

# Sample Specifications for New Single Family Detached Homes

## Introduction

Kentucky Housing Corporation (KHC) has created the following sample residential construction specifications to assist you in building safe, decent, affordable housing.

The sample specifications cover many - but not all - aspects of the 2006 Kentucky Residential Code (KRC). These specifications meet Minimum Design (MD), Universal Design (UD) and exceed the KRC. KHC encourages you to use this document as an informational tool as well as become familiar with the KRC and refer to all manufacturers' instructions.

If you have any questions about these specifications, please contact a member of KHC's Department of Design and Construction Review for your area. The names and phone numbers for KHC's Construction Specialists are listed below.

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Project Name: \_\_\_\_\_

Project Location: \_\_\_\_\_

1) PDF = KHC Sample Specifications Approved As Written

2) Word = KHC Sample Specifications Approved With Modifications

KHC Representative \_\_\_\_\_

Date \_\_\_\_\_

# Sample Specifications For New Single Family Detached Homes

To assist you, section and tables references from the Kentucky Residential IRC Code (KRC) are provided throughout these sample specifications. Look for these references in bold and parentheses.

## Section 1

### Footings

- A. **Soil tests.** In areas likely to have expansive, compressible, shifting or other unknown soil characteristics, KHC may require a soil test to determine the soil's characteristics at a particular location. This test shall be made by an approved agency using an approved method. (**Table R401.4.1 IRC**)
- B. **Compressible or shifting soil.** When top or subsoils are compressible or shifting, such soils shall be removed to a depth and width sufficient to assure stable moisture content in each active zone and shall not be used as fill or stabilized within each active zone by chemical, dewatering or presaturation. (**Section R401.4.2 IRC**)
- C. **Site** should be excavated and the foundation designed to allow a minimum of 18" crawlspace headroom and a minimum of 6" clearance between the bottom of the exterior vinyl siding and the finished exterior grade. All below grade block foundation is to be coated with **foundation** coating/damp proofing. (**Section R406.1 IRC**)
- D. **Surface drainage** shall be diverted to a storm sewer conveyance or other approved point of collection so as to not create a hazard. Lots shall be graded so as to drain surface water away from foundation walls. The grade away from foundation walls shall fall a minimum of 6" within the first 10'. (**Section R401.3**)

**Exception:** Where lot lines, walls, slopes or other physical barriers prohibit 6" (152 mm) of fall within 10', drains or swales shall be provided to ensure drainage away from the structure.

The ground under the dwelling shall be cleared of all vegetation and leveled (with the thought of positive drainage). (**Section R408.5**) If necessary, because of the location, at least one perforated drainpipe will be installed in the crawlspace area and run under the ground through the foundation wall at a slope away from the dwelling.

- E. **Footings** are to have the base of said footing below the frost line, and shall be constructed using minimum 2,500-psi concrete. The frost line is 24" below the proposed finished grade (**Table R403.1.4**) as listed in the table below.

**Table R403.1.4  
MINIMUM FROST PROTECTION DEPTH FOR KENTUCKY**

<b>County</b>	<b>Frost Depth d, (inches)</b>
Bell	27
Boone	30
Breathitt	30
Campbell	30
Clay	27
Floyd	33
Harlan	30
Johnson	30
Kenton	30
Knott	33
Knox	27
Lawrence	27
Leslie	30
Letcher	33
Magoffin	30
Martin	33
Owsley	27
Perry	30
Pike	33
All other KY counties	24

- F. Concrete shall conform to the latest revised Standard Specification for Portland Cement, ASTM C595-03. All concrete, except footers, shall have a minimum 28-day compressive strength of 4,000 psi and be entrained with five percent air with a minimum cement content of 520 lb. per cubic yard (5.5) sacks. The minimum concrete thickness is 3 ½". Follow American Concrete Institute (ACI) 318-05. Provide a crushed rock base with a minimum 4" thickness.
- G. All **exterior walls** shall be supported on continuous solid or fully grouted masonry or concrete footings, or other approved structural systems which shall be of sufficient design to accommodate all loads according to **Section R301** and to transmit the resulting loads to the soil within the limitations as determined from the character of the soil. Footings shall be supported on undisturbed natural soils or engineered fill. Footings are to be as required for your area for a standard frame house with 8" concrete block foundations. Footings will contain two parallel runs of ½" rebar, three inches from the ground and staked and saddled. Rebar should be lapped a minimum of 12" and bent around corners and footer steps. (**Section R403.1**)

- H. The dwelling site shall be treated by a licensed exterminator to eradicate termites. The exterminator shall provide a contract, which the homeowner, at his option, can keep in effect for a period of five years.

