

NEW HOUSING CONSTRUCTION STANDARD SPECIFICATIONS

SEPTEMBER 2008

NOTE: PLEASE READ THESE SPECIFICATIONS CAREFULLY! THERE HAVE BEEN SIGNIFICANT CHANGES SINCE PREVIOUS SPECIFICATIONS DUE TO CHANGES IN THE BUILDING CODE AND THE ADDITION OF ENERGY CONSERVATION AND GREEN BUILDING REQUIREMENTS. PLEASE CALL IF YOU HAVE QUESTIONS.



Kriss Lowry & Associates, Inc.

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STANDARD SPECIFICATIONS
SEPTEMBER 2008
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I. GENERAL REQUIREMENTS

A. SPECIFICATIONS.

1. All work is to be in accordance with the current edition of Kentucky Residential Code, the Kentucky Plumbing Code, the National Electric Code and the National Fuel Gas Code and the New Housing Construction Standard Specifications and any applicable state and local codes. To assist you, section and table references from the Kentucky 2007 IRC Residential Code are provided throughout the specifications.
2. Work shall be done in accordance with the Drawings. Kentucky Residential Code takes precedence over the drawings as a minimum standard. Drawings shall be followed when they exceed the code.

B. GENERAL REQUIREMENTS

1. All work is to be done in a professional, workmanlike manner taking care to protect the owner's property and surrounding properties. The contractor is responsible for any damage caused during the execution of the work.
2. No changes are to be made without written consent of the owner and the project manager.
3. Contractors shall provide samples of the following to the Project Manager: carpet, vinyl flooring, shutters, cabinets, windows, counter tops, vinyl siding, interior and exterior paint and shingles before any construction begins. Project Manager will have owner select colors from samples provided.
4. Contractor is responsible for any required permits (building, zoning, demolition etc.) and inspection fees unless otherwise noted in the Special Conditions. **The Building Permit shall be posted in the house at time house is framed, even if permit fee is waived.** A footer, framing and final inspection by a Kentucky certified building inspector is required on all houses prior to payment for foundation, framing and final payment as appropriate. Documentation of the inspection must be provided to the project manager. Rough-in and final plumbing and electrical inspections are required by State law. Payment for electrical and plumbing work shall be ½ after rough-in inspection and ½ after final inspection. Approval stickers must be placed in a readily visible location in the house.
5. Construction debris is to be cleaned up daily to keep exits, traffic areas, walks, etc. safe for workers, residents, and visitors. All debris is to be properly disposed of in accordance with state regulations.
6. Unless otherwise noted, "install" shall mean "furnish and install."
7. Installation of any item requiring a finish shall include finishing unless otherwise noted. Any item installed that does not have final protective finish is to include proper coating as part of the installation.
8. Installation of any item shall include all necessary related hardware, trim, prep work, etc. Materials shall be new, in good condition and of the grade required by code or specifications.

9. For any brand name specified, another brand of equal quality may be substituted. Consult with the project manager before making substitutions.
10. Disturbed areas (including areas disturbed due to demolition on site) of grade for swales, ditches, etc. shall be filled with topsoil and graded smooth before seeding and mulching with clean straw or other approved mulch. All clods, rocks and debris over two inches in diameter are to be removed. Contractor shall prevent erosion control measures such as haybales as necessary to prevent erosion of soils from the site.
11. **All adhesives, sealants and primers used on the interior of the building shall comply with South Coast Air Quality Management District Rule #1168. Acceptable volatile organic compound (VOC) limits are listed in the tables below:**

Architectural Applications	Current VOC Limit
Indoor Carpet Adhesives	50
Carpet Pad Adhesives	50
Outdoor Carpet Adhesives	150
Wood Flooring Adhesive	100
Rubber Floor Adhesives	60
Subfloor Adhesives	50
Ceramic Tile Adhesives	65
VCT and Asphalt Tile Adhesives	50
Dry Wall and Panel Adhesives	50
Cove Base Adhesives	50
Multipurpose Construction Adhesives	70
Structural Glazing Adhesives	100
Single Ply Roof Membrane Adhesives	250

Substrate Specific Applications	Current VOC Limit
Metal to Metal	30
Plastic Foams	50
Porous Material (except wood)	50
Wood	30
Fiberglass	80

Sealants	Current VOC Limit
Architectural	250
Sealant Primers	Current VOC Limit
Architectural	
Non Porous	250
Porous	775

II. EXTERIOR

A. DRAINAGE

- Contractors are advised to pay particular attention to code requirements for providing proper drainage. The house is to be constructed with sufficient foundation height to allow proper grading and positive drainage away from house. Fill dirt may be required to achieve proper drainage. All porches, exterior slab on grades, patios and stoops shall be sloped 1/8" per foot in the direction of drainage away from the house.
- 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 IRC)**
- Where lot lines, walls, slopes or other physical barriers prohibit 6" (152 mm) of fall within 10', the final grade shall slope away from the foundation at a minimum slope of 5 percent and the water shall be directed to drains or swales to ensure drainage away from the structure. Swales shall be sloped a minimum of 2 percent when located within 10' of the building foundation. Impervious surfaces within 10' of the building foundation shall be sloped a minimum of 2 percent away from the building. **(Section R401.3 IRC)**
- A **foundation perimeter drain** is to be installed adjacent to the footer. Drain tile shall be 4" perforated plastic pipe with 2" of washed gravel or crushed rock at least one sieve size larger than the tile perforation opening below the drain and a minimum of 6" crushed stone over the TOP of the drain (10" total). This drain will slope away from the dwelling to the level necessary for complete drainage and will have the terminal end in daylight. **(Section R405.1 IRC)**

B. DEMOLITION

- All demolition work shall be done in a safe and workmanlike manner. Contractor is to verify that all utilities have been turned off and properly sealed or disconnected before proceeding with demolition work.
- Demolition debris shall be removed as it accumulates and shall not be stored on site. All debris shall be disposed of in accordance with state and Federal regulations. Open dumping of waste is strictly prohibited. Open burning is prohibited by 401 KAR 63:005. Debris shall not be burned on site.

3. In accordance with 401 KAR 60:010, all reasonable precautions shall be taken to prevent particulate matter from becoming airborne including covering of open bodied trucks, wetting material is very dry and dusty, and preventing materials from being deposited onto a street or roadway.
4. In accordance with state and Federal regulations, contractor is to take all reasonable precautions to prevent particulate matter from entering the storm water drainage system including but not limited to silt fences or straw bales to control runoff, diversion ditches, temporary storage ponds, etc.
5. All old existing walls, floors, curbs, footers, piers, pavements and other improvements shall be entirely removed from the location of new footings and foundations and removed to a minimum of thirty-six inches below existing grade or required subgrade for other locations. Clean out any existing wells, cisterns, abandoned manholes, catch basins, septic tanks, sink holes and similar structures and fill with granular material, firmly compacted. Install cap and seal with Fernco type coupling or equivalent any old sewer lines. Plug with concrete or masonry the open ends of abandoned manholes, catch basins or similar structures encountered in any excavation. Break up masonry or concrete bottoms of existing cisterns or similar structures to permit drainage.
6. **Removal of trees and shrubs is to include removal of roots and stumps. If fence line is to be cleaned out, all trees, shrubs and roots are to be removed. Project Manager may on a case by case basis approve leaving stumps when stumps cannot be removed due to site considerations (removal will damage sidewalks or utilities). If stump is not removed, it is to be ground down to ground level.**
7. Contractor is to take reasonable precaution not to disturb any permanent survey markers on the property. If markers are moved or destroyed unnecessarily, contractor is to pay a Kentucky licensed land surveyor to reestablish markers.
8. All disturbed areas are to be graded smooth, seeded and covered with straw. Contractor is required to submit any required demolition notices to the Department of Environmental Protection and obtain any required demolition permits.
9. Special conditions for manufactured homes (mobile homes): Manufactured homes are to be demolished. Demolition shall take place on site unless the Project Manager approves another location. Payment will only be made when demolition has been verified by visual inspection by the Project Manager or their representative or by photographs provided by the contractor.
10. Contractor may salvage materials including the chassis and hitch of trailers. Salvaged materials must be promptly removed from the project area and taken to a recycling facility or otherwise stored in a manner in accordance with state and local regulations.
11. Asbestos removal will be done under a separate contract with an asbestos removal firm, prior to demolition.

