

Framing Inspection Checklist of Single & Two Family Dwellings 2019

2018 Kentucky Residential Code based on 2015 International Residential Code with Kentucky Amendments

The following building code requirements are the current and most common minimum code standards, as taken from the IRC Code & Commentary 2015, required for an Occupancy Permit in One and Two family dwellings, and based on Kentucky Amendments to the 2018 Kentucky Residential Code, First Edition June 2018. *The new 2018 Kentucky Residential Code became mandatory on January 1, 2019.*

Disclaimer: *This is not a listing of all code sections involving building or utilities, which involve this subject, but only the sections most often questioned. Refer to the 2018 Kentucky Residential Code book for information not listed in this handout and for other requirements of the building code.*

The following is a listing of common code requirements the building inspector will be looking for in order to complete a Framing Inspection and approve the home for the later required Final Inspection and then an Occupancy Permit.

Current Building Code: 2018 Kentucky Residential Code, Mandatory January 1, 2019.

Framing Inspection. Call for the framing inspection when the building is enclosed and when the following are completed and ready for inspection:

- A. Structural support, stairways installed, and framing members are still exposed.
- B. Rough-in heating and cooling ducts are installed, the location of the furnace has been established, and the grilles and register openings are cut-in. The **HVAC rough-in inspection has been completed** and approved by the state inspector.
- C. The **electrical rough in has been completed and the inspection approved** with an orange sticker on-site.
- D. The **plumbing rough in has been completed and approved** and the green sticker is on-site.
- E. The exterior sheathing and house wrap are completed. The wall insulation and vapor retarders have already been installed in walls. Inspector must be able to see bottom of roof sheathing from floor of top floor of house without entering attic. (No drywall, No ceiling insulation.)
- F. The energy code required caulking and fire caulking, have been installed.
- G. No interior finishes (drywall, metal, lath, wallboard, finish flooring, or other finishes used to cover the structural framing) have been installed.
- H. The attic and roof ventilation have been installed. The exterior vapor barrier has been installed on exterior sheathing.
- I. If foam continuous board is used for insulation, then prior to the brick veneer having been installed.
- J. The brick veneer has been installed or is in progress.
- K. The temporary construction entrance and road tile and any required silt fencing and temporary drainage ditches have been installed and maintained in compliance with Storm Water Runoff Ordinances.
- L. Decks or porches. After framing is completed, decking is installed, stairs, guardrails and handrails are installed, If the deck or porch is covered with a roof, the framing inspection is required prior to installing any ceiling or wall finishes. *When the deck framing is not completed in time for the house framing inspection, the deck framing inspection will be done at same time as the house final inspection. In that case do not cover any portion of the deck that has not previously been inspected and approved.*
- M. Owners have supplied ladders for hard to reach areas. Owner has supplied temporary entry steps or temporary ramp for entry.
- N. Hurricane wind tie downs have been installed on roof rafters, and roof trusses. Joist hangers have been installed on floor and ceiling joists. Foundation bolts with washers and nuts have been installed at sill plates.
- O. The exterior doors and windows have been installed. Energy code information on window stickers must remain on windows and doors until after the framing inspection is approved.

A. Special Conditions:

Footing inspection must have been approved previously. At the time of requesting the framing inspection, this checklist begins with the assumption the required Footing Inspection has already been requested by the owner and approved by this office. If there are any violations left not corrected on the footing inspection, the framing inspection cannot be performed.

Other Inspection Related Information:

1. Access required to project is to be furnished by Owner (R109.1), Owner required to call for inspections.

- ☐ It shall be the duty of the permit holder to provide access to and means for inspection of such work for the required inspections. It shall be the duty of the permit holder or their agent to notify the building official that such work is ready for inspection.
- ☐ Inspections are scheduled Monday through Friday by contacting the Hardin County Planning & Development Commission at (270) 769-5479 before 4:00 PM on the previous day before the inspection is needed. The homeowner is responsible for calling to request the inspection. Inspection and approval is required prior to covering any work. **(R109.1).**
- ☐ Provide the name the permit was issued in and the street location of the project, or the lot number and subdivision name and the phone number of a contact person when calling in for inspections.
- ☐ If the inspector needs to return to the site to verify corrections of code violations found at time of framing inspection, **a minimum \$50.00 Reinspection fee** is required to be paid before the Reinspection can be scheduled.
- ☐ No Reinspection on the same phase of construction shall be done in the same 24-hour period.
- ☐ The building inspector always leaves a written copy of the code violations or an approval sheet at the jobsite (*typically near the attached garage side-hinged door entry into the interior of the home*). ***If no inspection sheet is visible, you have not yet received your inspection. Do not install drywall or any other interior finishes. Call the office to check on the status of your inspection. We do not guarantee times; we do relate to you the date the inspection is scheduled to be made.***

2. Permits posted on site. All required inspections must be completed and signed off as approved. Previous footing inspections and corrections list completed. Permit must be placed where it is visible from the street. **(R105.7).** Permit must remain posted until occupancy permit has been issued. All building permit fees, inspection fees and re-inspection fees must have been paid and up-to-date, prior to the framing inspection being made by this office.

3. Floodplain management. All requirements of the state and local flood plain management program for Hardin County must have been installed and completed, and verified and signed off as required by the state and by the Hardin County Engineer office. This may require the completion of an Elevation Certificate. **(R106.1.3).**

4. Planning & Zoning Requirements completed. All on-site and off-site development associated with the structure must be completed and the structure is ready for occupancy or its intended use. (HCDGS). ***At the framing inspection, the inspector will be checking to verify these have been started.***

5. Driveway Encroachment Permit. The road tile at new driveway entrance has been properly sized by the road department and installed in the approved location and is being maintained and the ends are clear and operational. (Hardin County Road Department Requirement) ***At the framing inspection the inspector will be checking to verify these have been started.***

6. Storm Water Runoff Ordinances and Erosion Prevention and Sediment Control Ordinances. There must be at least 50 lf long by 20 lf wide of graveled driveway entrance onto site and installed as described as a stabilized construction entrance. ***Where needed, the silt fences are installed and being maintained until grass is fully established on bare yard/lot areas, at the framing inspection the inspector will be checking to verify these have been started.*** Fully established meaning at least 70% stabilization coverage (utilizing mats), are visible. (Storm Water Runoff Ordinances and Erosion Prevention and Sediment Control Ordinances).

B. Exterior of House or Structure:

7. House numbers must be posted. (If yet available). Approved address numbers, assigned through this office, which are **4-inch high** minimum, placed against a contrasting color background shall be installed for all new buildings in such a position as to be clearly visible and legible from the street or road fronting the property. **(R319.1)** ***Otherwise the lot number of the subdivision must be clearly***

displayed near the street and maintained readable. In the absence of a lot number, posting the building permit clearly visible and near enough to the entrance to be readable, will help speed up locating the project. Address identification shall be maintained.

8. Site Grading. Storm water shall be diverted to an approved drainage ditch or swale or other approved point of collection so as not to create a hazard. Lots shall be graded to drain surface away from foundation walls. The grade shall fall at a minimum of 6 inches within the first 10 feet. **(R401.3)** The 2015 IRC allows an exception for situations in which the building is close to the property line or if there are physical barriers preventing a positive slope for 10 ft. In those cases, the grading can have a 5% slope to a swale **(R401.3 Exception)**. Note: **The rough-grading should be completed by Framing Inspection stage; backfill should be up against the home foundation walls only after the floor joists have been set.**

9. Earth Clearance maintained. At final grading Six (6) inches of earth clearance is maintained below exterior wood siding on house. Wood siding, sheathing, wall framing closer than 6 inches to soil must be pressure preservative treated. Per this section 6" clearance required to be maintained below wood sill plates at top of foundation walls. **(R319.1)**. Exterior finish backfilling and final grading shall have been completed by the final inspection.

10. Seeding and Strawing required. All bare ground lot areas shall be seeded with grass and covered with straw to prevent runoff until the grass takes hold. (Hardin County Storm Water Runoff Ordinances). All drainage ditches are maintained in grass or are rock lined and being maintained as was originally intended.

11. Retaining Walls and Foundation Walls. Retaining walls and foundation walls must be roughed-in and constructed to meet the requirements of **(R404.1)** Kentucky Amendments. *Foundation and Retaining walls shall be built per Table R404.1.2(8) and shall meet the requirements governing: maximum wall height; maximum unbalanced backfill height; minimum wall thickness in inches; and Grade number size, layout, and spacing of rebar reinforcing; and including applicable notes a.through p. of that Table. (Page 28 & 29 of Ky. Amendments, First Edition, June 2018.)*

12. Guards at Retaining Walls (R312.1 and R312.2). Where retaining walls with differences in grade level on either side of the wall is in excess of 30 inches and are located closer than 3 feet to a walk, designated walking path or driveway on the high side, such retaining walls shall be provided with guards that are constructed in accordance with **Section R312.1 and R312.2.** (Kentucky Amendments). Guards must be installed prior to calling for the final inspection.

13. Roof drainage (R405.1) must discharge at least five feet from foundation walls or to an approved drain system if soils are expansive or collapsible. (801.3). Concrete & CMU foundations enclosing habitable or usable space below grade require foundation and downspout drainage **(R405.1)** Foundation drainage tiles, gravel or crushed stone drains shall extend not less than 1 foot beyond the outside edge of the footing and 6 inches above the top of the footing **and be covered with an approved filter membrane material.** Perforated pipe with holes down shall be **surrounded with an approved filter membrane** or other approved systems or materials shall be installed at or below the area to be protected and shall discharge by gravity or mechanical means into an approved drainage system. **(R405.1).**

14. Termite Treatment Required. (R318.1) Protection from subterranean termites shall have been completed using a method in compliance with Section R318.1 Provide documentation in writing indicating and confirming the type of treatment provided. **(Section R318).** Termite Infestation Probability Map. **Table R301.2(1).** All counties in Kentucky are deemed to be "Moderate to Heavy" for likelihood of damage from termite infestation. (Kentucky Amendments) There has been a history of local subterranean termite damage. Shields placed on top of an exterior foundation wall are permitted to be used **only** if in combination with another approved method of protection. **(R317.1.3) Geographical areas.** (Typically chemical termiticide treatment).

15. Intake /Exhaust Master Vents (grilled diffusers) visible from exterior. Bathroom exhaust fans required. Bathrooms without openable windows are required to have mechanical ventilation (exhaust fans). The venting must be taken through the roof or through a wall or soffit and be terminated on the exterior with a protective grilled diffuser, visible from the exterior. **(M1506), (Table 1506.2).** The exterior grille is required to be visible after exterior soffit has been installed.

16. Dryer vent discharge (M1502.3) to exterior of building must be visible, and it must be equipped with an approved backdraft damper. The clothes dryer exhaust system is required to be roughed-in in accordance with **Section M1502...** Solid metal aluminum piping 4" diameter required including deducting 5' for each 90 degree elbow and deducting 2.5' for each 45 degree elbow, and including the total length of

the pipe remaining shall not exceed a maximum length of 35 lineal feet. **(M1502.4.1)** *If not installed by framing inspection stage, builder or owner must at least have determined placement of dryer so that inspection can be made to determine if venting will not exceed 35 If including deducts for all elbows used. The first elbow is included in the deducts along with any other elbows.*

17. Construction Debris Removal Required. All construction materials shall be removed from site before a building is occupied or used for any purpose. (Hardin County Landfill Ordinances). ***The construction debris shall be hauled off-site by use of an on-site dumpster or private vehicles hauling debris off-site in a routine manner. Burning of debris on-site is a violation of OSHA regulations and burial of debris on-site is a violation of the landfill adoption ordinance of Hardin County requiring waste management.***

18. Masonry. The weep holes located in bottom row of masonry exterior walls above flashing and above finished grade level, and above window and door openings, must have been installed properly and be completed. Minimum 3/16" dia. holes, immediately above flashing, max. 33" o.c. **(R703.8.6)** **(R703.8.5)** and including weep holes above openings with lintels. *General Masonry Construction.* Include required wall ties tying masonry to wall framing (typically every 3 sq. ft.), required steel lintels over openings in masonry walls, and required flashings to prevent water damage to interior walls. ***If the use of pink or blue foam plastic exterior sheathing is used, the framing inspection is required prior to the installation of insulation in exterior walls, and prior to masonry installation. Steel strapping and possible other methods will be required at corners and other required bracing locations.***

C. Crawl spaces

19. Access Opening to Crawl space. **(R408.4)** An access opening through a floor 18" by 24" shall be provided to the under-floor space.

a. **An access opening through a perimeter wall 16" by 24" shall be provided to the under-floor space.** This door shall be a hinged type with a latch, or an approved manufactured crawlspace access opening with a latch. The access panel cannot be fixed by screws or bolted fasteners where tools are required to remove the panel. **(R408.4)**

b. **Below grade crawlspace access door.** When any portion of the through wall access is below grade, an **excavated areaway** not less than 16 inches by 24 inches shall be provided. The bottom of the excavated areaway shall be below the threshold of the access opening. **(R408.4)**

c. Through wall access openings shall not be located under a door to the residence. **(R408.4)**

d. See **Section M1305.1.4** for access requirements where mechanical equipment has been installed under dwelling or structure.

