BUILD: SANDY SPRINGS

Let’s build something great together

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- "BUILD: SANDY SPRINGS" is a series of seminars presented by the Community Development department of the City of Sandy Springs, GA.
- It is intended to educate the public on the current policies, procedures and expectations of the City of Sandy Springs, GA as it relates to construction within the jurisdiction.
- The information presented in these seminars is subject to change with new Code adoptions, changes in City ordinances and zoning, and changes in office policy as it relates to current construction trends.

RESIDENTIAL INSPECTIONS 101

2012 International Residential Building Code (2012 IRC)

SANDY SPRINGS™
GEORGIA

October 3, 2018

Building Official: Jonathan Livingston, P.E., LEED AP
(Presenter)

Inspectors: Wayne Kell
Gary Cruz
Plamen Borissov, P.E.
Jason Stephenson (Nova)

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Sandy Springs Law

FUN FACTS

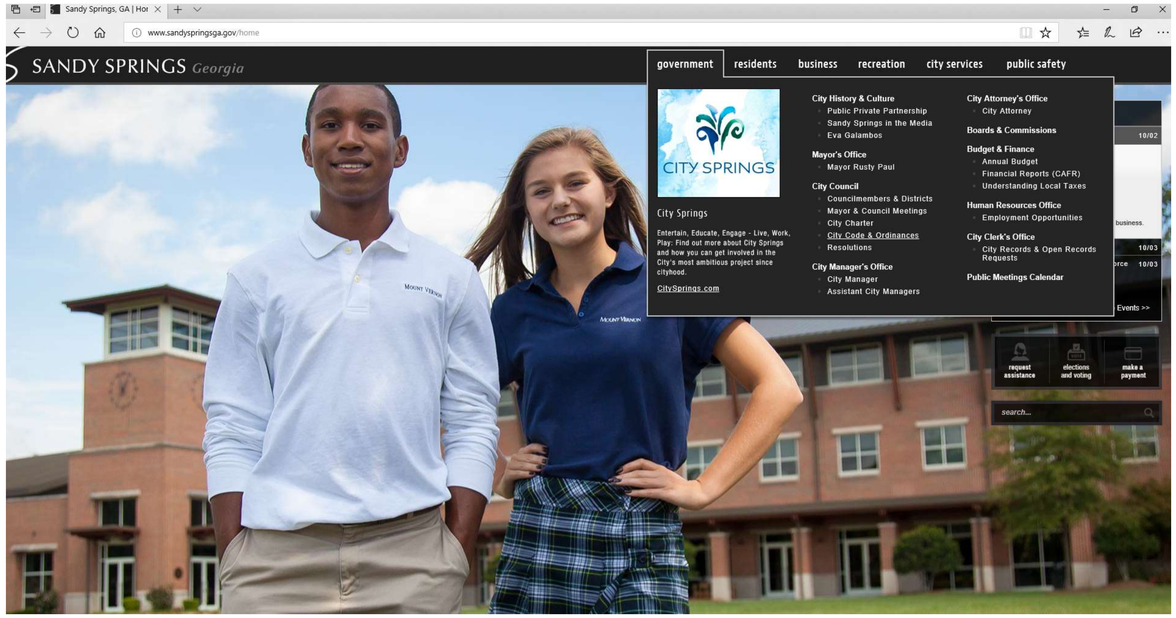
- Sandy Springs, Georgia was incorporated in 2005
- Sixth largest city in Georgia
- Second largest city in the metropolitan area
- With roots dating back to the 1800s, Sandy Springs originated as a watering stop for Native-Americans who frequented the bubbling springs here, and quickly became a community as settlers moved into the area.
- As the city grew, it never created a downtown.
- Construction of the City's downtown area called "City Springs" that houses general City services and the Performing Arts Center was completed in 2018.

SANDY SPRINGS
GEORGIA

CITY SPRINGS

“THE CODE OF THE CITY OF SANDY SPRINGS, GEORGIA”

- The Code constitutes a codification of the general and permanent ordinances of the City of Sandy Springs, Georgia
- The City enforces the latest edition of the state minimum standard codes, as adopted and amended by the state department of community affairs
- The Codes can be found at the City website: www.sandyspringsga.gov
  - Click on “Government” tab, then navigate to “City Council” and “City Code and Ordinances”



Sec. 105-41. - Code Remedial

- “The construction codes adopted in this article are hereby declared to be remedial, and is construed to secure the beneficial interests and purposes thereof, which are public safety, health, and general welfare, through structural strength, stability, sanitation, adequate light and ventilation, and safety to life and property from fire and other hazards attributed to the built environment including alteration, repair, removal, demolition, use, and occupancy of buildings, structures, or premises, and by regulating the installation and maintenance of all electrical, gas, mechanical, and plumbing systems, which may be referred to as service systems.”
- “The inspection or permitting of any building, system, or plan under the requirements of construction codes shall not be construed in any court as a warranty of the physical condition of such building, system or plan or their adequacy.

Sec. 105-45. - Building Official (General)

- The building official is hereby authorized and directed to enforce the provisions of the construction codes.
- The building official is further authorized to render interpretations of the construction codes, which are consistent with its intent and purpose.
- Whenever necessary to make an inspection to enforce any of the provisions of the construction codes, or whenever the building official has reasonable cause to believe that there exists in any building or upon any premises any condition or code violation which makes such building, structure, premises, electrical, gas, mechanical, or plumbing systems unsafe, dangerous, or hazardous, the building official may enter such building, structure, or premises at all reasonable times to inspect the same or to perform any duty imposed upon the building official by these construction codes

Sec. 105-45. - Building Official (Stop Work Order)

- Upon notice from the building official, work on any building, structure, electrical, gas, mechanical, or plumbing system that is being done contrary to the provisions of the construction codes, or in a dangerous or unsafe manner, shall immediately cease.
- Such notice is in writing and is given to the owner of the property, or to his agent, or to the person doing the work, and shall state the conditions under which work may be resumed.
- Where an emergency exists, the building official shall not be required to give a written notice prior to stopping the work.

Sec. 105-45. - Building Official (Revocation of Permits)

- *Misrepresentation of application.* The building official may revoke a permit or approval, issued under the provisions of the construction codes, in case there has been any false statement or misrepresentation as to the material fact in the application or plans on which the permit or approval was based.
- *Violation of code provisions.* The building official may revoke a permit upon determination by the building official that the construction, erection, alteration, repair, moving, demolition, installation or replacement of the building, structure, electrical, gas, mechanical, or plumbing systems for which the permit was issued is in violation of, or not in conformity with, the provisions of the construction codes.

Sec. 105-45. - Building Official (Unsafe Buildings)

- All buildings, structures, electrical, gas, mechanical, or plumbing systems which are unsafe, unsanitary, or do not provide adequate egress, or which constitute a fire hazard, or are otherwise dangerous to human life, or which in relation to existing use constitute a hazard to safety or health, are considered unsafe buildings or service systems.

Sec. 105-46. - Permits (Design Professional)

- The design professional is an architect or engineer legally registered under the laws of this state regulating the practice of architecture or engineering and shall affix his official seal to said drawings, specifications, and accompanying data, for the following:
    a. All group A, E, and I occupancies.
    b. Buildings and structures three stories or more high.
    c. Buildings and structures 5,000 square feet (465 m^2) or more in area.
- Single-family dwellings, regardless of size, shall require neither a registered architect nor engineer, nor a certification that an architect or engineer is not required.

Sandy Springs Design Professional Requirement

- Single-family dwellings, regardless of size, shall require a structural engineer's seal registered in the State of Georgia for each of the following conditions:
  - Major renovations to existing buildings including the following:
    - Adding a second floor
    - Removing load bearing walls and/or columns
    - Modifying existing structural components
    - Enlarging existing openings
    - Adding additional load to existing structural components
    - Any condition determined by the Building Official to require a registered engineer's seal.

Sec. 105-46(h)(5). - Permits (Posting of Permit)

- Work requiring a permit shall not commence until the permit holder or his/her agent posts the permit card in a conspicuous place on the premises.
- The permit shall be protected from the weather and located at a prominent location within five feet of a right-of-way at approximately five feet above grade, parallel to and facing the street within the right-of-way and prominently visible from the right-of-way.

