealed space is covered by one of the following materials:
 - Aluminum having a minimum thickness of 0.019-inches
 - Corrosion-resistant steel having a base metal thickness not less than 0.016-inches at any point
 - Other approved noncombustible materials
 - Fireblocking shall not be required where the exterior wall covering has been tested in accordance with, and complies with the acceptance criteria of, NFPA 285. The exterior wall covering shall be installed as tested in accordance with NFPA 285

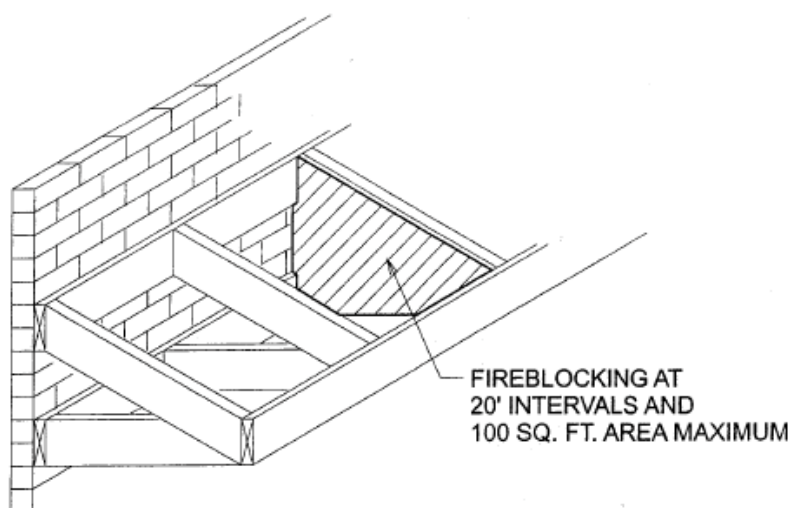


Figure 083 – Fireblocking at exterior cornices

- Where wood sleepers are used for laying wood flooring on masonry or concrete fire-resistance-rated floors, the space between the floor slab and the underside of the wood flooring shall be filled with an approved material to resist the free passage of flame and products of combustion or fireblocked in such a manner that there will be no open spaces under the flooring that will exceed 100 square feet in area and such space shall be filled solidly under permanent partitions so that there is no communication under the flooring between adjoining rooms. (CBC 718.2.7)
 - Fireblocking is not required for slab-on-grade floors in gymnasiums.
 - Fireblocking is required only at the juncture of each alternate lane and at the ends of each lane in a bowling facility

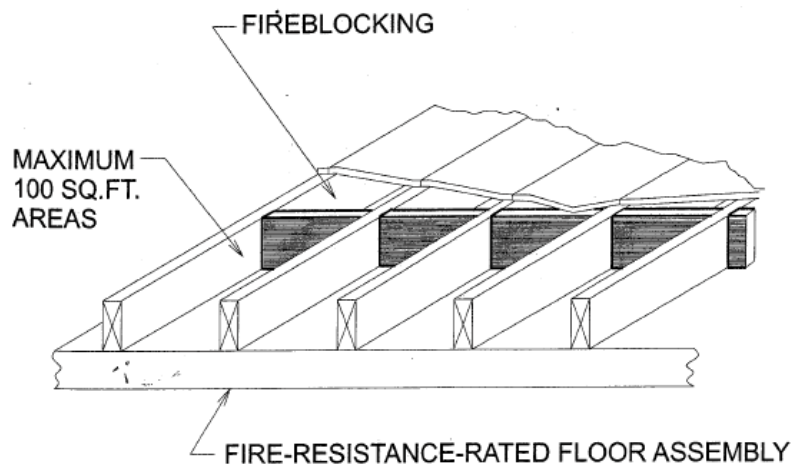


Figure 084 – Fireblocking at concealed floor spaces

- All spaces between fireplaces and floors and ceilings through which fireplaces pass shall be fireblocked with noncombustible material securely fastened in place. The fireblocking of spaces between wood joists, beams or headers shall be to a depth of 1-inch and shall only be placed on strips of metal or metal lath laid across the spaces between combustible material and the chimney. (CBC 2111.13)