20. Crawl space area. **(R408.1)** Foundation vents in and unobstructed – adequate amount. Underfloor area must be free of ponding water. **Ventilation:** minimum 1 sq. ft. per 150 sq. ft. of under floor space. One ventilation opening shall be located a minimum of within 3 feet of each corner.

21. Openings for under-floor ventilation. **(R408.2).** These foundation vent openings shall be covered with approved, grilles, grating, hardware cloth, extruded loadbearing brick vents, or corrosion resistant wire mesh as specified in this section.

22. Unvented Crawl Space **(R408.3).** Ventilation openings may be eliminated if:

1. Exposed earth is covered with a continuous vapor retarder, joints of the vapor retarder shall be lapped 6 inches, sealed or taped, and the edges extended 6 inches up stem wall attached and sealed to the stem wall; **and**

2. **One of the following is provided for the under-floor space:**

2.1. Continuously operated mechanical exhaust ventilation at a rate equal to 1 cfm for each 50 square feet of crawlspace floor area, including an air pathway to the common area (such as a duct or transfer grille), and perimeter walls insulated in accordance with Section **N1102.2.11**.

2.2. Conditioned air supply sized to deliver at a rate equal to 1 cfm for each 50 square feet of under-floor area, including a return air pathway to the common area (such as a duct or transfer grille), and perimeter walls insulated in accordance with Section **N1102.2.11**;

2.3 Plenum complying with Section **M1601.5**, if under-floor space is used as a plenum.

23. Removal of debris. **(R408.5).** The under floor grade (e.g. crawlspace) shall be cleaned of all vegetation and organic material. All wood forms used for placing concrete shall be removed. All construction materials shall be removed. Remove vegetation, topsoil and foreign materials prior to pouring of concrete floor and its 4-inch thick base under slab. **(R506.2)**

24. Underfloor Central Forced-Air Furnace (M1305.1.4)

- Appliance shall be located on a slab a minimum of 3 inches above grade. (M1305.1.4.1)
- Appliances supported from the ground shall be level and firmly supported on a concrete slab or other approved material above the adjoining ground. (M1305.1.4.1)
- Appliances suspended from the floor shall have a clearance of not less than 6 inches from the ground. (M1305.1.4.2)
- Passageway – 22" wide and 30" high, nor more than 20 lf when measured along the centerline of the passageway from the opening to the appliance. (M1305.1.4)
- A level service space at least 30 inches wide by 30 inches deep shall be present at the front or service-side of the appliance. (M1305.1.4)
- If the depth of the passageway or the service space exceeds 12 inches below the adjoining grade, the walls of the passageway shall be lined with concrete or masonry extending 4 inches above the adjoining grade. (M1305.1.4)
- The rough-framed access opening shall be a minimum of 22 inches by 30 inches where the dimensions are large enough to remove the largest appliance. (M1305.1.4)
- Excavations for appliance installations shall extend to a depth of 6 inches below the appliance and 12 inches on all sides, except that the control side shall have a clearance of 30 inches. (M1305.1.4.2)
- Electrical Requirements. A Luminaire controlled by a switch located at the required passageway opening and a receptacle outlet shall be installed at or near the appliance location in accordance with Chapter 39. Exposed lamps shall be protected from damage by location or lamp guards. (M1305.1.4.3)

25. Crawl space Areas: Soil clearance to untreated wood joists: minimum 18 inches. Soil clearance to untreated wood beams: minimum 12 inches. (R317.1).

26. Finished Grade. (R408.6).

- The finished grade of under-floor surface may be located at the bottom of the footings;
- however where there is evidence that the groundwater table can rise to within 6 inches of the finished floor at the building perimeter or where there is evidence that the surface water does not readily drain from the building site, the grade in the under-floor space shall be as high as the outside finished grade, unless an approved drainage system is provided (e.g. sump pump).

27. Flood Resistance. (R408.7). For buildings located in areas prone to flooding as established in **Table R301.2(1)**:

- Walls enclosing the under-floor space shall be provided with flood openings in accordance with Section **R322.2.2**
- The finished ground level of the under-floor space shall be equal to or higher than the outside finished ground level on at least one side. (R408.7)
- Exception: Under-floor spaces that meet the requirements of FEMA/FIA TB 11-1.

28. Underfloor insulation must be properly installed and supported. (N1101.6) Under-Floor between floor joists insulation: R-19. *Held in place by hangers or netting if fiberglass. Sprayed in place shall be as per manufacturers requirements.* This applies to all floors over outdoor air or unconditioned spaces. (Section N1102) This applies to basement ceilings when the basement is not finished and not conditioned with heat or heat and air conditioning. (Section N1102).

29. Crawlspace walls insulation: R-10. Interior R-10 where directly attached to crawlspace concrete or masonry wall; R-13 required when installed in a framed wall cavity in a crawlspace. (Table N1102.1).

30. Foam Plastic (R316) exposed foam plastics in crawl spaces. A thermal barrier specified in Section **R316.4** is not required where crawlspace access is required by Section **R408.4** and where entry is made only for service of utilities and the foam plastic insulation is protected against ignition using one of the following ignition barrier materials:

1. A 1.5 inch thick mineral fiber insulation;
2. 0.25 inch thick wood structural panels;
3. 0.375 inch particleboard.;
4. 0.25 inch hardboard;
5. 0.375 inch gypsum board;
- or 6. Corrosion-resistant steel having a base metal thickness of 0.016 inch. The above ignition barrier is not required where the foam plastic insulation has been tested in accordance with Section (R316.5).

31. Pressure preservative treated wood floors on ground. (R504.1) Pressure-preservative treated-wood basement floors and floors on ground shall be designed to withstand axial forces and bending moments resulting from lateral soil pressures at the base of the exterior walls and floor live and dead loads. Floor framing shall be designed to meet joist deflection requirements in accordance with Section **R301.7** Deflection.

32. Protection against decay. (R317.3.1). Fasteners for pressure preservative treated wood shall be of hot-dipped galvanized steel, stainless steel, silicon bronze or copper.

Exception: ½ inch diameter or greater steel bolts. Exception: Fasteners other than nails and timber rivets shall be permitted to be of mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B695, Class 55, minimum.

33. Wood column protection. (R317.1.4). Wood columns shall be protected against decay as set forth in Section R317.

34. Allowable Joist Spans. (R502.3) Spans for floor joists shall be in accordance with **Tables R502.3.1(1) and R502.3.1(2)**. The design live load shall not exceed 40 psf and the design dead load shall not exceed 10 psf. (All beams and joist size and span must meet minimum requirements listed in the building code.)

35. Structural requirements (R407.3). The columns shall be restrained to prevent lateral displacement at the bottom end. Wood columns shall be no less than 4" by 4" and steel columns shall be no less than 3-inch-diameter standard pipe or approved equivalent. Exception: In Seismic Design Categories A, B, and C columns no more than 48 inches in height on a pier or footing are exempt from the bottom end lateral displacement requirement within underfloor areas enclosed by a continuous foundation.

(Hardin County is in a Seismic Design Category B (Table R301.2.2.1)).

36. Steel Column Protection. (R407.2) All surfaces (inside and outside) of steel columns shall be given a shop coat of rust-inhibitive paint, except for corrosion-resistant steel and steel treated with coatings to provide corrosion resistance.

37. All required exterior exits, stairs, guardrails, handrails, landings and decks (R502) shall be complete, prior to the final inspection. Check with inspectors on handrail requirements.. Note: Interior stairways, landings, guardrails, handrails, nosing profile, headroom, and construction requirements, etc. are same as exterior. **Exception:** *Interior stairs protected from the weather are not required to be constructed of pressure-preservative treated lumber unless they are installed in direct contact with concrete.*

38. Materials. (R504.3) All exterior framing materials including sleepers, joists, blocking and plywood subflooring, shall be pressure-preservative treated and dried after treatment in accordance with AWP A U1 and shall bear the label of an accredited agency.

39. Decks. (R507) Exterior Decks. Refer to this section for all required information on Exterior Decks. This is a new section and the floor joist spans for exterior decks are not the same as those for interior floors. Where supported by attachment to an exterior wall, decks shall be positively anchored to the primary structure and designed for both vertical and lateral loads as applicable. Such attachment shall not be accomplished by the use of toenails or nails subject to withdrawal. **(Combination through bolts or lag screws is the acceptable fastener method.)** Where positive connection to the primary building structure cannot be verified during inspection, decks shall be self-supporting. For decks with cantilevered framing members, connections to exterior walls or other framing members, shall be designed and constructed to resist uplift resulting from the full live load specified in **Table R507.5** acting on the cantilevered portion of the deck. Cantilevered spans not exceeding the nominal depth of the joists are permitted. Spacing of deck joists with cantilevers decreases spacing per **Table R507.5**. Deck ledgers shall not be supported on stone or masonry veneer. **(R507.2.1)**

Means of Egress. (R311)

40. Stairways. Width. (R311.7.1) Stairways shall not be less than 36 inches in clear width at all points above the permitted handrail height and below the required headroom height. Handrails shall not project more than 4.5 inches on either side of the stairway and the minimum clear width of the stairway at and below the handrail height, including treads and landings, shall not be less than 31.5 inches where a handrail is installed on one side and no less than 27 inches where handrails are provided on both sides. Stairways and balconies shall be positively anchored (not toe nailed) **(R311.5)**.

41. Stairways. Treads and Risers. (R311.7.5). **The maximum riser height shall be 8 ¼ inches (R311.7.5.1 KY Amendments) and the minimum tread depth shall be 9 inches (R311.7.5.2 KY Amendments)** (plus the required ¾ inch but not more than 1 ¼ inch nosing profile). The riser height shall be measured vertically between leading edges of the adjacent treads. The tread depth shall be measured horizontally between the vertical planes of the foremost projection of the adjacent treads and at a right angle to the tread's leading edge. The walking surface of treads and landings of a stairway shall be sloped no steeper than one unit vertical in 48 units horizontal (2 percent slope). The greatest riser height

within any flight of stairs shall not exceed the smallest by more than 3/8 inch. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch.

42. Stairway Nosings. (R311.7.5.3) The radius of curvature at the leading edge of the tread shall be no greater than 9/16 inch.

43. Stairway nosing profile. (R311.7.5.3) A nosing not less than 3/4 inch but not more than 1 1/4 inches shall be provided on stairways with solid risers.

☐ Open risers are permitted, provided that the opening between treads does not permit the passage of a 4-inch-diameter sphere. **(R311.7.5.1)**

☐ Exceptions: 1. A nosing is not required where the tread depth is a minimum of eleven inches. 2. The opening between adjacent treads is not limited on stairs with a total rise of 30 inches or less.

44. Stairway Headroom. (R311.7.2). The minimum headroom in all parts of the stairway shall be not less than 6'-8" measured vertically from the sloped plane adjoining the tread nosing or from the floor surface of the landing or platform.

45. Stairway Winders. (R311.7.5.2.1). Winders are permitted, provided that the width of the tread at a point not more than 12 inches from the side where the treads are narrower is not less than 10 inches and the minimum width of any tread is not less than 6 inches.

The continuous handrail required by Section R315.1 shall be located on the side where the tread is narrower.

46. Spiral stairways. (R311.7.10.1) The minimum width shall be 26 inches with each tread having a 7 1/2 inches minimum tread depth at 12 inches from the narrower edge. All treads shall be identical, and the rise shall be no more than 9 1/2 inches. Minimum headroom of 6 feet 6 inches shall be provided.

47. Stairway Handrails. (R311.7.8) Handrails having minimum heights of 34" and maximum heights of 38", measured vertically from the nosing of the treads, shall be provided on at least one side of stairways.

48. Handrails Required. (R311.7.8) Handrails shall be provided on at least one side of each continuous run of treads or flight with 4 or more risers. All required handrails shall be continually graspable the full length of the stairs with four (4) or more risers from a point directly above the top riser of a flight to a point directly above the lowest riser of the flight. Handrails adjacent to a wall shall have a space of not less than 1 1/2 inch measured between the wall and the handrail.

49. Handrail Ends shall be returned or shall terminate in newel posts or safety terminals. Exceptions: 1. Handrails shall be permitted to be interrupted by a newel post at a turn. 2. The use of a volute, turnout, or starting easing shall be allowed over the lowest tread. **(R311.7.8.2)**

50. Handrail Grip Size. (R311.7.8.3) The handgrip portion of handrails shall have a circular cross section of 1 1/4 inches minimum to 2 5/8 inches maximum.

☐ Other handrail shapes, including those complying with Figure R311.7) that provide an equivalent grasping surface are permissible. (2 x 4 lumber not approved).

☐ Edges shall have a minimum radius of 1/8 inch. All required handrails shall be one of the following types or provide equivalent graspability.

☐ **Type I. Handrails** with a circular cross section shall have an outside diameter of at least 1 1/4 inches and not greater than 2 inches. If the handrail is not circular it shall have a perimeter dimension of at least 4 inches and not greater than 6 1/4 inches with a maximum cross section dimension of 2 1/4 inches.