C. TERMITE TREATMENT

1. All new houses shall be pre-treated for termites to provide a protective barrier using a registered product applied in accordance with manufacturer's instructions. Pre-treat before pouring any concrete slabs or basements.
2. All termite treatment shall be done by a licensed pest control operator. Treatment shall include a minimum five-year warranty that covers re-treatment and repair of any damage at no cost to the owner. Work to be inspected annually with report in writing to owner. Owner reserves the right to renew warranty for an additional five years. Certificate of treatment is to be provided prior to payment for this item.

D. SITE UTILITIES

1. All public water, sewer, electric and natural gas utilities shall be installed in accordance with the standards of design and construction of the respective municipal department or utility department.
2. Contractor is to include any required tap-on fees and inspection fees as part of the bid unless noted otherwise in the special conditions or information for bidders.
3. Contractor is responsible for providing public water, sewer, electric and gas utilities to the connection point with the utility provider in accordance with local standards.
4. Water supply lines shall be installed at least 36" below ground surface. All exposed lines within crawl spaces shall be insulated.
5. Contractor is responsible for installing and paying for any temporary services required during construction.

E. WALKWAYS AND DRIVEWAYS

1. Provide a 42-inch-wide concrete walkway from the front stairs to the driveway or parking area (or other location if specified in special conditions). Any walkways which require more than two steps shall have a handrail installed on one side.
2. **When an accessible ramp to an entry door is called for in the special conditions, the ramp shall be connected to the parking area by a 42" wide walkway made of concrete, asphalt, or other hard surface material approved by the project manager such as composite decking (Trex or equal).**
3. Concrete walks or paving shall be one-course construction, plain 4,000 psi concrete, nominally 4 inches thick but in no case less than 3 ½ inches actual thickness. Edges of pavement shall be formed and adequately braced to maintain alignment. Use flexible or curved forms for all curves in walks. Concrete walks are to have a non-slip light broom finish. When concrete walks abut a structure or lie in the path of drainage, they shall be pitched ¼ inch per foot in the direction of drainage.
4. Provide walkways with 1/2 inch expansion joints with pre-molded filler not more than 50 feet apart, and also at walk junctions and intersections, at top and bottom steps and where walks abut curb returns, buildings, platforms or other fixed structures. Expansion joints shall be at right angles to the slab and extend the full length of the slab. The pre-molded filler shall extend to within ¼" of the walk surface.

5. Grooves: Between expansion joints, cut grooves, 1/8" to 1/4" wide, at least 3/4" deep and with spacing approximately equal to the walk width but not greater than six feet on centers.
6. Provide concrete parking area for two cars. Parking area is to be minimum 10 feet wide by 32 feet long or 20 feet wide and 16 feet long. There shall be a five-foot radius at the driveway entrance. When possible, the parking area is to be configured to allow cars to turn around. Entire parking area is to be behind or on the side of the house unless otherwise approved by the project manager. Paved area is to extend from the required parking area to the street pavement. Concrete driveways shall terminate at the road right-of-way, with bituminous pavement continuing from the concrete at the road right-of-way to the edge of the traveled way. Any pavement on right-a-way or between the house and the street is not included as parking area.
7. Driveway grades shall not exceed a gradient of four percent within 30 feet of the roadway, then 15 percent overall, then four percent within 30 feet of the dwelling. Slope or crown concrete driveway 1/4 inch per foot in the direction of drainage to prevent water from running to joints. The parking area shall be level across its width other than slope required for drainage.
8. When there is a drainage ditch between the property and the street and no existing culvert, provided a minimum twelve inch diameter culvert, twenty feet long. There shall be a minimum of six inches of compacted sand or crushed base over the drain pipe. Contractor shall comply with any local regulations if more stringent.
9. Where special conditions allow for gravel driveways or parking areas, the gravel shall be #57 crushed limestone, at least 4" thick and compacted.

F. LAWNS AND PLANTINGS

1. All disturbed areas shall be graded smooth, covered with clean topsoil, seeded with grass and mulched with clean straw. All clods, rocks and debris over two inches in diameter are to be removed.
2. All slopes in excess of 3:1 within 10 feet of the house, driveway and walkway (within 50 feet of house) shall receive sod or other approved erosion control materials which will enhance the establishment of a permanent ground cover.
3. If the quantity of stored topsoil is inadequate, or if none has been salvaged from the site, the Contractor shall furnish at his own expense sufficient topsoil to properly prepare site for seeding.
4. Grass seed shall be a mix of Fine Lawn Fescue (80%) and Kentucky Bluegrass (20%) or Annual Rye (20%) and Kentucky Bluegrass (80%). Percent of purity shall be a minimum of 90% with a 90% germination rate. A minimum seven pounds of grass seed shall be evenly spread for each 1,000 square feet of area. Prior to seeding the ground shall be scarified if needed and then raked smooth with clods broken up or removed. The seeded area shall be then lightly raked and watered with a fine spray. Once house is occupied, owner shall water lawn as necessary during dry periods to promote lawn growth. All seeding and sodding shall be done when the ground is frost free and weather is favorable.

5. Mulching: All seeded areas shall be mulched with clean, fresh, seed free straw applied at a rate of 100 lbs. per 1,000 sq. feet of area.
6. Maintenance: Maintenance shall continue until a dense, uniform turf is established composed of the grasses specified and until acceptance, and shall include repair of damage caused by erosion. For the purpose of establishing an acceptable standard, scattered bare spots, none of which is larger than one square foot, will be allowed up to a maximum of 3% of any lawn area.

G. FOOTINGS

1. Contractor is to provide photographs of the foundation trench taken before the concrete is poured with re-bar tied in place and photographs after pouring. All portions of the footer must be visible in the photographs. This requirement does not relieve the contractor from obtaining a footer inspection from a state licensed building inspector. If the contractor fails to have the footer approved by a building inspector prior to pouring the footer, the contractor shall provide a signed and sealed statement from a Kentucky licensed structural engineer that the footer meets the building code. Written building inspector or engineers report must be provided to project manger prior to payment for foundation.
2. Soil tests. In areas likely to have expansive, compressible, shifting or other unknown soil characteristics, the building official shall determine whether to 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).**
3. 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)**
4. 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/waterproofing. **(Section R323.1 IRC)**
5. 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 IRC) 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.
6. The ground under the dwelling shall be cleared of all vegetation, organic matter and construction debris, leveled and covered with gravel. 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. **(Section R408.4 IRC)**
7. Footings are to have the base of said footing below the frost line, and shall be constructed using minimum 2,500 psi concrete. Concrete for footers that may be

subject to freezing and thawing during construction shall be air-entrained concrete. The frost line is 24" below the finished grade with some counties being the exception as shown in **Table R403.1.4 KRC** below.