## Foundations

- A. **Foundation construction** shall be capable of accommodating all loads according to **Section R301** and of transmitting the resulting loads to the supporting soil. Fill soils that support footings and foundations shall be designed, installed and tested in accordance with accepted engineering practice.
- B. The **foundation walls** shall be 8" x 8" x 16" (for houses with brick veneer, use 8" x 12" x 16") concrete block securely constructed using masonry materials. All joints will be troweled and smoothed. The foundation shall have a framed, closeable access door with at least 18" x 24" clearance outside and through the foundation wall. (**Section R408.4 IRC**)
- C. **Beam pockets** will be filled with concrete from surface to footer. Beam-ends will be located to allow ½-inch space between beam-ends and surrounding masonry. (Except for bearing surface on the pillars) [**Section R319.1 number 4 IRC**]

**The foundation vents** shall be placed within 3' of each corner. (**Section R408.1 & R408.2 IRC**).

- D. The **anchor bolts** shall be embedded at least 7" in concrete within an open block cell, beginning one foot from each corner, then 6' on center (o.c.), and **at the end of each sill plate**. Foundation straps may also be used when installed according to the manufacturer's directions. There shall be two bolts per each section of the plate. (**Section R403.1.6**)

**Sill plate** is to be 2" x 8" SYP #2 KD ACQ (0.25 lbs/CuFt.) treated SYP. **NOTE:** The treated sill plate also serves as a termite shield; therefore, if 12" blocks are used, the sill plate will need to be increased to a 2 x 12, or the cells in the top run of blocks will be filled solid with concrete or an acceptable metal termite shield will have to be installed. [**Section R319.1 number 2**]

- E. **Support columns** for center beam shall have concrete footers (piers) constructed using the same minimum 2,500-psi concrete. The columns shall be constructed of 16" x 16" concrete blocks or properly laid 8" x 8" x 16" concrete blocks. **When there are four blocks or less, piers shall be capped with solid 4" blocks or the top section of blocks is to be filled solid with concrete. When there are five blocks or more, all cores are to be filled solid to the base.** Steel is the only acceptable type of shim. **NOTE:** If floor trusses are used, piers are not required, but an engineered, stamped plan for the trusses must be provided to the agency. Columns shall be a maximum of 8' on center. (**Sections R606.6 – 606.6.1**) The size of the footer will conform to the size of the pier.
- F. The **foundation perimeter drain** will be installed, consisting of a 4" perforated plastic pipe bedded in gravel and surrounding the entire house. This drain will slope away from the dwelling to the level necessary for complete drainage and will have the terminal end daylighted. (**Section R405.1**)

All openings in the sub-floor must be sealed with caulk or foam insulation. This includes the plumbing pipe openings, furnace ductwork openings and electrical wire openings.

- G. **Dampproofing.** Except where required to be waterproofed by Section R406.2, foundation walls that retain earth and enclose habitable or usable spaces located below grade shall be dampproofed from the top of the footing to the finished grade. Masonry walls shall have not less than 3/8" (9.5 mm) Portland cement parging applied to the exterior of the wall. The parging shall be dampproofed with a bituminous coating, three pounds per square yard (1.63 kg/m<sup>2</sup>) of acrylic modified cement, 1/8" (3.2 mm) coat of surface-bonding mortar complying with ASTM C 887 or any material permitted for waterproofing in Section R406.2. Concrete walls shall be dampproofed by applying any one of the above listed dampproofing materials or any one of the waterproofing materials listed in Section R406.2 to the exterior of the wall. **(Section R406.1)**
- H. The **crawlspace** will be covered completely with 6 mil. Polyethylene plastic as a vapor barrier/ground cover, with the sides extending 6" up each foundation wall. All joints in the plastic will be lapped a minimum of 1'. **(Section R408.3 number 1)**
- I. The **finished grade of the crawl space** may be located at the bottom of the footings; however, where there is evidence that the groundwater table can rise to within 6" (152 mm) 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. **(Section R408.6)**
- J. The **support girder** shall be three (3) SYP KD 2 x 10s securely nailed together. All laminate joints are to be staggered within the beam and placed over the piers. No cutting, notching or drilling of any support girder is permitted. If the contractor chooses to use floor trusses, then the girder may be omitted but the contractor must furnish the agency with an engineered, stamped drawing of the trusses.

## Section 2

### Floor Framing: Comply with Current Span Limitations

- A. **Floor joists and band joists** are to be #2 KD 2 x 10 SPF spaced 16" o.c. (**Table R502.3.1(1)**) All joists, which have more than 1/2" of crown, shall be culled. Engineered floor trusses may be substituted for joists but the builder must furnish the agency with engineered drawings.
- B. **Floor joists** should be lapped a minimum of 3" over the center girder. Care should be taken when placing joists to minimize pushing or pulling the outside rim joist (bandboard) which would result in curvature of the sides of the floor deck. (**Section R502.6.1 IRC**)
- C. **Bearing.** The ends of each joist, beam or girder shall have not less than 1-1/2" of bearing on wood or metal and not less than 3" (76 mm) on masonry or concrete except where supported on a 1" x 4" (25.4 mm x 102 mm) ribbon strip and nailed to the adjacent stud or by the use of approved joist hangers. (**Section R502.6 IRC**)
- D. **Joist framing.** Joists framing into the side of a wood girder shall be supported by approved framing anchors or on ledger strips not less than nominal 2" x 2" (51 mm x 51 mm). (**Section R502.6.2 IRC**)

When concrete porches are to be poured against the band joist, that part of the band must be a treated 2 x 10 to at least 2' past the porch in both directions or where wood decks are to be attached.