Sec. 105-46(h)(5). - Permits (Posting of Permit)

- Work requiring a permit shall not commence until the permit holder or his/her agent posts notice of the allowable work hours that are stipulated within the city noise ordinance (section 38-81 et seq.). The allowable work hours notice shall be prominently posted at all primary points of construction access to the site, at the permit posting location in a position readily visible without opening any enclosure and within any enclosure containing permit materials, and at all primary points of construction access to the interior of any building within which construction activity occurs.
- The allowable work hours notices shall be located prominently at eye level.

Sec. 105-46(h)(7). - Permits (Written Release)

- Work shall not be done on any part of a building, structure, electrical, gas, mechanical, or plumbing system beyond the point indicated in each successive inspection without first obtaining a written release from the building official. Such written release is given only after an inspection has been made of each successive step in the construction or installation as indicated by each of the foregoing three inspections.

Sec. 105-46(h)(8). - Permits (Covered or Concealed)

- Reinforcing steel, structural frame, insulation, plumbing, mechanical, or electrical work of any part of any building or structure shall not be covered or concealed without first obtaining a release from the building official.

Sec. 105-21. - Violations and penalties.

- Any person, firm, corporation, or agent who shall violate a provision of the construction codes, or fail to comply therewith, or with any of the requirements thereof, or who shall erect, construct, alter, install, demolish, or move any structure, electrical, gas, mechanical, or plumbing system, or has erected, constructed, altered, repaired, moved or demolished a building, electrical, gas, mechanical, or plumbing system, in violation of a detailed statement or drawing submitted and permitted thereunder are guilty of a violation of this Code.

Sec. 105-21. - Violations and penalties.

- What does this mean?
  - Required to build what is on the permitted construction documents.
  - Inspectors are required to enforce what is on the permitted construction documents.
  - If you deviate from your permitted construction documents, you must submit a plan revision to the Building Official for approval.
  - Major revisions may require a structural engineering letter and/or detail and must be submitted to the Building Official for approval.

Sec. 105-46(i)(1). – Certificate of Occupancy

- A new building shall not be occupied or a change made in the occupancy, nature, or use of a building or part of a building until after the building official has issued a certificate of occupancy.
- Said certificate shall not be issued until all required electrical, gas, mechanical, plumbing, and fire protection systems have been inspected for compliance with the construction codes and other applicable laws and ordinances and released by the building official.

Sec. 105-46(i)(1). – Issuing Certificate of Occupancy

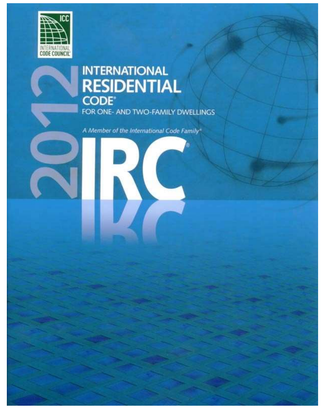
- Upon satisfactory completion of construction of a building or structure and installation of electrical, gas, mechanical, and plumbing systems in accordance with the construction codes, reviewed plans and specifications, and after the final inspection and acceptance of as-built drawings, the building official shall issue a certificate of occupancy.
  - As-built drawings: Site development as-built drawings, containing a boundary survey, location, elevation, height, and square footage of buildings, parking areas, utilities, walls, and stormwater facilities, pertinent site development data, and any other requirements of the community development director shall be submitted to and approved by the department prior to the issuance of a certificate of occupancy.

Sec. 105-46(i)(2). – Certificate of Completion

- Upon satisfactory completion of a building, structure, electrical, gas, mechanical, or plumbing system, a certificate of completion may be issued. This certificate is proof that a structure or system is complete and for certain types of permits is released for use and may be connected to a utility system. This certificate does not grant authority to occupy or connect a building, such as a shell building, prior to the issuance of a certificate of occupancy.

Building Codes

Building Codes



International Residential Code, 2012 Edition (2012 IRC)
- Including Georgia Amendments (2014) (2015)(2018)
- 2012 IRC Appendices G, J, O

International Fire Code, 2012 Edition (2012 IFC)
- Including Georgia Amendments (2014)

International Plumbing Code, 2012 Edition (2012 IPC)
- Including Georgia Amendments (2014) (2015)
- 2012 International Plumbing Code Appendices C, I

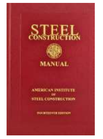
International Mechanical Code, 2012 Edition (2012 IMC)
- Including Georgia Amendments (2014) (2015)

International Fuel Gas Code, 2012 Edition (2012 IFGC)
- Including Georgia Amendments (2014) (2015)

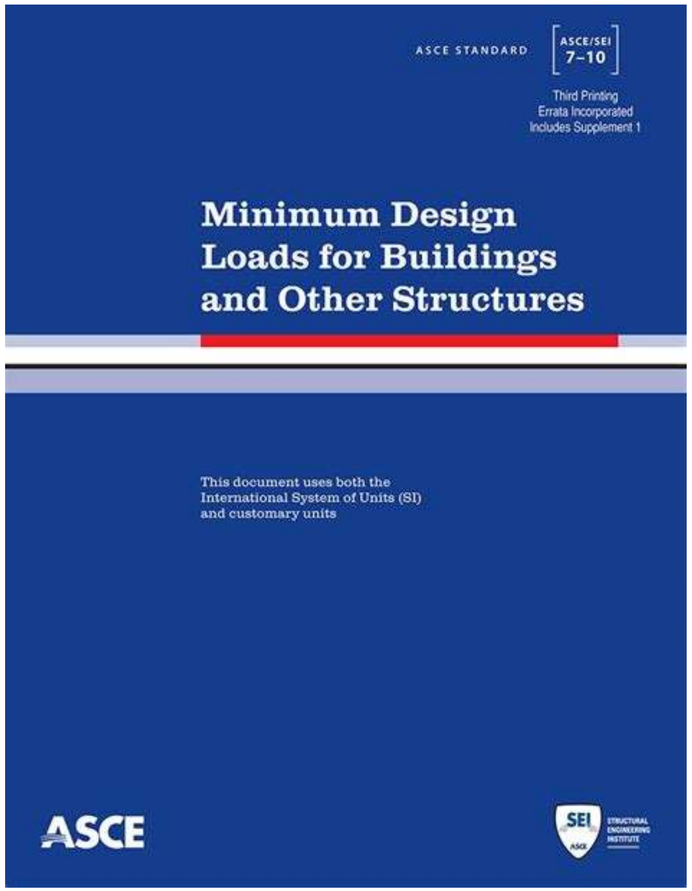
National Electrical Code, 2017 Edition
- No Georgia Amendments

International Energy Conservation Code, 2009 Edition (2009 IECC)
- Including Georgia Supplements and Amendments (2011) (2012)

International Swimming Pool and Spa Code, 2012 Edition (2012 ISPSC)
- Including Georgia Amendments (2014)



Design Criteria - ASCE 7 – 10: Minimum Design Loads for Buildings and Other Structures



Wind Speed (3-second gust):

- Risk Category I: 105 mph (Farming)
- Risk Category II: 115 mph (Residential)
- Risk Category III: 120 mph (Hospital / Police / Fire)

TABLE R301.2.1.3
EQUIVALENT BASIC WIND SPEEDS[a]

3-second gust, V_{3s}	85	90	100	105	110	120	125	130	140	145	150	160	170
Fastest mile, V_{fm}	71	76	85	90	95	104	109	114	123	128	133	142	152

For SI: 1 mile per hour = 0.447 m/s.
a. Linear interpolation is permitted.

