



## Oconee County South Carolina Residential Building Codes Checklist

The following list is a guide to help builders, contractors and homeowners through the inspection process while using the 2018 South Carolina Residential Code (*2018 International Residential Code*). This guide is not all inclusive and should not be used as a replacement for the IRC. The IRC is available online at [Codes.iccsafe.org](http://Codes.iccsafe.org).

### List of Required Inspections

Below is a list of inspections required by Oconee County Building Codes Department. It is the responsibility of the Builder, Permit Holder, or their Authorized Agent to schedule their inspection online at [Citizenserve.com](http://Citizenserve.com), or call the office (864-718-1005) prior to 4pm to schedule for the next business day. (Do not call your inspector to schedule inspections). If after 4pm, the inspection is subject to be scheduled the following business day (48hrs). Do not schedule your inspections unless all work is completed. If a scheduled inspection is not ready and work not completed at the time of inspection, a \$75.00 fee will be applied to the permit and need to be paid prior to rescheduling. If all work is not completed, no partial inspection will be performed or any type of walkthrough. We will not do a punch list. A punch list is the permit holders' responsibility to make. Do not skip any of these inspections or a \$75.00 fee will be required.

Be aware that South Carolina adopts current codes. We will inform contractors when a new addition of the code will be enforced. If you want to be proactive, Significant Code Change information is available online.

1. **Footing Inspection**
2. **Foundation Steel Inspection** (If applicable) (Pictures of forms with steel placement will be accepted) (If the foundation wall is over 10 feet, engineering design is required and pictures will not be accepted)
3. **Foundation/Waterproofing Inspection**
4. **Pre Slab/ Pre Garage Slab/ Pre Basement Slab/ Monolithic Slab**
5. **Plumbing Under Slab Inspection** (If applicable)
6. **Electrical Under Slab Inspection** (If applicable) (This inspection can be included with Plumbing Under Slab.)
7. **Envelope/Roof Inspection** (This inspection can be included with your Framing Inspection)
8. **Framing Rough Inspection** (Including Mechanical, Electrical, Gas and Plumbing)
9. **NO Insulation Inspection Required** (Insulation will need to be in place behind tubs, showers and in fire chase framing on exterior walls for the framing rough inspection.) (We will still inspect any insulation if scheduled)
10. **Deck Inspection** (Deck footings also to be inspected) (Can be included with the Framing Inspection)
11. **Building Final Inspection**

## **Footing Inspection/Monolithic Slab**

*2018 IRC R401-R403*

1. A portable toilet must be on site.
2. All silt fencing for sediment control measures must be in place.
3. A gravel drive for equipment needed to the job site, this reduces the amount mud and dirt on the public roadway.
4. All set-backs to be approved by the Zoning and Planning Department. (If footings are poured and set-backs not met, you may be subject to concrete removal.) (This is most relevant for lakefront property and subdivisions.)

5. *R319.1* Site address numbers to be posted at the road.
6. Footing inspection to be made after footing trenches are excavated and forms or bulkheads, where applicable, are erected.
7. *R403.1.4* All footings must be 12 inches below undisturbed soil and must have grade pins marking the depth of the projected concrete.
8. All reinforcement steel, when necessary, must be in place and anchored. This inspection must be made prior to pouring concrete.
9. *E3608.1.2* Structures with reinforcing steel that is  $\frac{1}{2}$ " or larger and 20' or longer, must have a grounding electrode system installed per *National Electrical Code 250.50 (3)*. This will be inspected at the same time as the footing inspection. Generally, a bare #4 copper conductor is bonded to the rebar in the location of the future electrical service. This conductor will need to be an adequate length to reach the service.
10. *R403* All footings shall be clear of debris, water and vegetation.
11. If installing footings per engineered plans, have all documents on site or uploaded to the permit file.
12. *R403.1.3.3 and Figure R403.1(1)* If monolithic footing (slab on grade) construction is used, base course (if applicable) must be complete and vapor barrier on site, inspection includes the foundation. (The minimum thickness of the footing shall be 15  $\frac{1}{2}$  inches.)

## **Foundation/Waterproofing and Dampproofing**

*2018 IRC, R404-R408*

### **Masonry Foundation and Concrete Wall Inspection** (Walls over 10 feet require engineering)

1. The foundation block must be completed, and be continuous over any steps or grade changes.
2. Piers must be complete and any brick or other veneer must also be in place.
3. Pier caps must be solid and meet the minimum current SC adopted codes.
4. If steel is required for unbalanced backfill, when applicable, needs steel inspection prior to filling cells or pouring concrete walls.
5. All bonding or other lateral support of intersection walls must be complete and visible.
6. All form boards or step boards must be removed and the foundation trench ready for backfilling.

