



Minimum Design Standards for New Construction Single Family Dwelling Units

**Kentucky Housing Corporation
Revision 2019**



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KHC Minimum Design Requirements

The following minimum design items are for all newly constructed single-family dwelling units constructed under the applicable Kentucky Residential Code.

For rehabilitated single family structures, refer to KHC’s Minimum Design Standards:
Rehabilitated Single Family at

<http://www.kyhousing.org/Development/Documents/MinDesignStandardsRehab.pdf>

KHC’s Minimum Design Standards are used as a guideline to meet and exceed all applicable local, state, and national codes. These standards also serve as a vehicle to promote and enforce modern construction and design practices for builders,

contractors, and design professionals who wish to utilize funding from Kentucky Housing Corporation. Other methods of construction and design may be acceptable on a case by case basis. If your design does not satisfy KHC's Minimum Design Standards, please contact the Department of Design and Construction Review for further assistance.

Division I: General Requirements

- 1) **Minimum Design Standards:** Minimum Design Standards shall apply when KHC funding exceeds ten percent (10%) or more of cost per unit to all new construction and reconstruction of single family detached homes constructed with funds from the HOME Investment Partnerships Program (HOME), Affordable Housing Trust Fund (AHTF), SMAL, Risk Sharing, Appalachian Regional Commission-Kentucky Appalachian Housing Program, Housing Tax Credits and Tax-Exempt Bonds. These funds are available through KHC's Department of Housing Contract Administration (HCA).

- 2) **Codes:** All construction shall comply with applicable code and standards listed below:
 - a) Current version of Kentucky Residential Code in force at commencement of construction or permit application.
 - b) Local planning and zoning requirements
 - c) Local authorities' rules and regulations
 - d) Section 504 of the Rehabilitation Act of 1973
 - e) Americans with Disabilities Act of 1990

- 3) **Soil Treatment-Termite Protection:** An appropriate termite inspection and treatment of all property is required.
 - a) **The inspection** must be completed by a licensed exterminator who shall report any termite activity located and treatment applied.
 - b) Provide a **homeowner option** to extend the treatment contract.

- 4) Radon Reduction:** A Radon reduction venting system is required for newly constructed houses in the following counties determined by the Environmental Protection Agency and U.S. Geological Society to have high Radon potential: Adair, Allen, Barren, Bourbon, Boyle, Bullitt, Casey, Clark, Cumberland, Fayette, Franklin, Green, Harrison, Hart, Jefferson, Jessamine, Lincoln, Marion, Mercer, Metcalfe, Monroe, Nelson, Pendleton, Pulaski, Robertson, Russell, Scott, Taylor, Warren, Woodford
- 5) Energy Efficiency:** Documentation and/or calculations that the building envelope meets or exceeds the 2012 IECC requirements must be provided from REScheck or other approved software or methodology such as a HERS rating.
- a) REScheck is a US Department of Energy free download at:
<http://www.energycodes.gov/rescheck/>
- b) A HERS rating of less than 62 will be an acceptable target to meet this requirement.
- 6) Testing:** Building envelope tightness testing must be completed in accordance with the 2012 IECC and reported to KHC. Testing must verify compliance with ASHRAE 62.2 Standard for ventilation and acceptable indoor air quality.
- a) Diagnostic testing** shall be reported by one of the following methods:
- i) Documentation from a licensed and certified HERS rater.
- ii) Documentation from a Building Analyst, Energy Auditor, or Quality Control Inspector certified, by the Building Performance Institute.
- iii) Documentation from a licensed HVAC contractor, qualified in pressure diagnostic testing of the duct systems and total air infiltration.
- iv) Documentation from a Weatherization Assistance Program trained Dwelling Needs Evaluator.
- v) Other methods will be considered upon written request.
- b) A HERS rating of less than 62 will be an acceptable target to meet this requirement.

7) Quality Assurance: General Contractors and/or subcontractors shall furnish a written material and labor warranty on all units for a period not less than one full year after occupancy.

8) Unit Size Requirements: The following minimum square foot measurements are required for different types of units. For purposes of this requirement, net square feet are the heated and cooled area of the unit.

a) One-bedroom and Efficiency units: shall contain at least 600 net square feet

b) Two-bedroom units: shall contain at least 800 net square feet

c) Three-bedroom units: shall contain at least 1,000 net square feet

Exception: Three-bedroom units of less than 1,000 net square feet but more than 863 net square feet may be built for sale to a homeowner meeting all the following conditions:

(1) The unit must be built on a scattered, non-subdivision site (no more than one unit per site).

(2) Units must be for households containing up to no more than four people and earning an annual income of less than 50 percent of the area median income.

d) Four-bedroom units: shall contain at least 1,100 net square feet.

Division 2: Existing Conditions

1) Steep Slopes: Setbacks or clearances may occur where units are placed on slopes. Please refer to the KRC, Section R 403.1.7. Other engineered designs on sites that have adjacent steep slopes may be presented to KHC for consideration.