- E. **Drilling and notching.** Structural floor members shall not be cut, bored or notched in excess of the limitations specified in this section. **See Figure R502.8 IRC.**
- F. **Decks.** 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. 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 R301.5 IRC acting on the cantilevered portion of the deck. (**Section R502.3.3 IRC**)

## Floor Coverings

- A. **Kitchen, bathroom, utility room** and 16 sq. ft. at the entry door are to receive sheet vinyl, Armstrong or equal. Provide product adhesive and underlayment as recommended by the manufacturer. All surfaces shall be clean, dry and appropriate temperature during installation. Minimum 10 mill wear layer. Vinyl sheet flooring shall conform to the requirements of ASTM F 1303, Type I.

All other rooms are to receive wall-to-wall, properly stretched and fastened carpet (one color throughout) over carpet pad. Carpet Padding: 7/16" thick, 6-lb. minimum re-bond polyurethane. Sheet Carpet: 25-oz. minimum, 100 percent nylon. Other options include Berber type with blended fiber. In high traffic areas, 30-oz. minimum is preferred.

- B. **Baseboards** are to be finger-jointed pine, painted with one coat primer and two coats of latex enamel. Vinyl to be cased with quarter round. (Painted in contrasting color to walls). Cut all corners to fit.



## Section 3

### Exterior Walls

- A. **Plates** shall be #2 KD 2" x 6" SYP or SPF. The single bottom plate is to be caulked or glued in place and the double top plates will not have joints within 24" of one another.
- B. **Wall studs** shall be of 2" x 6" #2 KD stud-grade SYP or SPF. Studs shall be placed 24" o.c.

### TABLE 502.5(1)

- B. **Exterior wall openings** shall have at least two 2 x 10s with a 2" x 6" flat securely installed beneath them. The header assembly shall be supported by trimmer studs.

### TABLE 602.3(1) AND SUB PART G

- D. **Exterior wall sheathing** shall be 7/16" OSB nailed 12" on center and 6" on the edge.

**Sheathing** to be spaced 1/8" on all sides to allow for expansion per manufacturer's stamped instruction.

For all wall bracing code requirements, see **Section R602.10 IRC**.

- E. **Siding** shall be 0.040 thick and either double 4 or 5 vinyl siding of grade one standard with all necessary channels and starter pieces fastened with 1 1/4" galvanized nails when nailed directly to OSB. **Siding can be white or color – owner's choice.** All walls, including gable ends, are to be covered with house wrap. Use Tyvek or an equal wrap, installed according to manufacturer's instructions.

**Soffits and Eaves** shall be finished in properly vented vinyl. This means that all soffit material except that installed on porch or carport ceiling area is to be vented.

**(Section R806)**

## Windows

- A. All window frames must be of solid vinyl, fiberglass, wood or wood clad. All glazing shall be double-paned. The vapor seal on the glazing must have a minimum ten-year warranty. All windows shall have a minimum one-year warranty on the operation of the window. It is preferred that all windows have a National Fenestration Rating. Please remember to include an ingress/egress window as required per code at all required locations, typically a 3'0" x 5'2" window. Sash removal is not an acceptable method to achieve the required opening. **Refer to KRC & IRC Section R-310.**

**Screen frames** are to be aluminum or vinyl to cover the openable area of the window. Screening material is to be nylon or aluminum.

- B. Windows are to receive a wood bottom sill on the inside only with colonial style finger jointed trim beneath the sill (**the ends of the trim should be cut at a 5-degree taper**). The remaining three sides of the windowsill are to be finished with drywall and vinyl J channel. **Contractor may finish window openings with painted or stained wood.**

The windowsill and trim are to be primed and then receive two (2) coats of latex enamel paint. The remaining three sides shall be painted with two (2) coats of latex enamel paint to match the walls.