**TABLE R403.1.4 KRC
MINIMUM FROST PROTECTION DEPTH FOR KENTUCKY**

County	Frost Depth d, (inches)
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

8. 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. The maximum weight of fly ash, pozzolans, silica fume or slag that is included in concrete mixtures for garage floor slabs and for exterior porches, carport slabs and steps that will be exposed to de-icing chemicals shall not exceed the percentages of the total weight of cementitious materials.
9. All exterior walls shall be supported on continuous solid concrete footings 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. **(Section R403.1 IRC)**

10. Footings are to be as required for your area for a standard frame house with eight-inch concrete block foundations. Footings will contain two parallel runs of ½-inch 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. FOUNDATIONS

1. 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.
2. The ground under the dwelling shall be cleared of all vegetation and leveled (with the thought of positive drainage). **(Section R408.5 IRC)** 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.
3. **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)**
4. The **foundation walls** shall be a minimum of 8" x 8" x 16" (for brick veneer, use 8" x 12" x 16") concrete block securely constructed using masonry materials. **Split face block shall be used for all CMU walls exceeding three feet or more exposure.** Larger block or reinforcement may be required depending on maximum wall height, maximum unbalanced fill and soil class. **(Table R404.1.1 (5) KRC)** All mortar joints are to be troweled and smoothed. All concrete block below finished grade shall be damp-proofed with a bituminous coating. Concrete block for foundation walls that exceed three feet or more of exposure shall be split face block or stucco.
5. Install minimum of four **foundation vents** within three feet of corners. Vents are to be placed directly across from vent on opposite wall.
6. **Finished Grade** - If 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 crawl space shall be as high as the outside finished grade, unless an approved drainage system is provided **(Section R408.6 IRC).**
7. **Dampproofing** – Except where required to be waterproofed by Section 406.2, foundation walls that retain earth and enclose habitable or usable spaces below grade shall be dampproofed from the top of the footing to the finished grade. Masonry walls shall have no less than 3/8" portland cement parging applied to the exterior of the wall. The parging shall be dampproofed with a bituminous coating, three pounds per square yard or acrylic modified cement, 1/8 inch coat of surface-bonding mortar complying with ASTM C 887 or any material permitted for waterproofing in Section R406.2 to the exterior of the wall **(Section R406.1 IRC).**

8. **Crawl space access** to include a minimum 24"x 24" metal frame securely attached to foundation, hinges, hasp lock and paint to match foundation color. **Vinyl siding above the crawl space door shall be properly trimmed so the crawl space door can be opened without touching the vinyl siding.** When height allows, a standard steel six foot eight inch door with header above shall be installed to access the crawl space. Crawl space door is to be easily accessible from ground level.
9. **Beam pockets** will be filled with concrete from surface to footer. The ends of wood girders entering exterior masonry or concrete walls shall have a minimum clearance of 0.5 inches on the tops, sides and ends (except for bearing surface on pillar) or they shall be of treated wood. **(Section R319.1 (4) IRC)**
10. **Anchor bolts** shall be ½" in diameter and embedded at least 7" in concrete within an open block cell, beginning one foot from each corner, then 6' on center and within 12" of the end of each sill plate. There shall be two bolts per section of plate. **(Section R403.1.6 IRC)**
11. **Sill plate** is to be 2" x 8" SYP #2 KD ACQ-treated (0.25 lbs/cu. Ft) and shall cover openings in the block. **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 IRC)**
12. **Support columns** for center beam shall have concrete footers (piers) constructed using the same minimum 2,500 psi concrete and at the same height as the perimeter footings. 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-inch 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 IRC)** The size of the footer will conform to the size of the pier.
13. 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. 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. No cutting, notching or drilling of any support girder is permitted. **There shall be no wood shims between the bottom of the beam and the top of the pier.**
14. All **openings in the sub-floor** must be sealed with 25 year caulk or other method as appropriate. This includes the plumbing pipe openings, furnace ductwork openings and electrical wire openings. All openings in the foundation wall shall be sealed with mortar on both the interior and exterior.
15. Exterior concrete slab on grade. Concrete to be 4,000 PSI, air entrained over pea gravel. Total air content (percent by volume of concrete) shall not be less than 5 percent or more than 7 percent. **(Table R402.2 IRC)**
16. Interior concrete slab on grade not exposed to weather to be 4,000 PSI. Footers, including footers for piers shall be 3,500 PSI.

17. Porch slabs to include concrete block foundation with crushed limestone or gravel fill graded from ¼” to ¾” size and covered with vapor barrier; 6” wire mesh, expansion joints at wall intersections, 4” minimum thickness, 1.5” overhang and 1/8” per foot slope away from house.
18. **A 6-mil thick polyethylene moisture barrier** shall be applied to the crawl space over gravel to form a moisture barrier. **The sides shall extend 6 inches up each foundation wall and shall be attached and sealed to the stem wall. All joints in the plastic to be lapped a minimum of six inches and be sealed or taped.**

I. BASEMENTS

1. Foundation walls in basements shall be poured concrete walls and 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. Foundation shall be **waterproofed** below grade as described in Kentucky Residential Code Section 406.2. Install foundation perimeter drain per **Section R405.1 IRC**.
2. When basements are constructed, they shall be a minimum of eight feet high and shall be a walkout basement with full size door, interior staircase, poured concrete walls, foundation waterproofing and concrete floor unless otherwise specified in the special conditions. **Brick, stone, or texture formwork patterns shall be used for all poured-in-place walls exceeding three feet or more exposure.**
3. Furnace and hot water tank are to be installed in basement. Washer and dryer are to be installed upstairs unless otherwise specified in the special conditions or approved by the owner and project manager. If furnace is installed in basement, no insulation is required under the floor; however, the floor must be sealed and insulated around the perimeter. When installed in the basement, furnace duct work is not required to be insulated.
4. Electrical panel box is to be installed upstairs unless special conditions specify that it is to be installed in basement.
5. Provide a minimum of four electrical outlets in the basement, one on each exterior concrete wall.
6. Provide a minimum of four overhead light fixtures in basement to provide adequate lighting of entire basement area and at water heaters, furnaces, washer/dryers, electrical boxes and other equipment.
7. Provide an electrical outlet on the outside wall of the staircase to the upstairs. Enclosed accessible space under stairs shall have walls, under stair surfaces and any soffits protected on the enclosed side with ½ inch gypsum board.
8. When a basement wall will not have any dirt against it, a wood stud frame wall may be constructed with owner and project manager approval. All wood stud walls shall be constructed to the same standards as other finished stud walls in the house including exterior siding, Tyvek house wrap, wood sheathing, minimum R-15 insulation, drywall that is properly finished and painted, electrical outlets to code, etc.
9. In accordance with **Table N1102.1 KRC** and **Section N1102.2.6 IRC**, concrete basement walls shall have a minimum R-4 continuous insulation or the floor overhead shall be insulated to R-19. When there are framed walls in the basement,

they shall be insulated to R-15 and unframed walls to R-4. If floor overhead is insulated rather than walls, all furnace duct work shall be insulated to R-4.

10. Windows installed in basements shall be egress windows unless otherwise approved by owner and project manager.
11. When a house has a basement with insulated walls, the HVAC system shall be sized to heat and cool the basement area in addition to the upstairs of the house.

J. FLOOR FRAMING

1. **Floor joists and band joists** are to be #2 KD 2 x 10 SPF spaced 16" o.c. and shall comply with span limitations at **Table R502.3.1 (1) IRC**. 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.
2. **Floor joists** should be lapped a minimum of 3" over the center beam. 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**)
3. **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**)
4. **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**)
5. When **concrete porches** are to be poured onto 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.
6. **Drilling and notching.** Structural floor members shall not be cut, bored or notched in excess of the limitations specified in this section. (**Figure R502.8 IRC**)

K. PORCHES AND DECKS

1. See standard porch details when constructing porches. All entries shall have a minimum stoop, porch or deck of 5' by 5'. This platform must be within 1/2" of the interior finished floor at the point of entrance and a maximum threshold rise of 1-1/4" when approaching from the outside. Entry door threshold must not project more than 3/4" above the interior finished floor.
2. Porch or deck may be reduced or eliminated for a secondary entrance which opens into a garage or onto a carport as long as entrance is in compliance with the building code. Front porches are to have footers and foundation continuous with house footer and foundation. Front porch decks are to be concrete with block foundation if finished height at any point is 48" or less. Front porch columns are to be round or square aluminum columns at least 4" in diameter. When guardrails are required, posts may be 4" wood, wrapped in aluminum.