Division 3: Concrete

- 1) **Exterior Concrete:** Shall conform to the latest revised Standard Specification for Portland cement, ASTM C595.
 - a) **All exterior concrete** shall have a minimum 28-day compressive strength of 4000 psi and be entrained with 5 percent air with a minimum cement content of 520 lb. per cubic yard (5.5 sacks).
 - b) **Expansion-joint material** shall be ½” thick asphalt-impregnated pre-molded fiber, ASTM D1752. Follow American Concrete Institute (ACI) 318.
 - c) **Concrete driveways and parking areas** shall be minimum 4” thick.
 - d) **Exterior concrete for walks, porches, and stoops** shall be minimum 3 1/2” thick.
- 2) **Concrete Finishes:**
 - a) **Driveways and Walkways:** Provide a non-slip finish and provide ¼ inch per foot crown or 2% cross slope in the direction of drainage.

Division 4: Masonry

- 1) **Brick Veneer:** Shall be ASTM C 216, Type FBS, Grade SW, or equivalent, modular size.

Division 5: Metals

- 1) **Metal Ties:** For newly constructed units, metal tie-down or “hurricane” straps shall be used at each bearing location of each roof truss, rafter and ceiling joist.
 - a) Fasteners as required by the manufacturing company of the strap shall be used.
- 2) **Steel Lintels:** Steel lintels, when specified for openings in masonry walls, shall be primed and painted.
- 3) **Metal flashing** materials shall be corrosion resistant and minimum nominal thickness of 0.019 inch.
 - a) Corrosion resistant flashing in contact with pressure treated lumber, containing copper, shall not be aluminum material.

Division 6: Woods/Plastics/Rough Carpentry/Millwork

1) Wall Reinforcement:

- a) Wall reinforcement for the toilet, tub, and/or shower shall be installed centered 33" to 36" AFF (above finished floor) and located behind and alongside these fixtures (where feasible) for universally designed bathrooms.
- b) Reinforcement materials shall be constructed of 2" x 10" wood blocking, plywood, or other approved material capable of supporting installation of grab bars with loading of 200 lbs. applied in any direction.
- c) Americans with Disability Act (ADA) compliant reinforced tubs may be used.

2) Stair Construction:

- a) **Exterior Stairs:** Primary exterior entrance stairs shall have risers not greater than 7" and a minimum tread depth of 11".
Exception: If site constraints limit the size of the stairs, then the recipient may follow Section b) with KHC approval.
- b) **All Other Stairs:** All other stair construction shall meet the current Kentucky Residential Code regarding riser height and tread depth.

3) Guards:

- a) All stairs with open landings, balconies, or porches that are located more than 30 inches measured vertically to the floor or grade below at any point within 36 inches horizontally to the edge of the open side, shall have guardrails.
- b) All guardrails shall be safe, securely and firmly fastened in place.
- c) Where required, guards shall be a minimum of 36" in height above the adjacent walking surface.
 - i) **Exception:** Stairway guards may be 34" above the plane of the nosing of stair treads.
- d) Guards shall have infill to prevent accidental falls by providing one or more of the following:
 - i) Solid wall
 - ii) Railing system with solid infill
 - iii) Railing system with balusters spaced so that a sphere of 4-inch diameter may not pass through.
 - iv) The triangular area on stair sides at the tread, riser, and railing may not pass a 6-inch diameter sphere.
 - v) Stair risers shall be closed or provided with guards spaced so that a sphere of 4-inch diameter may not pass through.
- e) Refer to Division 9 Section 2) b) for finishes.

4) Handrails:

- a) All stairs with four or more risers shall have a handrail on at least one side.
- b) All handrails shall be easily graspable by the occupants.
- c) All handrails shall be securely and firmly fastened in place.

- d) All handrails shall return to the wall, floor, or post so that they do not constitute a hazard.
- e) Where required, handrails shall be mounted no less than 34" and no more than 38" above the leading nose of the stair treads.
- f) Refer to Division 9 Section 2) b) for finishes.

5) Wood Decking and Porches: Construction of exterior wood decks shall meet current Kentucky Residential Code and/or the American Wood Council's, Prescriptive Residential Wood Deck Construction Guide.

- a) The Prescriptive Residential Wood Deck Construction Guide is available as a free download at: <http://www.awc.org/Publications/DCA/DCA6/DCA6-09.pdf>

6) Exterior Wood: All new exterior structural wood exposed to weathering shall consist of naturally durable hardwoods, composite materials suitable for exterior exposure, or pressure treated wood having a minimum preservative retention rate of 25% for above ground applications, and a minimum preservative retention rate of 40% for all wood in contact with the ground.

- a) All structural posts below grade shall have the factory treated end of the post below grade.

Division 7: Thermal and Moisture Protection

1) Weather Protection: All exposed wood shall be protected from weathering by a minimum of one or more of the following materials or methods.