Ground Snow Load:

- 5 psf

Seismic:

- S_S=0.200g (Risk Category I, II & III, Site Class D)
- S_1=0.093g (Risk Category I, II & III, Site Class D)
- Seismic Design Category C (Risk Category II)

Design Criteria - 2012 International Residential Code

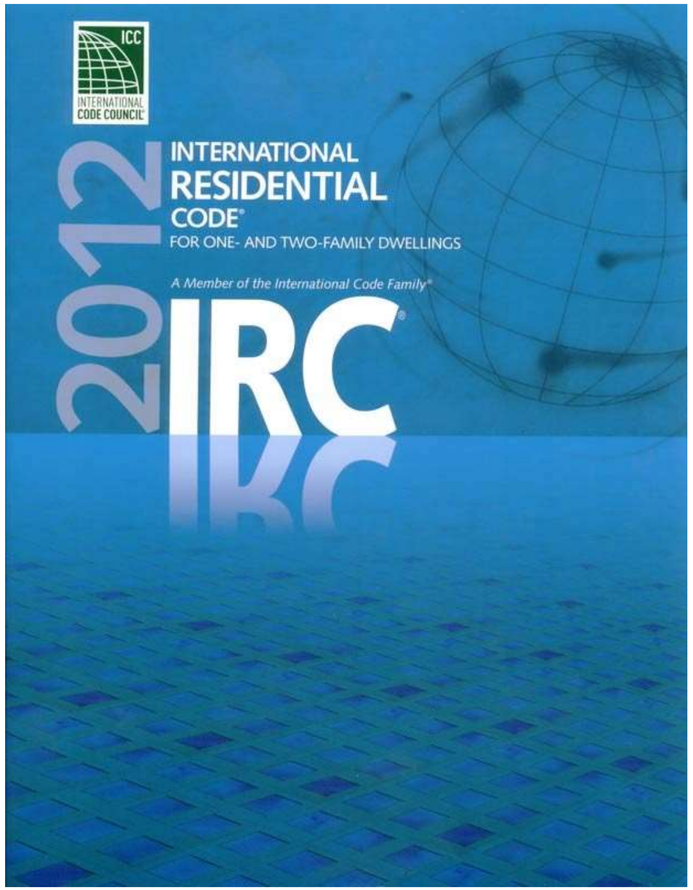


TABLE R301.5
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS
(in pounds per square foot)

USE	LIVE LOAD
Uninhabitable attics without storage[b]	10
Uninhabitable attics with limited storage[b, g]	20
Habitable attics and attics served with fixed stairs	30
Balconies (exterior) and decks[e]	40
Fire escapes	40
Guardrails and handrails[d]	200[h]
Guardrail in-fill components[f]	50[h]
Passenger vehicle garages[a]	50[a]
Rooms other than sleeping room	40
Sleeping rooms	30
Stairs	40[c]

For SI: 1 pound per square foot = 0.0479 kPa, 1 square inch = 645 mm^2,
1 pound = 4.45 N.

a. Elevated garage floors shall be capable of supporting a 2,000-pound load applied over a 20-square-inch area.

b. Uninhabitable attics without storage are those where the maximum clear height between joists and rafters is less than 42 inches, or where there are not two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches high by 24 inches in width, or greater, within the plane of the trusses. This live load need not be assumed to act concurrently with any other live load requirements.

c. Individual stair treads shall be designed for the uniformly distributed live load or a 300-pound concentrated load acting over an area of 4 square inches, whichever produces the greater stresses.

d. A single concentrated load applied in any direction at any point along the top.

e. See Section R502.2.2 for decks attached to exterior walls.

f. Guard in-fill components (all those except the handrail), balusters and panel fillers shall be designed to withstand a horizontally applied normal load of 50 pounds on an area equal to 1 square foot. This load need not be assumed to act concurrently with any other live load requirement.

g. Uninhabitable attics with limited storage are those where the maximum clear height between joists and rafters is 42 inches or greater, or where there are two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches in height by 24 inches in width, or greater, within the plane of the trusses.
The live load need only be applied to those portions of the joists or truss bottom chords where all of the following conditions are met:
1. The attic area is accessible from an opening not less than 20 inches in width by 30 inches in length that is located where the clear height in the attic is a minimum of 30 inches.
2. The slopes of the joists or truss bottom chords are no greater than 2 inches vertical to 12 units horizontal.
3. Required insulation depth is less than the joist or truss bottom chord member depth.
The remaining portions of the joists or truss bottom chords shall be designed for a uniformly distributed concurrent live load of not less than 10 lb/ft^2.

h. Glazing used in handrail assemblies and guards shall be designed with a safety factor of 4. The safety factor shall be applied to each of the concentrated loads applied to the top of the rail, and to the load on the in-fill components. These loads shall be determined independent of one another, and loads are assumed not to occur with any other live load.

Design Criteria - 2012 International Residential Code

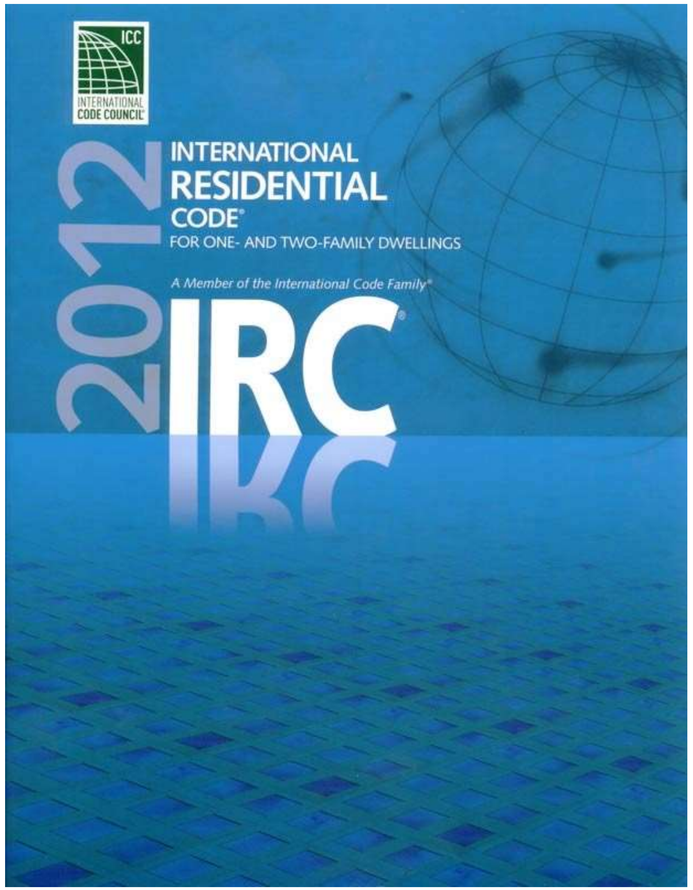


TABLE R301.6
MINIMUM ROOF LIVE LOADS IN POUNDS-FORCE PER SQUARE FOOT OF HORIZONTAL PROJECTION

ROOF SLOPE	TRIBUTARY LOADED AREA IN SQUARE FEET FOR ANY STRUCTURAL MEMBER		
	0 to 200	201 to 600	Over 600
Flat or rise less than 4 inches per foot (1:3)	20	16	12
Rise 4 inches per foot (1:3) to less than 12 inches per foot (1:1)	16	14	12
Rise 12 inches per foot (1:1) and greater	12	12	12

For SI: 1 square foot = 0.0929 m^2, 1 pound per square foot = 0.0479 kPa, 1 inch per foot = 83.3 mm/m.

R301.7 Deflection.
The allowable deflection of any structural member under the live load listed in Sections R301.5 and R301.6 or wind loads determined by Section R301.2.1 shall not exceed the values in Table R301.7.