☐ **Type II. Handrails** with a perimeter greater than 6 1/4 inches shall provide a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of 3/4 inch measured vertically from the tallest portion of the profile and achieve a depth of at least 5/16 inch within 7/8 inch below the widest portion of the profile. The minimum width of the handrail above the recess shall be 1 1/4 inches to a maximum of 2 3/4 inches. Edges shall have a minimum radius of 0.01 inch.

51. Stair Handrails. (R311.7.8) Stair handrails shall be permitted to be discontinuous between the top and the bottom of a flight of stairs where the ends of the discontinued rail are returned to a wall or post and the maximum distance between the ends of discontinued rails is not greater than 4 inches.

52. Guards Required. (R312.1). Porches, balconies, or raised floor surfaces (decks), located more than 30 inches above the floor or grade below shall have guards not less than 36 inches in height.

☐ Open sides of stairs with a total rise of more than 30 inches above the floor or grade below shall have guards not less than 34 inches in height measured vertically from the nosing of the treads.

☐ Porches and decks which are enclosed with insect screening shall be equipped with guards where the walking surface is located more than 30 inches above the floor or grade below.

53. Guard Opening Limitations. (R312.1.3) Required guards on open sides of stairways, raised floor areas, decks, balconies and porches shall have intermediate rails or ornamental closures that do not

allow passage of a sphere 4 inches in diameter. Exception: 1. Openings for required guards on the sides of stair treads shall not allow a sphere 4 3/8 inches in diameter to pass through. Exception: 2. The triangular openings formed by the stair riser, stair tread, and bottom rail of a guard at the open side of a stairway are permitted to be of such a size that a sphere 6 inches cannot pass through.

54. Landings at doors. (R311.3) There shall be a floor or landing on each side of each exterior door. The width of each landing shall be not less than the door served. Every landing shall have a dimension of not less than 36 inches measured in the direction of travel. The slope at exterior landings shall not exceed ¼ unit vertical in 12 units horizontal. The floor or landing at a door shall not be more than 1.5 inches lower than the top of the threshold. **(R311.3.1) Exception:** The landing or floor on the exterior side shall not be more than 8 ¼" below the top of the threshold provided the door does not swing over the landing or floor.

Exception: 1. Other than the required exit door, where the vertical elevation measured between the interior finish floor and the exterior finish grade, patio or deck does not exceed 30 inches, a landing is not required for the exterior side of the door provided the door, other than an exterior storm or screen door, does not swing over the stairway. **(R311.3.2 KY Amendments)**

Exception: 2. The landing at an exterior doorway shall not be more than 8 ¼ inches below the top of the threshold, provided the door other than an exterior storm or screen door, does not swing over the landing. Required egress doors shall have landings. **(R311.3.1 KY Amendments)** Exception

55. Landings for stairways. (R311.7.6) There shall be a floor or landing at the top and the bottom of each stairway. The width perpendicular to the direction of travel shall be not less than the width of the flight served. Landings of shapes other than square or rectangular shall be permitted provided that the depth at the walk line and the total area is not less than that of a quarter circle with a radius equal to the required landing width. Where the stairway has a straight run, the depth in the direction of travel shall be not less than 36 inches. of each landing shall not be less than the stairway or door served. Every landing shall have a minimum dimension of 36 inches measured in the direction of travel. A floor or landing is required on each side of each exit doors and top and bottom of stairs. The floor or landing at the door shall not be more than 1.5 inches below top of threshold. **(R311.4.3 KY Amendments)**. The landing shall be permitted to have a slope not to exceed 0.25 units vertical in 12 units horizontal. Floor or landing maximum 1 ½ inches below door threshold. **(R311.3)**.

56. Attachment of decks or porches. (R311.5.1) Required exterior egress balconies (*example: decks or porches*), exterior exit stairways and similar means of egress components shall be positively anchored to the primary structure to resist both vertical and lateral forces or shall be designed to be self-supporting. **Such attachment shall not be accomplished by use of toenails or nails subject to withdrawal.** (*Use lag screws or combination through bolts approved for use with pressure treated wood*).

57. Egress door. (R311.2) Not less than one egress door shall be provided for each dwelling unit. The egress door shall be side hinged, and shall provide a clear width of not less than 32 inches (813 mm) where measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). The clear height of the door opening shall be not less than 78 inches (1981 mm) in height measured from the top of the threshold to the bottom of the stop. **Other interior egress doors shall have a clear net opening width of not less than 32 inches (813 mm).** **(R311.2 KY Amendments)**. Exterior egress doors shall be readily openable from inside the *dwelling* without the use of a key or special knowledge or effort. (KY Amendments). Storm and screen doors shall be permitted to swing over exterior stairs and landings. **(R311.3.3)**

58. Emergency escape windows under decks and porches (R310.2.4) are allowed provided the location of the deck allows the emergency escape window to be fully opened and provides a path not less than 36 inches in height to a yard or court.

59. Height above finished grade. Concrete and masonry foundation walls shall extend above the adjacent finished grade adjacent to the foundation wall at all points a minimum of 4 inches where masonry veneer is used and a minimum of 6 inches elsewhere. **(R404.1.6).**

D. Two-Family Dwellings (R302.3)

60. Two-family dwellings. *Dwelling units* in two-family dwellings shall be separated from each other by wall and floor assemblies having not less than a 1-hour fire-resistance rating where tested in accordance with ASTM E 119 or UL 263.

61. Fire-resistance-rated floor/ceiling and wall assemblies shall extend to and be tight against the *exterior wall*, and wall assemblies shall extend from the foundation to the underside of the roof sheathing.

Exceptions:

1. A fire-resistance rating of 1/2 hour shall be permitted in buildings equipped throughout with an automatic sprinkler system installed in accordance with NFPA 13.
2. Wall assemblies need not extend through *attic* spaces where the ceiling is protected by not less than 5/8-inch (15.9 mm) Type X gypsum board, an *attic* draft stop constructed as specified in Section R302.12.1 is provided above and along the wall assembly separating the *dwelling*s and the structural framing supporting the ceiling is protected by not less than 1/2-inch (12.7mm) gypsum board or equivalent.

62. R302.3.1 Supporting construction. Where floor assemblies are required to be fire-resistance rated by Section **R302.3**, the supporting construction of such assemblies shall have an equal or greater fire-resistance rating.

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

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

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

1. In concrete or masonry wall or floor assemblies, concrete, grout or mortar shall be permitted where installed to the full thickness of the wall or floor assembly or the thickness required to maintain the fire-resistance rating, provided that both of the following are complied with:
 - 1.1. The nominal diameter of the penetrating item is not more than 6 inches (152 mm).
 - 1.2. The area of the opening through the wall does not exceed 144 square inches (92900 mm²).
2. The material used to fill the annular space shall prevent the passage of flame and hot gases sufficient to ignite cotton waste where subjected to ASTM E 119 or UL 263 time temperature fire conditions under a positive pressure differential of not less than 0.01 inch of water (3 Pa) at the location of the penetration for the time period equivalent to the fire-resistance rating of the construction penetrated.

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

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

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

Exceptions:

1. Membrane penetrations of not more than 2-hour fire-resistance-rated walls and partitions by steel electrical boxes that do not exceed 16 square inches (0.0103m²) in area provided that the aggregate area of the openings through the membrane does not exceed 100 square inches (0.0645 m²) in any 100 square feet (9.29 m²) of wall area. The annular space between the wall membrane and the box shall not exceed 1/8 inch (3.1 mm). Such boxes on opposite sides of the wall shall be separated by one of the following :
 - 1.1. By a horizontal distance of not less than 24 inches (610 mm) where the wall or partition is constructed with individual noncommunicating stud cavities.
 - 1.2. By a horizontal distance of not less than the depth of the wall cavity where the wall cavity is filled with cellulose loose-fill, rockwool or slag mineral wool insulation.
 - 1.3. By solid fireblocking in accordance with Section **R302.11**
 - 1.4. By protecting both boxes with *listed* putty pads.
 - 1.5. By other *listed* materials and methods.
2. Membrane penetrations by *listed* electrical boxes of any materials provided that the boxes have been tested for use in fire-resistance-rated assemblies and are installed in accordance with the instructions included in the *listing*. The annular space between the wall membrane and the box shall not exceed 1/8 inch (3.1 mm) unless *listed* otherwise. Such boxes on opposite sides of the wall shall be separated by one of the following:
 - 2.1. By the horizontal distance specified in the *listing* of the electrical boxes.

- 2.2. By solid fireblocking in accordance with Section **R302.11**.
- 2.3. By protecting both boxes with *listed* putty pads.
- 2.4. By other *listed* materials and methods.
- 3. The annular space created by the penetration of a fire sprinkler provided that it is covered by a metal escutcheon plate.

E. Energy Code Requirements.

66. The required energy code requirements yellow sticker must be completed and signed off and be installed in the inside door of the main electrical panel. The insulation thickness and R-ratings used for walls, attic ceilings, floors, and crawl spaces shall be as established in the 2009 *International Energy Conservation Code*. **The minimum thickness accepted are as follows: Roof/ceiling (attic): R-38; Frame Walls: R-13; Mass Walls: R-5; Floor over outdoor air or unconditioned spaces: R-19; Slab edge width R-10/Depth 2 ft.; Crawl Space wall: R-10; and Basement Wall: R-10/ R-13 if cavity insulation. Fenestrations (windows and glazed doors) 0.35 maximum U value. (Table N1102.1.2) (Section N1102).** Energy features as required on plans: a. Exterior doors and windows weather-stripped; b. insulation certificate complete, signed off by installer/builder, and located in electric main panel box inside of the door cover.

67. Underfloor insulation must be properly installed and supported. (N1101.6) Under-Floor between floor joists insulation: **R-19. Held in place by hangers or netting if fiberglass. Sprayed in place shall be as per manufacturers requirements.** This applies to all floors over outdoor air or unconditioned spaces. (Section N1102) This applies to basement ceilings when the basement is not finished and not conditioned with heat or heat and air conditioning. **(Section N1102).**

68. Crawlspace walls insulation: R-10. Interior **R-10** where directly attached to crawlspace concrete or masonry wall; **R-13** required when installed in a framed wall cavity in a crawlspace. **(Table N1102.1.2).**

69. Basements Walls: Exterior R-5 insulation board, protected as required by manufacturer. Basement Walls **Interior R-10 where directly attached to basement concrete** or masonry wall; **R-13** required when installed **in a framed wall cavity**. All interior basement walls which adjoin an unheated area of the basement must be insulated to R-13. (Section N1102). When a basement is conditioned (provided with heat or heat and air conditioning) even though it is not framed out and dry walled it must still have R-5 insulation fixed to the exterior walls. **(Table N1102.1.2).**

70. Mass walls: R-8 insulation value required. Mass walls shall be considered walls of concrete block, concrete insulated concrete form (ICF), masonry cavity, brick (other than brick veneer), earth (adobe, compressed earth block, rammed earth) and solid timber/logs. The provisions of Section N1102.1 for mass walls shall be applicable when at least 50 percent of the required insulation R-value is on the exterior of, or integral to the wall. **(Table N1102.1.2)**

71. Roof / ceiling insulation: R-38. (Section N1102) If insulation contains a vapor retarder, the retarder is installed on the warm-in-winter side of the ceiling. (R806.2). Combustible insulation shall be separated a minimum of 3 inches from recessed luminaries, fan motors and other heat producing devices.(R808.1) Recessed luminaries installed in the building thermal envelope shall meet the requirements of Section **N1102.4.5.(R402.4.5)** Recessed lighting.

72. Frame Walls Exterior or adjoining interior Unconditioned room spaces: R-13. (Table N1102.1.2)

73. Slab on Grade. Slab edge insulation R-4 for a depth of 2 feet. (Table N1102.1.2 Kentucky Amendments) Insulation extending under the slab or insulation extending out from the building shall be protected by pavement or by a minimum of 10" depth of soil. (N1102.2.7). R-5 shall be added to the required slab edge R-values for heated slabs. 1" insulation board on yard side of foundation walls is approved as an alternative. **(Figure N1101.2.2) KY Amendments.**

74. Windows and doors glass (fenestration): maximum U.35. If the u-value sticker on your windows exceeds **U.35** the windows do not meet code, is not approved and will prevent the issuance of an occupancy permit. **(Section N1102).**

F. Utilities Rough Inspections Required:

75. Plumbing Contractors and inspections. All plumbing installations shall be performed under the supervision of a Kentucky Licensed Master Plumber according to law and shall be licensed and approved by the state plumbing inspector prior to usage pursuant to KRS Chapter 318 and 815 KAR Chapter 20. The current governing code is the **current Kentucky State Plumbing Law Regulations & Code**. The code official may require proof of licensure when making inspections. Locally the inspections can be set up by calling (270-769-3071). The **green** Final inspection sticker must be clearly visible on site, usually on the hot water heater, prior to requesting a final inspection. **(R101.7)**. Potable water must be provided to the dwelling. If well or treatment system, all installations must be complete.

76. Propane gas installations and natural gas installations must be installed, inspected and approved by the authority having jurisdiction. (City of Elizabethtown, Louisville Gas & Electric) for natural gas. Installation per the current **2009 NFPA 54 - National Fuel Gas Code** for other installations.

