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# BUILDING CONSTRUCTION

## CONDITIONS AND INSPECTIONS

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### **Permit Required**

Any owner or authorized agent who intends to construct, enlarge, alter, repair, move, demolish or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by the Kentucky Residential Code, or to cause any such work to be done, shall first make application to the building official and obtain the required building permit.

Building Permit applications are available on our web site or in the office.

### **Permit Conditions**

The construction documents submitted to obtain the required permit are official documents that must be followed. Should there be any deviations from the construction documents or plans it is the applicant's responsibility to provide corrected copies to the building official and obtain approval of the changes.

### **Inspections Required**

The codes require certain inspections to be made prior to proceeding on to the next phase of construction or concealing certain elements of construction. It is the applicant's responsibility to ensure the building official is notified of the need for inspection and that all inspections are completed and approved. Failure to obtain the required inspections may result in the removal of any necessary building components to allow proper inspection.

### **Codes Adopted**

Madison County, Kentucky has adopted the following codes as the building standards to be followed. Copies are available for viewing purposes only in the Office of Planning and Codes Enforcement, the public library or may be purchased on-line from the International Code Council ([www.iccsafe.org](http://www.iccsafe.org)).

Kentucky Residential Code – 2013    Kentucky Building Code – 2013

National Electric Code – 2014

2009 International Energy Conservation Code

### **Additional Requirements**

The purpose of this document is to provide a general guideline to begin the construction process, it is not intended to be all inclusive of the code requirements. Throughout the building project there may be additional requirements that must be adhered to so it is critically important that you stay in contact with the building official throughout the building project.

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## INSPECTIONS REQUIRED

It is the responsibility of the person obtaining the permit to schedule all required inspections. Failure to call for, and/or receive an inspection may result in the removal of concrete, drywall or any other items installed to prevent a proper inspection. All inspections must be scheduled at least 24 hours in advance. The following inspections are required to be made:

- ✓ **Footing Inspection** - To be made once the steel has been placed in the footing, but prior to any concrete being poured. Steel must be tied in place and suspended above the footer base. The lot lines shall be marked off to determine if proper building setback requirements are met.
- ✓ **Foundation Inspection** - To be made once the Foundation is in place. The following must be done to schedule a foundation inspection:
  - ✓ Foundation anchor bolts have been installed
  - ✓ Brick ledges must be slushed solid or solid concrete block used on top
  - ✓ Mortar joints shall be properly tucked inside and outside
  - ✓ Beam pockets and piers shall be slushed solid
  - ✓ Permeable membrane must be installed over rock around the drain tile
  - ✓ Foundation vent openings shall be in place
  - ✓ Termite Pre-treatment is required once foundation is complete
- ✓ **Floor / Slab Inspection** - To be made once the floor /slab is ready to pour, reinforcement bars and vapor barriers, slab insulation (R-10) and pier footings are in place.
- ✓ **Envelope Inspection** – When brick is being used as the structure’s exterior covering, an inspection of the outer envelope is required prior to any brick being installed. The following must be done to schedule an envelope inspection:
  - ✓ Flashing over and under all windows and doors
  - ✓ Flashing at the foundation, one course above final grade
  - ✓ House wrap installed per manufacturer’s listing
  - ✓ Approved weather resistant material applied correctly
- ✓ **Air Barrier Inspection** – Once all penetrations and areas of the building thermal envelope are sealed up to prevent air fenestration and leakage in accordance with the 2009 IECC, but prior to installation of any insulation.
- ✓ **Rough-In Mechanical Inspection** – The rough-in mechanical inspection must be made once the mechanical system is roughed in, yet before the duct work is permitted to be insulated. This inspection consists of verification of duct sizing, placement, general installation as well as duct sealing with approved mastic.
- ✓ **Framing Inspection** - The framing inspection must be made once all the utilities have been installed, inspected, and approved for cover-up, but prior to the installation of

insulation or other materials that would prevent a proper inspection of the structural components. A mechanical permit must be obtained prior to inspection.