TABLE R301.7
ALLOWABLE DEFLECTION OF STRUCTURAL MEMBERS[b, c]

STRUCTURAL MEMBER	ALLOWABLE DEFLECTION
Rafters having slopes greater than 3:12 with no finished ceiling attached to rafters	*L*/180
Interior walls and partitions	*H*/180
Floors/ceilings with plaster or stucco finish	*L*/360
All other structural members	*L*/240
Exterior walls—wind loads[a] with plaster or stucco finish	*H*/360
Exterior walls with other brittle finishes	*H*/240
Exterior walls with flexible finishes	*H*/120[d]
Lintels supporting masonry veneer walls[e]	*L*/600

Note: *L* = span length, *H* = span height.
a. The wind load shall be permitted to be taken as 0.7 times the Component and Cladding loads for the purpose of the determining deflection limits herein.
b For cantilever members, *L* shall be taken as twice the length of the cantilever.
c. For aluminum structural members or panels used in roofs or walls of sunroom additions or patio covers, not supporting edge of glass or sandwich panels, the total load deflection shall not exceed *L*/60. For continuous aluminum structural members supporting edge of glass, the total load deflection shall not exceed *L*/175 for each glass lite or *L*/60 for the entire length of the member, whichever is more stringent. For sandwich panels used in roofs or walls of sunroom additions or patio covers, the total load deflection shall not exceed *L*/120.
d. Deflection for exterior walls with interior gypsum board finish shall be limited to an allowable deflection of *H*/180.
e. Refer to Section R703.7.2.

R301.8 Nominal sizes.
For the purposes of this code, where dimensions of lumber are specified, they shall be deemed to be nominal dimensions unless specifically designated as actual dimensions.

Inspections
(City of Sandy Springs & 3rd Party)

Sec. 105-46(h)(6). - Permits (Required Inspections)

- The building official, upon notification from the permit holder or his agent, shall make the following inspections and such other inspections as necessary, and shall either release that portion of the construction or shall notify the permit holder or his agent of any violations which must be corrected in order to comply with the technical code:

    1. Footing Inspection: The footing inspection is to be made after trenches are excavated and reinforcement rods are in place.
    2. Foundation Inspection: The foundation inspection is to be made after the forms have been erected and the reinforcing steel is in place.

Sec. 105-46(h)(6). - Permits (Required Inspections)

3. Underslab Inspection: The underslab inspection is to be made after trenches are excavated and all electrical conduit and plumbing pipe have been installed.
4. Slab Inspection: The slab inspection is to be made after the steel, wire and vapor barrier are in place.
5. Rough inspection: The rough framing inspection is to be made after the roof, all framing, fire blocking, and bracing are in place, all concealed wiring, all pipes, chimneys, ducts, and vents are complete.
6. Final inspection: The final building inspection is to be made after the building is complete and ready for occupancy.

Other Specific Required Inspections

- Foundation Waterproofing
- Exterior Sheathing Inspection
- Exterior House Wrap Inspection
- Interior Insulation Inspection

THIRD PARTY INSPECTIONS

- Are They Allowed?
  - YES per Sec. 105-46(h)(3) - Inspection Service: The building official may accept reports of inspectors of recognized inspection services provided that after investigation he is satisfied as to their qualifications and reliability.
- What is allowed?
  - Structural footings, slabs on grade and foundation walls
- When Are They Allowed?
  - When approved in advance by the Building Official
  - Note: After the fact inspections will not be accepted

THIRD PARTY INSPECTIONS

- Who Can Do Them?
  - All Private Engineer Inspectors with prior approval by the Building Official
  - All reports shall be sealed by a registered engineer in the State of Georgia acting as the responsible officer of such service.
- What is the process?
  - Obtain prior approval from Building Official
  - Request for inspection as Third Party in the Contractor Portal
  - Report Due to Building Official within 48 hours of completion of work with photographs of completed work

THIRD PARTY INSPECTIONS

- Automatic Rejections
  - Falsification of records (certification of an inspection without actually going to the site and personally performing the inspection) is strictly prohibited and subject to legal actions.
  - Errors and omissions are found which are clearly and obviously due to the negligence of the inspector.
  - Any inspection performed when a “Stop Work Order” is in place.
  - Unauthorized and/or unqualified employees perform inspections.
  - Failure to sign and seal reports as the person of responsible charge per Georgia Law.

Foundations

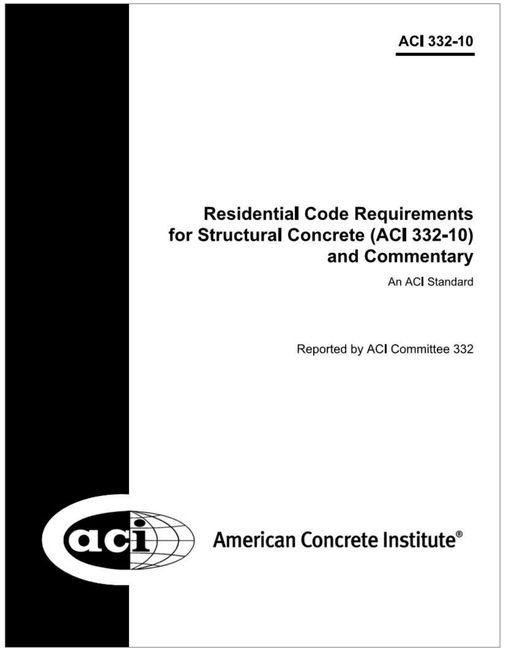
FOUNDATIONS - Concrete

- Minimum Compressive Strength of Concrete:

TABLE R402.2
MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE

TYPE OR LOCATION OF CONCRETE CONSTRUCTION	MINIMUM SPECIFIED COMPRESSIVE STRENGTH[a] (f'_c)		
	Weathering Potential[b]		
	Negligible	Moderate	Severe
Basement walls, foundations and other concrete not exposed to the weather	2,500	2,500	2,500[c]
Basement slabs and interior slabs on grade, except garage floor slabs	2,500	2,500	2,500[c]
Basement walls, foundation walls, exterior walls and other vertical concrete work exposed to the weather	2,500	3,000[d]	3,000[d]
Porches, carport slabs and steps exposed to the weather, and garage floor slabs	2,500	3,000[d, e, f]	3,500[d, e, f]

For SI: 1 pound per square inch = 6.895 kPa.
a. Strength at 28 days psi.
b. See Table R301.2(1) for weathering potential.
c. Concrete in these locations that may be subject to freezing and thawing during construction shall be air-entrained concrete in accordance with Footnote d.
d. Concrete shall be air-entrained. Total air content (percent by volume of concrete) shall be not less than 5 percent or more than 7 percent.
e. See Section R402.2 for maximum cementitious materials content.
f. For garage floors with a steel-troweled finish, reduction of the total air content (percent by volume of concrete) to not less than 3 percent is permitted if the specified compressive strength of the concrete is increased to not less than 4,000 psi.



- Concrete discharge must be completed within 90 minutes after the introduction of water
- Up to 1″ of standing water may be displaced by the concrete if it does not mix with the concrete
  - Caution: Poor soil bearing conditions may exist that can lead to localized settlement and cracking.

FOUNDATIONS - Concrete

- Vibration is the most common method for consolidating fresh concrete. This releases trapped air in fills in any pockets or voids with concrete that are necessary to develop the design properties of the concrete.
  - Rodding
  - Internal vibrator (best method)
  - External vibration
  - Necessary to penetrate the previous placement by at least 6″
  - Alternative: Use self consolidating concrete.
- Construction in field must match the permitted construction drawings.
  - Deviations must be approved by the designer of record and submitted as a revision to the City

FOUNDATIONS – Slab On Grade

SECTION R506
CONCRETE FLOORS (ON GROUND)

R506.1 General.
Concrete slab-on-ground floors shall be designed and constructed in accordance with the provisions of this section or ACI 332. Floors shall be a minimum 3.5 inches (89 mm) thick (for expansive soils, see Section R403.1.8). The specified compressive strength of concrete shall be as set forth in Section R402.2.

R506.2 Site preparation.
The area within the foundation walls shall have all vegetation, top soil and foreign material removed.

R506.2.1 Fill.
Fill material shall be free of vegetation and foreign material. The fill shall be compacted to assure uniform support of the slab, and except where *approved*, the fill depths shall not exceed 24 inches (610 mm) for clean sand or gravel and 8 inches (203 mm) for earth.

R506.2.2 Base.
A 4-inch-thick (102 mm) base course consisting of clean graded sand, gravel, crushed stone or crushed blast-furnace slag passing a 2-inch (51 mm) sieve shall be placed on the prepared subgrade when the slab is below *grade*.

Exception: A base course is not required when the concrete slab is installed on well-drained or sand-gravel mixture soils classified as Group I according to the United Soil Classification System in accordance with Table R405.1.