## Exterior Doors

**NOTE: Exterior doors need to have extended jambs and be designed for 2 x 6 walls.**

- A. **Front door** is to be pre-hung, metal, insulated, six panel, solid or 9-light (owner choice) 1 3/4" thick and 3' wide. **(Section R311.4 IRC)**
- B. **Metal doors** are primer-painted at the factory and **must be finish-painted with two coats by the contractor on all six sides** (owner's choice of color).
- C. **Back door** is to be pre-hung, metal, insulated, six-panel, solid or 9-light (owner's choice) 1-3/4" thick, 3' wide. This door must be finish-painted by the contractor. **The plastic window surrounds (including dividing grids) are to be painted with latex enamel** per manufacturer's instructions if required.
- D. **Framing material** shall be 3/4" pine with magnetic or compression weather-stripping.
- E. **Door frames and trim** must receive one coat of primer and two coats of latex enamel (the outside brick mold must be covered with exterior grade paint or aluminum bent to fit).
- F. **Door hardware and locksets** are to be by Titan Quickset or equal. Lever handle is preferred. Doorstops are required. Deadbolt and standard locksets are both required on all exterior doors and all locks are to be keyed alike. **(Section R311.4.4 IRC)**

## **Cabinets**

Cabinet and drawer fronts shall be made of solid wood fronts (not particleboard), factory finished with 12" shelf depth. Cabinet ends shall be finished with appropriate veneer. Cabinets shall be Kitchen Cabinet Manufacturer's Association (KCMA) Approved and contain the KCMA Label. Install blocking for upper cabinets during framing.

All cabinets are to be pre-drilled and attached to the wall blocking with pan-head screws. **Sheetrock screws shall not be used for this application.**

**Countertops** shall be molded roll-backed, laminated plastic or Formica with finished ends and sealed at the cut out for the sink. Other appropriate materials may be used when approved.

## Section 4

### Interior Walls

**Studs** are to be #2 stud grade 2" x 4" in interior walls and 2" x 6" in exterior walls placed 24" on center. Where partition walls meet other partition walls or exterior walls, "T's" are to be constructed for proper backing for drywall. Exception: **Sheetrock wall clips installed per manufacturer will meet this requirement.** In the case of "T's", it is preferred that the structural material not block the wall area. A proper energy "T" will allow batt insulation to be installed between the "T" and the exterior wall sheathing. Structural headers are required for all bearing walls but no headers are required for non-bearing interior walls.

## Doors and Trim

- A. **Interior doors** are to be split jamb, hollow core, hardboard, raised panel of 1-3/8" thickness. Doors are to be equipped with 3 hinges and door stops. All passage doors from room to room including bedroom doors and bedroom closet doors shall be a minimum 3' door.
- B. **Trim** is to be finger-jointed pine or better.
- C. **Closets** are to have shelves. Closet shelves are to be 1" x 12" SPF or wire type with adequate support. Shelves are to be supported from each wall stud with suitable brackets to support a 200-lb. load. One shelf is to be installed in utility room over the washer and dryer.
- D. **Closet rods** are to be wood or metal with appropriate hangers.
- E. **Doors** are to receive one coat of primer and two finish coats of paint on all six sides. Trim is to be primed and then to receive two coats of latex enamel paint. Nail holes and depressions should be filled prior to the final coat of paint.
- F. **Door hardware and locksets** are to be by Titan Quickset or equal. All interior doors shall be equipped with brass-plated or other durable metal finished knobs. Plastic is not permitted. Install locks for bedrooms, bathrooms and other doors as needed. Lever handle is preferred. Doorstops are required.

## Covering and Decorating

- A. **Walls** will be finished with 1/2" gypsum board, taped and sanded to a smooth surface.
- B. **Bathroom and kitchen areas:** Water resistant gypsum board (commonly called green board) must be used on all walls in the bathroom and within six horizontal feet of wall surfaces where the drywall can be splashed such as kitchen sink, next to water heater and/or washer. When a tub/shower unit is on an exterior wall, provide a vapor barrier and water-resistant gypsum board behind the tub/shower unit. Water-resistant gypsum, when used on ceilings must be rated for the span.
- C. **All ceilings** are to receive a light textured finish of latex material (latex paint mixed with texture compound furnished by contractor). Ceilings shall be 5/8" for 24" on center framing or 1/2" sag-resistant gypsum ceiling board.
- D. **All walls** are to receive a coat of latex primer.  
  
All walls are to receive two coats of **washable, latex enamel with a finish that reflects a sheen**. Low luster or semi-gloss latex is preferred.
- E. **Paint** to be of one color choice throughout.
- F. **Contractor** is to leave all unused paint upon completion of project with homeowner for touch-up purposes.

## Section 5

### Ceiling and Roof Framing: Comply with Span Limitations

**NOTE: Roof trusses must be fastened to top plate with hurricane clips on each end of each truss on the exterior surface of the wall attaching the rafter to the wall. Truss tie must catch at least 2" of top chord.**