7. The top of the footings must be clean and clearly visible. For "Cast in Place" concrete walls, all forms and reinforcing steel must be in place and ready for inspection prior to pouring concrete.
8. Foundation Anchorage per *R403.1.6* (J bolts 6 feet OC, within a foot of butt joints and in the middle third of the sill plate) or fastener manufacturer schedule.
9. *R406* Basements must be inspected for water-proofing method, drains, gravel, and filter cloth before being backfilled.
10. *R406* Crawlspace must have damp proofing to finished grade. This will also include the inside face of the garage foundation wall adjacent to the crawlspace.
11. Pier and Curtain Foundation, to be in compliance with section *R404.1.5.3*. (Additional framing is required for this type of foundation) If not per this prescriptive method, will need an engineered design.
12. Column support other than masonry in the crawlspace, supporting floor girders, shall be engineered. (Wood post)

## **Plumbing Under Slab**

*2018 IRC, P2501-P2609.5, P2719, P2901-P3201.7*

1. All rough plumbing that will be concealed under the slab will need water column test. (No air pressure test allowed for plastic piping).
2. The water column test shall fill to a point no less than 5 feet above the highest fitting in that section of the DWV system.
3. The building drain shall maintain a 2% slope.
4. All trenches supporting drains to be free of material (sharp rocks or blocks) that could cause physical damage. Backfill for trenches shall be free of rocks, concrete, and construction debris.
5. Pipes that pass through foundation walls shall be protected by a sleeve or relieving arch.
6. All water supply piping to be completed and tested as well.

## Electrical Under Slab

*2018 IRC Table E3803.1-E3803.11*

1. All electrical under slab wiring to be installed in a raceway.
2. All raceways to be sealed.
3. All insulated conductors and cables to be listed for wet locations. Exception: MC Cable listed for direct burial or concrete encasement can be used.

## Concrete/Basement/Garage/Porch Slab Inspection

*2018 IRC R506, R405*

1. To be made prior to pouring a concrete slab.
2. All reinforcing steel, fill material if required, etc. must be in place and ready to inspect before scheduling this inspection.
3. *R506.2.3* Vapor barrier must be on site and be a minimum of 6 mill poly. The garage must also have poly installed. Porch slabs do not require a vapor barrier.
4. *R506.2.1* A compaction certification is required where fill material exceeds 8 inches in depth (including but not limited to garages, porches and stoops). Stone and quarry dust backfill will not require a compaction test under 24 inches or where approved by the AHJ.
5. Grade pins or chalk line is needed to verify slab thickness.
6. *R309* A slope will be needed for all garage slabs. Flashing to be installed where needed.
7. Porch slabs shall have all flashing installed on inspection.
8. *R405.2.1* A 4-inch base course of gravel, crushed stone, or coarse sand is required under a basement slab floor.

\*\*\*Concrete material waiting to be installed on site will not be an excuse to allow incomplete slabs to be inspected.

## Envelope Inspection Including Roof Covering

*2018 IRC R703, Chapter 9*

Note: Do not install any siding until passing this inspection. If installed without inspection, a \$75.00 fee is required and you may be required to remove all siding for inspection.

1. Be sure when scheduling to include this with your Framing Rough Inspection if combining the two inspections.
2. Take photos of all underlayment and valley flashings prior to installing roof covering.
3. This inspection is to be scheduled after all house wrap or envelope system, roof boots, and roof covering are installed. (At minimum, the roof underlayment shall be installed. By the framing inspection, the roof covering must be installed.)
4. All windows and doors to be installed and flashed per manufacturer specs (Please have all installation instructions available).
5. *R703.4 Pan flashing required for all windows and doors (all window, house wrap, flashing tape, zip system manufacturers require pan flashing). Note: If installed without pan flashing, the windows and doors will need to be removed and installed correctly.*
6. All roofing materials to be installed per *Chapter 9*.
7. All roofing materials to be installed per manufacturer specs.
8. If the roof pitch is 4:12 or less, a roof underlayment inspection will be needed prior to concealing (most applications require 2 layers of felt or other approved materials).
9. All systems to be installed per manufacturer installation guide.
10. Porch slabs to have all flashing installed.

## Framing

2018 *IRC*

Note: If roof covering is not installed on the envelope inspection, it must be installed for the framing inspection. The envelope can be inspected on this inspection.