R506.2.3 Vapor retarder.
A 6-mil (0.006 inch; 152 µm) polyethylene or *approved* vapor retarder with joints lapped not less than 6 inches (152 mm) shall be placed between the concrete floor slab and the base course or the prepared subgrade where no base course exists.

Exception: The vapor retarder may be omitted:

1. From garages, utility buildings and other unheated *accessory structures*.
2. For unheated storage rooms having an area of less than 70 square feet (6.5 m^2) and carports.
3. From driveways, walks, patios and other flatwork not likely to be enclosed and heated at a later date.
4. Where *approved* by the *building official*, based on local site conditions.

R506.2.4 Reinforcement support.
Where provided in slabs on ground, reinforcement shall be supported to remain in place from the center to upper one third of the slab for the duration of the concrete placement.

FOUNDATIONS – Slab On Grade Reinforcement

- Slab on Grade Reinforcement Options:
  1. No Reinforcement:
     - Pros: Allowed by code
     - Cons: Slab will crack
  2. Conventional Reinforcement:
     - Pros: Best performance; does not allow vertical displacement of cracks; easy to support on chairs
     - Cons: Most Expensive

FOUNDATIONS – Slab On Grade Reinforcement

- Slab on Grade Reinforcement Options (continued):
  3. Welded Wire Reinforcement: (Sandy Springs Minimum is WWF 6x6xW1.4xW1.4)
     - Pros: More economical than conventional reinforcement; does not allow vertical displacement of minor cracks
     - Cons: Difficult to work with in rolls; requires chairs spaced approximately 24" on center; (Sandy Springs now requires flat sheets to minimize repeated inspection failures)
  4. Fibermesh: (Sandy Springs requires Fibermesh 300 at 1-1/2 lbs/yd^3 dosage rate)
     - Pros: Easy to install since it is integrated with the concrete; Nothing to inspect and fail; No additional labor to install
     - Cons: Provides a "hairy" texture to finished concrete (Can be burned off); allows vertical displacement of larger cracks

FOUNDATIONS - Reinforcement

- Reinforcement laps are 30 bar diameter or 24″ minimum
- Clear cover for reinforcement:
  - 3″ when cast against earth
  - 1-1/2″ when exposed to earth
  - 3/4“ when exposed to weather
- Poured Concrete Foundation Walls
  - Leave inside of form off for inspection (Sandy Spring Requirement)
  - Tie rebar to form ties
  - Mark the wall thickness on the footing to indicate inside form location

FOUNDATION DAMPROOFING

R406.1 Concrete and masonry foundation dampproofing.
Except where required by Section R406.2 to be waterproofed, foundation walls that retain earth and enclose interior spaces and floors below *grade* shall be dampproofed from the top of the footing to the finished *grade*. Masonry walls shall have not less than $^{3}/_{8}$ inch (9.5 mm) portland cement parging applied to the exterior of the wall. The parging shall be dampproofed in accordance with one of the following:

1. Bituminous coating.
2. Three pounds per square yard (1.63 kg/m^2) of acrylic modified cement.
3. One-eighth inch (3.2 mm) coat of surface-bonding cement complying with ASTM C 887.
4. Any material permitted for waterproofing in Section R406.2.
5. Other *approved* methods or materials.

Exception: Parging of unit masonry walls is not required where a material is *approved* for direct application to the masonry.

Concrete walls shall be dampproofed by applying any one of the above listed dampproofing materials or any one of the waterproofing materials listed in Section R406.2 to the exterior of the wall.

FOUNDATION WATERPROOFING

R406.2 Concrete and masonry foundation waterproofing.
In areas where a high water table or other severe soil-water conditions are known to exist, exterior foundation walls that retain earth and enclose interior spaces and floors below *grade* shall be waterproofed from the top of the footing to the finished *grade*. Walls shall be waterproofed in accordance with one of the following:

1. Two-ply hot-mopped felts.
2. Fifty-five-pound (25 kg) roll roofing.
3. Six-mil (0.15 mm) polyvinyl chloride.
4. Six-mil (0.15 mm) polyethylene.
5. Forty-mil (1 mm) polymer-modified asphalt.
6. Sixty-mil (1.5 mm) flexible polymer cement.
7. One-eighth-inch (3 mm) cement-based, fiber-reinforced, waterproof coating.
8. Sixty-mil (1.5 mm) solvent-free liquid-applied synthetic rubber.

Exception: Organic-solvent-based products such as hydrocarbons, chlorinated hydrocarbons, ketones and esters shall not be used for ICF walls with expanded polystyrene form material. Use of plastic roofing cements, acrylic coatings, latex coatings, mortars and pargings to seal ICF walls is permitted. Cold-setting asphalt or hot asphalt shall conform to type C of ASTM D 449. Hot asphalt shall be applied at a temperature of less than 200°F (93°C).

All joints in membrane waterproofing shall be lapped and sealed with an adhesive compatible with the membrane.

Framing

FRAMING

- Foundation Anchorage:

R403.1.6 Foundation anchorage.
Sill plates and walls supported directly on continuous foundations shall be anchored to the foundation in accordance with this section.

Wood sole plates at all exterior walls on monolithic slabs, wood sole plates of *braced wall panels* at building interiors on monolithic slabs and all wood sill plates shall be anchored to the foundation with anchor bolts spaced a maximum of 6 feet (1829 mm) on center. Bolts shall be at least $^1/_2$ inch (12.7 mm) in diameter and shall extend a minimum of 7 inches (178 mm) into concrete or grouted cells of concrete masonry units. A nut and washer shall be tightened on each anchor bolt. There shall be a minimum of two bolts per plate section with one bolt located not more than 12 inches (305 mm) or less than seven bolt diameters from each end of the plate section. Interior bearing wall sole plates on monolithic slab foundation that are not part of a *braced wall panel* shall be positively anchored with *approved* fasteners. Sill plates and sole plates shall be protected against decay and termites where required by Sections R317 and R318. Cold-formed steel framing systems shall be fastened to wood sill plates or anchored directly to the foundation as required in Section R505.3.1 or R603.3.1.

- Holes cannot exceed 40% on load-bearing walls (Figure R602.6.(1)
- Floor system notching L/3, Width of cut D/3, Depth of cut D/6 (Figure R502.8)
- Stud shoes is option for lines 3 and 4. (R602.6 Note 1, Exception) (IPC 305.8)
- Double framing is best to correct lines 4 and 5. No more than 24″ o.c.)
- Drilling /notching of top plate not more than 50% (R602.6.1)
- Joist hangers on all lookouts regardless of length
- Joist hangers, nails or bolts (R502.6)
- Fasteners/Nail pattern (R602.3(1)) (Table 602.3(1) Line 35) (Edges 3″, field 6″)
- Exterior weather resistant covering (R703)
- Hanger not required if slope is greater than 2/12
- Roof tie downs (R802.11)
- Squash blocks per Manufacturer detail
- Straps at garage door. (Top and bottom)(Figure R602.10.6.1
- **No field modification of TJI's, roof trusses or LVL's. (R502.11.3)**

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Fireblocking / Draftstopping

FIREBLOCKING

R302.11 Fireblocking.
In combustible construction, fireblocking 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.

Fireblocking shall be provided in wood-frame construction in the following locations:

1. In concealed spaces of stud walls and partitions, including furred spaces and parallel rows of studs or staggered studs, as follows:
    1.1. Vertically at the ceiling and floor levels.
    1.2. Horizontally at intervals not exceeding 10 feet (3048 mm).
2. At all interconnections between concealed vertical and horizontal spaces such as occur at soffits, drop ceilings and cove ceilings.
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.
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 E 136 requirements.
5. For the fireblocking of chimneys and fireplaces, see Section R1003.19.
6. Fireblocking of cornices of a two-family *dwelling* is required at the line of *dwelling unit* separation.