- a) **Paint:** Cover with one coat primer and two coats of exterior enamel.
- b) **Metal:** 0.019" minimum thickness aluminum, manufacturer's finish (coil stock).
- c) **Naturally Durable Wood:** Redwood, Cedar, or other naturally durable woods may be exposed to weathering conditions without cladding or other protective coverings. Stain or sealing exposed wood is required.
- d) **Composites:** Cement fiber board or other durable material may be used as approved by KHC.
- e) **Pressure treated Lumber**
 - i) All pressure-treated wood shall have a minimum preservative retention rate of 25% for above ground applications and a minimum preservative retention rate of 40% for all wood in contact with the ground.

2) Roof Covering: Roof coverings shall be one of the following materials.

- a) **Shingles:** Seal tab type over 15 lb. felt, with minimum 25-year product warranty or better.
- b) **Metal:** 29-gauge minimum thickness galvalume or galvanized steel with manufacturer's finish installed over solid decking, roof deck must be covered with #15 felt or KHC approved underlayment. If purlin construction is used, then 26-gauge minimum thickness aluminum or galvanized steel shall be used.

- 3) Gutters and Downspouts:** All structures shall have gutters and downspouts and be appropriately designed with a minimum 5" gutter and a 2"x 3" downspout. All downspouts shall empty onto concrete or composite splash blocks or be piped to an appropriate location.
- 4) Siding:** Exterior siding shall consist of one or more of the following materials.
- a) **Composite:** Fiber cement siding, primed, with two-coat minimum finish or manufacturer's finish.
 - b) **Metal:** 26-gauge minimum thickness aluminum or galvanized steel with manufacturer's finish.
 - c) **Vinyl:** 0.042" minimum thickness, UV protected.
 - d) **Wood:** Cedar or redwood stained or primed once with 2-coat minimum finish.
 - e) **Brick Veneer:** Shall be ASTM C 216, Type FBS, Grade SW, or equivalent, modular size.
- 5) Foundation Water-Management:** Exterior surface of foundation walls of basements & crawlspaces shall be finished as follows:
- a) For poured concrete, masonry, and insulated concrete forms, finish with damp-proofing coating.
 - b) For wood framed walls, finish with minimum 6 mil. (0.15 mm) polyethylene and adhesive or other equivalent waterproofing.
- 6) Insulation:** The building thermal envelope shall be insulated to the following minimum values:
- Note:** Alternate thermal envelope values may be used if a calculation from RESCHECK or HERS rating software will demonstrate equivalent or superior efficiency. A HERS rating of less than 62 will be an acceptable target to meet this requirement.
- a) **Floors over unconditioned space:** R-19
 - b) **Exterior walls:** R-20
 - c) **Ceilings:** R-49
 - i) When loose fill insulation is installed, provide a wood framed or equivalent baffle or retainer to provide a permanent means of maintaining installed R-value of the loose fill insulation at walls and access hatches.
 - d) **Slab Foundations:** R-10 continuous
 - e) **Conditioned Crawl Walls:** R-10 continuous
- 7) Air Infiltration:** All structures shall be air sealed to prevent air exchange between conditioned and unconditioned spaces by the following means.

- a) Penetrations of floor, walls, and ceilings, such that occur at access openings, electrical wiring and outlet boxes, plumbing piping, and ducts, shall be sealed to prevent free passage of air between conditioned and unconditioned spaces or the exterior.
- b) Exposed walls in attics, separating the conditioned space of the dwelling unit from the unconditioned space in the attic, shall have an approved air barrier installed on the attic side of the wall.
- c) Access doors from conditioned spaces to unconditioned spaces, such as attics and crawl spaces, shall be weather-stripped and insulated to a level equivalent to the insulation on the surrounding surfaces.
- d) Recessed luminaires installed in the building thermal envelope, shall be sealed to limit air leakage between conditioned and unconditioned spaces.
 - i) All recessed luminaires shall be IC-rated and labeled as meeting ASTM E 283, when tested at 1.57 psf (75 Pa) pressure differential; with no more than 2.0 cfm (0.944 L/s) of air movement from the conditioned space to the unconditioned space.
- e) A HERS rating of less than 62 will be an acceptable target to meet this requirement.

Division 8: Doors, Windows, and Glazing

- 1) **Exterior Doors:** Exterior Doors shall be 1 ¾" thick, made of steel or other equally durable material, insulated unless of solid wood (not particleboard) and be appropriately finished as recommended by the manufacturer.
 - a) **Primary Entry Door:**
 - i) The entry door threshold must not project more than ¾" above the interior finished floor.
 - b) **Exterior Door Energy Ratings:**
 - i) **All opaque exterior doors** shall have a U-factor equal to or less than 0.21.
 - ii) **Doors less than fifty percent (50%) glass** shall have a U-factor equal to or less than 0.27.
 - iii) **Doors greater than fifty percent (50%) glass** shall possess a U-factor equal to or less than 0.32.
 - c) A HERS rating of less than 62 will be an acceptable target to meet this requirement.
 - d) **Exterior door hardware:**
 - i) All entry doors shall be equipped with a brass plated, or other durable metal finished, key lock knob or handle and deadbolt.