77. The septic tank system must be inspected and approved, with a (green sticker clearly visible), by the Environmental Services Office through the local health department. *Absence of sticker requires written verification from environmentalist office that the septic system has been approved prior to requesting a final inspection for building occupancy. (270-769-0312).*

78. The electrical wiring and associated electrical systems in this project shall be performed by licensed electricians according to law and shall be inspected by a certified electrical inspector pursuant to KRS 227.489 and KAR 35:015. The code official may require proof of licensure when making inspections. The current governing code is the **2017 NFPA 70 National Electrical Code**. The electrical inspections rough-in, temporary-on-main (yellow sticker), and final are arranged through this office. The approved rough-in sticker (**red orange**) must be clearly visible on the site prior to requesting a framing inspection and the approved final electrical sticker (green) left by the electrical inspector, David Veirs, (270)769-5479 must be present in the building at time of Final Inspection request for Certificate of Occupancy at completion of this project.

79. The mechanical systems (heating, ventilation and air conditioning) installed in this project must meet the minimum requirements set out in the **2015 International Mechanical Code**. Bathroom Exhaust fans are required to vent directly to the outside and must pass through the exterior finishes material and is terminated into an appropriately designed protective grille. **Licensed HVAC Contractor Required:** The installation of all Heating, Ventilating and Air Conditioning Systems (HVAC), whether in existing or new building construction shall be performed by a **Licensed Master HVAC Contractor**. Heat is required in habitable rooms to maintain a minimum of 68 degrees at 3 feet above the floor. **Effective January 2, 2011 all new "initial" HVAC systems or equipment installations and including specific HVAC equipment replacement installations are required to be inspected by the state.**

HVAC Inspector prior to starting the HVAC installation on the project site. Or contact the state office at **502-573-0395**. This applies to home owners as well as HVAC contractors. When required, the HVAC rough in inspection must have been completed prior to calling for the Building Framing Inspection. **(Revised Jan. 2019)**

G. Interior of House or Structure:

80. The following room finishes and other items listed are exempt from permit and are not inspected or regulated by the building code: 1-story detached accessory buildings less than 200 sq. ft. in size; fences less in height than 7'-1"; retaining walls less than 4 ft. in height with no surcharge; sidewalks and driveways on grade; finish work (painting, tiling, carpeting, cabinets, etc.); pre-fab above ground pools less than 24 inches in depth; playground equipment for a 1 & 2 family dwelling; and exterior wall awnings. **(Section R105.2)**. **Note: Finish work is not required and shall not be started at time of framing inspection.**

81. All required interior exits, stairs, guardrails, handrails, landings, porches and decks (R502.2.2) shall be complete prior to final inspection, **they must be roughed in prior to framing inspection.**

82. Ceiling Height. (R305.1) Habitable space, hallways, and portions of basements containing these spaces, shall have a ceiling height of not less than **7 feet**. **Bathrooms, toilet rooms and laundry rooms** shall have a ceiling height of not less than **6'8"**. The measurement is from the finished floor to the lowest projection from the ceiling.

Exceptions:

a. **Beams and girders, ducts or other obstructions** may project not more than 6'4" from the finished floor. **(R305.1.1)**

b. **Ceilings in basements without habitable spaces** minimum height 6 feet 8 inches above finished floor and beams, girders, ducts or other obstructions no less than 6 feet 4 inches of finished floor. **(R305.1.1)**

c. **For rooms with sloped ceilings**, the required floor area of the room shall have a ceiling height of not less than 5 feet and not less than 50 percent of the required floor area shall have a ceiling height of not less than 7 feet. **(R305.1.1)**

d. **Bathrooms** shall have a minimum ceiling height of 6'-8" over the fixture and at the front clearance areas for fixtures. Minimum Fixture Clearances. A shower or tub equipped with a showerhead shall have a minimum ceiling height of 6'-8" above a minimum area of 30" by 30" at the showerhead. **(R305.1.2)**

83. Hallways. **(R311.6)** The minimum width of a hallway shall be not less than 3 feet.

84. Bathroom exhaust fans required. Intake /Exhaust Master Vents (grilled diffusers) visible from exterior. Bathrooms without openable windows are required to have mechanical ventilation (exhaust fans). The venting must be taken through the roof or through a wall or soffit and be terminated on the exterior with a protective grilled diffuser, visible from the exterior. **(IMC 1507.4), (Table M1507.4).** Bath vent fans are required to be installed by the mechanical contractor per *2015 International Mechanical Code*.

85. Illumination at Stairs. **(R311.7.9)** All stairs shall be provided with illumination in accordance with **Section R303.7**. All interior and exterior stairways shall be provided with a means to illuminate the stairs including the landings and treads. There shall be a wall switch at each floor level to control the light source where the stairway has 6 or more risers. **(R303.7)** Exterior stairways shall be provided with an artificial light source located at the top landing of the stairway. Exterior access stairs to basements providing access to a basement from the outside grade level shall provide an artificial light source near the bottom landing of the stairway. **(R303.8)**

86. Chimneys, Fireplaces, and woodstoves must be installed, including hearth, combustion air ducts, and metal or glass doors, prior to final inspection. If a free standing fireplace is installed, support box and hearth must be installed. A spark arrestor must be installed on the chimney. Proper clearance above roof ridge two feet higher at ridge or ten feet away from roof deck. Manufacturer's installation instructions must be on site for inspection. Installer and homeowner responsible for checking clearances from combustibles on these installations, per the specific requirements of the manufacturer's specifications. Refer to KRC Chapter 10 for details **(R1001)**.

87. Foam Plastic. **(R316.)** Unless otherwise allowed in **Section R316.5**, Foam plastic shall be separated from the interior of a building by an approved thermal barrier of minimum ½ inch gypsum wallboard or an approved material that is tested in accordance with and meets the acceptance criteria of both the Temperature Transmission Fire Test and Integrity Fire Test of NFPA 275.

88. Masonry or Concrete Walls. The thermal barrier is not required in a masonry or concrete wall, floor or roof when the foam plastic insulation is separated from the interior of the building by a minimum 1-inch thickness of masonry or concrete. **(R316.4).**

89. Roofing. **(R316.5.2.)** The thermal barrier is not required when the foam plastic in a roof assembly or under a roof covering is separated from the interior of a building by tongue-and-groove wood planks or wood structural panel sheathing in accordance with **Section R803**, not less than 15/32 inch thick bonded with exterior glue, and installed to provide adequate edge support (blocking when edges do not occur over framing members, tongue and groove joints or equivalent). Also the flame spread rating of the foam plastic used must comply with the requirements of **Section R316.3**, but the smoke developed rating for roof applications of the foam plastic is not limited.

90. Attics. **(R316.5.3)** The thermal barrier is not required where attic access is required by **R807.1** and where the space is entered only for service of utilities (attics containing mechanical equipment, electrical wiring, fans, plumbing, gas or electric furnaces, hot water heaters, etc.) and when the foam plastic insulation is protected against ignition **using one of the following ignition barrier materials:** 1.5" thick mineral fiber insulation; 0.25 inch thick wood structural panels; 0.375 inch thick particleboard; 0.25 inch hardboard; 0.375 inch gypsum board, or corrosion-resistant steel having a base metal thickness of 0.016 inch. The attic space cannot be used for storage. **The above ignition barrier is not required when the foam plastic insulation has been tested in accordance with R316.6.**

H. FLOORS

(Wood Floor Framing, Wood Roof Trusses, Site-Built Rafters and Ceiling Joists, etc.)

Application. The provisions of this chapter shall control the design and construction of the floors for all buildings including the floors of attic spaces used to house mechanical or plumbing fixtures and equipment.

91. Ground Contact. (R318) All wood in contact with the ground, embedded in concrete in direct contact with the ground or embedded in concrete exposed to the weather that supports permanent structures (*buildings, balconies, decks, porches*) intended for human occupancy shall be approved pressure-preservative-treated wood suitable for ground contact use...

92. Quality Mark. (R318.1.1) Lumber and plywood required to be pressure-preservative-treated in accordance with Section R318.1 shall bear the quality mark of an approved inspection agency...that complies with the requirements of the American Lumber Standard Committee treated wood program.

93. Fasteners. (R403.1.6) Foundation anchorage. Fasteners for pressure-preservative-treated and fire-retardant treated wood shall be of hot-dipped zinc-coated, galvanized steel, stainless steel, silicon bronze or copper. The coating weights for zinc-coated fasteners shall be in accordance with ASTM A 153. **Exceptions:** 1. One-half inch diameter or larger steel bolts. 2. Fasteners other than nails and timber rivets shall be permitted to be of mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B 695, Class 55, minimum.

94. Foundation Anchorage required. (R403.1.6.) When braced wall panels are supported directly on continuous foundations ... The wood sole plate at exterior walls on monolithic slabs and wood sill plate shall be anchored to the foundation with **anchor bolts spaced a maximum of 6 feet on center**. There shall be a minimum of **two bolts per plate section with one bolt located not more than 12 inches or less than seven bolt diameters (typically 3 1/2") from each end of the plate section**. Bolts shall be at least 1/2" in diameter and shall extend a minimum of 7 inches into masonry or concrete. A nut and washer shall be tightened on each bolt of the plate.

95. Retrofit type foundation bolts are required where concrete formwork installer does not have sufficient amount or properly spaced bolts. **(R403.1.6)**

96. Framing at Braced Wall Lines. (R602) A load path for lateral forces shall be provided between floor framing and braced wall panels located above or below a floor, as specified in Section R602.10.8.

97. Attachment of decks or porches. (R507.1 Exterior Decks). Required exterior egress balconies (*example: decks or porches*), exterior exit stairways and similar means of egress components shall be positively anchored to the primary structure to resist both vertical and lateral forces. **Such attachment shall not be accomplished by use of toenails or nails subject to withdrawal. (Use lag screws or combination through bolts approved for use with pressure treated wood).**

98. DECKS.

Spans for deck floor joists shall be in accordance with **Tables R507.5, and Maximum joist spacing R507.4**. Deck beam spans are found in **Table R507.6**. **R507.2** specifies the details for Deck ledger connections to band joists. **R507.3 Plastic composite deck** boards, stair treads, guards, or handrails shall comply with the requirements of ASTM D 7032 and Section **507.3**. Also refer to the following sections: **R507.4 Decking, R507.5 Deck Joists ; R507.6 Deck Beams; R507.6** Deck joist and deck beam bearing; **R 507.7.1** Deck post to deck beam; **R507.8** Deck posts; **R507.8.1** Deck post to deck footing. *When the deck framing is not completed in time for the house framing inspection, the deck framing inspection will be done at same time as the house final inspection. In that case do not cover any portion of the deck that has not previously been inspected and approved.*

FLOOR FRAMING

99. Floor Joists Spans for Common Lumber Species. Table R502.3.1(1). Bearing Floor Systems. R502.6.1. Joists framing from opposite sides over a bearing support shall lap a minimum of 3 inches and shall be nailed together with a minimum of three 10d face nails. A wood or metal splice with strength equal to or greater than that provided by the nailed lap is permitted.

100. Bearing Joist Framing. R502.6.2. Joist framing into the side of a wood girder shall be supported by approved framing anchors (joist hangers) or on ledger strips not less than a nominal 2 inches by 2 inches.

101. Lateral Restraint at Supports. R502.7. Joists shall be supported laterally at the ends by full depth solid blocking not less than 2 inches thick, or by attachment to a header, band, or rim joist, or to adjoining studs, or shall be otherwise provided with lateral support to prevent rotation.

102. Holes Bored in Sawn Lumber. (R502.8.1). The diameter of holes bored or cut into members shall not exceed one-third the depth of the member. Holes shall not be closer than 2 inches to the top or bottom of the member, or to any other hole located in the member. Where the member is also notched, the hole shall not be closer than 2 inches to the notch.

103. Stud Shoes (IRC 2006 R602.6) are required when holes for utilities (plumbing, electric, HVAC, sewer, gas, phone, communications, etc.) are drilled within the bottom 2 inches of a floor joists or ceiling joist and weaken the load carrying capacity of the wood member. Stud shoes provide tension load capacity as well as increased compression loads. (IRC 2006 R602.6) "Exception: Use of approved stud shoes is permitted when they are installed in accordance with the manufacturer's specifications." *Nail guards (nail stoppers) will not be accepted as approvable replacements for stud shoes.*

104. Wood Floor Framing. (R502.1.) Load bearing dimension lumber for joists, beams and girders shall be identified by a grade mark of a lumber grading or inspection agency that has been approved by an accreditation body that complies with DOC PS 20. In lieu of a grade mark, a certificate of inspection issued by a lumber grading or inspection agency meeting the requirements of this section shall be accepted.

105. Bridging of Joists. (R502.7.1) Joists exceeding a nominal 2" by 12" shall be supported laterally by solid blocking, diagonal bridging (wood or metal), or a continuous 1" by 3" strip nailed across the bottom of joists perpendicular to joists at intervals not exceeding 8 feet.

106. Lateral Restraint At Supports. (Blocking of Joists) (R502.7). Joists shall be supported laterally at the ends by full depth solid blocking not less than 2 inches nominal thickness; or by attachment to a header, band, or rim joist, or to an adjoining stud; or shall be otherwise provided with lateral support to prevent rotation.