- A. **Roof trusses** will be constructed with a minimum 4"/12" pitch and a minimum 1' overhang. Trusses shall be for the building and geographical area and include stamped drawings of design and layouts. Trusses are to be braced laterally according to the manufacturer's directions. In the event there are no specific directions, start at the top of each gable and install one run of 2x4 16-ft. long diagonal across, each purling in the center of the trusses to the top of the bottom cord. Then nail a 2x4 (length as needed) to the top of the bottom cord to tie the diagonal 2x4 braces together. This is to be installed on both sides of the trusses. The contractor must install two 2x4x16's from the top peak of each end truss with the brace attached to the web of each truss that it passes. Once these are in place, two 2x4s will be attached to these braces and laid flat on the top chords of the trusses, being nailed to each one. **(Section R802.10.2 IRC)**
- B. **Attic access doors** are to be 22" x 30". The door opening shall be built up with 7/16" OSB or better between the trusses or joists so that no insulation spillage will occur when the attic door is removed. The door will be constructed of 5/8" drywall, framed, painted and insulated with two layers of R-19 fiberglass batts glued to the attic side of the door. **NOTE:** In the event that a house has both flat ceilings and vaulted ceilings, and if the vaulted ceiling separates the two sections of flat ceilings, each area of the house with a flat ceiling must have an attic access door. **(Section 807.1 IRC)**
- C. **Roof sheathing** is to be 7/16" OSB nailed according to KRC & IRC requirements. Plywood clips as spacing separators and for added strength when trusses or rafters are spaced 24" o.c. If the rafter spacing is 16" ply, clips are not required. **Table 602.3(1) IRC**
- D. All **sub fascias** (fly rafters and gutter boards) are to be constructed using 2" x 6" SYP or SPF lumber.  
  
Shingle underlayment is to be 15-lb. asphalt impregnated builders felt **(Section R905.2.3 IRC)**
- E. **Shingles** are to be 235 pound, grade A, 12" x 36" fiberglass with 25-year guarantee submitted to homeowner. Shingles are to be fastened with galvanized nails. Shingles are to be installed per manufacturer's specifications. Roof edging shall be pre-painted aluminum, pre-formed. **(Section R905.2)**
- F. **Valley Flashing** for open or closed valleys shall comply with **(Section 905.2.8 IRC)**
- G. **Roof venting** shall be by ridge vent, pre-finished to match the color of the roof. **NOTE:** Ridge vent material or another commercial plastic formed vent product under shingles forming ridge vent is to comply with **(Section R806 IRC)**



## **Gutters and Downspouts**

**Rain gutters** shall be seamless, continuous 5" white aluminum attached to noseboards with appropriate hangers. Downspouts shall be 3" properly strapped to the wall with a splashpad beneath each downspout. **(Section R801.3)**

## Section 6

### Porches and Decks

- A. **All porches, decks and steps** constructed of wood shall be ACQ (0.25 lbs/CuFt) treated SYP and shall be rated for loads. Joists shall meet KRC span ratings and be fastened to band by approved metal hangers or 2" x 2" ledger strips. The 4 x 4 posts shall not be notched. Band joist shall be doubled and supported vertically by ACQ (0.25 lbs/CuFt) treated 2" x 4" mounted to post and extending to footer.
- B. **Handrail sizes** may range from 1-1/4" diameter to 2" diameter and shall be mounted inside the guardrail structure using standard handrail brackets. **(Figure 311.5.6.3 KRC)** Handrails must support 200 pounds. Untreated handrail material must be contractor treated with two coats of Thompson Water Seal. Handrails must be returned to the support posts at each end of the run. Guardrails are to be 36" high supported by 4" x 4" ACQ (0.40 lbs/CuFt) treated posts set 2' in the ground in concrete. Use ACQ (0.40 lbs/CuFt) treated 2" x 4" top and bottom stringers with vertical pickets spaced less than 4" apart. Bottom stringer of guardrail is to be less than 4" off the deck and the nose of the stair treads. NOTE: The clear space between handrails on stair systems must be no less than 30". The clear space between the handrail and wall on stairs shall be 2-1/4". **(Section 311.5.6 IRC)**
- C. The main entry is to have a roof that will cover a minimum of a 5' x 5' area and be finished with the same roofing material as the house structure and attached in the appropriate manner with valleys finished according to the manufacturer's requirements.
- D. **Porches and Stairs** 30" above grade at any point must have guardrails. Handrails will be installed on steps in excess of four in number. The guardrails must be of ACQ (0.25 lbs/CuFt) treated materials with vertical pickets spaced less than 4" apart and with the bottom horizontal member less than 4" above the porch surface. Stair guardrails are to meet the same restrictions as well as the small opening at the "V" between the tread and riser of the steps. This opening must not be larger than 6". **(Section R312)**
- E. **Front and rear steps** shall have a pad formed and poured that supports the stair carriage members fully and leaves a 4' x 4' clear landing at the base of the steps. Concrete must be 3-1/2" thick and 4,000 psi.
- F. **Steps shall be uniform according to the number of risers needed. (Section R311.5.3.1 IRC)** Wood constructed steps must have three 2" x 12" stringers. Stringers must have sufficient attachment at deck floors through the use of ledger plates or metal joist hangers. **(Table 301.5 IRC)**
- G. **Porch ceilings** must be sheathed with some form of hard surface before installing the vinyl soffit material ceiling. This hard surface may be scrap OSB or plywood. **(Table R703.4)**

## H. Entries

All entries shall have concrete, treated wood, or other hard surface exterior stoop, porch, or deck at a minimum of 5' x 5'. The main entry shall have a roof over the entry area. Only one entry is required to have a roof. The roof shall cover at least a 5' x 5' area.