3. **Porch steps to be concrete unless otherwise approved by project manager or there are four or more steps.**
4. **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.
5. Porch ceilings must be sheathed with OSB or plywood before installing vinyl soffit material.
6. Wood stairs are to have three 2' by 12" stringers. Stringers must have sufficient attachment at deck floors through the use of ledger plates or metal joist hangers. **(Table 301.5 IRC)** Steps shall have a concrete pad formed and poured to support the stair carriage members fully that leaves a 4' by 4' clear landing at the base of the steps.
7. **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 R301.4 acting on the cantilevered portion of the deck. **(Section R502.3.3 IRC).**

L. EXTERIOR WALLS

1. Headers on load bearing walls to have a least two 2" x 10"s with 2 x 4 or 2 x 6 as appropriate securely installed beneath them. The header assembly shall be supported by trimmer studs.
2. All exterior walls to be 2" by 6" studs 24" or 16 " on center and completely covered with exterior wall sheathing. Exterior wall sheathing to be 7/16" OSB or other approved wood. Sheathing to be spaced 1/8" on all sides to allow for expansion per manufacturer's stamped instructions.
3. 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 N1107.1 IRC)**

M. ROOF TRUSS SPECIFICATIONS

1. All wood trusses shall conform to **Section 802.10.2 IRC.**
2. 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 2 x 4 16-ft. long diagonal across, each purling in the center of the trusses to the top of the bottom cord. Then nail a 2 x 4 (length as needed) to the top of the bottom cord to tie the diagonal 2 x 4 braces together. This is to be installed on both sides of the

trusses. The contractor must install two 2 x 4 x 16's from the top peak of each end truss with the brace attached to the web of each truss that is passes. Once these are in place, two 2 x 4s 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**)

3. Truss members shall not be cut, notched, drilled, spliced or otherwise altered in any way without the approval of a registered design professional (**Section 802.10 IRC**).
4. Roof trusses shall be designed using the following loads: TC Live - 25.0 psf, TC Dead, 10.0 psf, BC Live 0.0 psf, BC Dead 10.0 psf, Total 45.0 psf.
5. Contractor shall submit truss shop drawings including structural calculations signed and sealed by a structural engineer licensed in Kentucky to the Project Manager prior to fabrication.
6. **Roof tie-downs per Section 802.11 IRC are required on all houses.** Provide at each bearing location of each roof truss a metal tie-down strap (commonly called hurricane clips). The tie-down strap must lap the top cord of the truss by at least 2 inches and the top plate of the wall. Provide the correct nails and nailing pattern that is required by the manufacturer of the metal tie-down strap.
7. Gable end trusses shall provide 2'x4' flat vertical web members spaced at 16" on center.
8. Gable shall be built-in to counteract dead load deflection for spans indicated.
9. Trusses shall be spaced 24" on center or in accordance with structural engineer's specifications if different.

N. ROOF SPECIFICATIONS

1. Roof Sheathing: Sheathing shall be 5/8" CDX plywood (Section R 803) or 7/16" OSB (Section R803.2 IRC) with a span rating of 24/16 nailed to IRC requirements. Plywood clips must be uses as spacing separators and for added strength when trusses are spaced 24" on center. If the rafter spacing is 16" on center, ply clips are not required. Sheathing shall be fastened and installed in accordance with **Table 602.3(1) IRC**.
2. Roof Coverings: Roof coverings shall be installed according to manufactures directions. All roof work is to include all necessary flashing and gutters and downspouts along all drip edges. Roof edging shall be pre-painted aluminum, pre-formed. Provide one splash block per each exterior downspout location. Install one layer of No. 15 asphalt impregnated builders felt, metal drip edge and 3-tab self-sealing, fiberglass based asphalt, strip shingles, owners choice of color. Shingles to be fastened with galvanized nails. Shingles shall be ULI Class A, a minimum of 235 lbs. per square with minimum 25-year warranty. (**Section 905.2 IRC**)
3. Flashing: All flashing shall meet the requirements of **Section 905.2.8. IRC**. Valley flashing shall be .024 inch thick aluminum or No. 26 galvanized steel and flashing against vertical sidewall shall be by the step flashing method. All vertical projections and vents shall be flashed in accordance with shingle manufacturer's printed instructions.

4. Roof vents shall be continuous formed ridge vents, pre-finished to match the color of the roof or COBRA brand or equal ridge vent material under shingles forming ridge vent. **(Section R806 IRC).**

O. SIDING

1. Siding shall be lapped, double 4", .040 gauge vinyl siding with 20 year warranty, owners choice of color. Installation to include vinyl corners, J-channels, and starter strips fasten with 1 ¼" galvanized nails when nailed directly to OSB. **All walls including gable ends to be wrapped with Tyvek or an equal wrap, installed according to manufacturer's instructions.** Wrap all cornice, corner, door and window trim as needed. All soffits and eaves are to have vented vinyl. Installation is to be in accordance with recommendations of the manufacturer.
2. Install street number of house on front of house in a protected location where clearly visible from road. All numbers must be Arabic numerals at least 3 inches high and ½-inch stroke. Numbers are to be painted wood or rust proof metal and properly secured with nails or screws. Stick on numbers are not acceptable. House numbers are to meet any applicable local 911 service regulations if more stringent.
3. **Contractor to provide sample to Project Manager before installing siding.**
4. All porches or carport ceilings shall have solid wood or OSB backing under the vinyl or drywall when required for fire wall separation from the house.

P. GUTTERS AND DOWNSPOUTS

1. Install 5" OGEE seamless, continuous aluminum gutters and aluminum downspouts. Caulk and pop rivet all corners, drops and endcaps. Pop rivet all downspout sections. Nail gutters using aluminum spikes and ferrules into rafter tails at a minimum of 36" intervals.
2. Downspouts to 3" be secured to drop tubes and to be fastened to building with at least two straps or approved hangers per story. Install splashblocks at each downspout. When necessary to provide proper drainage around house, downspouts shall be connected to drainage pipe to carry water at least five feet away from house. All drain pipes shall open to daylight or approved storm sewer system.

Q. STORAGE SHED

1. When noted in special conditions, an unheated storage shed shall be required. Storage shed shall be a minimum of 8' by 12' with 7' high walls with 4" concrete floor with sloped entrance to door. The door shall be standard three foot wide, 6' 8" pre-hung, minimum 1 ¾" thick insulated steel door with lockset.
2. All storage buildings shall have 2" by 4" walls, 16" on center with 7/16" OSB Board wall sheathing. Exterior walls shall be covered in vinyl siding to match house. Storage sheds shall have a gabled, shingled roof to match house with minimum 5 to 1 slope. Metal buildings are not permitted.
3. Steps shall be installed as needed to meet code when a sloped entrance cannot be provided due to site conditions.

III. HANDRAILS, GUARDRAILS AND RAMPS

A. HANDRAILS (SEE SECTION 311.5.6 OF KENTUCKY RESIDENTIAL CODE)

1. All stairways of **three or more risers** shall be provided with a handrail on at least one side (this exceeds the IRC Code). Handrails shall have a minimum and maximum height of 34 inches and 38 inches respectively, measured vertically from the nosing or the treads.
2. All required handrails shall be continuous the full length of the stairs. **End shall be returned or shall terminate in newel posts or safety terminals. Exterior handrails shall be 1 1/2" painted pipe or smooth metal handrails, not wood, and mounted using standard handrail brackets.**
3. Handrails adjacent to a wall shall have a space of not less than 1.5 inches between the wall and the handrail.
4. **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. Handrails shall not rotate within their fittings. Handrails must be returned to the support posts at each end of the run. 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**)

B. GUARDRAILS (SEE SECTION 312 OF KENTUCKY RESIDENTIAL CODE)

1. All 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. Guardrails may be required on porches with decks less than 30 inches high when deemed necessary by the building inspector or project manager for safety reasons.
2. 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.
3. Open sides of stairs with a total rise of more than 30 inches above the floor or grade below shall have guardrails not less than 34 inches in height measure vertically from the nosing of the treads. 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 IRC**)
4. All guardrails shall have intermediate rails or ornamental closures, which do not allow the passage of an object four inches or more in diameter.