The following paperwork must be made available at the framing inspection:

- ✓ Truss specs
  - ✓ LVL beam specs
  - ✓ Steel beam specs
  - ✓ Engineer's designs
- ✓ **Insulation Inspection** – This inspection will occur once all the insulation is installed in the walls and floor systems, but prior to the installation of any drywall covering.
- ✓ **Final Inspection** - A final inspection must be made once the project is complete. The following certificates shall be made available at the final inspection:
- ✓ Final Electrical Inspection Certificate or green sticker on the panel
  - ✓ Final Plumbing Inspection Certificate or green approval sticker
  - ✓ Final Septic System Approval
  - ✓ Insulation Certificate – Copy provided to the Building Inspector as well as one posted in the attic at the attic access opening. Also shall provide insulation depth rulers in attic.
  - ✓ Termite Treatment Certification
  - ✓ Final HVAC Inspection

The building must be completed and ready for occupancy, however, occupancy shall not be permitted until this office has issued a Certificate of Occupancy.

#### 1. FOOTING INSPECTION:

1. Footers to be dug out or formed up on solid base or undisturbed soil. If footer is on rock, 2 inches of #9 gravel or sand is to be placed over the rock. All loose material must be removed.
2. Footer to be a minimum of 24 inches below grade to the bottom of the footer for protection against frost. If insulated footing, minimum depth 12 inches.
3. Minimum of 2- #4 (1/2") rebar shall be placed in the footer. Rebar is to be tied in place and suspended above the footer base using foundation chairs, providing a minimum of 6 inches of concrete cover over the steel.
4. Inspection to be made at this point, before pouring the concrete. Failure to schedule the inspection may result in removal of portions to ensure compliance.

#### 2. FOUNDATION INSPECTION:

1. Concrete block to be laid in accordance with the 2002 KY Residential Code.
2. Unit masonry construction head and bed joints shall be 3/8 inch thick and filled solid with mortar for a distance in from the face of the block not less than the thickness of the face shell.
3. All joints shall be properly tooled to ensure compaction of the mortar joints.

4. The starting course placed over foundations shall not be less than 1/4 inch and not more than 3/4 inch.
5. Type "S" mortar shall be used on all concrete block foundations.
6. Brick wall ties shall be so placed that the maximum vertical distance between ties shall not exceed 24 inches, and the maximum horizontal distance shall not exceed 36 inches.
7. Where walls of hollow masonry units are decreased in thickness, a course of solid masonry shall be constructed between the wall below and the thinner wall above. Flashing required for weep holes.
8. The foundation wall shall be sized in accordance with KRC table 404.1.1a, and shall be determined by the amount of unbalanced fill to be placed against the foundation.
9. The concrete block cells beneath the bearing ends of joists, beams, girders resting on concrete block walls shall be solid or slushed solid.
10. Piers shall be solidly filled with concrete or type "S" mortar. Cavities of the top course shall be filled with grout or concrete.
11. A minimum 1/2-inch diameter anchor bolt shall be used to secure the sill plate to the foundation. Bolts shall be embedded 7 inches in grouted unit masonry and 7 inches in concrete. Bolts shall be placed a maximum 12 inches from the end of each sill plate and maximum 6 feet on center. A minimum of 2-1/2" of bolt must extend above the block to allow for proper securing of the nut and washer.
12. Crawl space vents shall provide a minimum net area of ventilation openings of not less than 1 square foot for each 150 square feet of crawl space. One vent shall be within 3 feet of each corner of the building, except vent openings may be omitted on one side of the building.
13. Crawl space access opening shall be a minimum of 18 inches x 24 inches. If the HVAC system is in the crawl space, the access opening must be a minimum of 22 inches x 30 inches.
14. All vegetation shall be removed from the crawl space.
15. The finished grade in the crawl space shall be covered with a poly vapor barrier before final.
16. Foundation drainage systems shall be at or below the area to be protected and shall allow for gravity drainage. Drains shall be installed to open to daylight per KRC.
17. Foundation shall be stucco and damp proofing/waterproofing shall be done per KRC 406.

### **3. ENVELOPE INSPECTION:**

1. Weather-resistant sheathing paper shall be applied over the studs or sheathing of all exterior walls in accordance with KRC 703.2.
2. This paper shall be installed in accordance to the manufacturer's installation instructions (available at the supplier) for lapping joints, layers, splices, and around all doors and windows.
3. Approved weather-resistant material shall be applied over sheathing of all exterior walls as required by Table 703.4.
4. 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 when supporting masonry veneers.