## I. Ramps

Note: When including an accessible ramp, comply with the following in addition to the Kentucky Building Code (**Section 1010 IBC**): ramps shall be minimum 42" wide with a 5' turning area at each landing.

Composite: PVC or other with non-skid surface.

Concrete: with non-skid surface.

Metal: galvanized steel, or aluminum with non-skid surface.

Wood: All wood in direct contact with ground must be 40 percent pressure treated, all other wood must have a preservative rate of 25 percent. All structural posts below grade shall have the factory treated end of the post below grade. Beginning January 1, 2004, the use of CCA treated lumber shall be prohibited.

## Section 7

### Insulation

Ceiling, wall and floor insulation values must correspond to the documentation submitted to KHC. These calculations must be provided in one of the following forms:

- A. Documentation from REScheck or other approved software that the building envelope exceeds the code requirement by 20 percent.

REScheck is a US DOE free download at: <http://www.energycodes.gov/rescheck/download.stm>

- B. The design values of applicable prescriptive packages listed in the state building code may be increased by 20 percent and these calculations provided to KHC.

- C. Engineered designs that exceed the code by 20 percent.

- **Ceiling** – Contractor is to install air infiltration baffles between all rafters or trusses to provide adequate passage of outside air in the attic. The top end of each baffle must end above the required depth of the insulation. All insulation in the attic is to be at the outside of the exterior wall line (**Section R806.3**)

**NOTE:** Consult the manufacturer's installation instructions for the proper depth of blown materials.

- **Wall insulation**– Kraft paper faced or unfaced with walls wrapped with 4 mil. Plastic.
- **Floor insulation** – is to be faced (with vapor barrier to the heated area), or a perimeter crawl area wall insulation with prior approval by KHC.

NOTE: Any other substitute insulation method must be approved by KHC.

## Section 8

**Heating: Heating systems shall be installed by a licensed HVAC contractor (R101.6).**

- A. The **heating unit** shall be an electric heat pump or gas pack where available, with an air handler that has adequate emergency heating strips. Unit is to have a minimum SEER (Seasonal Energy Efficiency Rating) rating of 13.00 with a minimum HSPF (Heating Seasonal Performance Factor) rating of 7.7.
- B. **Ductwork** can be either galvanized, insulated trunk or ductboard trunk with flex duct to the registers. Ductwork must be in compliance with Mechanical Code (**M1601.3 IRC**). It is recommended that the supply ducts be at one level (floor or ceiling) and the return lines be at another. **Duct systems shall not be installed below the design flood elevation (R324.1.5).** THERE SHALL BE A RETURN FROM EACH BEDROOM AS WELL AS THE LIVING ROOM. If flex duct is used for the main trunk line, an 18" metal thimble will be installed between the unit discharge and the main flex duct. Flex duct feeder lines must be a minimum of 18" away from the end of the supply trunk.
- C. Bathrooms will have a fan light combination fixture. The fan must be ventilated **by metal or aluminum duct THROUGH THE DEDICATED ROOF, WALL, OR GLOBE VENT** to the outside **with an approved hood. NOTE:** The minimum ventilation rate shall be 50 cfm for intermittent ventilation. (**R303.3 Exception**)
- D. **Dryer vent material** passing through walls will have a metal thimble through the wall to the exterior hood and to be connected to the dryer. Dryer vents that pass through and under the floor before exiting the foundation wall, will be galvanized, single-wall type ducts beginning with an elbow extending up through the floor and ending at the exterior mounted vent hood. All under-floor ducts will be level to slightly sloped away from the dryer and properly fastened to the floor system. **All fixed vent material beyond the dryer must be of rigid metal.** Flexible transition ducts used to connect the dryer to the exhaust duct system shall be limited to single lengths, not to exceed 8 feet (**M1502.1**). Use a screw-type clamp to make connections. No screws may be used to connect the flex duct to rigid metal duct.