1. Fire Blocking/Draft Stopping- *R302.11* Fire blocking, *R302.12* Draft Stopping (If mineral wool is to be used, please install prior to the framing inspection) (If any insulation method is used, install per manufacturer, all gaps will need to be sealed. This is applicable for mineral wool and unfaced fiberglass.)
2. Room Areas- *R304* Minimum Room areas, *R305* Ceiling Height
3. Tempered Window- *R308* Glazing (tempered glass locations)
4. Window Sizes- *R310* Emergency Escape and Rescue openings
5. Egress – *R311*, *R311.1* Means of Egress (Egress shall provide a continuous path, unobstructed, from all portions of the house, without traveling through a garage).
6. Stairways, Handrails, Landings- See section *R311.5 – R311.8*, Guards- See section *R312*.
7. Smoke Detectors/Carbon Monoxide- See section *R314*, *R314.4* Interconnection, *R315* Carbon monoxide. *R315.3* (See manufacturer for location requirements) (See *NFPA 72*)
8. Protection of Wood Against Decay- Section *R317* (Pressure Treated Lumber)
9. Fasteners for PT- *R317.3.1*
10. Floors- See *Chapter 5* of the *2015 IRC*. *R502-R502.13*, Blocking needed at breaks in floor joist above floor girders. Double rim joist needed above crawlspace openings if no header is used.
11. Concrete Floors-(Slab) See section *R506*
12. Roof Ceiling Construction- *R802.3*, *R802.3.1*, *R802.3.2*, *R802.5.1*, *R802.6*, *R802.7*, *R802.8*, *R802.8.1*, *R802.9*, *R802.11*, *R802.11.1*, *R802.11.1.2*. All rafters are to have a minimum of 1.5 inch bearing on the bottom side. All rafters within attic space are to have collar ties 4 feet OC. If ridge straps are used, take photos prior to concealing. All rafters are to have uplift resistance per table

R802.11. All valley, hip, and ridge to have proper bearing. A good reference is the AWC Conventional Wood Framed Construction Manual.

13. Roof Ventilation- *R806-806.5* (Attic Ventilation)
14. Attic Access- *R807* Opening required when attic space is 30 inches in height X 30 sq ft. Opening should not be less than 22 inches wide X 30 inches.
15. Exterior Decks- Section *R507-R507.8.1*, Also the American Wood Council 2015 Prescriptive Deck Guide is available online for reference. Deck ledgers to be fastened per *R507.2* with a minimum  $\frac{1}{2}$  inch lag or bolt. (If using an alternative fastener, install per manufacturer specs). Deck ledgers attached to open web floor trusses to be installed per *SBCA* specs. *R507.2.1*, Deck ledgers cannot support concentrated loads from beams or girders unless engineered. *R507.7*, Deck joist and beams shall have a minimum of 1.5 inch bearing on wood or metal, and not less than 3 inches on masonry (ledger strips will no longer be accepted). *R507.2.4*, Deck lateral load connectors to be installed on all decks and per manufacturer. *R507.7.1*, All post to beam connections to be inspected prior to concealing. All beam and joist spans to comply with the tables. *R703.4*, all deck ledgers to be flashed with approved corrosion resistant material.
16. Fastening Schedule- *R602.3.1(1)-(4)*, All framing fastening schedules to comply with this section.
17. Structural Mending Plate- *R602.6.1*, When an interior or exterior bearing wall top plate is cut 50% or more, an approved metal tie is required. (Install all nails per manufacturer)
18. Girder and Header Spans- *Table R602.7(1)-(3)* This section will also give you the number of jack studs required. King Studs- *Table R602.7.5*, Full height studs will be enforced.
19. Exterior Wall Sheathing- All wall sheathing (wood structural panels) to be fastened per *Table R602.3(3)*. If using Zip system, install per manufacturer specs and tape all joints.
20. Chimneys and Fireplaces- See Chapter 10, All masonry fireplaces shall be in compliance with *R1001*, Masonry Chimneys *R1003*, Factory Built Chimneys *R1005*. All factory built chimneys and fireplaces shall be listed and labeled and shall be installed and terminated in accordance with the manufacturer's instructions. Be aware of all clearances and makeup air requirements. All documents shall be on site at the time of inspection.
21. All insulation shall be installed in fire chase framing in exterior walls. Insulation shall be supported vertically. Make sure all clearances are met per manufacturer. (Additional clearances may be required for the type of insulation used). If foam plastic insulation is used an additional inspection will be required once completed.