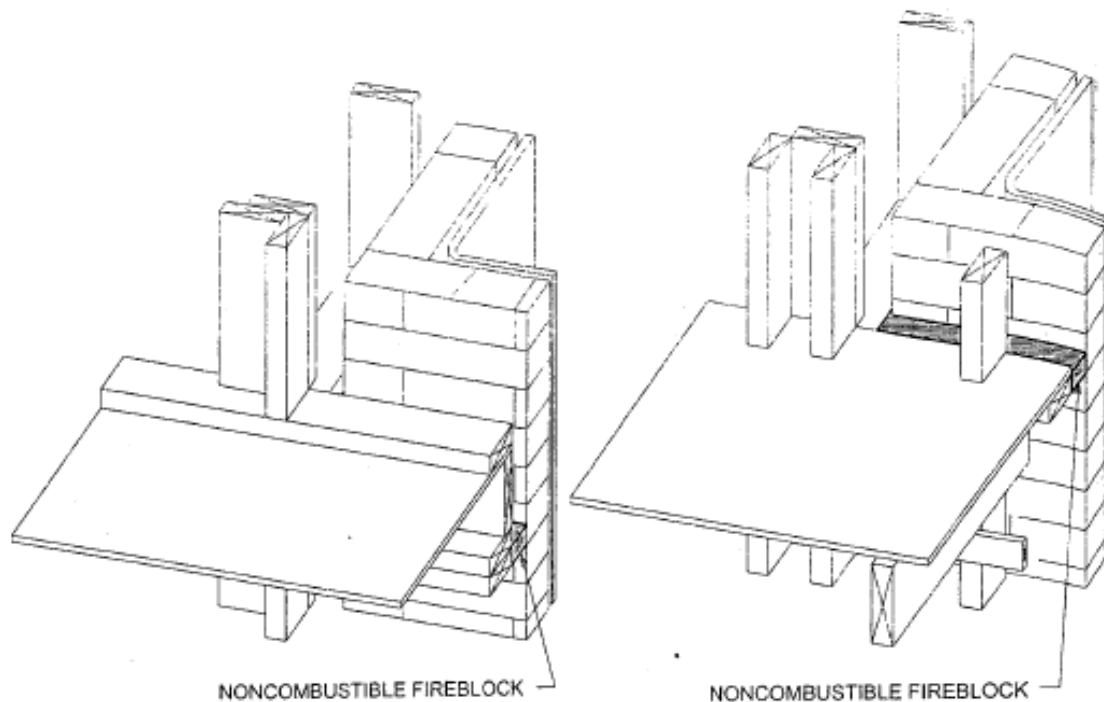


Figure 085 – Fireblocking at chimneys

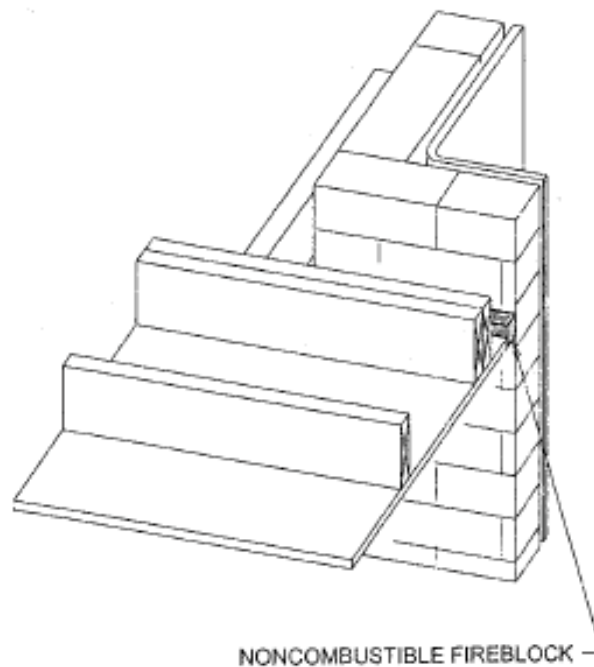


Figure 085 – Fireblocking at chimneys (continued)

DRAFTSTOPPING IN FLOORS

In combustible construction, draftstopping shall be installed to subdivide floor/ceiling assemblies.

- Draftstopping materials shall be not less than 1/2-inch gypsum board, 3/8-inch wood structural panel, 3/8-inch particleboard, 1-inch nominal lumber, cement fiberboard, batts or blankets of mineral wool or glass fiber, or other approved materials adequately supported. The integrity of draftstops shall be maintained. (CBC 718.3.1)
- In groups other than Group R occupancies, draftstopping shall be installed to subdivide floor/ceiling assemblies so that horizontal areas do not exceed 1,000 square feet. (CBC 718.3)
 - Exceptions:
 - Buildings equipped throughout with an automatic sprinkler system.
- In combustible construction where fire partitions do not extend to the underside of the floor or roof sheathing, deck or slab above, the space above and along the line of the fire partition shall be provided with one of the following (CBC 708.4.2):
 - Fireblocking up to the underside of the floor or roof sheathing, deck or slab above using materials complying with CBC 718.2.1
 - Draftstopping up to the underside of the floor or roof sheathing, deck or slab above using materials complying with CBC 718.3.1 and CBC 718.4.1, for floors or attics, respectively
 - See exceptions under CBC 708.4.2