C. RAMPS (SEE SECTION 311.6 OF KENTUCKY RESIDENTIAL CODE)

1. Ramps shall be composite material, concrete, galvanized steel or aluminum with non-skid surface. Wood ramps: 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.

2. All egress ramps shall have a maximum slope of one unit vertical in twelve units horizontal (8.3 percent slope). **(R311.6 IRC)** The ramp shall be a minimum clear width of 42" and have a non-skid surface. The maximum rise for any run shall be 30 inches.
3. Guardrails shall be provided on the open sides and handrails shall be provided on at least one side of all ramps exceeding a slope of one unit vertical in 12 unit's horizontal (8.33-percent slope), a rise greater than six inches or a horizontal length greater than 72 inches.
4. A minimum 5-foot by 5-foot landing shall be provided at the top and bottom of ramps where doors open onto the ramp and where the ramp changes direction.

IV. WEATHERIZATION

A. SEALANTS

1. 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 a moisture vapor permeable sheathing or house wrap. **(Section N1107.1 IRC)**
2. All holes in the foundation shall be sealed with 25-year caulking or with mortar on both the inside and outside of the foundation wall.

B. WINDOWS AND DOORS

1. All windows and doors installed in the building thermal envelope shall be weather stripped, gasketed, or caulked.
2. **Front exterior doors are to be owner's choice of solid six panel with a viewer installed at height approved by owner or ½ light.** Exterior doors for 2 x 6 walls must have extended jambs and be designed for 2 x 6 walls. Rear or side exterior doors are to be owners choice of ½ light or full light doors. All exterior doors to be three foot wide with a net clear opening of 32", pre-hung, minimum of 1 ¾" thick, insulated steel with lever type lockset and deadbolt keyed alike (Titan, Quickset or equal). **Exterior doors without windows are to have a minimum U-Factor of 0.28 or less and a solar heat gain coefficient (SHGC) of 0.20 or less. Exterior doors with windows are to have a U-Factor of 0.32 or less and a SHGC of 0.31 or less.** Installation of doors includes all necessary prep, trim, doorstops, hardware, weather-stripping, opening preparation, primer and **two coats of latex enamel paint on all six sides (remember that any plastic window trim on exterior doors must receive two coats of light colored latex enamel paint).** Any necessary jamb extensions are to be factory jams and installed at the exterior edge under the brickmold. A minimum of 5 foot by 5-foot landing shall be required on each side of an egress door. Exterior landings shall be centered on the door. **Landings shall not be more than 1 ½" below top of threshold (no exceptions).**
3. **All door knobs are to be lever type, metal. Loop handle pulls shall be used on any drawers, pull open doors or cabinet doors. – no knobs.**

4. Windows to be good quality single hung or double hung, double glazed (thermopane), vinyl sash and frame with aluminum screen frames and without grilles (preferred) with **LoE glass or equal. Windows to have a U-Factor of 0.35 or less and a SHGC of 0.31 or less.** The vapor seal on the glazing shall have a minimum ten year warranty. All windows shall have a one year warranty on the operation of the window. Screening material to be fiberglass, nylon or aluminum. Weather stripping to be compression type vinyl. **Window sample to be approved by Project Manager prior to installation.** Windows shall have built in or installed handles to allow easy opening. Windows with narrow strip in middle of window for opening ledge are not allowed. Windows shall tilt in for cleaning. Include all necessary hardware, trim and finish. Windows must meet the ANSI/AAMA 101-93 standard. **Bedroom windows must have minimum net clear opening of 5.7 square feet or 820.8 SQ. IN. (Section 310.1.1 IRC).**
5. Exterior window and door trim wrap shall be 19-gauge coilstock aluminum. Caulk all seams and joints. Door trim to be finger jointed pine.
6. 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. Wood trim shall be of good quality, smooth material free of knot holes and defects. The windowsill and trim are to be primed and then receive two (2) coats of latex semi-gloss enamel paint. The may also by stained and sealed with two coats of polyurethane. The remaining three sides shall be painted to match the walls.
7. **Furnish and install storm door with screen at front and rear doors. It is recommended that storm doors open away from prevailing winds. Contractor shall confer with owner as to direction door shall open before installing storm door.** Storm doors shall be minimum 1” thick aluminum with maintenance free baked-on enamel finish or maintenance free vinyl over 1’ solid wood core (Larson Hampton Midview Storm door or equal). Full or midview screen doors shall be used when solid or full light exterior doors are used. Screen doors may be ½ light screen doors for ½ light exterior doors. Doors shall be provided with full weather-stripping and vinyl sweep and shall have built-in drip cap at head. Sweep shall be adjusted to block air leakage under door. Storm panel shall be glazed with clear, tempered safety glass. Screen shall include nylon insect screening, securely attached. Provide heavy duty pneumatic closer with non-corroding safety chain on each storm door.
8. Interior doors are to be split jamb, hollow core, raised panel hardboard, 1 3/8” thick. Doors are to be equipped with three hinges and door stops. Edges shall be sanded prior to painting. Doors are to be painted on all six sides. All passage doors from room to room including bedroom doors and bedroom closet doors shall be a minimum of three feet wide with a net clear opening of 32”. Interior doors are to be provided with appropriate privacy locks and must have lever type door hardware.
9. All doors are to have door stops (installed in baseboard when possible).

C. INSULATION

1. **A permanent certificate shall be posted on or in the electrical distribution panel. The certificate shall be completed by the builder and shall list the predominate**

R-values of insulation installed in or on the ceiling/roof, walls, foundation, and ducts outside conditioned spaces; U-factors for fenestration, and the solar heat gain coefficient value for each component. The certificate shall list the type and efficiency of heating, cooling and service water heating equipment. (N 1101.8 IRC)

2. **Tyvek or approved equal house wrap shall be applied on all exterior walls including gable ends.**
3. Insulation under floor and in walls shall have a vapor barrier on the heated side of the house. Insulation behind the bathtub must have a vapor barrier.
4. Insulation shall fill all spaces equally to specified R-value. Minimum required R-values are R-19 in 2x6 walls, R-30 under floors and R-38 in attic spaces. Wall batt insulation shall be paper faced or if unfaced, the walls shall be wrapped with 4 mil. plastic. If two layers of R-19 batt are used in the attic, one run shall be between the trusses and one run across the trusses. Blown in insulation is preferred in walls. Blown in fiberglass cubes are to the 15" deep. All insulation in the attic is to be outside of the exterior wall line. Attic access to have a minimum 12" high frame access area (15" if fiberglass cubes are used) and two layers of R-19 batt insulation attached to back of opening cover.
5. Install air infiltration baffles between all trusses to provide adequate passage of outside air in the attic. Baffles are to be plastic or Styrofoam forms made for that purpose, not cardboard or pvc piping. The top of each baffle must end at least one inch above the required depth of the insulation and the insulation shall not block the ventilation path at edges.
6. Under floor insulation shall be held in place with wire keepers, the vapor barrier is to be on the heated side of the house.
7. **Water lines in unconditioned spaces** shall be insulated with foam pipe insulation including elbows.