5. Weepholes shall be provided in the outside wythe of masonry walls at a maximum spacing of 33 inches on center. Weepholes shall not be less than 3/16 inch in diameter and located immediately above the flashing. (checked at the Final Inspection)
6. Approved corrosion-resistive flashing shall be provided in the exterior wall envelope in such a manner as to prevent entry of water into the wall cavity or penetration of water to the building structural framing components.
7. The flashing shall extend to the surface of the exterior wall finish and shall be installed to prevent water from reentering the exterior wall envelope.
8. Approved corrosion-resistant flashings shall be installed at the top and bottom of all window and door openings in such a manner as to be leak proof , except that self-flashing windows having a continuous lap of not less than 1 1/8 inches over the sheathing material around the perimeter of the opening, including corners.

#### **4. MECHANICAL INSPECTION:**

1. Heat load calculations and manufacturers installation instructions are required in order to issue a mechanical permit.
2. Heat load calculations must include a **Room-by-Room** analysis for BTU's required for each room to be considered.
3. HVAC units in attics and crawl spaces must be within 20 feet of the access opening measured along the centerline of the pathway.
4. The HVAC path must be unobstructed and a minimum of 30 inches high for the entire run of the pathway and large enough to remove the unit.
5. The access opening must be a minimum of 22 inches x 30 inches.
6. There must be a 30 inch x 30 inch work area in front of the unit.
7. HVAC units in a closet require a door with a minimum width of 24 inches or large enough to remove the unit.
8. Gas-fueled appliances must be 18 inches above the floor if placed in a garage.
9. HVAC units in a garage must be protected against impact.
10. HVAC units in a garage must have duct work a minimum of 26 gauge metal when penetrating dwellings or walls.

#### **5. FRAMING INSPECTION:**

1. Sill plates shall be securely fastened to the foundation with the anchor bolts described in the foundation section of this document.
2. Beams, headers and joists shall be sized in accordance with KRC and the Southern Pine Council span tables.
3. Components of exterior walls shall be fastened in accordance with KRC tables 602.3a thru 602.3d.
4. Exterior wall studs shall be capped with a double top plate installed to provide overlapping at corners and intersections with bearing partitions. End joints in the top plate shall be offset at least 24 inches.
5. Window and door headers shall be sized in accordance with KRC Table 602.6 and or the Southern Pine Council span tables.

6. The rough-in mechanical inspection must be made once the mechanical system is roughed in, yet before the structure is insulated or covered up.
7. Fire stopping is required to cut off all concealed draft openings and to form an effective fire barrier between stories and between the top story and the roof space. Fire stopping is required in the following areas:
  - a. In concealed spaces of stud walls and partitions.
  - b. At all intersections between concealed vertical and horizontal spaces such as soffits, drop ceilings and cove or tray ceilings.
  - c. In concealed spaces between stair stringers at the top and bottom of the run.
  - d. At openings around vents, pipes, ducts, chimneys, etc.
8. Drywall is required on the wall behind soffits, tray ceilings and under stairs or fire blocking.
9. Beam supports, girders or other concentrated loads supported by a wall or column shall have a bearing of at least 3 inches in length measured parallel to the beam upon solid masonry not less than 4 inches thick or upon a metal bearing plate. Wood wedges are not permitted for use.
10. Joists bearing shall be not less than 1-1/2 inches or use of approved hangers.
11. Weather resistant sheathing paper shall be applied over the studs or sheathing of all exterior walls in accordance with KRC 703.2.
12. Weep holes shall be provided in the outside wythe of brick or other masonry walls at a maximum spacing of 33 inches on center. Weep holes shall not be less than 3/16 inch in diameter and located immediately above the flashing.
13. The ends of each rafter or ceiling joist shall have a bearing of not less than 1-1/2 inches on wood or metal and not less than 3 inches on masonry.
14. Roof drainage shall be provided to collect and discharge all roof drainage to the ground at least 10 feet from the foundation.
15. Plywood and other wood structural panels for roof sheathing shall be provided with lumber blocking, panel edge clips, tongue and groove panel edges or other approved edge support.
16. Stairway widths shall be not less than 36 inches at all points above the permitted handrail height and below the required headroom height.
17. The maximum riser height shall be 8-1/4 inches and the minimum tread width shall be 9 inches. A maximum tolerance of 3/8 inch shall be allowed for risers and treads. KRC 314.2
18. The minimum headroom in all parts of the stairway shall be not less than 6 feet 8 inches measured vertically from the sloped plane.
19. Handrails shall be provided on at least one side of the stairs and shall be mounted 34 - 38 inches above the nosing of the treads and shall be continuous the whole length of the stairs and return to wall or post.
20. Handrails shall have a circular cross section with a diameter of 1-1/4 inches to 2 inches.
21. Porches, balconies, or raised floor surfaces located more than 30 inches above the floor or grade below shall have guardrails 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 a guardrail not less than 34 inches in height.
22. Guardrails shall have intermediate rails or ornamental closures that do not allow passage of an object 4 inches or more in diameter.