## **Engineered/Designed Framing Systems**

*2018 IRC*

1. Roof Trusses – *R802.10-R802.11.1.1*, Have all truss engineering spec sheets on site. The truss package should be in printed out and in order, including the truss layout. Note: Any altered or damaged trusses will need a designed fix from the manufacturer and stamped. Complete all bracing, girder fastening schedules, and uplift connectors per specs. Be aware of bearing points.
2. Floor Trusses- *R502.11-R502.11.4*, Have all floor truss specs available and on site. Complete all bracing. Verify that all trusses have minimum bearing per specs. (open web trusses) Any deck ledger attachment to be made per SBCA specs.
3. Engineered I Joist – *R502.8.2*, Have manufacturers specs on site. Please be aware of hole size limitations from bearing points. Do not cut through top or bottom cords without a designed fix from the manufacturer. Be aware of all bearing points and blocking requirements. Deck ledger attachment to be installed per manufacturer.

## **Rough Electrical**

*2018 IRC Chapters 36-42*

1. NM cable is to be protected with nail guards within 1.25 inches of the stud face.
2. NM to be supported within 12 inches of terminations (outlets).
3. NM to be protected from physical damage. Do not run across gusset plates of trusses or any other object that could damage the outer jacket. Also be aware of protection required at attic accesses.
4. Any damage to the insulation or outer sheath of wiring will need to be repaired or replaced.
5. E3802.6 NM to be supported (stapled) 4.5 feet O.C. Vertical and horizontal. NM to be supported in accessible portions of attics, lying perpendicular across rafters is not the definition of support; see the 2017 NEC for NM requirements and definition of support.
6. All top and bottom plate electrical penetrations to be fire caulked or foamed. *E3402.3*
7. More than 2 NM cables through sealed penetrations in wood must be de-rated. *E3705.4.4*

8. Box volume calculations/conductor fill. There are a maximum number of conductors that can terminate in an outlet depending on the volume. See *Table E3905.12.2.1*, and sections *E3905.12.1-E3905.12.2.1*.
9. All metal boxes are to be connected to the Equipment Grounding Conductor.
10. Required lighting outlets needed per Section *E3903*.
11. All areas with equipment require a receptacle and lighting. *E3405.7*
12. Wall receptacles and spacing requirements, See Section *E3901-E3901.2.3*, a minimum of one hallway receptacle is required when 10ft or more in length. See section *E3901.10*.
13. Kitchen counter, island and peninsula receptacle spacing, See Section *E3901.2.4-E3901.4.5* (This is one of the most common code violations and can be costly when discovered on the building final inspection. The cabinets, countertops and appliances are not installed on the rough inspection. So verify your spacing.) A minimum of two 20 amp circuits are needed to serve the kitchen counter small appliances, these circuits can also serve the kitchen, pantry, dining and breakfast area receptacles. See section *E3703.2*. There are also some exceptions.
14. Outdoor receptacles are needed per section *E3901.7*.
15. A minimum of one receptacle is needed for the laundry room; this receptacle shall be on a dedicated 20 amp circuit and only serve the receptacles in the laundry room. See section *E3901.8* and *E3703.3*
16. A minimum of one 20 amp bathroom branch circuit is required to serve only receptacles. Exception, A single bathroom dedicated circuit can serve the lighting and receptacles. See section *E3703.4*.
17. *E3703.5* Not less than one dedicated 20 amp circuit shall be installed to supply receptacle outlets located in attached and detached garages. This circuit shall supply no other outlets. *E3901.9* There shall be a minimum of one receptacle outlet per vehicle bay.
18. GFCI protection is required for bathroom, garage (including the garage openers) and accessory buildings, outdoors, crawl space, unfinished basements, kitchens, within 6 feet of a sink edge, bathtub or shower stall within 6 feet, laundry area, kitchen and disposal receptacles. See section *E3902-E3902.14*
19. CAFCI (Combination Arc Fault) is required for lighting outlets and receptacle outlets in the following areas: Family Rooms, living and dining rooms, parlors, libraries, dens, bedrooms, sun rooms, recreation rooms, closets, hallways, and similar rooms, including the smoke detector circuit. (This is a most common code violation. Be aware that there are many types of breakers available and methods to afford CAFCI protection. Look for CAFCI breakers, and don't get

confused with Branch Feeder Type AFCI) See section *E3902.16-E3902.17*. (The CAFCI breakers will not have to be installed on the rough inspection)