FIREBLOCKING

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

1. Two-inch (51 mm) nominal lumber.
2. Two thicknesses of 1-inch (25.4 mm) nominal lumber with broken lap joints.
3. One thickness of $^{23}/_{32}$-inch (18.3 mm) wood structural panels with joints backed by $^{23}/_{32}$-inch (18.3 mm) wood structural panels.
4. One thickness of $^{3}/_{4}$-inch (19.1 mm) particleboard with joints backed by $^{3}/_{4}$-inch (19.1 mm) particleboard.
5. One-half-inch (12.7 mm) 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 for the specific application.

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 (3048 mm) 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 minimum height of 16 inches (406 mm) measured vertically. When 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 all fireblocks shall be maintained.

FIREBLOCKING

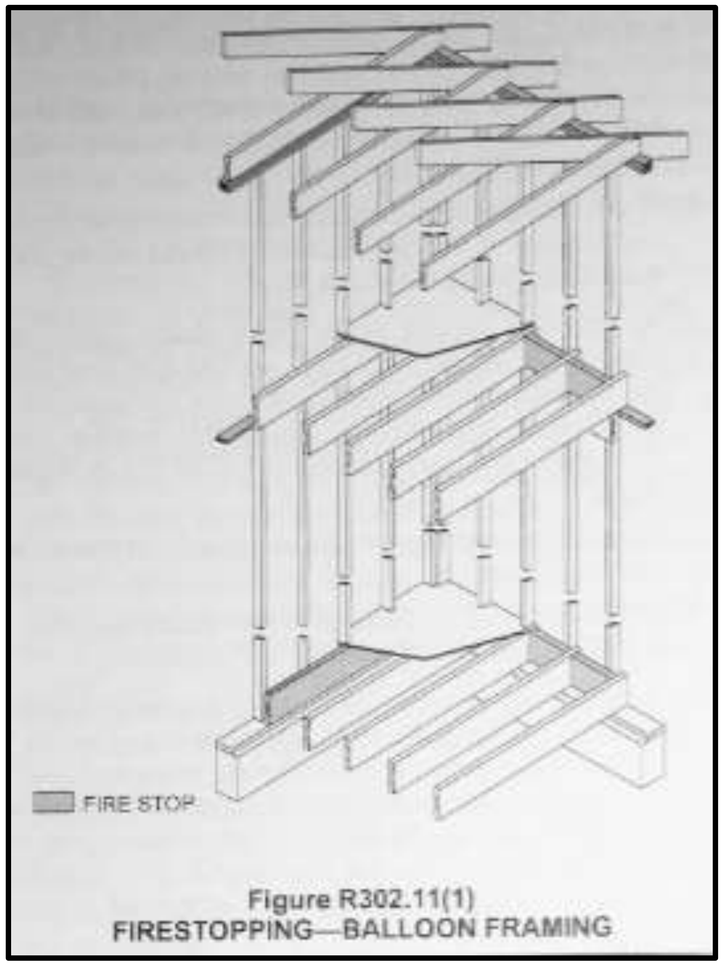

Figure R302.11(1)
FIRESTOPPING—BALLOON FRAMING

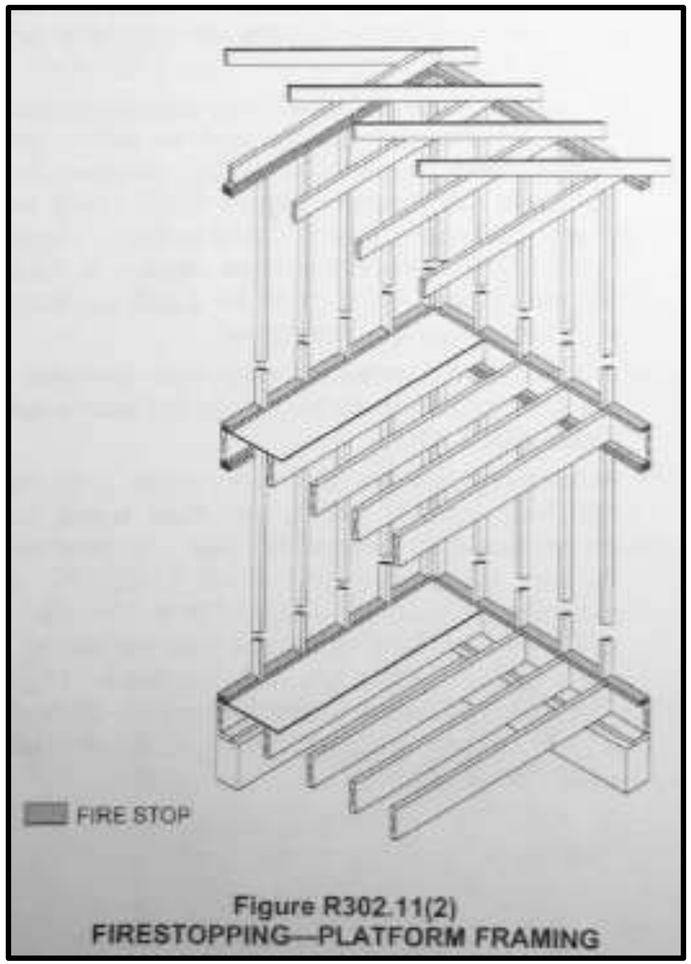

Figure R302.11(2)
FIRESTOPPING—PLATFORM FRAMING

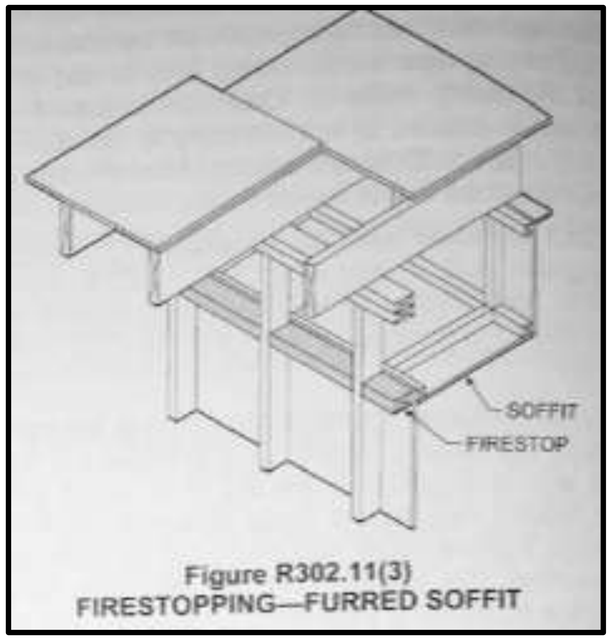

Figure R302.11(3)
FIRESTOPPING—FURRED SOFFIT

FIREBLOCKING

Figure R302.11(4)
FIRESTOPPING—DROPPED CEILING

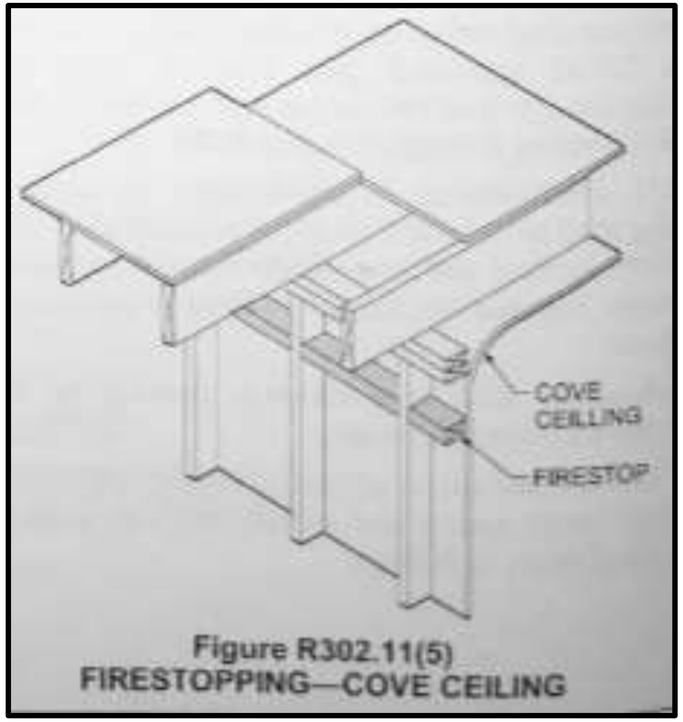

Figure R302.11(5)