## Section 9

### Electric Wiring: NFPA 70 2005

- A. Service is to be overhead style unless otherwise designated.
- B. **Breaker box** is to be 200 amp, 30 circuit or more. Murray, General or an equal type is recommended with all breakers (size the box to allow for future addition of two circuits, minimum). Wiring will be in nonmetallic cable.
- C. Bathroom, kitchen and exterior are to have Ground Fault Circuit Interrupter (GFCI) protection. **NOTE:** There **MUST** be two separate, dedicated circuits to the kitchen counter top (**Section NEC 210.52B**) besides the other required circuits. Bath GFCI's must be dedicated. (**Section NEC 210.11C3**)
- D. A 220-volt dryer outlet is to be provided and installed.
- E. A 220-volt range outlet is to be furnished and installed.
- F. A doorbell with buttons at each exterior door is to be furnished and installed.
- G. A range hood with a minimum 150 CFM rating and a light is to be installed vented to the exterior of the building. Use ducting sized and ducting material per manufacturer's recommendations. Provide a finished cover over exposed ducting. Hood color to be chosen by owner.
- H. All rooms must have switch-operated ceiling light fixtures. Exterior doors must have switch-operated outside mounted lights. One switch-operated light is to be placed in the crawlspace. If the owner determines that he/she wants ceiling fans installed, the owner will furnish the fans or pay the contractor for the fans. All halls shall have a three-way switch put in a convenient location.
- I. The contractor will furnish and install approved ceiling fan bar/brackets in all bedrooms, living room and dining/family rooms.
- J. Outside stairs must be adequately illuminated according to the current (**Section R303.6 IRC**)
- K. Dwelling is to have one wired-in electric smoke alarm with a battery back-up in each bedroom and outside of each bedroom (see plan) (**all alarms to be wired together for simultaneous activation**). **NOTE: THERE SHALL BE A SMOKE ALARM WITHIN EIGHT FEET OF EACH BEDROOM DOOR (on the hallway side). Smoke alarms must be installed per NFPA 72.** . The smoke detectors shall not be on a dedicated circuit so that it is inconvenient for the resident to leave the circuit de-energized. Consult **IRC Section R313** and the smoke alarm manufacturer's installation instructions for further information.

- L. All wiring is to be according to NFPA 70 2005 Edition (National Electric Code). The electrician is to obtain a rough-in and a final inspection by a certified electrical inspector (**Section R102.9 IRC**). Contractor or subcontractor to provide and post all permits. **NOTE: Contractor will ensure that the certified electrical inspector places rough-in and final inspection stickers in an appropriate location as proof of compliance.**
- M. Contractor must wire houses for one cable tv outlet and two telephone outlets (see owner for choice of room locations). If owner desires to use at a future date.
- N. Kitchens shall include switch-operated lighting over the cooking area, the sink area, and the general or dining area.

Exterior Luminaries:

Shall be located at all entrances and provide adequate lighting.

Interior Luminaries:

Each room, hall, stair, and walk in closet shall have a minimum of one switch-operated overhead light. Kitchens shall include switch-operated lighting over the cooking area, the sink area and the general or dining area. Bathrooms shall be equipped with switch-operated lighting over the lavatory area and the general area.

## Section 10

### Plumbing

- A. **Kitchen sink** must be a double bowl, minimum of 7" deep, 33" x 22" in size constructed of stainless steel or other KHC approved material and manufactured by Elkay or equivalent.
- B. **Water closet** is to be 1.6 gallon and made by Mansfield (mfg. num. 121-SL) or an equal.
- C. **Lavatory vanity** must be 19" x 24" to 30" (see drawing for larger unit). It should match the kitchen cabinets and be complete with one-piece sink top/basin. Sinks shall be 15" minimum diameter; made of fiberglass, acrylic, porcelain, or, cultured marble.
- D. **Bathtub/shower combination** is to be 60" x 30" x 72" one-piece fiberglass by Aquaglass or equal (builder's model) with built in wainscot.
- E. Bathroom must receive **one shower rod**, one 24" towel bar and one tissue rack. Medicine cabinet is to be surface mounted with a 4-bulb light bar above and the same width as the vanity. All bathrooms shall have a medicine cabinet with mirror 16" wide by 20" tall (minimum). Lights are to be wall switch operated.
- F. All **faucets** are to be washerless, lever handle type. Shower faucet valves shall be pressure balanced anti-scalding type manufactured by Delta or equivalent. Adjustment directions shall be provided to the owner.
- G. **Drains** are to be of PVC.
- H. **Water supply** piping for potable water systems may be installed with any material specified in Section 10, 815 KAR 20:120, Water Supply and Distribution of the most current Kentucky State Plumbing Law, Regulations and Code.
- I. **Water heater** is to be either gas or electric fueled, tankless or a minimum forty (40) gallon conventional model. Tankless heaters may be of any kind listed in Section 5, 815 KAR 20:020 of the approved Parts or Materials List of the most current Kentucky State Plumbing Law, Regulations & Code. Per Section 14, 814 KAR 20:110 of the Kentucky Plumbing Code, a temperature and pressure relief device must be installed on all conventional water heaters. This device shall be discharged into either a floor drain or open receptacle. Conventional heaters shall be manufactured by Ruud or equivalent.
- J. Per Section 13, KAR 20:120 of the Kentucky State Plumbing Law, Regulations and Code, any concealed or exposed water pipe subject to freezing temperatures shall be protected against freezing.
- K. Washer/dryer hook-ups in a plastic, wall mounted box with proper finish face cover installed. **Washer hose shut-offs are to be one-quarter turn ball type.**



- L. The plumbing contractor must provide all permits and ensure inspection stickers are placed in appropriate locations as proof of compliance with existing plumbing codes and regulations.