23. Smoke detectors are required to be AC powered with battery back up and be interconnected such that the activation of any one detector shall cause all detectors to sound. Smoke detectors are required to be installed in the following areas:
  - a. In each sleeping room;
  - b. Outside of each sleeping area;
  - c. And on each additional story of the dwelling, including basements and cellars.
24. Emergency egress windows shall be provided in every sleeping room. The window shall have a sill height of not more than 44 inches above the floor. All egress and rescue windows from sleeping rooms must have a net clear opening of 5.7 square feet where the sill height is more than 44 inches above finished grade. Where the sill height is 44 inches or less above finished grade the bedroom windows shall have a minimum of 5.0 square feet of clear opening. The minimum net clear opening width shall be 20 inches and the minimum net clear opening height shall be 24 inches. Bedrooms are not permitted where approved emergency egress is not provided.
25. All garages shall be separated from the attic and residence with a minimum of 1/2 inch drywall applied to the garage side.
26. The door opening from the garage to the residence shall be a minimum of 1-3/8 inch solid wood door or 20 minute fire-rated door.
27. The following shall be considered specific hazardous locations for the purpose of glazing:
28. Glazing in ingress and egress doors except jalousies.
29. Glazing in fixed and sliding panels of sliding (patio) door assemblies and panels in swinging doors.
30. Glazing in storm doors.
31. Glazing in all unframed swinging doors.
32. Glazing in doors and enclosures for hot tubs, whirlpools, saunas, steam rooms, bathtubs and showers. Glazing in any part of a building wall enclosing these compartments where the bottom edge of the glazing is less than 60 inches above the drain outlet.
33. Glazing, in an individual fixed or operable panel adjacent to a door where the nearest vertical edge is within a 24-inch arc of the door in the closed position and whose bottom edge is less than 60 inches above the floor or walking surface.
34. Glazing in an individual fixed or operable panel, other than those locations described in Items 5 & 6 above, that meets **ALL** of the following conditions:
35. Exposed area of an individual pane greater than 9 square feet.
36. Bottom edge is less than 18 inches above the floor.
37. Top edge is greater than 36 inches above the floor.
38. One or more walking surfaces within 36 inches horizontally of the glazing.
39. Glazing in walls enclosing stairway landings or within 60 inches of the top and bottom of stairways where the bottom edge of the glass is less than 60 inches above the walking surface.
40. Any engineered beams or girders are required to have detailed span calculations submitted to this office before framing can be approved.



## **6. FINAL BUILDING INSPECTION:**

1. All requirements of the KRC 1 & 2 Family Dwelling Code must be met before a Certificate of Occupancy can be issued and before the dwelling can be occupied. Illegal occupancy will be prosecuted.
2. The following inspections and certificates shall be completed and approved prior to occupying the structure and before a final inspection and Certificate of Occupancy can be issued:
  - a. Final Electrical Inspection Certificate
  - b. Final Plumbing Inspection Certificate
  - c. Final Septic System Approval
  - d. Termite Treatment Certificate
  - e. Insulation Value Certification
3. All debris shall be removed from the crawl space
4. Once the above has been completed a final inspection can be scheduled with the County Building Inspector for the issuance of a Certificate of Occupancy and permit to occupy the dwelling.

## **SITE REQUIREMENTS:**

1. The minimum building setback requirements for buildings in the county are as follows:
  - a. If the property is located on a major highway, the minimum setback requirement for the structure is 125 feet measured from the centerline of the highway.
  - b. If the property is not located on a major highway, the minimum building setback is 50 feet measured from the road centerline.
  - c. The rear setback requirement is 25 feet from the property line.
  - d. The side setback requirement is 10 feet from the property line.
  - e. All sidewalks required by the subdivision or County regulations shall be installed in accordance with the ADA Handicapped Accessibility Guidelines. Copies of these guidelines can be found online at <http://www.usdoj.gov/crt/ada/adahom1.htm>