FIRESTOPPING—COVE CEILING

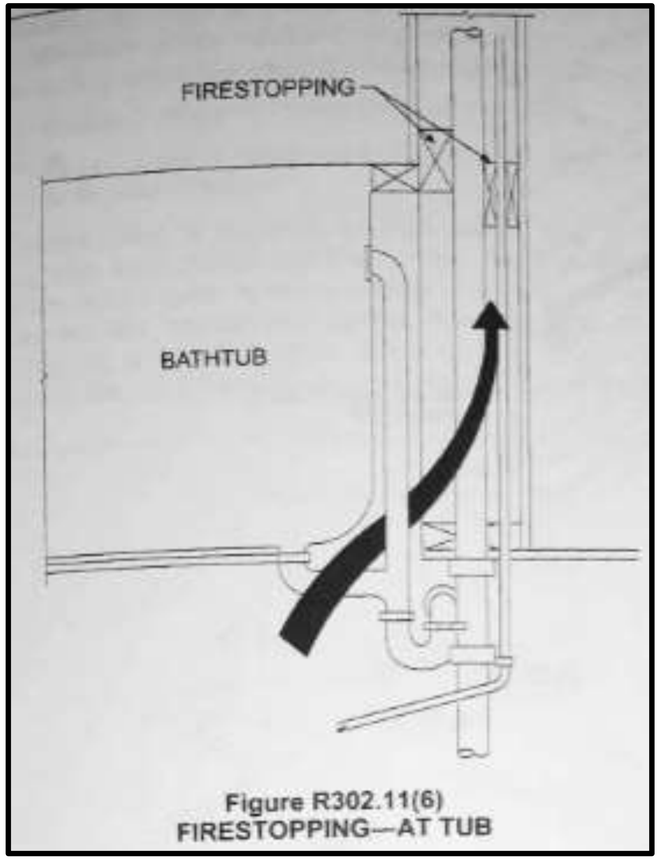

Figure R302.11(6)
FIRESTOPPING—AT TUB

FIREBLOCKING

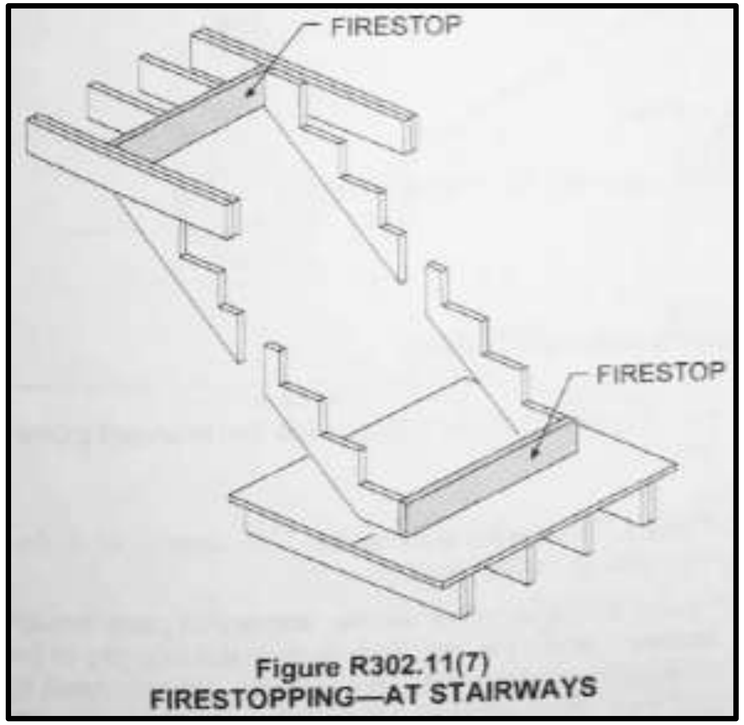

Figure R302.11(7)
FIRESTOPPING—AT STAIRWAYS

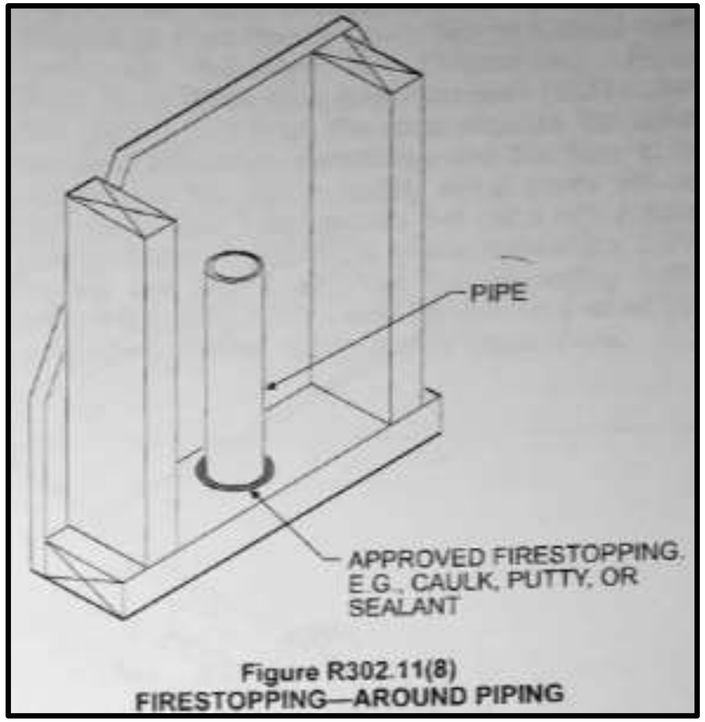

Figure R302.11(8)
FIRESTOPPING—AROUND PIPING

FIREBLOCKING

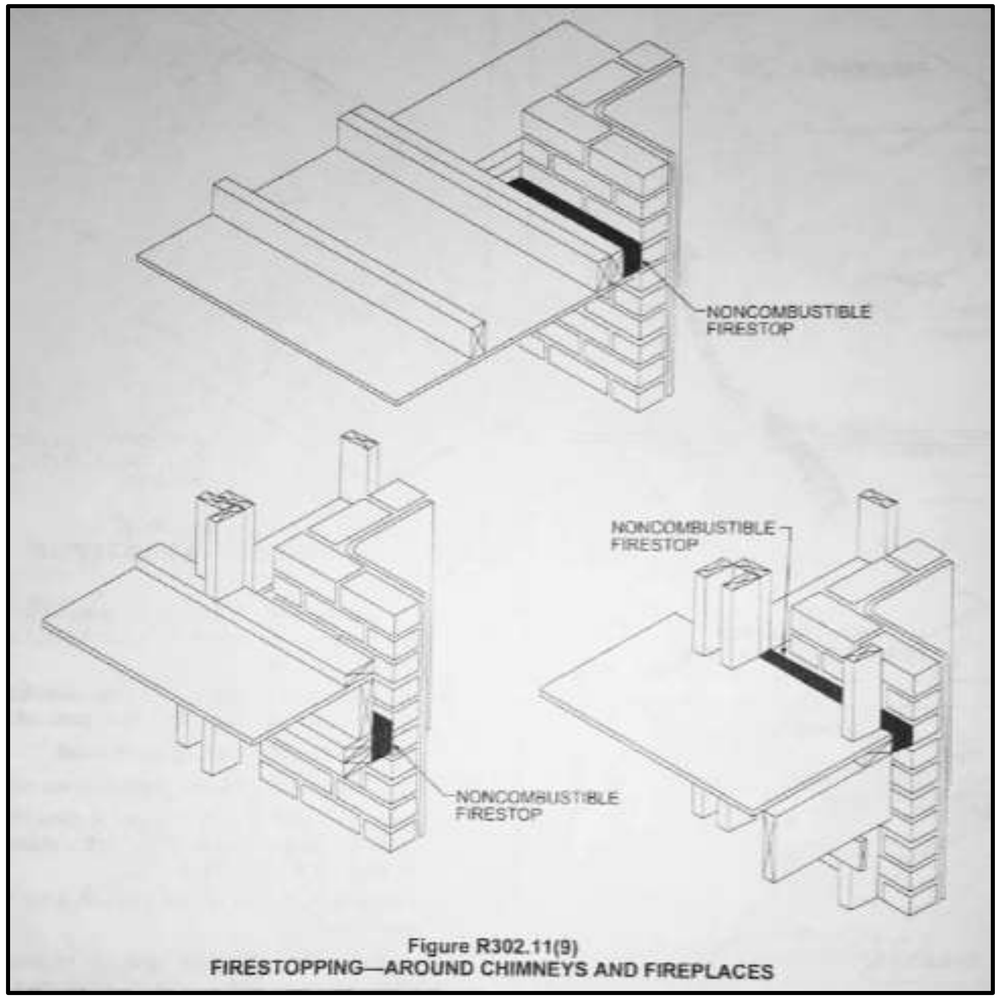

Figure R302.11(9)
FIRESTOPPING—AROUND CHIMNEYS AND FIREPLACES

DRAFT STOPING

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 (92.9 m^2). 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 not be less than $^1/_2$-inch (12.7 mm) gypsum board, $^3/_8$-inch (9.5 mm) wood structural panels or other *approved* materials adequately supported. Draftopping 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

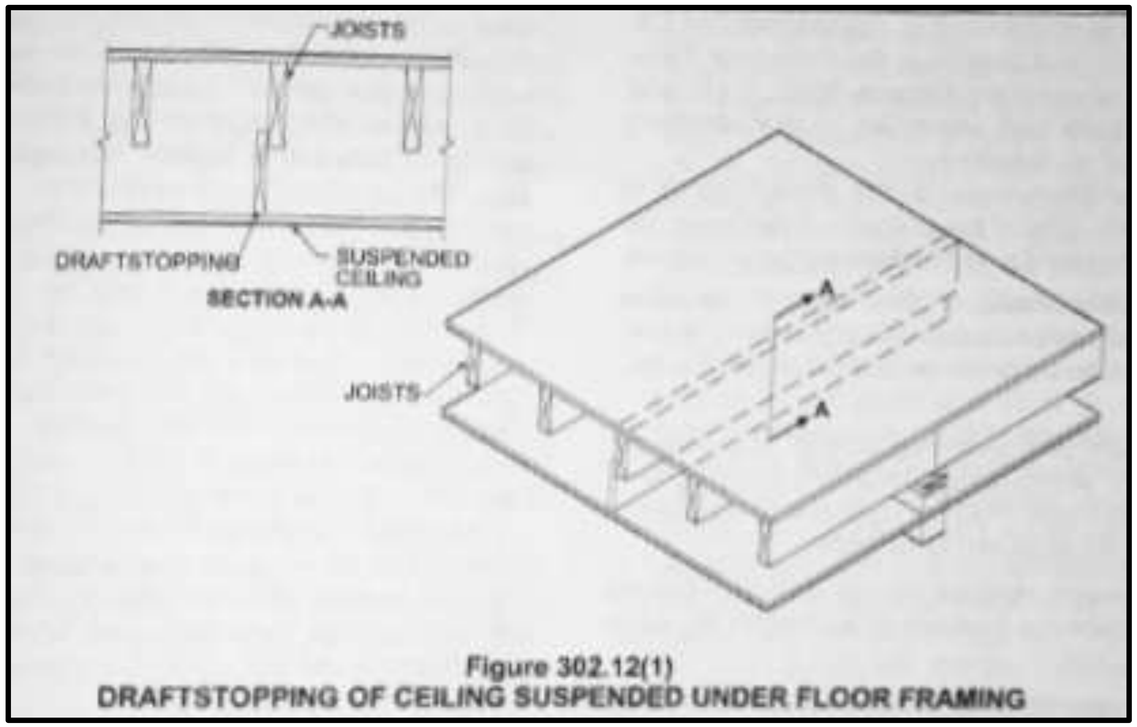

Figure 302.12(1)
DRAFTSTOPPING OF CEILING SUSPENDED UNDER FLOOR FRAMING

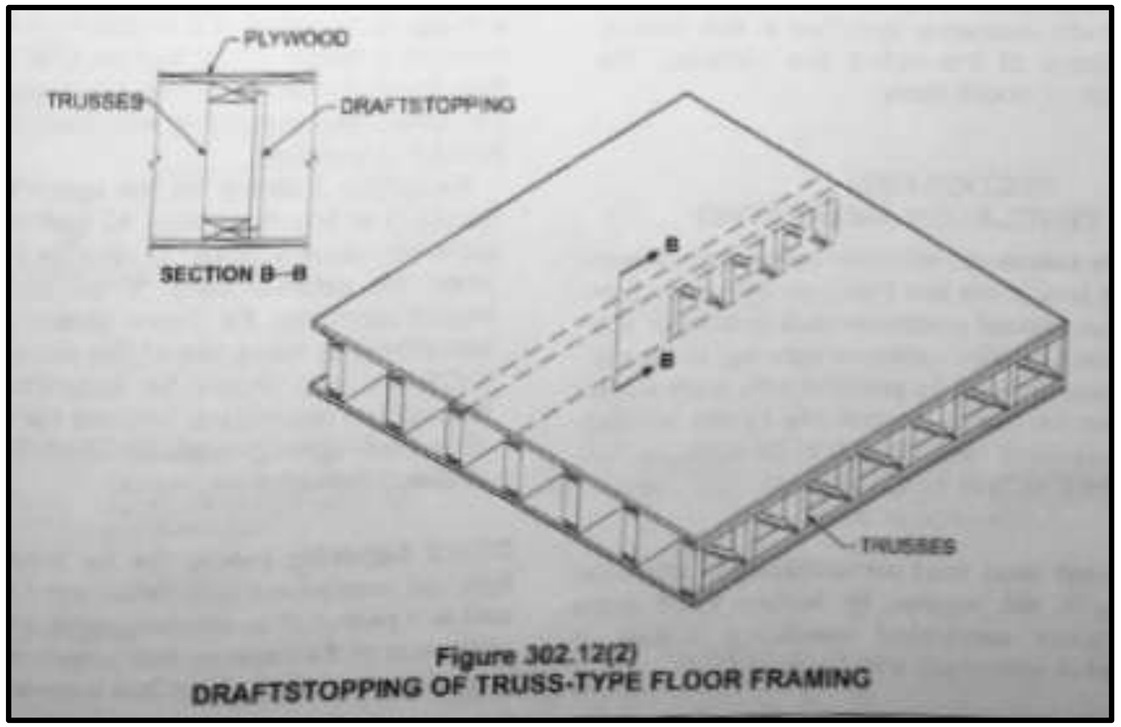

Figure 302.12(2)
DRAFTSTOPPING OF TRUSS-TYPE FLOOR FRAMING

DWELLING/GARAGE PENETRATION PROTECTION

R302.5 Dwelling/garage opening/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.

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, equipped with a self-closing device.

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 (0.48 mm) sheet steel or other *approved* material and shall have no 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.

DWELLING/GARAGE SEPARATION

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. This provision does not apply to garage walls that are perpendicular to the adjacent *dwelling unit* wall.

TABLE R302.6
DWELLING/GARAGE SEPARATION

SEPARATION	MATERIAL
From the residence and attics	Not less than $^{1}/_{2}$-inch gypsum board or equivalent applied to the garage side
From all habitable rooms above the garage	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.

Future Topics

FUTURE TOPICS

- Residential Inspections 102:
  - Mechanical
  - Electrical
  - Plumbing
  - Fuel Gas
  - Insulation
  - Stairs / Handrails
- Exterior Construction 103:
  - Swimming Pools
  - Decks
  - Driveways
  - Site Work
- Planning & Zoning
- Permitting & Submittal Process

Things To Come

THINGS TO COME

- Residential Plan Review
- Updated Inspection List on the Contractor Portal
- Digital Plan Review using BlueBeam® Studio
- “BUILD: Sandy Springs” Seminars Available for download
- Building Officials Corner

Questions?

Survey

Thank You!

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