V. INTERIOR

A. GYPSUM DRYWALL

1. Install drywall only after framing, wiring, plumbing and insulation have been inspected. **Project manager must have copy of building inspector's written framing inspection report prior to payment for framing.**
2. **Hallways – All hallways shall have a net clear opening (finish wall to finish wall) of 42". Definition of a hallway is any passageway that is 18" or greater in depth.**
3. Drywall shall be a minimum of ½ inch thick, taped and sanded to a smooth surface. **When using trusses spaced 24 inches on center you must use 5/8-inch drywall on ceiling with nails spaced 7 inches on center or ½" sag-resistant gypsum ceiling board. Use water-resistant drywall (green board) in entire bathroom except ceiling, in laundry room behind washer hook-up, and behind sink in kitchen and around water heater (areas within six feet of utility hook ups). When a bathtub or shower is located on an exterior wall, that wall must be insulated and then sheathed with**

green board before setting the tub/shower unit. Install corner bead on exposed drywall corners and J-bead as necessary for proper drywall edge finish.

4. Where partition walls meet other partition walls or exterior walls, “t”s are to be constructed for proper backing for drywall unless sheetrock wall clips are installed per manufacturer’s instructions. If “t”s are constructed, the structural material shall not block the exterior wall area so that insulation can be installed between the “t” and the exterior wall sheathing.
5. Provide minimum 22 inch by 30 inch attic access in accordance with Section 807 of Kentucky Residential Code. **Door opening is to be built up with minimum 12” framing between the trusses so that no insulation spillage will occur when attic access panel is removed.** Access panel is to be 5/8” drywall, fumed, painted and insulated with two layers of R-19 fiber glass batt glued to the attic side of the door. **Attic access shall be located in a hallway or other readily accessible location. Attic accesses are not permitted in closets.**
6. Unless otherwise noted, all drywall is to be trimmed with good quality softwood trim (finger jointed pine). Vinyl trim with preformed corners may be used in kitchen and bathroom. **It is recommended that trim not be caulked.** Nail holes and depressions must be filled prior to painting.

B. CLOSETS

1. Linen closets and pantries shall have a minimum of three shelves spaced no closer than 12” apart. Bottom shelf shall be 18” to 24” above floor and topmost shelf shall be no more than 74” above floor. One five foot long utility shelf is to be installed in the utility room over the washer and dryer at a height of 62 inches above the floor. All shelves should support a 200-lb load.
2. Clothes closets shall contain a minimum of one wood or metal rod and one shelf not over 74” above the floor. The shelf and rod shall support a 200 lb. load with vertical deflection not to exceed ¼”. Not more than one intermediate support may be provided for rods and shelves from 3 to 4 feet in length. Shelving shall be ¾” pine, B or better or ¾” plywood-edged with screen mold. Coated wire shelves/rods may be used if they meet the above standards.

C. PAINTING: INTERIOR AND EXTERIOR

1. Painting is to include all necessary prep work to provide proper adhesion, stain blockage, uniform coverage and smooth appearance. Exterior painting also includes caulking of window and door frames, siding abutments or other joints or seams which would allow air infiltration.
2. When painting adjacent to glass, scrape glass clean before painting. Glass is to receive an eighth inch paint bead for proper seal. If excess paint has to be scraped off windows, the seal must be painted.
3. Ceilings are to be smooth finished and painted or may be light textured finish of latex material (latex paint mixed with texture compound).
4. Unless otherwise specified the following types of paint will be used:

- a) All interior trim - washable latex enamel semi-gloss.
 - b) Interior walls and ceilings - latex satin (low-luster) finish (washable).
 - c) Exterior wood - latex semi-gloss.
 - d) Metal - rust resistant enamel.
5. All painting called for includes one coat of latex primer and two complete coats of paint.
 6. Proper precautions should be taken to prevent paint from getting on unpainted surfaces. Any mishaps should be removed immediately. The contractor is responsible for any damage caused by stray paint or other finishes. Spray painting of interior is not allowed.
 7. Interior Walls are to be owners choice of white or antique white (**provide paint chips with other samples for owner to select white color**). Contractor is to leave at least one quart of each type of paint with homeowner for touch up work. Owner is to choose exterior color for doors and shutters. Exterior doors to be painted to match shutters unless specified otherwise in special conditions.
 8. Contractor shall comply with CFR, Title 24, Sub-Part C, 35.25 concerning Lead-Based Paint Standards. Lead-based paint will not be used.

D. FLOOR COVERING

1. **Carpet and vinyl samples are to be provided to Project Manager for approval prior to installation.**
2. Install vinyl flooring in kitchen, dining area or dining room, bath and 16 square feet at front door. Install carpet in remainder of house unless noted otherwise in special conditions. Flooring shall be sheet vinyl laid by a professional flooring installer and properly glued and nailed. All surfaces shall be clean, dry and appropriate temperature during installation. Vinyl tiles are unacceptable.
3. Thresholds shall be aluminum. Baseboards are to be finger jointed pine, painted with one coat of primer and two coats of latex enamel. Cut all corners to fit, do not use filler. Install primed and painted quarter round. Four inch high .080 gauge vinyl base molding with matching end stops and pre-formed corner units at all baseboards to prevent roll up of edges may be used instead of wood baseboard.
4. **Vinyl flooring shall be sheet flooring Congoleum Prelude, Armstrong Initiator, Domco Customflor or Mannington Vega II or better, owners' choice of color and style (two colors per house). Floor cover shall have at least a 5-year warranty and comply with ASTM F 1303, Type I.**
5. Underlayment shall be 1/4" luan or as recommended by manufacturer of vinyl (no particleboard). Underlayment may be fastened down with 1" long staples or nailed with 1-1/4" ring shank nails. Fill over nail dents and fill cracks in accordance with manufacturer's recommendations. Sand filler and clean floor.

6. Vinyl shall be glued and laid smooth (too much glue causes lumps) and fit neatly against tub, baseboards and door casings. Vinyl must be laid under commodes with new wax ring. Joints in vinyl must be sealed and edges of vinyl must be caulked at tubs and door casings. Metal edge strips shall not be used, except at joints with dissimilar floor covering.
7. Carpeting: A professional carpet installer shall lay all carpet. Carpet shall comply with FHA or HUD standard UM-44-d. **Carpeting must meet the product testing requirements of the Carpet and Rug Institute's Green Label Plus program.** Install over a ½" thick, 6-lb. minimum re-bond polyurethane pad with a minimum of seams. Include tackless strips, metal edge strips, and mending tape to cover entire floor including closets. On stairs, fasten carpet and pad at top and bottom of each riser. Carpet and pad should be of good quality, 25 oz. minimum 100 percent nylon. Owner's choice of color and pile (one color per house). Trim usable scraps and leave with owner. Carpet shall have a 5-year wear warranty. Contractor may provide Berber type carpeting with blended fiber as an option to the homeowner in addition to nylon cut-pile carpeting. **Carpet samples must first be approved by project manger.**
8. Interior doors shall clear finished floors by ¾" unless otherwise noted.

E. CABINETS

1. Cabinets shall be Merillat, "Sutton Cliffs Oak"; American Woodmark "Oak Grove" or equal. Only solid wood or high quality laminate (no particleboard) front frames, drawer and door fronts are allowed. Cabinets shall be Kitchen Cabinet Manufacturer's Association (KCMA) Approved and contain the KCMA Label. Install blocking for upper cabinets during framing. Unless otherwise specified, cabinets should be nominal 24" wide with finished height of 36" with 12" shelves. Install blocking for upper cabinets. All cabinets to be pre-drilled and installed to wall blocking with pan-head screws (**do not use sheetrock screws**). Cabinet ends to be finished with appropriate veneer. Install loop type pulls (not knobs) if required by door and drawer design.
2. Countertops shall be plastic laminate bonded to minimum ¾" plywood or particle board with 4" integral molded roll-backed backsplash (Formica or Wilsonart or equal, owners choice of standard colors), unless otherwise noted. Include sidesplash at any sidewalls. **Caulk any sidewalls, it is recommended that the countertop not be caulked at the rear wall.**
3. **Contractor is to provide a sample to Project Manager before installing cabinets.**

F. KITCHEN EQUIPMENT

1. Refrigerator: Furnish and install minimum 18 cubic foot freestanding white frost free electric refrigerator/freezer without icemaker. Must have adjustable shelves, door handle and bottom splash cover. Acceptable brands are Whirlpool, Hotpoint, General Electric, Kenmore, and KitchenAid. **Refrigerators are to be Energy Star rated. Contractor to provide documentation of Energy Star rating prior to payment for this item. Refrigerator doors to have door handles on countertop side.**

2. Ranges: Furnish and install one freestanding white and/or black gas or electric 30" range as noted in Special Conditions. Gas ranges shall have automatic pilotless ignition. Electric ranges shall be self-cleaning, white and/or black. Acceptable brands are General Electric, Kenmore, and Whirlpool.
3. Range hood: Provide and install manufacturer's standard, type range hood with minimum 150 CFM fan and light (color to match range) at over range location. Range hood is to be vented to exterior of building. Use duct size and material per manufacturer's recommendations. Provide a finished cover over exposed ducting.