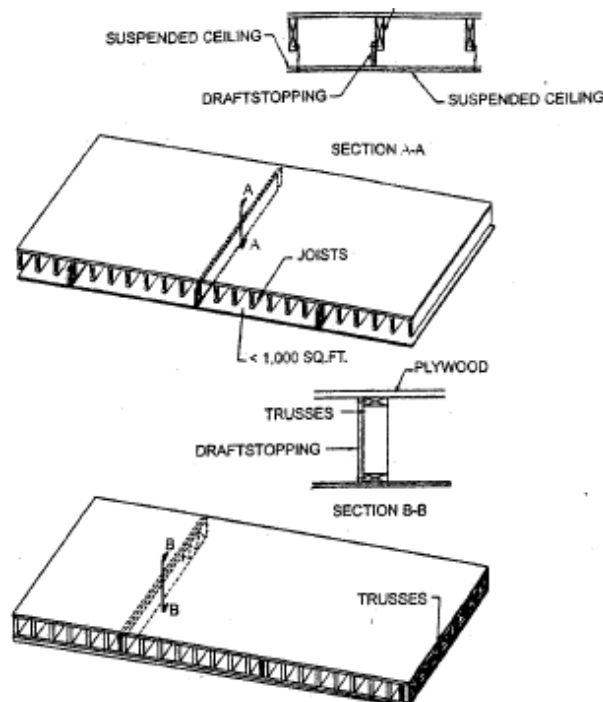


Figure 086 – Draftstopping at concealed floors

DRAFTSTOPPING IN ATTICS

In combustible construction, draftstopping shall be installed to subdivide attic spaces and concealed roof spaces. Ventilation of concealed roof spaces shall be maintained.

- Materials utilized for draftstopping of attic spaces shall comply with Section 718.3.1. (CBC 718.4.1)
- Openings in the partitions shall be protected by self-closing doors with automatic latches constructed as required for the partitions. (CBC 718.4.1.1)
- In other than Group R occupancies, draftstopping shall be installed to subdivide combustible attic spaces such that any horizontal area does not exceed 3,000 square feet. Ventilation of such spaces shall be CBC 1202.2.1. (CBC 718.4)
 - Exceptions:
 - Buildings equipped throughout with an automatic sprinkler system.
- In combustible construction where fire partitions do not extend to the underside of the floor or roof sheathing, deck or slab above, the space above and along the line of the fire partition shall be provided with one of the following (CBC 708.4.2):
 - Fireblocking up to the underside of the floor or roof sheathing, deck or slab above using materials complying with CBC 718.2.1
 - Draftstopping up to the underside of the floor or roof sheathing, deck or slab above using materials complying with CBC 718.3.1 and CBC 718.4.1, for floors or attics, respectively
 - See exceptions under CBC 708.4.2

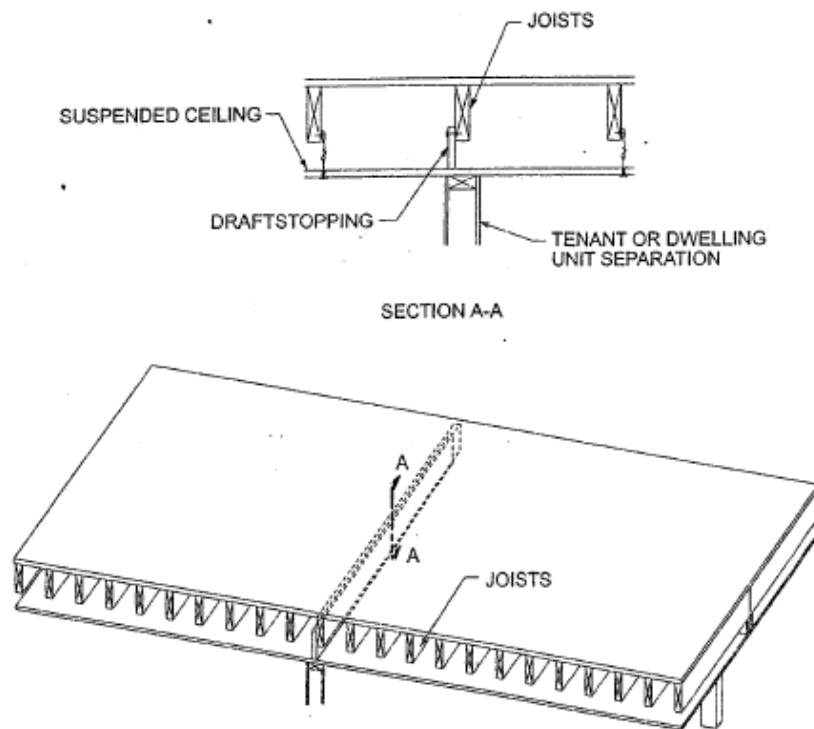


Figure 087 – Draftstopping at tenant and dwelling unit separations

CONCEALED SPACES IN TYPE I OR TYPE II CONSTRUCTION

- Combustible materials shall not be permitted in concealed spaces of building of Type I or Type II construction. (CBC 718.5)
 - See applicable exceptions on CBC 718.5.

