2003 International Residential Building Code

Section R305 Ceiling Height

- Habitable rooms, hallways, corridors, bathrooms, toilet rooms, laundry rooms and basements shall have a ceiling height of not less than 7 feet.
- Exceptions:
- Ceilings in basements without habitable space may be 6'8"
- Bonus rooms: Not more than 50% of the required floor area of a room or space is permitted to have a sloped ceiling less than 7 feet in height with no portion of the required floor area less than 5 feet.
- Bathrooms may have a height of 6'8" over fixtures.

Section R309 Garages and Carports

- Openings from private garage directly into a room used for sleeping are not permitted.
- Doors opening into garages shall have a minimum 20-minute fire rating. Windows connecting the house and the garage are not permitted.
- The garage shall be separated from the residence by not less than ½ inch gypsum board.
- Garages beneath habitable rooms shall be separated from all habitable rooms by not less than **5/8-inch** type X Gypsum board.

Section R310 Emergency Escape and Rescue Openings

- Basements with habitable space and every sleeping room shall have at least one operable emergency escape and rescue opening.
- Maximum sill height of the escape window is 44 inches.
- Grade floor escape windows shall have a minimum opening of: **5 square feet.**
- 2nd floor or non-grade escape windows shall have a minimum opening of **5.7 square feet**.
- Minimum opening height of escape window is **24 inches.**
- Minimum opening width of escape window is **20 inches.**

Section R311 Means of Egress

- Enclosed accessible space under stairs shall be protected by not less than ½ inch gypsum board.
- Each dwelling unit shall have at least one exit door, 3 feet in width and not less than 6' 8" in height. The exit door may not pass thru the garage, as the garage cannot be considered a means of egress.
- There shall be a floor or landing on each side of an **exterior door**. The landing shall not be more than 7 ¾ inches below the top of the threshold provided the door does not swing over the landing. The minimum width of the landing shall be the same as the width of the door, and shall extend out 3 feet in the direction of travel. **Landings are not required on doors leading out of garages, as your means of egress cannot pass thru a garage.**
- Stairways shall not be less than 36 inches in clear width, and handrails shall not project more than 4.5 inches on either side of stairway. (There are special rules for spiral stairways and winders.)
- The maximum riser height is 7 ¾ inches; all risers must be within 3/8" of each other.
- The minimum tread depth is 10 inches, with a 1-inch nosing. A nosing is not required where the tread depth is 11 inches. All treads must be within 3/8" of each other.
- Handrails shall be provided on at least one side of each continuous run of treads or flight with **four or more risers.**
- Handrails shall be located between 34 to 38 inches from finish surface. With a space of at least 1 ½ inch between wall and handrail.

Section R312 Guards

- Porches, balconies or raised floor surfaces located more than 30 inches above the floor or grade below shall have guards not less than 36 inches in height. Required guards shall have intermediate rails or ornamental closures that do not allow passage of a sphere 4 inches or more in diameter.

Section R313 Smoke Alarms

- Shall be installed in the following locations: in each sleeping room; outside each separate sleeping area in the immediate vicinity of the bedrooms; and on each additional story of the dwelling, including basements.
- When more than one alarm is required to be installed, all alarms shall be interconnected to activate together.
- In new construction, smoke alarms shall receive their primary power from building wiring, without a disconnect switch in place. When power is interrupted, units shall receive power from a battery.

Section R319 Protection against Decay

- In areas subject to Decay, treated lumber shall be used in the following situations:
- Wood joists or the bottom of a wood structural floor when closer than 18 inches or wood girders when closer than 12 inches to exposed ground in crawl spaces.
- All wood resting on concrete or masonry exterior foundation walls.
- All wood in contact with the ground.
- Posts and Poles embedded in concrete in contact with the ground.

FOUNDATIONS

Section R401 and R403 Footings

- Grade away from foundation walls shall fall a minimum of 6 inches within the first 10 feet.
- In lots that have been filled soil tests for compaction are required, unless the footer extends down thru undisturbed soil.
- Footers shall be dug **12 inches deep from undisturbed soil**.
- Slabs on ground with turndown footings shall have a minimum of one No. 4 bar at the top and at the bottom of the footing.
- The wood sill plate shall be anchored to the foundation with minimum spacing of one every 6 feet. There shall be a minimum of 2 anchors per sill plate. Anchors shall also be located within 12 inches of each side of the corners of the building.