## Section 11

### On-Site Improvements

- A. Finish grade shall fall a minimum of 6 inches away from foundation walls within the first 10 feet. **(Section R401.3)**

**Exception:** Where lot lines, walls, slopes or other physical barriers prohibit 6 inches (152 mm) of fall within 10 feet (3048 mm), drains or swales shall be provided to ensure drainage away from the structure.

- B. All lawn areas shall be seeded and straw-covered with an adequate seed, lime and fertilizer application rate. All slopes in excess of 3:1 within 10 feet of the home, driveway and/or walkway (within 50 feet of the home) shall receive sod or other approved erosion control materials which will enhance the establishment of a permanent ground cover.
- C. All elements comprising the building's thermal envelope, including all exterior joints, seams, or penetrations, shall be caulked with a 25-year caulking, gasketed, taped or covered with moisture-vapor-permeable sheathing or house wrap. **(Section N1102.4.1)**
- D. Contractor will furnish and install house numbers. A minimum of three inches 3" in height. **(Section R321)**
- E. Contractor will furnish a mailbox installed in appropriate location, front loading panel frame, and piano hinged jamb.
- F. Contractor will furnish a storage area. Storage area shall be a minimum of 48-sq. ft. for all units over 960 square feet and a minimum of five percent of the gross home area for all units with less than 960 sq. ft. Interior ceiling height shall be a minimum of 7' in all storage areas and the width or depth shall not be less than 4' interior dimension. Provide a pre-hung 3'0" x 6'8" entry door to the storage area with an entry lock. The storage area may be provided by any of the following:
- a) A free standing building architecturally similar to the house. Wood buildings with T-111, or equal plywood siding painted the same color as the siding (in the case of brick the same color as the soffit) are acceptable. Metal buildings are not permitted.
  - b) Units that make use of an unfinished crawl space for storage must create an appropriately-sized room with a concrete floor and provide the following:

- A pre-hung metal entry door 3'0" x 6' 8"
- 20-min. fire separation (walls and ceiling)
- A switched light fixture
- Adequate ventilation for hazardous fumes
- Access to the rest of the crawl space.

c) Storage areas attached to the unit. Attached storage areas should be designed to complement and blend in with the home. This area shall have a concrete floor and provide the following:

- A pre-hung metal entry door 3'0" x 6' 8"
- 20-min. fire separation (walls and ceiling)
- A switched light fixture
- Adequate ventilation for hazardous fumes

- **Walks and Driveways**

- A. **Sidewalks** are to be 42" wide and 3-1/2" thick of poured 4000 psi concrete. The sidewalk should be placed from the front porch stairway landing to the driveway or street. The rear steps shall have a concrete pad to set steps (or stringers) on, and extend 4' beyond the nose of the first step.
- B. Concrete shall be 4000 psi and air-entrained. (**Table R402.2**) Porches, carport slabs, steps exposed to the weather and garage floor slabs.
- C. **Parking/Driveways**  
Provide on-site parking for at least one vehicle. This parking area shall be graveled with crushed #57 limestone, 4" thick and compacted. Homes located in a residential subdivision of four or more units shall have a paved driveway.

For urban locations where on site parking is not typical, consult the KHC Department of Design and Construction Review.

## **Section 12**

### **Warranties**

- A. Contractor shall furnish a written material and labor warranty on the dwelling for a period of one year after completion.
- B. Contractor will show samples of carpets, siding and paint to the owner to obtain proper color combinations for the house.
- C. Contractor is to instruct the homeowners on the adjustment procedure of the anti-scald shower faucets.
- D. Contractor will instruct the homeowners on the location of furnace filters and the approved replacement schedule.
- E. Contractor will instruct the homeowners on how to maintain and care for .25 treated materials of decks and guardrail systems. Explain when to provide treatment, what to use and why.

### **General**

All labor and materials required to fully complete the job shall be furnished by the contractor for a turnkey job. Standard materials necessary to complete the house, which are not listed, shall be furnished by the contractor. The contractor shall comply with the write-up, floor plan, Housing Rehabilitation Specifications and Model Energy Code and/or all local codes. The construction will be inspected for full compliance of the minimum standards of the KRC including amendments, and where appropriate, KHC Universal Design and Minimum Design Standards. Upon completion of the house, all material, scrap, trash and debris shall be removed from the property and the yard excavated and seeded with grass for a neat appearance. The contractor shall contact for rough-in inspections in a timely manner and shall provide photos of the foundation trench not poured and photo after pouring. Also, photos shall be required of the foundation wall and pier alignment for placement of anchor bolts. Contractor shall be responsible for notifying all applicable agencies for compliance and pay all applicable fees for permits to complete the necessary tasks. Install a septic system or a service line to the city sewer line, whichever is applicable, and install a new water line from existing water meter. The installation must be inspected by the appropriate agency and a certificate provided.