107. Floor Cantilevers at exterior balconies. (R502.3.3) Floor cantilever spans shall not exceed the nominal depth of the wood floor joist. Cantilever spans of floor joists supporting exterior balconies shall not exceed the limitations stated in **Table R502.3.3 (2)**. Uplift force is for a back span to **cantilever ratio of 2:1**. (Note b) A full depth rim joist shall be provided at the cantilevered ends of the joists. **Solid blocking shall be provided at the cantilevered support.** (Note e).

108. Floor Cantilevers at exterior bearing wall and roof only. (R502.3.3) Floor cantilever spans shall not exceed the nominal depth of the wood floor joist. Cantilever spans of floor joists supporting light-frame exterior bearing wall and roof only shall not exceed the limitations stated in **Table R502.3.3(1)**. Uplift force is for a back span to **cantilever ratio of 3:1**. (Note b) A full depth rim joist shall be provided at the cantilevered ends of the joists. Solid blocking shall be provided at the cantilevered support. (Note g). Connections capable of resisting the indicated uplift force shall be provided at the back span support.

I. WALLS

109. Uplift Resistance. (R802.11.1). (e.g. hurricane ties). Roof assemblies which are subject to wind uplift pressures of 20 pounds per square foot or greater shall have roof rafters and/or trusses attached to their supporting wall assemblies by connections capable of providing the resistance required in Table R802.11

110. Hurricane Ties required. Table (R802.3) In addition to the standard nailing requirements found in Table 802.3(1) hurricane ties will be required at all locations of the top sill plates when engineered roof trusses are used in wood framing construction as well as when standard roof rafters are used. R301.1 Design requiring a "complete load path".

111. Specific Approval. (R316.5) The following requirements shall apply to these uses of foam plastic unless specifically approved in accordance with Section R316.6 or by other sections of this code or the requirements of Sections R316.2 through R316.4 have been met.

112. Fireblocking. (R602.8) Fire blocking shall be provided in accordance with **Section R302.11**. Fire rated caulking is required at all holes in top and bottom sill plates in wood framed walls and in at least one hole every 10 lf where long runs exists in stud framed walls of electric wiring runs. Fireblocking shall be installed 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.

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.
 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.
- 113. Top plate lap required** at corners and bearing wall intersections. (**R602.3.2**). Wood stud walls shall be capped with a double top plate installed to provide overlapping at corners and intersections with bearing partitions. End joints in top plates shall be offset at least 24 inches.
- 114. Nail guards (stops) required.** (**R602.6**). Nail stops consisting of metal shields are required to be installed where piping for all plumbing supply, vent, and drain lines and electrical wiring, phone wiring, gas lines, etc. are drilled through stud framed walls and the hole is within 5/8 inch of drywall edge of stud or plate. Attach with 8d commons.
- 115. Double studs (Figure R502.2)** are required to be located directly under double trusses, or other types of double wood structural members (girders, beams, walls, etc.) to carry the load at that bearing point in a continuous load path to the floor system and down to the foundation. Where girders, beams, trusses, etc. are tripled; then triple studs are required to be installed in a similar manner to carry the load in a continuous load path to the support system below.

J. Windows and Doors

116. Glazed openings (Windows & doors with glass) are required to be not less than 8% of floor area. (**R303.1**).

117. Glazing. Glass in Windows & Doors. (**R308.**) Tempered (safety) glass is required in windows and doors, skylights, and at hazardous locations.

R308.4 Hazardous locations. The locations specified in Sections R308.4.1 through R308.4.7 shall be considered to be specific hazardous locations for the purposes of glazing.

R308.4.1 Glazing in doors. Glazing in fixed and operable panels of swinging, sliding and bifold doors shall be considered to be a hazardous location.

Exceptions:

1. Glazed openings of a size through which a 3-inch-diameter (76 mm) sphere is unable to pass.
2. Decorative glazing.

R308.4.2 Glazing adjacent to doors. Glazing in an individual fixed or operable panel adjacent to a door shall be considered to be a hazardous location where the bottom exposed edge of the glazing is less than 60 inches (1524mm) above the floor or walking surface and it meets either of the following conditions:

1. Where the glazing is within 24 inches (610 mm) of either side of the door in the plane of the door in a closed position.
2. Where the glazing is on a wall perpendicular to the plane of the door in a closed position and within 24 inches (610 mm) of the hinge side of an in-swinging door.

Exceptions:

1. Decorative glazing.
2. Where there is an intervening wall or other permanent barrier between the door and the glazing.
3. Where access through the door is to a closet or storage area 3 feet (914 mm) or less in depth. Glazing in this application shall comply with Section R308.4.3.
4. Glazing that is adjacent to the fixed panel of patio doors.

118. R308.4.3 Glazing in windows. Glazing in an individual fixed or operable panel that meets all of the following conditions shall be considered to be a hazardous location:

1. The exposed area of an individual pane is larger than 9 square feet (0.836 m²),
2. The bottom edge of the glazing is less than 18 inches (457 mm) above the floor,
3. The top edge of the glazing is more than 36 inches (914 mm) above the floor; and
4. One or more walking surfaces are within 36 inches (914 mm), measured horizontally and in a straight line, of the glazing.

Exceptions:

1. Decorative glazing.

2. Where a horizontal rail is installed on the accessible side(s) of the glazing 34 to 38 inches (864 to 965 mm) above the walking surface. The rail shall be capable of withstanding a horizontal load of 50 pounds per linear foot (730 N/m) without contacting the glass and have a cross-sectional height of not less than 1 1/2 inches (38 mm).

3. Outboard panes in insulating glass units and other multiple glazed panels where the bottom edge of the glass is 25 feet (7620 mm) or more above *grade*, a roof, walking surfaces or other horizontal [within 45 degrees (0.79 rad) of horizontal] surface adjacent to the glass exterior.

R308.4.4 Glazing in guards and railings. Glazing in *guards* and railings, including structural baluster panels and nonstructural in-fill panels, regardless of area or height above a walking surface shall be considered to be a hazardous location.

R308.4.5 Glazing and wet surfaces. Glazing in walls, enclosures or fences containing or facing hot tubs, spas, whirlpools, saunas, steam rooms, bathtubs, showers and indoor or outdoor swimming pools where the bottom exposed edge of the glazing is less than 60 inches (1524mm) measured vertically above any standing or walking surface shall be considered to be a hazardous location. This shall apply to single glazing and each pane in multiple glazing.

Exception: Glazing that is more than 60 inches (1524 mm), measured horizontally and in a straight line, from the water's edge of a bathtub, hot tub, spa, whirlpool or swimming pool or from the edge of a shower, sauna or steam room.

R308.4.6 Glazing adjacent to stairs and ramps. Glazing where the bottom exposed edge of the glazing is less than 36 inches (914 mm) above the plane of the adjacent walking surface of stairways, landings between flights of stairs and ramps shall be considered to be a hazardous location.

Exceptions:

1. Where a rail is installed on the accessible side(s) of the glazing 34 to 38 inches (864 to 965 mm) above the walking surface. The rail shall be capable of withstanding a horizontal load of 50 pounds per linear foot (730 N/m) without contacting the glass and have a cross-sectional height of not less than 1 1/2 inches (38 mm).

2. Glazing 36 inches (914 mm) or more measured horizontally from the walking surface.

R308.4.7 Glazing adjacent to the bottom stair landing. Glazing adjacent to the landing at the bottom of a stairway 60" where the glazing is less than 36 inches (914 mm) above the landing and within a 60-inch (1524 mm) horizontal arc less than 180 degrees from the bottom tread nosing shall be considered to be a hazardous location.

Exception: The glazing is protected by a *guard* complying with Section R312 and the plane of the glass is more than 18 inches (457 mm) from the *guard*.

119. Emergency Escape and Rescue Openings. (R310.2) Emergency escape and rescue openings.

Emergency escape and rescue openings shall have minimum dimensions as specified in this section.

R310.2.1 Minimum opening area. Emergency and escape rescue openings shall have a net clear opening of not less than 5.7 square feet (0.530 m²). The net clear opening dimensions required by this section shall be obtained by the normal operation of the emergency escape and rescue opening from the inside. The net clear height opening shall be not less than 24 inches (610 mm) and the net clear width shall be not less than 20 inches (508 mm).

Exception: *Grade* floor or below *grade* openings shall have a net clear opening of not less than 5 square feet (0.465 m²).

120. R310.2.2 Window sill height. Where a window is provided as the emergency escape and rescue opening, it shall have a sill height of not more than 44 inches (1118 mm) above the floor; where the sill height is below *grade*, it shall be provided with a window well in accordance with Section R310.2.3.

R310.2.3 Window wells. The horizontal area of the window well shall be not less than 9 square feet (0.9 m²), with a horizontal projection and width of not less than 36 inches (914 mm). The area of the window well shall allow the emergency escape and rescue opening to be fully opened.

Exception: The ladder or steps required by Section R310.2.3.1 shall be permitted to encroach not more than 6 inches (152 mm) into the required dimensions of the window well.

121. R310.2.3.1 Ladder and steps. Window wells with a vertical depth greater than 44 inches (1118 mm) shall be equipped with a permanently affixed ladder or steps usable with the window in the fully open position. Ladders or steps required by this section shall not be required to comply with Sections R311.7 and R311.8. **Ladders or rungs** shall have an inside width of not less than 12 inches (305 mm), shall project not less than 3 inches (76 mm) from the wall and shall be spaced not more than 18 inches (457 mm) on center vertically for the full height of the window well.

R310.2.3.2 Drainage. Window wells shall be designed for proper drainage by connecting to the building's foundation drainage system required by Section R405.1 or by an approved alternative method. Exception: A drainage system for window wells is not required where the foundation is on well-drained soil or sand-gravel mixture soils in accordance with the United Soil Classification System, Group I Soils, as detailed in Table R405.1.

122. R310.2.4 Emergency escape and rescue openings under decks and porches. Emergency escape and rescue openings shall be permitted to be installed under decks and porches provided that the location of the deck allows the emergency escape and rescue openings to be fully opened and provides a path not less than 36 inches (914 mm) in height to a *yard* or court.

R310.3 Emergency escape and rescue doors. Where a door is provided as the required emergency escape and rescue opening, it shall be permitted to be a side-hinged door or a slider. Where the opening is below the adjacent ground elevation, it shall be provided with a bulkhead enclosure.

R310.3.1 Minimum door opening size. The minimum net clear height opening for any door that serves as an emergency and escape rescue opening shall be in accordance with Section R310.2.1.

123. (R314) SMOKE ALARMS

R314.1 General. Smoke alarms shall comply with NFPA 72 and Section R314.

R314.1.1 Listings. Smoke alarms shall be *listed* in accordance with UL 217. Combination smoke and carbon monoxide alarms shall be *listed* in accordance with UL 217 and UL 2034.

R314.2 Where required. Smoke alarms shall be provided in accordance with this section.

R314.2.1 New construction. Smoke alarms shall be provided in *dwelling units*.

R314.2.2 Alterations, repairs and additions. Where *alterations*, *repairs* or *additions* requiring a permit occur, or where one or more sleeping rooms are added or created in existing *dwelling units*, the individual *dwelling unit* shall be equipped with smoke alarms located as required for new *dwelling units*.

Exceptions:

1. Work involving the exterior surfaces of *dwelling units*, such as the replacement of roofing or siding, the *addition* or replacement of windows or doors, or the addition of a porch or deck, are exempt from the requirements of this section.
2. Installation, alteration or repairs of plumbing or mechanical systems are exempt from the requirements of this section.

R314.3 Location. Smoke alarms shall be installed in the following locations:

1. In each sleeping room.
2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.
3. On each additional *story* of the *dwelling unit*, including *basements* and *habitable attics* and not including crawlspaces and uninhabitable *attics*. In *dwelling units* or *dwelling units* with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full *story* below the upper level.
4. Smoke alarms shall be installed not less than 3 feet (914 mm) horizontally from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by Section **R314.3**.

R314.3.1 Installation near cooking appliances. Smoke alarms shall not be installed in the following locations unless this would prevent placement of a smoke alarm in a location required by Section R314.3.

1. Ionization smoke alarms shall not be installed less than 20 feet (6096 mm) horizontally from a permanently installed cooking *appliance*.
2. Ionization smoke alarms with an alarm-silencing switch shall not be installed less than 10 feet (3048 mm) horizontally from a permanently installed cooking *appliance*.
3. Photoelectric smoke alarms shall not be installed less than 6 feet (1828 mm) horizontally from a permanently installed cooking *appliance*.

R314.4 Interconnection. Where more than one smoke alarm is required to be installed within an individual dwelling unit in accordance with **Section R314.3**, the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual *dwelling unit*. Physical interconnection of smoke alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm.

Exception: Interconnection of smoke alarms in existing areas shall not be required where *alterations* or repairs do not result in removal of interior wall or ceiling finishes exposing the structure, unless there is an *attic*, crawl space or *basement* available that could provide access for interconnection without the removal of interior finishes.

R314.5 Combination alarms. Combination smoke and carbon monoxide alarms shall be permitted to be used in lieu of smoke alarms.

R314.6 Power source. Smoke alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source and, where primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than those required for overcurrent protection.