- ii) Latches, knobs, and hinges shall be metal with polished or brushed finish. Plastic knobs and latches are not acceptable.
- 2) Interior Doors:** Solid Wood, Composite or hollow core panel doors.
- a) **Interior Doorways:** All passage doors from room to room, including all bedroom doors and at least one bedroom closet door, in each bedroom, shall have a minimum net clear opening of 32". Doorways to smaller secondary closets, linen, storage, coat, mechanical and secondary bedroom closets that are less than 4' wide x 2' deep, are not required to have a net clear opening of 32" but is preferred.
 - b) **Interior doors** shall be a minimum of 1 3/8" thick.
 - c) **Interior Door Hardware:** All interior doors shall be equipped with brass-plated, or other durable metal finished, knobs or handles.
 - i) **All bedrooms and bathrooms** shall be equipped with privacy locks.
- 3) Windows:** All windows shall meet the following requirements:
- a) **All window frames** must be of solid vinyl, thermally broken aluminum, fiberglass, wood or wood clad.
 - b) **All glazing** shall be minimum double-paned.
 - c) **The vapor seal** on the glazing must have a minimum ten-year warranty.
 - d) **The operation** of all windows shall have a minimum one-year warranty.
 - e) **All windows** shall meet the **Kentucky Residential Code** and **International Energy Conservation Code** fenestration requirements for Zone 4.
 - i) **All windows** shall have a U-Factor equal to or less than 0.32 and an SHGC rating equal to or less than 0.40.
 - ii) **The fenestration label shall be attached to the window for inspection purposes and may be removed upon acceptance by KHC Construction Specialists.**
 - iii) A HERS rating of less than 62 will be an acceptable target to meet this requirement.

Division 9: Finishes

- 1) **Exterior Ceiling:** When using vinyl or aluminum material for porch ceilings, provide a rigid, solid backing such as OSB or plywood.
- 2) **Exterior Finishes:** Exterior building elements of the following materials shall be properly finished.

- a) **Posts and Columns:** All posts and columns at deck level and above shall be factory made and finished.
 - b) **Guardrails and Handrails:** All guardrails and handrails shall be constructed of any combination of vinyl, metal or composite materials. Materials must be finished with a factory or field applied coating suitable for effective weather resistance.
 - c) **Fiber Cement Siding:** Shall be factory finished or be painted with at least two coats of exterior grade paint.
- 3) **Entry Door Floor Finish:** On the interior side of the main entry door within each dwelling unit, there shall be an uncarpeted, finished floor area.
- a) **This area** shall be no less than sixteen (16) square feet.
- 4) **Finished Floor Treatments:** All interior floor finishes shall meet one or more of the following standards:
- a) **Sheet Carpet:** 25 oz. minimum, 100 percent nylon. Other options include Berber type with blended fiber. In high traffic areas, 30 oz. Minimum is required.
 - b) **Carpet Padding:** Minimum 7/16" thick, 6-lb. re-bond polyurethane.
 - c) **Sheet Vinyl:** Shall be minimum 10 mil wear layer.
 - i) Provide product adhesive and underlayment as recommended by the manufacturer.
 - ii) All sub surfaces shall be clean, dry, and appropriate temperature during installation.
 - iii) Vinyl sheet flooring shall conform to the requirements of ASTM F 1303, Type I.
 - d) **Vinyl Tile:** Shall be Vinyl Composition Tile or other approved equal, 1/8" x 12" x 12".
 - i) Provide product adhesive and underlayment as recommended by the manufacturer.
 - ii) All sub surfaces shall be clean, dry, and appropriate temperature during installation.
 - iii) Follow manufacture's recommendation for pattern layout.
 - e) **Wood Flooring:** Flooring shall be tongue and groove hardwood, factory finish or have a minimum of three coats site-applied, UV-protective polyurethane.
 - f) **Other Flooring Products:** Ceramic tile and laminates shall be installed in accordance with manufacturer's specifications.
- 5) **Interior Doors:** Interior doors shall be factory finished, painted, or stained as follows:

- a) **Paint:** One coat factory or field applied primer, with two-coat satin or semi-gloss finish on all sides and faces.
 - b) **Stain:** Stain or oil on all sides and faces, with three-coat varnish or polyurethane finish.
- 6) Moisture-Resistant Drywall:** Moisture-resistant gypsum board (commonly called “green board”) or equivalent shall be used on all walls in the bathroom and within six feet in any direction of water sources, where the drywall can be splashed, such as kitchen sink, next to water heater, and/or clothes washer.
- a) Water-resistant gypsum board or equivalent shall be provided behind any tub/shower unit located on an exterior wall.
 - b) Water-resistant gypsum, when used on ceilings must be rated for the span.
- 7) Interior Wall Finishes:** Unless factory finished all interior walls shall be covered with one prime coat and two coats flat or satin finish Low-VOC interior latex paint.
- a) Low-VOC primer in the paint technology may be used in sufficient coats to thoroughly cover underlying colors.
 - b) Low-VOC Gloss and Semi-gloss finishes are acceptable for living rooms, bedrooms, hallways, and similar areas, however; the higher sheen of these paints may reveal unacceptable imperfections in the finished wall.
 - c) Use Low-VOC gloss, semi- gloss, or satin finish for bathrooms, laundry, and kitchens.
 - d) Primer and flat Low-VOC paint shall have less than 100 g/l and non-flat Low-VOC paint shall have less than 150 g/l.

Division 10: Specialties

- 1) Roof Pitch:** The minimum slope on all newly constructed roofs except porch roofs shall be 4” vertical to 12” horizontal.
- 2) Entries:** All entries shall have a concrete, treated wood, or other hard surface exterior stoop, porch, or deck at a minimum of 5’ x 5’.
 - a) The main entry shall have a roof over the entry area.
 - i) Only one entry is required to have a roof which shall cover at least a 5’ x 5’ area.

Division 11: Equipment

- 1) Refrigerator: A refrigerator shall be provided in all rental units on all projects including new construction.
 - a) All refrigerators must be Energy Star qualified. The Energy Star mark must be clearly marked on the product, clearly displayed in product literature, and listed on the manufacturer's Internet site.
- 2) Range: A range shall be provided in all rental units.
- 3) Dishwasher: A dishwasher shall be provided in all rental units.
 - a) Standard dishwashers shall use less than 4.25 gallons per cycle and 295 kWh per year.
- 4) Laundry: All homes shall be equipped with washer and dryer hookups.
 - a) All laundry facilities located above any habitable space shall be equipped with a properly installed washer overflow pan piped to carry the overflow into the DWV, positive outside drain or an approved floor drain.
- 5) For all rental units' clothes washers must be provided and shall have an MEF equal to or greater than 2.0 and a WF equal to or less than 6.0.

Division 12: Furnishings

- 1) **Cabinets and Drawers:** Cabinet fronts shall be made of solid wood (not particleboard); doors, draws, and fronts shall be factory finished.
 - a) **Cabinet ends** shall be finished with appropriate veneer.
 - b) **All cabinets** shall be Kitchen Cabinet Manufacturers Association (KCMA) approved. [ANSI/KCMA A161.1, Performance & Construction Standard for Kitchen and Vanity Cabinets](#)
Exception: Cabinets made in Kentucky do not require a KCMA label when pre-approved by KHC to the following specifications.
 - (1) Cabinet fronts shall be made of solid wood (no particleboard or fiberboard); doors, draws, and fronts shall perform to ANSI/KCMA A161.1-2012 standard.
 - (2) Cabinet box and shelves shall be constructed of cabinet grade plywood and braced at points where necessary to insure rigidity and proper joining of various components.
 - (3) All hardware shall perform to ANSI/BHMA A156.9-2015 standard.
- 2) **Countertops:** Countertops shall be molded roll-backed, laminate plastic or Formica with finished ends and sealed at the cut out for sink.

a) **Other appropriate materials** may be used such as ceramic, recycled glass, or similar as approved by consulting with the KHC Department of Design and Construction Review.

3) Closet Storage/Accessories: Clothes closets shall contain a 12" deep shelf, including a coat rod. Shelves with integrated hangar hooks may also be used.

4) Bath Accessories: Dwelling unit bathrooms shall be equipped with the following:

- a) Medicine cabinet with mirror 16" wide by 20" tall (minimum)
 - i) Other combinations of mirror and storage may be acceptable by approval of KHC
- b) Wall hung toilet paper dispenser
- c) 18" (minimum) towel bar
- d) Shower rod

Division 13: Special Construction

1) Hallways: All hallways shall have a net clear (finish wall to finish wall) opening width of 42". Definition of hallway is any passageway that is 18" or greater in depth.

2) Bathroom & Bedroom: All housing shall have a minimum of one full KHC universally designed bathroom and one bedroom located on the grade level. See Division 6 and Division 22 for additional guidance for universally designed bathroom.

3) Entry Door: The primary entry door must meet the following requirements:

- a) An exterior level platform with a minimum of 5'x 5' clear floor space. 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 (structural and decorative supports may overlap perimeter of the clear floor space), the interior must have a 5'x 5' clear floor space.
 - i) Structural and decorative supports may encroach perimeter of the clear floor space.
 - ii) The 5'x 5' platform must be within 1/2" of the interior finished floor at the point of entrance.
 - iii) Threshold rise of maximum 1-1/4" when approaching from the exterior platform.
- b) Provide an interior 5'x 5' clear floor space free of (constructed) obstructions such as walls or railings.