VI. PLUMBING

A. STANDARDS

1. All plumbing is to be installed under the supervision of a Kentucky licensed master plumber in accordance with Kentucky Plumbing Code and shall be inspected and approved by the state plumbing inspector prior to usage.
2. The contractor shall provide and post all permits. It is the contractor's responsibility to make sure the state plumbing inspector places rough-in and final plumbing inspection stickers in a visible location as proof of compliance.

B. FIXTURES

1. **All toilets shall be centered a minimum of 18" from any corner wall, base cabinet or tub.** All toilets installed shall be a complete assembly, which includes a new seat, supply line, shutoff, wax ring, and closet bolts. Toilets are to be 1.6 gallon and one of the following brands: American Standard, Koler, Crane, Elgier or Mansfield.
2. Kitchen sinks are to be double bowl, stainless steel units with 8" deep x 33" x 22" bowls, self rimming. Sinks are to be installed with new metal basket strainers. Seal rim at countertop with silicon. Contractor is to provide sample of countertop to Project Manager prior to installation.
3. **Lavatories shall have a 30" by 48" clear floor space. The clear floor space may be rotated or angled, depending on approach and design. In a side approach, the 48" dimension shall be parallel to the lavatory. In a forward approach, the 48" dimension shall be perpendicular to the lavatory. The bowl shall be centered in either the 30" or 48" dimension. The clear area shall be free from all wall projections, tub, shower, toilet or lavatory base.**
4. Lavatories shall be counter type vitreous china, 19" by 17". White synthetic marble ready-formed counters with integral lavatories may be used in bathroom in place of plastic laminate top. Counter tops shall have integral backsplash. Seal backsplash at wall with silicone. Include sealed sidesplash at any sidewalls.
5. All medicine cabinets, bathroom sink cabinets and light bars above sink are to be 36" unless otherwise approved by project manager. If cabinet is reduced to 30", medicine cabinet and light bar are to be 30".
6. **All faucets shall be single lever, quality metal Delta washerless faucets or equal. Plastic or acrylic levers are not acceptable.** Kitchen faucets shall include a spray

assembly. Tub faucets shall be scald guard tub and shower combination valves. All faucets shall be installed with shutoffs.

7. **Bath Accessories:** Each bathroom is to be provided with wood or metal paper holder, robe hook on back of door, one 18" towel bar (or hand towel loop) and one 24" towel bar and adjustable shower rod. Accessories shall be solid, substantial, easily cleaned and free from defects, which would detract from their appearance or utility.
8. Provide **hookups for washer and dryer** including dryer exhaust vent. Washer/dryer hook-ups shall be in a plastic wall mounted box with proper finish face cover installed. Washer hose shut-offs are to be one-quarter turn ball type.
9. Clothes dryer exhausts are to be installed in accordance with **Section M1502 IRC**. **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 (**M1502.4 IRC**). Use a screw-type clamp to make connections. O screws may be used to connect the flex duct to rigid metal duct. **Flexible plastic or foil ducts are not allowed.**
10. **Medicine Cabinet: Install 36" wood surface mounted medicine cabinet over sink with mirror on front. A 36" decorative light bar shall be installed over medicine cabinet. Lights may be integrated into cabinet. Medicine cabinet and light bar are to be same width as vanity.**

C. BATHTUBS/SHOWERS

1. The tub/shower unit shall be white, one piece 60" X 30" x 72" fiberglass with factory applied reinforcement for grab bars and factory applied white grab bars such as Aker BF-TS60/REZ3. The unit shall have new chrome on brass waste and overflows. Bottom is to be skid resistant. Insulate and provide vapor barrier between tub and exterior wall. **If bathtub/shower is on exterior wall, the wall behind the tub must be sheathed with moisture resistant drywall before setting the tub.**
2. Provide shower head and single lever type metal handle (not acrylic). Bath/shower faucets are to be anti-scald type. Provide adjustment directions to owner.
3. **On all houses provide blocking for future installation of grab bars. The entire 36" clear space behind the toilet shall have a minimum 2" by 10" blocking centered 36" off the floor. If there is a side wall within 18" of the toilet, it shall be blocked in a like manner. If the tub or shower does not come with preinstalled grab bars, install 2" thick wood blocking, plywood or other approved material for future grab bars in the tub and shower area. The wall reinforcement shall be located 33" to 36" above the finished floor.**

D. WATER HEATER

1. Water heaters are to be electric unless otherwise specified. Furnish and install hot water heater with glass lining, high recovery, insulated, temperature and pressure relief valve with discharge tube to within 6" of floor or drained to outside of structure in safe location. Water heater to be energy efficient (**Electric water heaters – EF of 0.93 or higher, gas water heaters EF of 0.61 or higher**) and have a minimum eight-year warranty. 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. Provide all electrical or gas and plumbing connections to hot water heater. There must be a water shutoff on the cold water supply to the heater. Gas water heaters must have a gas cock and drip leg installed next to the gas valve. Provide double wall venting through roof or wall for gas hot water heater, ceiling and roof thimbles, collars, strapping, raincap, and all else to comply with National Fuel Gas Code.
2. Water heaters shall be 40 gallon capacity or larger unless otherwise specified or larger size is required to meet Kentucky State Plumbing Code. 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.

E. WATER/SEWER LINES

1. **Drains** are to be of PVC.
2. 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. Installation of new lines shall include shut off valves in the house. Water lines in unconditioned spaces shall be insulated with foam pipe insulation including elbows.
3. Provide one frost-proof **metal hose bibb** (not plastic) on exterior of house. As per Kentucky Plumbing Code, hose bibb shall be equipped with an accessible stop-and-waste- type valve inside the building.

VII. MECHANICAL

1. **Furnaces to be installed on first floor of house as shown on plans unless otherwise approved by project manager. If the house has a basement, the furnace is to be installed in the basement. Furnaces are not to be installed in the attic or crawl space. Supply duct work is to be installed in the attic. Returns are to be installed in the wall near the floor. There shall be a return from each bedroom as well as the kitchen/living room area. Furnace filters are to be in furnace itself or on the wall near the floor and to be accessible to owner without the use of tools. Furnace filters are not allowed in the ceiling.**
2. Heating systems shall be installed by a licensed HVAC contractor. **All gas or fuel oil furnaces with central air conditioning shall have a minimum AFUE of 90. Air source heat pump cooling units and central air conditioners are to have a SEER**

rating of 13 or higher. Heat pump heating units are to have a minimum HSPF of 8.2. Air units are to be the same brand and a matched set to the heating unit. Outside HVAC units are to be on level concrete pad at least 4” thick.