20. All receptacles below 5.5 feet are to be type TR (tamper resistant) indoors and outdoors. *E4002.14*
21. All outdoor receptacles are to be type TR and WR (weather resistant). *E4002.9*
22. All wet location receptacles are to be installed with Extra Duty covers. *E4002.9*
23. All damp location receptacles are to be installed with Damp Location Covers. *E4002.8*
24. Install smoke/carbon outlets per section *R314-R315*. They must be hardwired and interconnected for new construction.
25. Service and sub panels must be installed at the time of inspection. They will need to be installed per *Chapter 34 and 36*.
26. A main bonding jumper is needed in most main disconnect panel unless otherwise integrated.
27. Equipment grounds and neutrals are to be isolated from one another in all Sub Panels.
28. Close all unused openings in equipment panels.
29. All service and feeder conductors are to be terminated and torqued per specs. It is recommended that a corrosion inhibitor is applied to all conductor terminations. Any future generator conductors will need to terminate in a junction box. A minimum of one 20 amp GFCI protected receptacle shall be installed for a power release.
30. All panels are to have proper working space clearances. *E3405*
31. Service conductors are to be sized properly and identified with the correct insulation type or electrical tape.
32. Size the grounding electrode conductor properly. *E3603.4*
33. 2 ground rods will need to be installed and 6 feet apart, a concrete encased electrode (footing steel) must be used if rebar is installed in the footing. *E3608*
34. All metal piping, water piping and gas piping likely to become energized shall be properly bonded and in an accessible location. *E3609*
35. *E3609.3* An Intersystem Bonding Termination shall be provided at the service equipment enclosure, main disconnect or meter enclosure. This is for bonding of other equipment.
36. Range and Dryer circuits shall be 4 wire, the frames shall be connected to the equipment grounding conductor per 2017 *NEC 250.140*.

37. Buildings or structures (accessory buildings/detached garages) supplied by feeders or branch circuits shall have a grounding electrode system installed per *E3607.3*.

## Plumbing

2018 *IRC Chapter 25-32*

1. Rough plumbing is to be tested per *P2503.5.1*. The DWV system shall be filled with water to a point no less than 5 feet above the highest wet fitting in the system. This includes the basement. The (plumbing under slab) water test will not suffice, a new test is needed.
2. Water supply system piping shall be tested per *P2503.7*. PEX piping will need to be tested at 100 psi.
3. Shower liners shall be tested per *P2503.6*.
4. All tubs shall be installed on the rough inspection and be filled with water, a cap will be needed for the overflow. See #1.
5. Insulation is needed behind factory built tubs and showers for the rough inspection.
6. Guards shall be installed if notches or holes are cut in studs within 1.25 inches of the stud face. Such guards shall extend 2 inches above bottom plates and 2 inches below top plates. See section *P2603.2.1*. For exterior and interior bearing walls with 50% top plate cut through, structural mending plates will be needed with integrated guards.
7. Top and bottom plate where piping is passing through shall be fire caulked.
8. All piping through foundation walls will need a relieving arch or pipe sleeve 2 sizes greater than the pipe passing through the wall. See section *P2603.4*.
9. Water service piping installed beyond the insulated portions of the dwelling shall be insulated. This includes the uninsulated garage walls and attic space. Water service piping in trenches shall be installed no less than 12 inches deep. See section *P2603.5*.
10. All plumbing piping is to be supported per Table *P2605.1*. PEX shall be supported 32 inches OC horizontal and 5 feet OC vertical. See manufacturer's instructions.
11. Piping penetrating through the roof shall be flashed per *P2607.1*.
12. Piping through the exterior walls shall be sealed with a waterproofed sealant per *P2607.2*.
13. All plumbing fixtures are to be installed per *Chapter 27*.

14. Water supply piping is to be installed per *Chapter 29*.
15. All water service piping shall have a main shutoff valve per Section *P2903.9.1*.
16. A full open valve shall be installed at the cold water side of a water heater per Section *P2903.9.3*.
17. Water hammer arrestors shall be installed per Section *P2903.5*.
18. PVC shall not be used as water distribution piping. See *P2906.5* for a list of code compliant materials.
19. The sanitary drainage system of the dwelling shall be in accordance with *Chapter 30*.
20. All DWV joints and connections shall comply with Section *P3003*. If clear solvent cement is used, the cement used will need to be on site. If making a connection between 2 types of materials, the cement used will need to be on site. Any mechanical joints will need to be installed per manufacturer instructions.
21. Fittings for change in direction needed per *Table P3005.1*. The most common code violation is the Sanitary Tee fitting, It cannot be installed (vertical to horizontal) or (horizontal to horizontal).
22. There shall be a cleanout within 10 feet of the building drain and building sewer junction per Section *P3005.2.3*.
23. Cleanouts where changes in direction occur are to be installed per Section *P3005.2.4*.
24. All required cleanouts shall have access and clearances per Section *P3005.2.9-P3005.2.10*.
25. Horizontal drainage pipe slope shall be 2% for pipes 2.5 inches or less and not less than 1% for pipes 3 inches or more. See section *P3005.4*.
26. The venting system shall comply with *Chapter 31*.
27. Every trap or trapped fixture shall be vented.
28. All vent terminals shall comply with Section *P3103*.
29. A minimum of 1 vent pipe shall extend to the outdoors per *P3102*. Mechanical vents shall comply with Section *P3114*.
30. All plumbing traps shall comply with *Chapter 32*.
31. Water Heaters shall comply with *Chapter 28*.