- 4) Storage areas:** Exterior or interior dedicated tenant storage areas are required on all rental units. These areas must meet the specifications of section a) below at a minimum.
- a) Minimum dimensions and provisions for all storage areas shall be as follows:
 - i) Minimum headroom or ceiling height shall be 7 feet.
 - ii) Minimum dimension in width and depth shall be 5 feet.
 - iii) A solid concrete or wood floor shall be provided in all storage areas.
 - iv) A 3 foot by 6-foot 8-inch access door with an entry lock shall be provided to all storage areas.
- 5) Storage areas provided by one of the following methods must also include the respective specifications listed below.**
- a) A **free-standing building** architecturally similar to the house.
 - i) All storage structures shall match or compliment exterior building veneer of the primary structure and/or trim, and have similar roof covering material.
 - (1) **Example:** Wood buildings with T-111, or equivalent plywood siding painted the same color as the siding or soffit of the primary structure are acceptable. The roof covering of the house is metal and the roof of the storage shed is similar in color and type.
 - ii) The storage area shall be a minimum of twenty-five (25) square feet.
 - iii) Prefabricated metal or plastic structures are prohibited.
 - iv) Structures must satisfy applicable building code requirements.
 - b) **Attached to the unit** exterior storage structures.
 - i) Structures shall match exterior building veneer and/or trim and possess identical shingles.
 - ii) Attached storage structures shall be finished with a minimum 20-minute fire rated finish on all walls and ceiling.
 - iii) Attached storage structures shall be provided with a switched light fixture.
 - iv) Attached storage structures shall be provided with adequate natural ventilation within 12" of the top and bottom of the wall to prevent buildup of hazardous or explosive fumes.
 - c) **Unfinished crawl space** for storage.
 - i) Crawl space storage areas must create an appropriately-sized finished room with a concrete floor.
 - ii) Crawl space storage areas shall be finished with a minimum 20-minute fire rated finish on all walls and ceiling.
 - iii) Crawl space storage areas shall be provided with a switched light fixture.
 - iv) Crawl space storage areas shall be provided with adequate natural or mechanical ventilation to prevent buildup of hazardous or explosive fumes.

- 6) Ramps:** All newly constructed residential ramps shall meet the following specifications:
- a) Ramps shall be constructed a minimum of 42" wide.
 - b) Each landing shall have 5' turning areas at the top and bottom of each ramp run.
 - c) Ramps shall not exceed a maximum slope of 1:12 and a maximum rise of 30".
 - d) Ramps and landings shall have a minimum load capacity of 300 lbs. concentrated load applied in a 4 square inch area and a uniform live load of 100 pounds per square foot.
 - e) Ramps may be constructed of the following materials:
 - i) Composite: PVC or other with non-skid surface.
 - ii) Concrete: with non-skid surface.
 - iii) Metal: galvanized steel, or aluminum with non-skid surface.
 - iv) Wood: All exposed exterior structural wood shall have a minimum preservative retention rate of 25 percent for above ground applications and a minimum preservative retention rate of 40 percent for all wood in contact with the ground. Use of CCA treated lumber is prohibited.
- 7) Playgrounds:** If a playground is provided, as part of a multifamily development, the playground shall meet the following standards and be approved by KHC prior to installation.
- a) ASTM F1487-11, Standard Consumer Safety Performance Specification for Playground Equipment for Public Use
 - b) ASTM F1292-09, Standard Specification for Impact Attenuation of Surfacing Materials Within the Use Zone of Playground Equipment
 - c) ASTM F1951-09b, Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment
 - d) ASTM F2223-10, Standard Guide for ASTM Standards on Playground Surfacing
 - e) ASTM F2479-12, Standard Guide for Specification, Purchase, Installation and Maintenance of Poured-in-Place Playground Surfacing
 - f) ASTM F2049-11, Standard Guide for Fences/Barriers for Public, Commercial, and Multifamily Residential Use Outdoor Play Areas
 - g) ASTM F2075-10a, Standard Specification for Engineered Wood Fiber for Use as a Playground Safety Surface Under and Around Playground Equipment
 - h) DOJ 2010 ADA Standard for Accessible Design