Exceptions:

- I. Smoke alarms shall be permitted to be battery operated where installed in buildings without commercial power.
- II. Smoke alarms installed in accordance with Section R314.2.2 shall be permitted to be battery operated.

K. Attics

126. Appliances in Attic.

1. **Opening** large enough to remove a furnace or other piece of mechanical appliance installed in attic. (M1305.1.3)
2. **Solid floor min 24 in.** wide from entrance to appliance (1305.1.3). Max 20ft from access opening to appliance (M1305.1.3).
3. **Passageway:** Minimum 22 inches wide x 30" high. Exception: Maximum length 50 ft. if passageway is 6' high. (M1305.1.3).
4. **Min. 30 in. x 30 in. level platform** required for service access (M1305.1.3).
5. **Platform** not required if service possible from access opening (1305.1.3).
6. **Luminaire & receptacle** outlet near appliance (1305.1.3.1).
7. **Switch for Luminaire** at passageway entrance (1305.1.3.1)

127. Attics with limited storage must have been completed per requirements of (Table R301.5). Attic spaces served by a fixed stair shall be designed to support the minimum live load specified for sleeping rooms (30 lb. live load minimum).

128. Attic vents. Roof Ventilation (R806).

1. Enclosed attics and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof rafters shall have cross ventilation for each separate space...by ventilated openings protected against the entrance of rain or snow. Mesh screening size 1/16 inch minimum to ¼ inch maximum openings.
2. The total net free venting area shall be no less than 1/150 of the area of the space ventilated (R806.2);
3. except that reduction to 1/300 of the area of the space ventilated is permitted, provided that at least 50% and not more than 80% of the required vents are located in the upper portion of the ventilated space at least 3 feet above the eave or cornice vents with the balance of the required ventilation provided by eave or cornice vents.

129. Where eave or cornice vents are installed, insulation shall not block the free flow of air. A minimum of 1-inch space shall be provided between the insulation and the roof sheathing and at the location of the vent. (R806.3)

130. Attic Access. (R807.1) Buildings with combustible ceilings or roof construction shall have an attic access opening to attic areas that exceed 30 SF and have a vertical height of 30 inches or more.

A. The rough-framed opening shall be not less than **22 inches by 30 inches** and shall be located in a hallway or other readily accessible location. The vertical height shall be measured from the top of the ceiling framing members to the underside of the roof framing members.

B. A 30-inch minimum unobstructed headroom in the attic space shall be provided at some point above the access opening. See Section M1305.1.3 for access requirements where mechanical equipment is located in attics.

131. Water heater located in attic: Watertight, corrosion-resistant pan required for hot water heaters in attics or where leakage could cause damage. (Refer to No. 126 above **Appliances in Attic** for additional requirements). A plastic pan shall not be installed beneath a gas-fired water heater.

- ☐ Pan drain size minimum ¾ inch. Pan minimum 1 ½ inch deep.
- ☐ Drain required terminating (indirect waste or outdoors 6-24 inches above grade) to an approved location.
- ☐ Temperature & Pressure Relief Valve may not discharge into pan.

Check with the local plumbing inspector to see if this method is accepted by your inspector. Installation must be as per Kentucky State Plumbing Code.

L. Garages and Carports

107. Carports. (R309)

1. Carports shall be open on at least two sides.
 2. Carport floor surfaces shall be of approved noncombustible material.
 3. Carports not open on at least 2 sides shall be considered a garage and shall comply with the provisions of the section for garages.
- Exception. Asphalt floor surfaces shall be permitted at ground level in carports.
4. The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.

108. Garages. (R309)

Openings from a private garage into a room used for sleeping are not permitted. **(R302.5.1)**

1. Other openings between the garage and residence shall be equipped with solid wood doors, 1 3/8" thick, solid or honeycomb core steel doors not less than 1 3/8" thick, or 20 minute fire-rated doors. **(R302.5.1)**

109. Garage exterior walls less than 3 feet from property line required to have one-hour construction. **(R302).**

110. Garages: Duct Penetration. (R302.5.2.) Ducts in the garage and ducts penetrating the walls or ceilings separating the dwelling from the garage shall be constructed of a minimum No. 26 gage sheet steel or other approved material and shall have no openings into the garage.

111. Garages: Other Penetrations. Penetrations through the separation required in Section R309.2 shall be protected by filling the opening around the penetrating item with approved material to resist the free passage of flame and products of combustion. (E.g. caulk). **(R302.11.1)**

112. Hot water heaters and furnaces located in garages must be protected from impact by vehicles by means of steel barrier bolted to floor and located near the appliance. **(M1307.3.1)** Any flame or sparking device must be located greater than 18 inches above the floor. **(M1307.3)**

113. Garages: Separation Required. (R309.2) The garage shall be separated from the residence and its attic area by not less than ½ inch gypsum board applied to the garage side. Detached garages accessory to a dwelling located within 2 feet of a lot line are permitted to have roof eave projections not exceeding 4 inches. **(R302.2.1.4) (Check local zoning laws to see if locating this close to property line is allowed.)**

A. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than 5/8" Type X gypsum board.

B. Where the separation is a floor ceiling assembly the structure supporting the separation shall also be protected by not less than ½ inch gypsum board.

C. Garages located not less than 3 feet from a dwelling unit on the same lot shall be protected with not less than ½ inch gypsum board applied to the interior side of exterior walls that are within this area.

114. Garages: Floor Surface. (R309.1) Garage floor surfaces shall be of approved noncombustible material (example: Concrete). The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.

M. Basements

115. Drilling and Notching of Sawn Lumber. (R502.8.1) Notches in solid lumber joists, rafters, and beams shall not exceed one-sixth of the depth of the member, shall not be longer than one-third of the member and shall not be located in the middle one-third of the span.

A. Notches at the ends of the members shall not exceed one-fourth the depth of the member.

B. The tension side of members 4 inches or greater in nominal thickness shall not be notched except at the ends of the members.

116. Under Stair Protection. (R302.7) Enclosed accessible space under stairs shall have walls, under stair surface, and any soffits protected on the enclosed side with ½ inch gypsum board. *If the area under the stairs is not enclosed, is left open to the rest of the room, not walled in, the under stair protection is not required.*

117. Floor framing. Floor/ceiling draft stopped if greater than 1000 sq. ft. using open web trusses. (302.12). Check for this in either the crawlspace or in the ceiling of the basement. **(R502.12)**

118. Bulkhead Enclosure Stairways. (R311.7.10.2) Stairways serving bulkhead enclosures, not part of the required building egress, providing access from the outside *grade* level to the *basement* shall be exempt from the requirements of Sections R311.3 and R311. 7 where the height from the *basement* finished floor level to *grade* adjacent to the stairway is not more than 8 feet (2438 mm) and the *grade* level opening to the stairway is covered by a bulkhead enclosure with hinged doors or other *approved* means.

119. Basement Sleeping Rooms. Where basements contain one or more sleeping rooms, emergency egress and rescue openings shall be required in each sleeping room, but shall not be required in adjoining areas of the basement. **(Ky. Amendments). (R310.1)**

120. Hot water heater location must be roughed in. Prior to the final inspection it must include pressure relief valve. Pressure relief valve piping to be hard drawn copper or galvanized steel, and terminating downward not more than two feet nor less than six inches above grade at exterior. Hot water heater to be secured to wall frame. (Seismic zones only). Installation shall be as per requirements of the **Kentucky Plumbing Code**. Proper combustion air openings must be provided for fuel fired hot water heaters. Expansion tanks are required by the code when on Hardin County Water District supplied water to the property.

121. Shut-off for main water line (per **Kentucky Plumbing Code**), this must be checked by the plumbing inspector and main gas line shutoff must be installed per gas code at house entry of these systems. This gas line must be checked by the natural gas inspector or by the propane gas inspector (when propane).

122. All natural gas, propane gas, and fuel oil appliances and equipment (also including manufactured gas fireplace units) subject to the **2009 NFPA 54 National Fuel Gas Code** shall be rough installed checked and approved by the person installing the appliance or system, or possibly by the fuel supplier upon request. The building inspector does not check these installations.

K. Floor Construction.

123. Girder Spans and Header Spans for Exterior Bearing Walls.

TABLE R602.7(1)
GIRDER SPANS* AND HEADER SPANS* FOR EXTERIOR BEARING WALLS
 (Maximum spans for Douglas fir-larch, hem-fir, southern pine and spruce-pine-fir² and required number of jack studs)

GIRDERS AND HEADERS SUPPORTING	SIZE	GROUND SNOW LOAD (psf)*																	
		30						50						70					
		Building width* (feet)																	
		20			28			36			20			28			36		
		Span	NJ ³		Span	NJ ³		Span	NJ ³		Span	NJ ³		Span	NJ ³		Span	NJ ³	
Roof and ceiling	1-2 x 8	4-6	1	3-10	1	3-5	1	3-9	1	3-2	1	2-10	2	—	—	—	—	—	—
	1-2 x 10	5-8	1	4-11	1	4-4	1	4-9	1	4-1	1	3-2	2	—	—	—	—	—	—
	1-2 x 12	6-11	1	5-11	2	5-3	2	5-9	2	4-8	2	3-8	2	—	—	—	—	—	—
	2-2 x 4	3-6	1	3-2	1	2-10	1	3-2	1	2-9	1	2-5	1	2-10	1	2-6	1	2-3	1
	2-2 x 6	5-5	1	4-8	1	4-2	1	4-8	1	4-1	1	3-8	2	4-2	1	3-8	2	3-3	2
	2-2 x 8	6-10	1	5-11	2	5-4	2	5-11	2	5-2	2	4-7	2	5-4	2	4-7	2	4-1	2
	2-2 x 10	8-5	2	7-3	2	6-6	2	7-3	2	6-3	2	5-7	2	6-6	2	5-7	2	5-0	2
	2-2 x 12	9-9	2	8-5	2	7-6	2	8-5	2	7-3	2	6-6	2	7-6	2	6-6	2	5-10	3
	3-2 x 8	8-4	1	7-5	1	6-8	1	7-5	1	6-5	2	5-9	2	6-8	1	5-9	2	5-2	2
	3-2 x 10	10-6	1	9-1	2	8-2	2	9-1	2	7-10	2	7-0	2	8-2	2	7-0	2	6-4	2
	3-2 x 12	12-2	2	10-7	2	9-5	2	10-7	2	9-2	2	8-2	2	9-5	2	8-2	2	7-4	2
	4-2 x 8	9-2	1	8-4	1	7-8	1	8-4	1	7-5	1	6-8	1	7-8	1	6-8	1	5-11	2
	4-2 x 10	11-8	1	10-6	1	9-5	2	10-6	1	9-1	2	8-2	2	9-5	2	8-2	2	7-3	2
4-2 x 12	14-1	1	12-2	2	10-11	2	12-2	2	10-7	2	9-5	2	10-11	2	9-5	2	8-5	2	
Roof, ceiling and one center- bearing floor	1-2 x 8	3-11	1	3-5	1	3-0	1	3-7	1	3-0	2	2-8	2	—	—	—	—	—	—
	1-2 x 10	5-0	2	4-4	2	3-10	2	4-6	2	3-11	2	3-4	2	—	—	—	—	—	—
	1-2 x 12	5-10	2	4-9	2	4-2	2	5-5	2	4-2	2	3-4	2	—	—	—	—	—	—
	2-2 x 4	3-1	1	2-9	1	2-5	1	2-9	1	2-5	1	2-2	1	2-7	1	2-3	1	2-0	1
	2-2 x 6	4-6	1	4-0	1	3-7	2	4-1	1	3-7	2	3-3	2	3-9	2	3-3	2	2-11	2
	2-2 x 8	5-9	2	5-0	2	4-6	2	5-2	2	4-6	2	4-8	2	4-9	2	4-2	2	3-9	2
	2-2 x 10	7-0	2	6-2	2	5-6	2	6-4	2	5-6	2	5-0	2	5-9	2	5-1	2	4-7	3
	2-2 x 12	8-1	2	7-1	2	6-5	2	7-4	2	6-5	2	5-9	3	6-8	2	5-10	3	5-3	3
	3-2 x 8	7-2	1	6-3	2	5-8	2	6-5	2	5-8	2	5-11	2	5-11	2	5-2	2	4-8	2
	3-2 x 10	8-9	2	7-8	2	6-11	2	7-11	2	6-11	2	6-3	2	7-3	2	6-4	2	5-8	2
	3-2 x 12	10-2	2	8-11	2	8-0	2	9-2	2	8-0	2	7-3	2	8-5	2	7-4	2	6-7	2
	4-2 x 8	8-1	1	7-3	1	6-7	1	7-5	1	6-6	1	5-11	2	6-10	1	6-0	2	5-5	2
	4-2 x 10	10-1	1	8-10	2	8-0	2	9-1	2	8-0	2	7-2	2	8-4	2	7-4	2	6-7	2
4-2 x 12	11-9	2	10-3	2	9-3	2	10-7	2	9-3	2	8-4	2	9-8	2	8-6	2	7-7	2	
Roof, ceiling and one clear span floor	1-2 x 8	3-6	1	3-0	1	2-8	1	3-5	1	2-11	1	2-7	2	—	—	—	—	—	—
	1-2 x 10	4-6	1	3-10	1	3-3	1	4-4	1	3-9	1	3-1	2	—	—	—	—	—	—
	1-2 x 12	5-6	1	4-2	2	3-3	2	5-4	2	3-11	2	3-1	2	—	—	—	—	—	—
	2-2 x 4	2-8	1	2-4	1	2-1	1	2-7	1	2-3	1	2-0	1	2-5	1	2-1	1	1-10	1
	2-2 x 6	3-11	1	3-5	2	3-0	2	3-10	2	3-4	2	3-0	2	3-6	2	3-1	2	2-9	2
	2-2 x 8	5-0	2	4-4	2	3-10	2	4-10	2	4-2	2	3-9	2	4-6	2	3-11	2	3-6	2
	2-2 x 10	6-1	2	5-3	2	4-8	2	5-11	2	5-1	2	4-7	3	5-6	2	4-9	2	4-3	3
	2-2 x 12	7-1	2	6-1	3	5-5	3	6-10	2	5-11	3	5-4	3	6-4	2	5-6	3	5-0	3
	3-2 x 8	6-3	2	5-5	2	4-10	2	6-1	2	5-3	2	4-8	2	5-7	2	4-11	2	4-5	2
	3-2 x 10	7-7	2	6-7	2	5-11	2	7-5	2	6-5	2	5-9	2	6-10	2	6-0	2	5-4	2
	3-2 x 12	8-10	2	7-8	2	6-10	2	8-7	2	7-5	2	6-8	2	7-11	2	6-11	2	6-3	2
	4-2 x 8	7-2	1	6-3	2	5-7	2	7-0	1	6-1	2	5-5	2	6-6	1	5-8	2	5-1	2
	4-2 x 10	8-9	2	7-7	2	6-10	2	8-7	2	7-5	2	6-7	2	7-11	2	6-11	2	6-2	2
4-2 x 12	10-2	2	8-10	2	7-11	2	9-11	2	8-7	2	7-8	2	9-2	2	8-0	2	7-2	2	