32. Water Heaters in garages having an ignition source shall be located not less than 18 inches above the garage floor per *P2801.7*.
33. Water heaters subject to horizontal direction change shall be strapped in the upper 1/3 or per manufacturer. We are not in a seismic zone, but if it is elevated on a stand, it will need to be strapped.
34. Water heaters (all appliances) in garages will need to be protected from physical damage by an approved barrier per *M1307.3.1*.
35. Water heater disconnecting means to be in accordance with *Chapter 41*.

## **Mechanical**

*2018 IRC Chapters 13-24*

1. Clothes dryer exhaust to be installed per section *M1502*. Clothes dryer exhaust length shall not exceed 35 feet and any fitting will reduce the total developed length per *Table M1502.4.5.1*.
2. Range hoods shall comply with section *M1503*.
3. Exhaust ducts and openings shall comply with Section *M1506*. Exhaust shall not terminate within 3 feet of operable or non-operable windows/openings into the building.
4. There are many clearances that need to be met for mechanical duct/exhaust/vent. Read all manufacturer instructions.

## **Gas**

*2018 IRC Chapter 24*

1. All gas piping to comply with *Chapter 24*.
2. A gas pressure test is needed at 20 psi for natural gas and propane per *G2417.4.1*.
3. Gas piping will need to be bonded, in a non-concealed location, and the size of the bonding jumper will need to be no smaller than 6 AWG copper. The bonding jumper shall be connected to the electrical service grounding electrode system. See section *G2411*. There are some exceptions, but many of the gas authorities will require a bonding jumper.
4. All gas appliances are to meet manufacturer's clearances and be installed per manufacturer's instructions.

5. Verify that all combustion, ventilation, and dilution air requirements are met per Section *G2407*.
6. All gas appliances are to meet the location requirements of Section *G2406*.
7. Piping other than black iron shall be protected against physical damage. Piping less than 1.5 inches from the stud face shall be guarded. Top and bottom plate penetration guards shall extend not less than 4 inches above the bottom plate and 4 inches below the top plate. See Section *G2415.7-G2415.7.3*.
8. Gas piping shall be supported per *Table G2424*. CSST shall be supported per the manufacturer's instructions.
9. Gas piping drips shall be installed per *G2419*. Sediment Traps shall be installed per *G2419.4*. These should be installed at the rough inspection and pressure tested.
10. All gas shutoff valves shall be in accessible locations. All shutoff valves shall be within 6 feet of appliances. See section *G2420*.
11. All gas appliances are to be vented per manufacturer. See section *G2427*. Install all vents per manufacturer.
12. Gas vent terminations are to comply with section *G2427.6.3*.
13. Any outdoor grill will need to be installed per manufacturer instructions. If gas piping is terminating on an outdoor covered porch or outdoor location you will need to supply all manufacturers' installation instructions at the time of rough inspection. Note: Many manufacturers will not allow grills on outdoor covered areas, combustible or non-combustible. Research before installing.
14. All gas cooking appliances to be installed per *G2447*.

## HVAC

*2018 IRC Chapter 13-17*

1. Appliances shall have accessible working space and have clearances per Section *M1305*.
2. Appliances in attics shall not be located more than 20 feet from the access door. There shall be a 24 inch passageway (flooring) to the appliance, there shall not be less than 30 inches (working platform) for the service area. There are some exceptions, See Section *M1305.1.3*. Note: When building this platform, be aware that R30 insulation is required in attic spaces.
3. Appliances in crawlspaces are not to be located more than 20 feet from the access door. There are some exceptions, See Section *M1305.1.4*.
4. Attic and crawlspace appliances both require a guarded luminaire and a service receptacle.
5. Any duct in the garage shall be No. 26 gage steel. See Section *R302.5.2*.
6. Any mechanical piping within 1.5 inches of a framing member shall be guarded per Section *M1308*.
7. All heating and cooling equipment shall be installed per *Chapter 14*.
8. Heating and Cooling equipment shall be sized in accordance with *ACCA Manual S and J* or other approved methods.
9. Condensate from cooling equipment shall not discharge to an area that would cause a nuisance. Example: Over a window, through the soffit. See Section *M1411.3*. Recommended to insulate the condensate piping, condensate can occur on this piping as well.
10. Cooling equipment pans, drains and water level monitoring devices shall comply with Section *M1411*.
11. All refrigerant piping shall be insulated without voids.