Division 21: Fire Suppression

1) Reserved for future use

Division 22: Plumbing

- 1) **Minimum Grade of Fixtures:** The following specifications shall be the minimum size and/or quality for plumbing fixtures.
 - a) **Bath Tub:** Tubs shall be 30" minimum width; made of fiberglass, acrylic, porcelain, or cultured marble.
 - b) **Shower:** Showers shall be 36" x 36" minimum; made of fiberglass, acrylic, ceramic, or, cultured marble.
 - c) **Water Closets:** Water closets shall be maximum 1.28 GPF and made of porcelain.
 - i) Universally designed toilets shall be centered 18" from any sidewall finish, base cabinet, or tub.
 - d) **Faucets:** Single-lever faucets or ADA-approved faucets shall be installed at all sinks, showers and tubs. Faucets containing plastic material for exterior housing are prohibited.
 - e) **Lavatories:** Sinks shall be 15" minimum diameter; made of fiberglass, acrylic, porcelain, or, cultured marble.
 - i) Universally designed lavatories shall have a 30" x 48" clear floor space. The clear floor space may be rotated or angled, depending upon 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 the lavatory base. If a wall-hung, "breakaway-style" base or pedestal lavatory is used, the clear space may encroach a maximum of 19" underneath the base in a forward approach design.
 - f) **Kitchen Sink:** Sinks shall be a minimum double bowl eight inches (8") deep, stainless steel or other approved material.
 - i) **Exception:** When providing roll under accessible clearance, 6 inch depth sinks are acceptable
- 2) **Water Supply Piping:** Water Supply Lines shall be of approved material.
 - a) Installation in exterior walls except for hose bibs is prohibited.
 - i) Where necessary to install water supply lines on an outside wall the lines may be stubbed up from the floor near the wall or other required location in the floor to serve the fixture.
 - b) Lines located in all unconditioned crawl areas shall be insulated equal to or greater than R-3.

3) Overflow Protection Accessories: Water heaters located above any habitable space shall have an overflow pan properly plumbed into DWV, positive drain to exterior, or an approved floor drain.

4) Water Heater Efficiency:

- a) **Electric water heaters** shall have a minimum Energy Factor (EF) equal to or greater than 2.0.
- b) **Gas fired water heaters** shall have an EF equal to or greater than 0.67.
- c) **Instantaneous gas water heaters** shall have an EF equal to or greater than 0.82.
- d) A HERS rating of less than 62 will be an acceptable target to meet this requirement.

Division 23: Heating Ventilating and Air Conditioning

1) Heating Ventilating and Air Conditioning Equipment: All units shall be heated and cooled using high-efficiency equipment.

- a) **Heat pump systems** shall have a minimum SEER (Seasonal Energy Efficiency Rating) rating of 15.0 with a minimum HSPF (Heating Seasonal Performance Factor) rating of 9.0.
- b) **Fuel oil, gas fired furnaces and boilers** shall have an Annual Fuel Utilization Efficiency (AFUE) equal to or greater than ninety-two percent (92%).
- c) **Electric-resistance-only** heat systems are **prohibited**.
- d) All PTHP units must have a minimum 11 EER (Energy Efficiency Ratio) rating and a minimum 3.0 COP (Coefficient of Performance) rating.
- e) Alternative HVAC systems may be considered for approval by KHC.
- f) A HERS rating of less than 62 will be an acceptable target to meet this requirement.

2) Duct Insulation: All supply air, return air, and exhaust air ducts installed in unconditioned spaces shall be sealed and insulated with a minimum R-8 insulation wrap and installed free of restrictions.

- a) A HERS rating of less than 62 will be an acceptable target to meet this requirement.

- 3) **Programmable Thermostats:** All HVAC systems shall be controlled by a programmable thermostat as required by Kentucky Residential Code.
 - a) Thermostats must be located on the floor of the home which contains the central living area.

- 4) **Range Hoods:** All dwelling units shall be equipped with an Energy Star qualified minimum 150 CFM range hood vented to the exterior.
 - a) The ENERGY STAR mark must be clearly displayed on the front/inside of the product, in product literature (i.e., user manuals, spec sheets, etc.), and on the manufacturer's Internet site where information about ENERGY STAR qualified models is displayed. It is also recommended that the mark appear on the product packaging.
 - b) Use ducting sized and ducting material per manufacturer recommendation.
 - c) Exposed ducting is prohibited and where installed above cabinets, ducts shall have a finished cover.
 - d) In circumstances where whole house ventilation is provided by other means and a recirculating range hood is used, recirculation hoods shall be equipped with an activated charcoal filter.
 - e) A HERS rating of less than 62 will be an acceptable target to meet this requirement.

- 5) **Exhaust and Ceiling Paddle Fans:** All paddle and ventilation fans shall be Energy Star qualified.
 - a) The ENERGY STAR mark must be clearly displayed on the product packaging, in product literature (i.e., user manuals, spec sheets, etc.) and on the manufacturer's Internet site where information about ENERGY STAR qualified models is displayed.
 - b) A HERS rating of less than 62 will be an acceptable target to meet this requirement.

Division 26: Electrical

- 1) **Common Area Lighting:** Luminaries shall be located at all entrances.

- 2) **Dwelling Unit Lighting:** Each room, hall, stair, and walk in closet shall have a minimum of one switch-operated overhead light.
 - a) Kitchens shall include switch-operated lighting over the cooking area, sink and the general or dining area.