3. **Thermostats are to be programmable. If a heat pump is installed in the unit, a programmable thermostat specifically designed for heat pump systems must be utilized. Thermostats are to be centered at a maximum height of 48” above floor.**
4. **When house has a basement with insulated walls, HVAC unit is to be sized to heat and cool the basement area in addition to the remainder of the house.**
5. Condensation drain lines are to be run outside of house not under crawlspace and are to drain away from the house, not into a vent well or crawlspace access area. On exterior units, drain line is to extend past concrete pad and drain away from the house.
6. On new installation ductwork, including returns, in unconditioned spaces shall be insulated to a minimum of R-4. **(N1103.2.1 IRC)** Ductwork can be either galvanized, insulated trunk or ductboard truck with flex duct to the registers. Ductwork must be installed using proper width hangers in compliance with the Mechanical Code. **(M1061.3. IRC)** **In floodplain areas, duct systems shall not be installed below the design flood elevation (R324.1.5 IRC).** 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.
7. Installation of furnaces shall include all work necessary to provide proper access, clearances to combustible, required lighting and receptacle, combustion air, thermostat, etc. See Kentucky Residential Code for installation details. Systems are to be sized and designed to heat, and/or cool each house as efficiently as possible.
8. 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 IRC Exception)**

VIII. ELECTRICAL

1. 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 KRC)**. Contractor or subcontractor is 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.**
2. Provide overhead light fixture in each habitable room, bathroom near bathtub, hallways and stairways controlled by a wall switch. **All light bulbs shall be warm or “soft white” light (2700–2900K) compact florescent bulbs (CFL) except light bar over bathroom sink.** In basements, provide at least two overhead lights to provide a minimum of 3,500 lumens controlled by a wall switch. Bathroom mechanical exhaust vent and each light in bathroom are to be on a separate wall

switch. Bathrooms may have an overhead fan/light combination rather than a separate overhead light. Provide two overhead lights in kitchen, one over sink area and one over eating area. There shall also be a light over the cooking stove in range hood. Central hallways in four bedroom homes are to have two overhead light fixtures on a three way switch. Provide a light bar above the medicine cabinet that is the same width as the medicine cabinet with 20-watt white globe light bulbs appropriate to the fixture. Light bar is to be connected to a wall switch at the sink. Do not use florescent lights in the light bar. **Overhead fixtures shall be rated to provide a minimum of 1750 lumens (two 15-watt CFL bulbs or one 29 watt CFL bulb) in bedrooms, kitchens and living rooms, 3,500 lumens in basement and 900 lumens in hallways and overhead light in bathrooms.**

3. **Contractor shall furnish and install approved ceiling fan bar/brackets in all bedrooms, living room and kitchen.**
4. 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**)
5. Each bathroom is to have an exhaust fan ventilated by metal or aluminum duct (not plastic) through a dedicated roof vent to the outside with an approved hood. The minimum ventilation rate shall be 50 cubic feet per minute.
6. Required fixtures shall be standard grade, decorative globe type with compact florescent bulbs provided. Open "clam shell" type fixtures are not acceptable. Open bulb types may be used only in utility areas (**not in basements**).
7. Provide wall mounted exterior grade porch light, minimum 60 watt, at front and rear doors. Motion detector controls are preferred.
8. Code requires that all houses be equipped with AC/DC smoke detectors. They shall be interconnected with battery backup. As a minimum, install one smoke detector in each bedroom near door and one in hallway within three feet of bedroom doors (**the hallway smoke detector can also be a combination carbon monoxide detector when one is required**). There should be at least one smoke detector on each story including basements. **Try to keep smoke alarms as far from kitchen as possible.** The manufacturer of the specific smoke detector being used will provide written instructions on the locations for their product. Follow the manufacturer's instructions on locations and other details. Do not put smoke alarms on a dedicated circuit.
9. For all houses that have any type of gas service, flue or other fossil fuel burning device in house for heating, cooking, water heater etc. or that have an attached carport or garage, contractor shall **provide carbon monoxide detectors** near the bedrooms, near the carbon monoxide producing appliance with at least one detector on each floor of the house including any basement.
10. **Provide lighted doorbell at each exterior entrance.**
11. Panel boxes must be Square D, Murray, General or equal, minimum 30 circuits, provide 200 amp. service. Breaker panels must have all circuits labeled. Panel boxes to be on interior first floor of house on side or rear, not front of house. Provide a 220 volt dryer outlet and a 220 volt range outlet for houses with electric cooking stoves.

12. **Electrical outlets shall have a minimum height of 15” above the finished floor from the bottom outlet and a maximum height of 48” above the finished floor from the top outlet. Light switches, fan switches and thermostats shall be centered at a maximum height of 48” above floor. If an outlet or switch is obstructed by a base cabinet or countertop, then the maximum height shall be 46” above the finished floor.**
13. Refrigerators are not to be on GFCI circuits
14. Contractor is to contact the telephone company and cable television or dish provider to determine the proper cables to pre-wire house. Contractor is to install the cables required. Provide one phone jack in each bedroom, living room and kitchen. Provide three cable/satellite hook-ups at owner’s choice of location. If owner has no preference, provide one in living room and one each in largest bedrooms.
15. Contractor is to install wiring for high speed internet service if specified in the special conditions for each house.

IX. HANDICAPPED ACCESSIBILITY

A. GENERAL

1. When handicapped accessibility is called for in special conditions, these requirements shall be followed.

B. BATHROOMS

1. Accessible toilet: The top of the toilet seat shall be between 17 and 19 inches from the floor.
2. A grab bar shall be provided at the toilet. All grab bars shall properly reinforced. Toilet mounted grab bars are not allowed.
3. Lavatories shall be mounted with the rim or counter surface no higher than 34” above the finished floor. Provide a clearance of at least 29” from the floor to the bottom of the apron. Hot water and drainpipes under lavatories shall be insulated or otherwise covered.
4. Accessible bathtubs shall be AKER BF-TS60 or equal with factory installed reinforcement, ADA compliant grab bars (white grab bars preferred) and ADA compliant folding tub seat with accessible shower head.
5. Accessible shower head: A shower spray unit with a hose at least 60” long that can be used as a fixed showerhead or as a hand held shower shall be provided. The shower spray unit shall be attached to a metal bar which allows the user to adjust the height of the shower head.

C. KITCHENS

1. The sink and countertops shall be mounted at a maximum height of 34”. The depth of the sink bowl shall be no more than 6 ½”.

2. Knee spaces under cooktops or ranges shall be insulated or otherwise protected on the exposed contact surfaces to prevent burns, abrasions or electrical shock. The location of controls for ranges and countertops shall not require reaching across burners.
3. Ovens shall be self-cleaning type. For side opening ovens, the door latch side shall be next to the open counter space and there shall be a pullout shelf under the oven extending the full width of the oven and pulling out not less than 10" when fully extended. Ovens shall have controls on front panels; they may be located on either side of the door.
4. Kitchen cabinets mounted above work counters shall have at least one shelf at a maximum height of 48". Door pulls or handles for wall cabinets shall be mounted as close to the bottom of the cabinet as possible. Door pulls or handles for base cabinets shall be mounted as close to the top of cabinet doors as possible.

X. HISTORIC REQUIREMENTS

A. GENERAL

1. The following requirements apply when it is noted in the Special Conditions that Historic Requirements are applicable.

B. FOUNDATIONS

1. Any above grade concrete block must be split face block or have a stucco finish.

C. SIDING & ROOF

1. Vinyl siding shall be plain lapped double 4" siding with smooth face, no wood grain or a very light wood grain such as Georgia Pacific Forest Ridge or Summit Manor.
2. Roof shingles shall be a dark color.

D. WINDOWS AND DOORS

1. Exterior doors are to be four panel or ½ light, not six panel
2. Windows shall **not** have grilles or shutters.
3. Windows and exterior doors shall be trimmed all the way around with 4" covered fascia board.
4. All windows except window over kitchen sink are to be 3'2"x5'0".

E. PORCHES

1. Front porches are to be similar to others in the neighborhood. Columns are to be 8 or 10 inches in diameter, metal or painted or covered wood with design similar to others in the vicinity. **New porches are to be 6' wide by 12' long.**

DRAIN TILE DETIAL