12. Line sets shall be supported throughout attic and crawlspaces.
13. All duct systems shall comply with *Chapter 16*.
14. Duct joints, seams and connections to comply with *M1601.4.1*. There is a list of connections and a zip tie is not one of them.
15. Ducts to be supported per *M1601.4.4*.
16. Per the *IECC* duct insulation in attic space shall be R-8 and R-6 in a crawlspace. Conditioned space requires no insulation.
17. Return air shall comply with section *M1602*.
18. All electrical breakers to be sized in accordance per manufacturer specs.
19. Appliance disconnecting means to be in accordance with *Chapter 41*.

## Insulation

### 2009 IECC

1. R-30 required for ceilings.
2. R-13 required for walls.
3. R-19 required for floors.
4. Windows will need low expansion foam perimeter sealing.
5. All insulation is to be installed per manufacturer instructions.
6. All vertical insulation shall be supported.
7. Insulation in fireplace chase shall be supported and installed per fireplace manufacturer requirements.
8. Paper backed insulation shall be installed per manufacturer.
9. All foam plastic insulation shall be installed per *R316*. Be aware of all thermal barrier requirements.

## Building Final Inspection

2018 IRC and 2009 IECC

1. All final paperwork shall be turned in to the office, (Final IECC, Insulation, Final Septic and Termite Letter)
2. Verify that any pending items from previous inspections are completed. Pending deck items will be inspected. Be sure that items needing inspection are not concealed. If concealed, have open for inspection.
3. Driveway must be installed with an (all weather) surface per the *2015 South Carolina Fire Code*.
4. Address numbers shall be posted on the road and the house per Section *R319*.
5. All graspable hand railing, guards, treads, riser height, shall be inspected, installed and comply with section *R311-R312*.
6. Smoke/Carbon detectors shall be installed per *R314-R314* and checked for interconnection.
7. All receptacles will be checked for polarity.
8. All breakers requiring CACFI protection will be tested. *E3902.16* (Including the smoke detector circuit)
9. All receptacles requiring GFCI protection will be tested. *E3902*
10. All appliance disconnecting means shall be installed per *Chapter 41*.
11. All breakers shall be identified in the service and sub panels including the smoke detector circuit.
12. The IECC (signed) shall be posted in the sub panel.
13. Outdoor receptacles shall be type TR, WR, GFCI protected and in an extra duty cover or damp proof cover depending on location.
14. All receptacle outlets to have face plates installed.
15. All lighting outlets to have luminaires installed. Fixtures to have light bulbs installed.
16. All outdoor censored lighting to be on test mode for inspection.
17. All required appliances are to be installed, all floor registers for HVAC to be installed, all floor transitions to be installed between walking surfaces.
18. Under stair protection is needed per *R302.7*. Minimum protection is 1/2 inch gypsum board for accessible spaces.
19. Verify that all weather stripping is on exterior doors and doors leading to unconditioned spaces.
20. All access doors through the thermal envelope shall be insulated.
21. All access doors through a garage fire separation shall be fire rated. (Manufactured pull down stairs shall be fire rated plywood).
22. Garage walls, ceiling and doors shall be fire rated per *R302.6*.

23. Garages in unfinished basements shall be no exception to not have a fire separation per *R302.6*.
24. Garage doors shall be installed and tested on final.
25. Bonus Room stairs shall not egress through a garage. At minimum there will need to be an egress door to the exterior or passage to the interior of the dwelling, without passage through the garage per *R311*.
26. All siding shall be completed, openings sealed, and exhaust/intake/vent penetrations completed. (All siding to be installed per manufacturer install guide.)
27. All hose connections shall have a non-removable anti siphon device installed or integrated into the fixture per *P2902.4.3*. (atmospheric-type or pressure vacuum breaker)
28. Any device, equipment, siding, decking, electrical, etc... Installed on the exterior of a building shall be installed with corrosion resistant fasteners.
29. Water Heaters shall be installed per the manufacturer instructions. Relief valve piping shall be installed per *P2804* (Discharge through an air gap in the same room as the water heater.) There is a list of other requirements in this section. See the *2015 IRC*.
30. All ranges shall have anti-tip devices installed.
31. All gas appliances shall be operable.
32. All emergency escape and rescue openings shall be verified and comply with Section *R310*. (Egress Windows and Doors)
33. Final grading shall be completed and have fall of 6 inches within the first 10 feet of the foundation. (Or other approved methods.) See Section *R401.3*
34. Verify that all clearances are met from grade to siding. Be aware of mulch or landscaping material fill, this will need removing if clearances are not met.
35. Verify that all clearances are met for any mechanical equipment, vents, panels, openings, etc...