- b) Bathrooms shall be equipped with switch-operated lighting over the lavatory area and the general area.
- 3) **Energy Efficient Lighting:** A Minimum of 75% interior luminaries shall be Energy Star qualified. The remaining 25% shall be equipped with CFL, LED, or other high efficiency luminaires.
 - a) A HERS rating of less than 62 will be an acceptable target to meet this requirement.
- 4) **Electrical Device and Control Mounting heights:**
 - a) Light switches, fan switches and thermostats shall have a maximum height of 48" to the top of the switch or thermostat.
 - b) Mounting heights or electrical outlets shall have minimum height of 15" AFF from the bottom outlet or a maximum height of 48" from the top outlet. Note: If an outlet or switch is obstructed by a base cabinet or countertop, then the maximum height for a switch or outlet shall be 46" AFF.

Division 27: Communications

- 1) **Telephone Access:** All units shall be wired for telephone service.
- 2) **Cable Access:** All units shall be wired for cable service or a local antennae system.
- 3) **Internet Connectivity:** If available, units shall have the optional ability to connect to the internet by one or more of the following means.
 - a) **Telephone Connection:** Connectivity may be accomplished by prewired telephone jacks installed within the dwelling.
 - b) **Cable Modem:** Connectivity may be accomplished by prewired cable jacks installed within the dwelling.
 - c) **Other Means:** Other means as technology allows for connection to the internet.

Division 28: Electronic Safety and Security

- 1) **Fire Detection and Alarm:** Installation of smoke alarms is required in all new construction projects.
 - a) All local ordinances shall be observed.

- b) Written manufacturer specifications for the proper installation of individual alarms shall be observed and maintained on site throughout construction.
 - i) Manufacturer's installation instructions for specific locations and other installation details shall be strictly observed.
 - ii) Individual smoke alarms shall be installed on all floors, within all bedrooms, and hallways no more than eight (8) feet from any bedroom door within the dwelling unit.
- 2) **Carbon Monoxide Alarms:** UL listed carbon monoxide alarm(s) shall be installed outside each sleeping area no more than eight (8) feet from any bedroom door within the dwelling unit if the unit contains fuel burning appliances or has an attached garage.
- 3) **Security system controls,** if provided, must be located on the floor of the home which contains the central living area.

Division 31: Earthwork

- 1) **Steep Slopes:** Setbacks or clearances may occur where units are placed on sites that have adjacent steep slopes of 33.3% (1 foot rise: 3 feet run) or greater.
 - a) Setbacks indicated in the current Kentucky Residential Code, from the top or bottom of the slope, shall be observed and included in the building's design.
- 2) **Final Grade:** Final grade shall be completed before final draw and before occupancy. Grade shall provide minimum 6" in 10' (5%) fall from the structure and divert surface drainage away from the structure to the nearest drainage easement or natural drain.

Division 32: Exterior Improvements

- 1) **Landscaping:** Each home shall include a basic landscaping package as a minimum requirement.

- a) **Turf: All lawn** areas shall be seeded with the seed variety, lime, and fertilizer application rate and covered with straw or straw-blanket, which is appropriate for soil conditions to establish a good lawn cover.
 - i) **All slopes more than 33.3%** (1:3) shall receive sod or other approved erosion control materials which will enhance the establishment of a permanent ground cover.
- 2) **Parking/Driveways:** All units shall have a minimum of one paved or gravel parking space per unit.
 - a) Homes located in a subdivision, required by zoning regulation or subdivision restrictions to have a paved driveway, shall have driveways provided by one of the following minimum standards.
 - i) **Asphalt parking/driveways:** Asphalt shall consist of a hot mix asphaltic concrete pavement, manufactured by plants and be placed a minimum of 2" thick over a compacted 4" crushed stone base.
 - ii) **Concrete parking/driveways:** Minimum concrete thickness shall be 4" and placed over a minimum 4" thick compacted crushed stone base.
 - (1) Pervious concrete parking surfaces shall be properly drained to prevent accumulation of water.
 - b) **Gravel parking/driveways** shall be constructed with 4" thick compacted crushed #57 limestone gravel.
 - c) **Exterior Access:** Access from the vehicular parking to the entry door shall be considered in the site design unless it is impractical to do so because of terrain or unusual characteristics of the site. The walkway from the parking area to the entry door must be 42" wide and made of concrete, asphalt, wood or other hard surface material approved by KHC.
 - i) Provide 2% cross slope or crown sloped to edges to allow proper drainage.

Division 33: Utilities Services

- 1) **Availability:** Required building utility services shall be available before construction begins at the building site in sufficient size to adequately provide sufficient power, flow, volume, pressure, and drainage during and after construction to allow for safe, dependable service of construction equipment, appliances, and fixtures.
 - a) **Septic or sewage treatment systems** may be constructed onsite as construction progresses and shall be capable of performing intended functions prior to occupancy.
 - b) **Provide temporary onsite sanitary facilities during construction.**