(continued)

124. Girder Spans and Header Spans for Exterior Bearing Walls. (Continued)

TABLE R602.7(1)—continued
GIRDER SPANS* AND HEADER SPANS* FOR EXTERIOR BEARING WALLS
 (Maximum spans for Douglas fir-larch, hem-fir, southern pine and spruce-pine-fir^b and required number of jack studs)

GIRDERS AND HEADERS SUPPORTING		SIZE	GROUND SNOW LOAD (psf) ^a																	
			30						50						70					
			Building width ^c (feet)																	
			20		28		36		20		28		36		20		28		36	
Span	NJ ^d	Span	NJ ^d	Span	NJ ^d	Span	NJ ^d	Span	NJ ^d	Span	NJ ^d	Span	NJ ^d	Span	NJ ^d	Span	NJ ^d	Span	NJ ^d	
Roof, ceiling and two center- bearing floors	2-2 x 4	2-7	1	2-3	1	2-0	1	2-6	1	2-2	1	1-11	1	2-4	1	2-0	1	1-9	1	
	2-2 x 6	3-9	2	3-3	2	2-11	2	3-8	2	3-2	2	2-10	2	3-5	2	3-0	2	2-8	2	
	2-2 x 8	4-9	2	4-2	2	3-9	2	4-7	2	4-0	2	3-8	2	4-4	2	3-9	2	3-5	2	
	2-2 x 10	5-9	2	5-1	2	4-7	3	5-8	2	4-11	2	4-5	3	5-3	2	4-7	3	4-2	3	
	2-2 x 12	6-8	2	5-10	3	5-3	3	6-6	2	5-9	3	5-2	3	6-1	3	5-4	3	4-10	3	
	3-2 x 8	5-11	2	5-2	2	4-8	2	5-9	2	5-1	2	4-7	2	5-5	2	4-9	2	4-3	2	
	3-2 x 10	7-3	2	6-4	2	5-8	2	7-1	2	6-2	2	5-7	2	6-7	2	5-9	2	5-3	2	
	3-2 x 12	8-5	2	7-4	2	6-7	2	8-2	2	7-2	2	6-5	3	7-8	2	6-9	2	6-1	3	
	4-2 x 8	6-10	1	6-0	2	5-5	2	6-8	1	5-10	2	5-3	2	6-3	2	5-6	2	4-11	2	
	4-2 x 10	8-4	2	7-4	2	6-7	2	8-2	2	7-2	2	6-5	2	7-7	2	6-8	2	6-0	2	
4-2 x 12	9-8	2	8-6	2	7-8	2	9-5	2	8-3	2	7-5	2	8-10	2	7-9	2	7-0	2		
Roof, ceiling, and two clear- span floors	2-2 x 4	2-7	1	1-8	1	1-6	2	2-0	1	1-8	1	1-5	2	2-0	1	1-8	1	1-5	2	
	2-2 x 6	3-1	2	2-8	2	2-4	2	3-0	2	2-7	2	2-3	2	2-11	2	2-7	2	2-3	2	
	2-2 x 8	3-10	2	3-4	2	3-0	3	3-10	2	3-4	2	2-11	3	3-9	2	3-3	2	2-11	3	
	2-2 x 10	4-9	2	4-1	3	3-8	3	4-8	2	4-0	3	3-7	3	4-7	3	4-0	3	3-6	3	
	2-2 x 12	5-6	3	4-9	3	4-3	3	5-5	3	4-8	3	4-2	3	5-4	3	4-7	3	4-1	4	
	3-2 x 8	4-10	2	4-2	2	3-9	2	4-9	2	4-1	2	3-8	2	4-8	2	4-1	2	3-8	2	
	3-2 x 10	5-11	2	5-1	2	4-7	3	5-10	2	5-0	2	4-6	3	5-9	2	4-11	2	4-5	3	
	3-2 x 12	6-10	2	5-11	3	5-4	3	6-9	2	5-10	3	5-3	3	6-8	2	5-9	3	5-2	3	
	4-2 x 8	5-7	2	4-10	2	4-4	2	5-6	2	4-9	2	4-3	2	5-5	2	4-8	2	4-2	2	
	4-2 x 10	6-10	2	5-11	2	5-3	2	6-9	2	5-10	2	5-2	2	6-7	2	5-9	2	5-1	2	
4-2 x 12	7-11	2	6-10	2	6-2	3	7-9	2	6-9	2	6-0	3	7-8	2	6-8	2	5-11	3		

For SI: 1 inch = 25.4 mm, 1 pound per square foot = 0.0479 kPa.

a. Spans are given in feet and inches.

b. Tabulated values assume #2 grade lumber.

c. Building width is measured perpendicular to the ridge. For widths between those shown, spans are permitted to be interpolated.

d. NJ = Number of jack studs required to support each end. Where the number of required jack studs equals one, the header is permitted to be supported by an approved framing anchor attached to the full-height wall stud and to the header.

e. Use 30 psf ground snow load for cases in which ground snow load is less than 30 psf and the roof live load is equal to or less than 20 psf.

125. Girder Spans and Header Spans for Interior Bearing Walls.

TABLE R602.7(2)
GIRDER SPANS* AND HEADER SPANS* FOR INTERIOR BEARING WALLS
 (Maximum spans for Douglas fir-larch, hem-fir, southern pine and spruce-pine-fir^b and required number of jack studs)

HEADERS AND GIRDERS SUPPORTING	SIZE	BUILDING Width ^c (feet)					
		20		28		36	
		Span	NJ ^d	Span	NJ ^d	Span	NJ ^d
One floor only	2-2 x 4	3-1	1	2-8	1	2-5	1
	2-2 x 6	4-6	1	3-11	1	3-6	1
	2-2 x 8	5-9	1	5-0	2	4-5	2
	2-2 x 10	7-0	2	6-1	2	5-5	2
	2-2 x 12	8-1	2	7-0	2	6-3	2
	3-2 x 8	7-2	1	6-3	1	5-7	2
	3-2 x 10	8-9	1	7-7	2	6-9	2
	3-2 x 12	10-2	2	8-10	2	7-10	2
	4-2 x 8	9-0	1	7-8	1	6-9	1
	4-2 x 10	10-1	1	8-9	1	7-10	2
Two floors	2-2 x 4	2-2	1	1-10	1	1-7	1
	2-2 x 6	3-2	2	2-9	2	2-5	2
	2-2 x 8	4-1	2	3-6	2	3-2	2
	2-2 x 10	4-11	2	4-3	2	3-10	3
	2-2 x 12	5-9	2	5-0	3	4-5	3
	3-2 x 8	5-1	2	4-5	2	3-11	2
	3-2 x 10	6-2	2	5-4	2	4-10	2
	3-2 x 12	7-2	2	6-3	2	5-7	3
	4-2 x 8	6-1	1	5-3	2	4-8	2
	4-2 x 10	7-2	2	6-2	2	5-6	2

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

a. Spans are given in feet and inches.

b. Tabulated values assume #2 grade lumber.

c. Building width is measured perpendicular to the ridge. For widths between those shown, spans are permitted to be interpolated.

d. NJ = Number of jack studs required to support each end. Where the number of required jack studs equals one, the header is permitted to be supported by an approved framing anchor attached to the full-height wall stud and to the header.

TABLE R602.7(3)
GIRDER AND HEADER SPANS* FOR OPEN PORCHES
(Maximum span for Douglas fir-larch, hem-fir, southern pine and spruce-pine-fir^b)

SIZE	SUPPORTING ROOF						SUPPORTING FLOOR	
	GROUND SNOW LOAD (psf)							
	30		50		70			
	DEPTH OF PORCH* (feet)							
	8	14	8	14	8	14		
2-2 x 6	7-6	5-8	6-2	4-8	5-4	4-0	6-4	4-9
2-2 x 8	10-1	7-7	8-3	6-2	7-1	5-4	8-5	6-4
2-2 x 10	12-4	9-4	10-1	7-7	8-9	6-7	10-4	7-9
2-2 x 12	14-4	10-10	11-8	8-10	10-1	7-8	11-11	9-0

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. Spans are given in feet and inches.

b. Tabulated values assume #2 grade lumber, wet service and incising for refractory species. Use 30 psf ground snow load for cases in which ground snow load is less than 30 psf and the roof live load is equal to or less than 20 psf.

c. Porch depth is measured horizontally from building face to centerline of the header. For depths between those shown, spans are permitted to be interpolated.

126. Allowable Joist Spans. R502.3 Spans for floor joists shall be in accordance with Table R502.3.1(2) Residential Living Areas.

TABLE R502.3.1(2)
FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES
(Residential living areas, live load = 40 psf, L/Δ = 360)^a

JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf				DEAD LOAD = 20 psf			
			2 x 6	2 x 8	2 x 10	2 x 12	2 x 6	2 x 8	2 x 10	2 x 12
			Maximum floor joist spans							
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
12	Douglas fir-larch	SS	11-4	15-0	19-1	23-3	11-4	15-0	19-1	23-3
	Douglas fir-larch	#1	10-11	14-5	18-5	22-0	10-11	14-2	17-4	20-1
	Douglas fir-larch	#2	10-9	14-2	18-0	20-11	10-8	13-6	16-5	19-1
	Douglas fir-larch	#3	8-11	11-3	13-9	16-0	8-1	10-3	12-7	14-7
	Hem-fir	SS	10-9	14-2	18-0	21-11	10-9	14-2	18-0	21-11
	Hem-fir	#1	10-6	13-10	17-8	21-6	10-6	13-10	17-1	19-10
	Hem-fir	#2	10-0	13-2	16-10	20-4	10-0	13-1	16-0	18-6
	Hem-fir	#3	8-8	11-0	13-5	15-7	7-11	10-0	12-3	14-3
	Southern pine	SS	11-2	14-8	18-9	22-10	11-2	14-8	18-9	22-10
	Southern pine	#1	10-9	14-2	18-0	21-11	10-9	14-2	16-11	20-1
	Southern pine	#2	10-3	13-6	16-2	19-1	9-10	12-6	14-9	17-5
	Southern pine	#3	8-2	10-3	12-6	14-9	7-5	9-5	11-5	13-6
	Spruce-pine-fir	SS	10-6	13-10	17-8	21-6	10-6	13-10	17-8	21-6
	Spruce-pine-fir	#1	10-3	13-6	17-3	20-7	10-3	13-3	16-3	18-10
	Spruce-pine-fir	#2	10-3	13-6	17-3	20-7	10-3	13-3	16-3	18-10
	Spruce-pine-fir	#3	8-8	11-0	13-5	15-7	7-11	10-0	12-3	14-3
16	Douglas fir-larch	SS	10-4	13-7	17-4	21-1	10-4	13-7	17-4	21-1
	Douglas fir-larch	#1	9-11	13-1	16-5	19-1	9-8	12-4	15-0	17-5
	Douglas fir-larch	#2	9-9	12-9	15-7	18-1	9-3	11-8	14-3	16-6
	Douglas fir-larch	#3	7-8	9-9	11-11	13-10	7-0	8-11	10-11	12-7
	Hem-fir	SS	9-9	12-10	16-5	19-11	9-9	12-10	16-5	19-11
	Hem-fir	#1	9-6	12-7	16-0	18-10	9-6	12-2	14-10	17-2
	Hem-fir	#2	9-1	12-0	15-2	17-7	8-11	11-4	13-10	16-1
	Hem-fir	#3	7-6	9-6	11-8	13-6	6-10	8-8	10-7	12-4
	Southern pine	SS	10-2	13-4	17-0	20-9	10-2	13-4	17-0	20-9
	Southern pine	#1	9-9	12-10	16-1	19-1	9-9	12-7	14-8	17-5
	Southern pine	#2	9-4	11-10	14-0	16-6	8-6	10-10	12-10	15-1
	Southern pine	#3	7-1	8-11	10-10	12-10	6-5	8-2	9-10	11-8
	Spruce-pine-fir	SS	9-6	12-7	16-0	19-6	9-6	12-7	16-0	19-6
	Spruce-pine-fir	#1	9-4	12-3	15-5	17-10	9-1	11-6	14-1	16-3
	Spruce-pine-fir	#2	9-4	12-3	15-5	17-10	9-1	11-6	14-1	16-3
	Spruce-pine-fir	#3	7-6	9-6	11-8	13-6	6-10	8-8	10-7	12-4