- Anchor bolts are required and cannot be replaced with straps, unless certified by design professional. Bolts shall be at least ½ inch in diameter and shall extend a minimum of 7 inches into masonry or concrete.
- If while digging footing bedrock is encountered, the footing must be separated from the bedrock with plastic (6 mil. thick) or sand.
- Slab on ground shall have 6mil. thick plastic as moisture barrier, garages are not required to have plastic unless they are heated.

Section R408 Under-Floor Space

- The minimum net area of ventilation openings shall not be less than 1square foot for each 150 square feet of under-floor space. One such ventilating opening shall be within 3 feet of each corner of building.
- Access shall be provided to all under-floor spaces. Access opening s through the floor shall be a minimum of 18 inches by 24 inches.
- The under-floor grade shall be cleaned of all vegetation and organic material.
- A 6-mil-thick polyethylene moisture barrier shall be applied over the ground.

WOOD FRAMING

Section R502 Wood Floor Framing

- The ends of each joist, beam or girder shall have not less than 1.5 inches of bearing on wood or metal and not less than 3 inches on masonry or concrete except where supported by 1 by 4 ribbon strip or approved joist hangers.
- 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 depth of the of the member and **shall not be located in the middle one-third of the span.**

Section R602 Wood Wall Framing

- **Any stud in an exterior wall or bearing partition may be cut or notched to a depth not exceeding 25% of its width. Non-bearing studs may be notched up to 40%. Any stud may be bored or drilled, provided that the diameter of the whole is no greater than 40% of the stud width; the edge of the hole can be no closer than 5/8 " from the edge of the stud and the hole is not located in the same area as a notch or cut.**
- Exception to above: A stud may be bored to a diameter not exceeding 60 % of its width, provided that such studs located in exterior walls or bearing partitions are doubled and that not more than two successive studs are bored.
- Fire-blocking required between stories and between a top story and roof space.

WALL COVERING

Section R703 Exterior Coverings (see diagrams).

- Brick veneer shall be separated from the sheathing by an air space of a minimum of one inch. **A weather-resistant membrane or asphalt-saturated felt is required over the sheathing,** unless the sheathing is water-repellant.
- Flashing shall be located beneath the first course of masonry above finished ground level above the foundation wall or slab and at other points of support, including structural floors, shelf angles and lintels.
- Weep-holes shall be provided in the outside wythe of masonry walls at a maximum spacing of 33 inches on center. Weep-holes shall not be less than 3/16 inch in diameter.

ROOF CEILING CONSTRUCTION

Section R802 Wood Roof Framing

- Ceiling joists and Rafters shall be nailed to each other in accordance with the fastening table, and the assembly shall be nailed to the top plate as well. Where ceiling joists are not parallel to rafter, or where rafters are set on top plate, metal straps shall be installed to provide support, the rafter ties shall be spaced no more than 4 feet.
- Purlins or Knee walls shall be braced with a minimum of a 2 by 4 no further than on 4 ft. centers, with the **braces installed to bearing walls with not less than 45 degrees**.
- The ends of each rafter or ceiling joist shall have not less than 1½ inches of bearing on wood or metal and not less than 3 inches on stone or masonry.
- Truss members shall not be cut, notched or otherwise altered without the approval of a registered design professional. Trusses shall be connected to wall plates by the use of approved connectors and shall be installed in accordance with manufactures specifications.

Section R806 Roof Ventilation

- The total net free ventilating area shall not be less than 1 to 150 of the area ventilated, except the are is permitted to be 1 to 300 provided at least 50% and not more than 80% of the required ventilating area is

provided by ventilators located in the upper portion of the space to be ventilated at least 3 feet above eave or cornice vents, with the balance provided by eave or cornice vents.

Section R807 Attic Access

- In buildings with combustible ceiling or roof construction, an attic access opening shall be provided to attic areas **that exceed 30 square feet and have a vertical height of 30 inches or greater**.
- The rough-framed opening shall not be less than 22 inches by 30 inches and shall be located in a hallway or other readily accessible location. (**Cannot be located in closets**).

ENERGY EFFICIENCY

Section N1102 Building Envelope

* Thermal performance criteria, the minimum required R-Value for Shelbyville is Climate Zone 8, as shown in the table below.