MEMBRANE PENETRATIONS

- Where walls or partitions are required to have a fire-resistance rating, recessed fixtures shall be installed such that the required fire-resistance will not be reduced. (CBC 714.3.2)
 - Exceptions:
 - Membrane penetrations of maximum 2-hour fire-resistance-rated walls and partitions by steel electrical boxes that do not exceed 16 square inches in area, provided 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". Such boxes on opposite sides of the wall or partition shall be separated by one of the following:
 - By a horizontal distance of not less than 24" where the wall or partition is constructed with individual noncommunicating stud cavities;
 - 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;
 - By solid fireblocking in accordance with Section 718.2.1;
 - By protecting both outlet boxes with listed putty pads; or
 - By other listed materials and methods.
 - Membrane penetrations by listed electrical boxes of any material, provided such 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" unless listed otherwise. Such boxes on opposite sides of the wall or partition shall be separated by one of the following:
 - By the horizontal distance specified in the listing of the electrical boxes;
 - By solid fireblocking in accordance with Section 718.2.1;
 - By protecting both boxes with listed putty pads; or
 - By other listed materials and methods.
 - Membrane penetrations by electrical boxes of any size or type, that have been listed as part of a wall opening protective material system for use in fire-resistance-rated assemblies and are installed in accordance with the instructions included in the listing.
 - Membrane penetrations by boxes other than electrical boxes, provided such penetrating items and the annular space between the wall membrane and the box, are protected by an approved membrane penetration firestop system installed as tested in accordance with ASTM E814 or UL 1479, with a minimum positive pressure differential of 0.01" of water, and shall have an F and T rating of not less than the required fire-resistance rating of the wall penetrated and be installed in accordance with their listing.
 - The annular space created by the penetration of an automatic sprinkler, provided it is covered by a metal escutcheon plate.

- Membrane penetrations of maximum 2-hour fire resistance-rated walls and partitions by steel electrical boxes that exceed 16 square inches in area, or steel electrical boxes of any size having an aggregate area through the membrane exceeding 100 square inches in any 100 square feet of wall area, provided such penetrating items are protected by listed putty pads or other listed materials and methods, and installed in accordance with the listing.

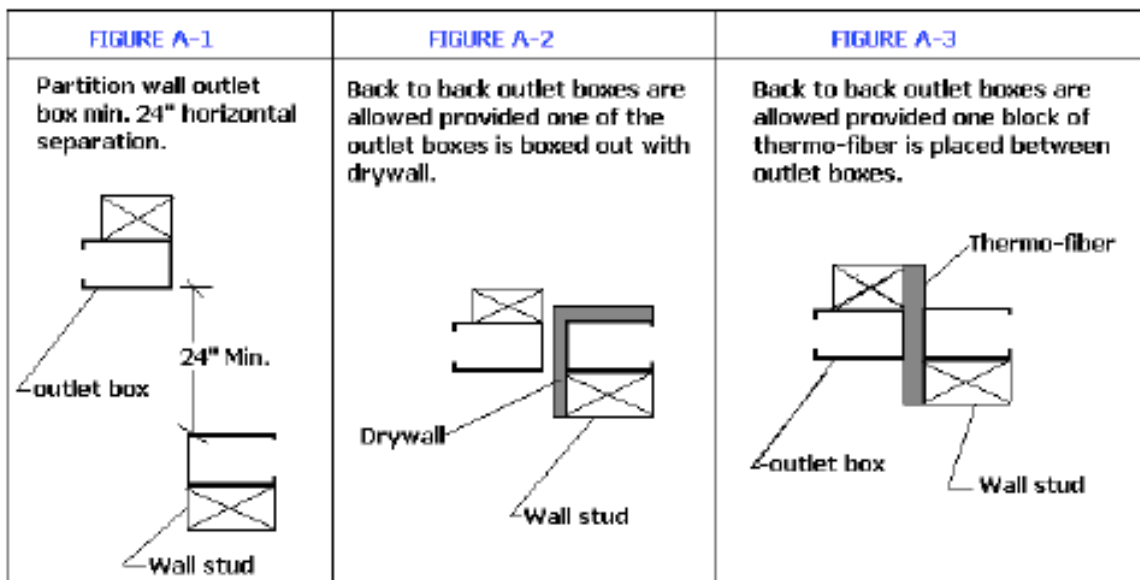


Figure 088 – Multi-Family partition walls