(continued)

TABLE R502.3.1(2)—continued
FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES
(Residential living areas, live load = 40 psf, $L/\Delta = 360$)^b

JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf				DEAD LOAD = 20 psf			
			2 × 6	2 × 8	2 × 10	2 × 12	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum floor joist spans							
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
19.2	Douglas fir-larch	SS	9-8	12-10	16-4	19-10	9-8	12-10	16-4	19-6
	Douglas fir-larch	#1	9-4	12-4	15-0	17-5	8-10	11-3	13-8	15-11
	Douglas fir-larch	#2	9-2	11-8	14-3	16-6	8-5	10-8	13-0	15-1
	Douglas fir-larch	#3	7-0	8-11	10-11	12-7	6-5	8-2	9-11	11-6
	Hem-fir	SS	9-2	12-1	15-5	18-9	9-2	12-1	15-5	18-9
	Hem-fir	#1	9-0	11-10	14-10	17-2	8-9	11-1	13-6	15-8
	Hem-fir	#2	8-7	11-3	13-10	16-1	8-2	10-4	12-8	14-8
	Hem-fir	#3	6-10	8-8	10-7	12-4	6-3	7-11	9-8	11-3
	Southern pine	SS	9-6	12-7	16-0	19-6	9-6	12-7	16-0	19-6
	Southern pine	#1	9-2	12-1	14-8	17-5	9-0	11-5	13-5	15-11
	Southern pine	#2	8-6	10-10	12-10	15-1	7-9	9-10	11-8	13-9
	Southern pine	#3	6-5	8-2	9-10	11-8	5-11	7-5	9-0	10-8
	Spruce-pine-fir	SS	9-0	11-10	15-1	18-4	9-0	11-10	15-1	17-9
	Spruce-pine-fir	#	8-9	11-6	14-1	16-3	8-3	10-6	12-10	14-10
	Spruce-pine-fir	#2	8-9	11-6	14-1	16-3	8-3	10-6	12-10	14-10
	Spruce-pine-fir	#3	6-10	8-8	10-7	12-4	6-3	7-11	9-8	11-3
24	Douglas fir-larch	SS	9-0	11-11	15-2	18-5	9-0	11-11	15-0	17-5
	Douglas fir-larch	#1	8-8	11-0	13-5	15-7	7-11	10-0	12-3	14-3
	Douglas fir-larch	#2	8-3	10-5	12-9	14-9	7-6	9-6	11-8	13-6
	Douglas fir-larch	#3	6-3	8-0	9-9	11-3	5-9	7-3	8-11	10-4
	Hem-fir	SS	8-6	11-3	14-4	17-5	8-6	11-3	14-4	16-10 ^a
	Hem-fir	#1	8-4	10-10	13-3	15-5	7-10	9-11	12-1	14-0
	Hem-fir	#2	7-11	10-2	12-5	14-4	7-4	9-3	11-4	13-1
	Hem-fir	#3	6-2	7-9	9-6	11-0	5-7	7-1	8-8	10-1
	Southern pine	SS	8-10	11-8	14-11	18-1	8-10	11-8	14-11	18-0
	Southern pine	#1	8-6	11-3	13-1	15-7	8-1	10-3	12-0	14-3
	Southern pine	#2	7-7	9-8	11-5	13-6	7-0	8-10	10-5	12-4
	Southern pine	#3	5-9	7-3	8-10	10-5	5-3	6-8	8-1	9-6
	Spruce-pine-fir	SS	8-4	11-0	14-0	17-0	8-4	11-0	13-8	15-11
	Spruce-pine-fir	#1	8-1	10-3	12-7	14-7	7-5	9-5	11-6	13-4
	Spruce-pine-fir	#2	8-1	10-3	12-7	14-7	7-5	9-5	11-6	13-4
	Spruce-pine-fir	#3	6-2	7-9	9-6	11-0	5-7	7-1	8-8	10-1

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

Note: Check sources for availability of lumber in lengths greater than 20 feet.

a. End bearing length shall be increased to 2 inches.

b. Dead load limits for townhouses in Seismic Design Category C and all structures in Seismic Design Categories D₀, D₁, and D₂ shall be determined in accordance with Section R301.2.2.2.1.

127. Allowable Joist Spans. R502.3 Spans for floor joists shall be in accordance with Tables R502.3.1(1) *Residential Sleeping Areas.*

TABLE R502.3.1(1)
FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES
 (Residential sleeping areas, live load = 30 psf, L/Δ = 360)*

JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf				DEAD LOAD = 20 psf			
			2 × 6	2 × 8	2 × 10	2 × 12	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum floor joist spans							
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
12	Douglas fir-larch	SS	12-6	16-6	21-0	25-7	12-6	16-6	21-0	25-7
	Douglas fir-larch	#1	12-0	15-10	20-3	24-8	12-0	15-7	19-0	22-0
	Douglas fir-larch	#2	11-10	15-7	19-10	23-4	11-8	14-9	18-0	20-11
	Douglas fir-larch	#3	9-11	12-7	15-5	17-10	8-11	11-3	13-9	16-0
	Hem-fir	SS	11-10	15-7	19-10	24-2	11-10	15-7	19-10	24-2
	Hem-fir	#1	11-7	15-3	19-5	23-7	11-7	15-3	18-9	21-9
	Hem-fir	#2	11-0	14-6	18-6	22-6	11-0	14-4	17-6	20-4
	Hem-fir	#3	9-8	12-4	15-0	17-5	8-8	11-0	13-5	15-7
	Southern pine	SS	12-3	16-2	20-8	25-1	12-3	16-2	20-8	25-1
	Southern pine	#1	11-10	15-7	19-10	24-2	11-10	15-7	18-7	22-0
	Southern pine	#2	11-3	14-11	18-1	21-4	10-9	13-8	16-2	19-1
	Southern pine	#3	9-2	11-6	14-0	16-6	8-2	10-3	12-6	14-9
	Spruce-pine-fir	SS	11-7	15-3	19-5	23-7	11-7	15-3	19-5	23-7
	Spruce-pine-fir	#1	11-3	14-11	19-0	23-0	11-3	14-7	17-9	20-7
	Spruce-pine-fir	#2	11-3	14-11	19-0	23-0	11-3	14-7	17-9	20-7
	Spruce-pine-fir	#3	9-8	12-4	15-0	17-5	8-8	11-0	13-5	15-7
16	Douglas fir-larch	SS	11-4	15-0	19-1	23-3	11-4	15-0	19-1	23-3
	Douglas fir-larch	#1	10-11	14-5	18-5	21-4	10-8	13-6	16-5	19-1
	Douglas fir-larch	#2	10-9	14-2	17-5	20-3	10-1	12-9	15-7	18-1
	Douglas fir-larch	#3	8-7	10-11	13-4	15-5	7-8	9-9	11-11	13-10
	Hem-fir	SS	10-9	14-2	18-0	21-11	10-9	14-2	18-0	21-11
	Hem-fir	#1	10-6	13-10	17-8	21-1	10-6	13-4	16-3	18-10
	Hem-fir	#2	10-0	13-2	16-10	19-8	9-10	12-5	15-2	17-7
	Hem-fir	#3	8-5	10-8	13-0	15-1	7-6	9-6	11-8	13-6
	Southern pine	SS	11-2	14-8	18-9	22-10	11-2	14-8	18-9	22-10
	Southern pine	#1	10-9	14-2	18-0	21-4	10-9	13-9	16-1	19-1
	Southern pine	#2	10-3	13-3	15-8	18-6	9-4	11-10	14-0	16-6
	Southern pine	#3	7-11	10-0	11-1	14-4	7-1	8-11	10-10	12-10
	Spruce-pine-fir	SS	10-6	13-10	17-8	21-6	10-6	13-10	17-8	21-4
	Spruce-pine-fir	#1	10-3	13-6	17-2	19-11	9-11	12-7	15-5	17-10
	Spruce-pine-fir	#2	10-3	13-6	17-2	19-11	9-11	12-7	15-5	17-10
	Spruce-pine-fir	#3	8-5	10-8	13-0	15-1	7-6	9-6	11-8	13-6

(continued)

TABLE R502.3.1(1)—continued
FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES
 (Residential sleeping areas, live load = 30 psf, $L/\Delta = 360$)^a

JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf				DEAD LOAD = 20 psf			
			2 × 6	2 × 8	2 × 10	2 × 12	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum floor joist spans							
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
19.2	Douglas fir-larch	SS	10-8	14-1	18-0	21-10	10-8	14-1	18-0	21-4
	Douglas fir-larch	#1	10-4	13-7	16-9	19-6	9-8	12-4	15-0	17-5
	Douglas fir-larch	#2	10-1	13-0	15-11	18-6	9-3	11-8	14-3	16-6
	Douglas fir-larch	#3	7-10	10-0	12-2	14-1	7-0	8-11	10-11	12-7
	Hem-fir	SS	10-1	13-4	17-0	20-8	10-1	13-4	17-0	20-7
	Hem-fir	#1	9-10	13-0	16-7	19-3	9-7	12-2	14-10	17-2
	Hem-fir	#2	9-5	12-5	15-6	17-1	8-11	11-4	13-10	16-1
	Hem-fir	#3	7-8	9-9	11-10	13-9	6-10	8-8	10-7	12-4
	Southern pine	SS	10-6	13-10	17-8	21-6	10-6	13-10	17-8	21-6
	Southern pine	#1	10-1	13-4	16-5	19-6	9-11	12-7	14-8	17-5
	Southern pine	#2	9-6	12-1	14-4	16-10	8-6	10-10	12-10	15-1
	Southern pine	#3	7-3	9-1	11-0	13-1	6-5	8-2	9-10	11-8
	Spruce-pine-fir	SS	9-10	13-0	16-7	20-2	9-10	13-0	16-7	19-6
	Spruce-pine-fir	#1	9-8	12-9	15-8	18-3	9-1	11-6	14-1	16-3
	Spruce-pine-fir	#2	9-8	12-9	15-8	18-3	9-1	11-6	14-1	16-3
	Spruce-pine-fir	#3	7-8	9-9	11-10	13-9	6-10	8-8	10-7	12-4
24	Douglas fir-larch	SS	9-11	13-1	16-8	20-3	9-11	13-1	16-5	19-1
	Douglas fir-larch	#1	9-7	12-4	15-0	17-5	8-8	11-0	13-5	15-7
	Douglas fir-larch	#2	9-3	11-8	14-3	16-6	8-3	10-5	12-9	14-9
	Douglas fir-larch	#3	7-0	8-11	10-11	12-7	6-3	8-0	9-9	11-3
	Hem-fir	SS	9-4	12-4	15-9	19-2	9-4	12-4	15-9	18-5
	Hem-fir	#1	9-2	12-1	14-10	17-2	8-7	10-10	13-3	15-5
	Hem-fir	#2	8-9	11-4	13-10	16-1	8-0	10-2	12-5	14-4
	Hem-fir	#3	6-10	8-8	10-7	12-4	6-2	7-9	9-6	11-0
	Southern pine	SS	9-9	12-10	16-5	19-11	9-9	12-10	16-5	19-8
	Southern pine	#1	9-4	12-4	14-8	17-5	8-10	11-3	13-1	15-7
	Southern pine	#2	8-6	10-10	12-10	15-1	7-7	9-8	11-5	13-6
	Southern pine	#3	6-5	8-2	9-10	11-8	5-9	7-3	8-10	10-5
	Spruce-pine-fir	SS	9-2	12-1	15-5	18-9	9-2	12-1	15-0	17-5
	Spruce-pine-fir	#1	8-11	11-6	14-1	16-3	8-1	10-3	12-7	14-7
	Spruce-pine-fir	#2	8-11	11-6	14-1	16-3	8-1	10-3	12-7	14-7
	Spruce-pine-fir	#3	6-10	8-8	10-7	12-4	6-2	7-9	9-6	11-0

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

Note: Check sources for availability of lumber in lengths greater than 20 feet.

a. Dead load limits for townhouses in Seismic Design Category C and all structures in Seismic Design Categories D₁, D₂ and D₃ shall be determined in accordance with Section R301.2.2.2.1.