## R302.13

### Fire Protection of Floors

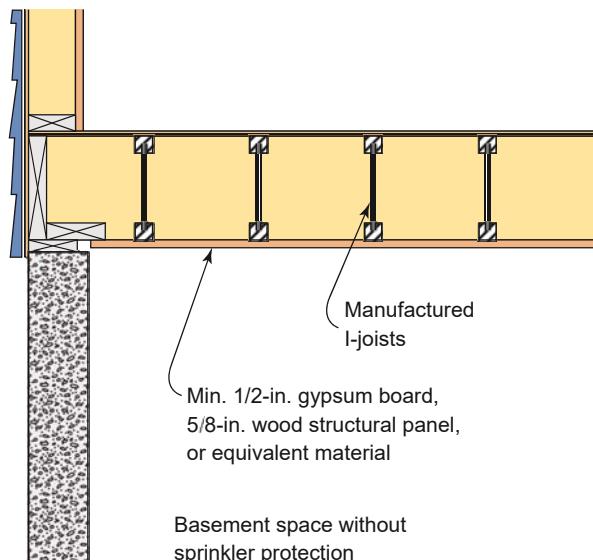
#### CHaNGe TYPE: Clarification

**CHaNGe SUMMaRY:** The provisions for fire protection of floors have been relocated from Chapter 5 to the fire-resistant construction provisions of Section R302. New language clarifies that the code does not regulate penetrations or openings in the fire protection membrane.

**2015 CODE: R501.3 R302.13 Fire protection of floors.** Floor assemblies, that are not required elsewhere in this code to be fire-resistance rated, shall be provided with a ½-inch (12.7 mm) gypsum wallboard membrane, 5/8-inch (16 mm) wood structural panel membrane, or equivalent on the underside of the floor framing member. Penetrations or openings for ducts, vents, electrical outlets, lighting devices, luminaires, wires, speakers, drainage, piping, and similar openings or penetrations shall be permitted.

**exceptions:** (No change to text.)

**CHaNGe SIGNIFIaNCe:** Fire protection of floors first appeared in Section R501.3 of the 2012 IRC. The provisions call for installation of ½-inch gypsum board, 5/8-inch wood structural panel, or other approved material on the underside of floor assemblies of buildings constructed under the IRC. The application of gypsum wallboard or other approved material intends to provide some protection to the floor system against the effects of fire and delay collapse of the floor. This provision primarily is aimed at light-frame construction consisting of I-joists, manufactured floor trusses, cold-formed steel framing, and other materials and manufactured products considered most susceptible to collapse in a fire. Solid-sawn lumber and structural composite lumber perform fairly well in retaining adequate strength under fire conditions, and floors framed of



Fire protection of floors



International Code Council®

Open web floor trusses requiring membrane protection on the underside

nominal 2 3 10s or larger of these materials are exempt from these fire protection requirements. Fire protection also is not required if sprinklers are installed to protect the space below the floor assembly.

In the 2009 IRC, there was an effort to organize all of the fire-resistance provisions into a single section to make the code more user-friendly. Because the installation of the code-prescribed membrane intends to provide some limited protection against the effects of fire to the floor system, the requirements have been relocated to the fire-resistant construction provisions of Section R302.

Similar to the fire separation requirements for an attached garage in Section R302.6, the membrane applied to the underside of the floor system does not form a fire-resistant-rated assembly. The membrane acts to shield light-frame floor systems from the heat of a fire originating in the space below the floor. The intent is for the floor system to perform similarly to unprotected 2 3 10 solid-sawn lumber floor joists and to delay structural collapse of the floor system. For that reason, the code does not require any special treatment of joints, penetrations, or openings in the ceiling membrane. For example, the taping of the gypsum board joints is not required and penetrations for electrical boxes and plumbing pipes do not require any fire stopping materials. The added language intends to simply clarify that the code does not regulate openings and penetrations in the membrane applied to the underside of the floor system.