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Division I: General Requirements

- A. Minimum Design Standards for Rehabilitation:** KHC's Minimum Design Standards for Rehabilitation of Single Family Detached Dwelling Units are to be used as a guideline to assist in meeting or exceeding all local, state, and national codes. These standards also provide a way to enforce above average construction and design for builders, contractors, and design professionals who wish to utilize funding from the Kentucky Housing Corporation's Department of Housing Finance and Construction (HFC). Other methods of construction and design may be acceptable on a case by case basis. If you feel your design meets or exceeds KHC's Minimum Design Standards for Rehabilitation, please contact the Department of Design and Construction Review for further assistance.
- B. Waiver Process:** Understanding that no single code can cover the infinite number of possible configurations and circumstances that may arise during rehabilitation, a written request for waiver to a KHC requirement will be earnestly considered. The request must detail the necessity of variance from this code. Photographs are encouraged where necessary to convey understanding. All requests are to be submitted electronically to the Director of Design and Construction at KHC and copied to your agency's KHC representative in multi or single family program, respective to the funding being used.
- C. KHC Funded Rehab:** (code requirements)
1. *Non HOME-funded units*, using KHC funding of \$10,000 or less; the total scope of work must meet the Kentucky Residential Code (KRC), in force at the time of funding, regardless of what funding source is used when other funds are leveraged to complete the scope of work.
 - a. KRC regulations shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal, and demolition of detached one- and two-family dwellings.
 2. *HOME-funded units*, of any amount, and units where any KHC funding is over \$10,000.00 but less than \$30,000.00; KHC Minimum Design for Rehabilitation Standards (MDR) and Kentucky Residential Code (KRC) as applicable, shall apply to the total scope of work, regardless of what funding source is used when other funds are leveraged to complete the scope of work.
 - a. KRC and MDR regulations shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal, and demolition of detached one- and two-family dwellings all rehabilitated single family detached housing.
 - b. Items identified in the work write up and incorporated in the project shall comply with the correlating sections of the KRC and MDR and shall not require full compliance of the entire standard(s) unless specifically required by MDR or KRC.
 - c. Completed units shall not contain Health/Safety or Level 3 issues identified in the Federal Uniform Property Condition Standards, **Unit Inspectable Items**, which may found at the following web address:
<http://www.hud.gov/offices/reac/products/pass/PDFs/appendix2-finaldictionary.pdf>
*See Appendix #1 for a complete listing of these deficiencies.
 3. Rehab projects exceeding \$30,000.00 in rehab cost (from all KHC funding sources), excluding acquisition costs; the completed unit must meet the requirements of the Kentucky Residential Code (KRC).

- a. Any structure requiring more than \$40,000.00 of total rehab construction costs to comply with MDR, or the adopted Kentucky Residential Code, are encouraged to consider demolition/rebuild.
- b. KRC regulations shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal, and demolition of detached one- and two-family dwellings.
- c. Completed units shall not contain Health/Safety or Level 3 issues identified in the Federal Uniform Property Condition Standards, **Unit Inspectable Items**, which may found at the following web address:
<http://www.hud.gov/offices/reac/products/pass/PDFs/appendix2-finaldictionary.pdf>
 *See Appendix #1 for a complete listing of these deficiencies.

D. Universal Design Requirements: KHC encourages the inclusion of Universal Design elements whenever possible. Units that will meet Universal Design upon completion may be preferred in selection of potential projects. Follow the link below for more information.
http://www.kyhousing.org/uploadedFiles/Housing_Production/Design_and_Construction/UniversalDesignStandards.pdf?n=7407

E. Codes: All rehabilitation activities shall comply with all applicable codes and ordinances of the authority having jurisdiction.

1. **Building Code:** All new construction and rehabilitation improvements shall comply with the currently adopted Kentucky Residential Code (KRC).
2. **Local Codes:** Rehabilitation improvements shall comply with local authorities and jurisdiction's regulations, local planning, and zoning laws.
3. **Federal Codes:** Federal regulations which may pertain to the specific project such as the Fair Housing Act and Section 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act of 1990, as amended, may also apply.

F. Energy Efficiency: All rehabilitated single family structures are encouraged to improve the energy efficiency of the dwelling. Upon confirmation of funding, an energy audit must be completed. This may be done during the start up phase of rehab which may alter the scope of work where contingency funds may be utilized to improve energy efficiency of the home.

1. Residential building thermal envelopes shall receive an energy audit that includes the use of audit software with the ability to calculate the savings to investment ratio of potential measures to be addressed in the scope of work. This program must also produce a comprehensive report of all recommended measures. The client must receive a copy of the final audit software report. The NEAT/MHEA software is recommended and is downloaded free from Oak Ridge National Laboratory at <http://weatherization.ornl.gov/assistant.shtml> KHC has training and technical assistance available for persons wishing to use the NEAT/MHEA software.
2. All units must be blower door tested and duct tested, where duct systems exist, for air leakage before rehabilitation begins unless blower door testing creates a health risk.
3. The scope of work is encouraged to include measures designed for a reduction of air infiltration. A target of 50% infiltration reduction is recommended.
4. If the scope of work includes measures that reduce air infiltration (directly or inherently) and/or repair or replacement of the HVAC system a test out must be performed.
5. Diagnostic testing shall be reported by one of the following methods:
 - a. Documentation from a licensed and certified HERS rater.

- b. Documentation from a Building Analyst, licensed and certified, by the Building Performance Institute.
 - c. Documentation from a licensed and certified HVAC contractor, qualified in pressure diagnostic testing of the duct systems and total air infiltration.
 - d. Documentation from a Weatherization Assistance Program trained Dwelling Needs Evaluator or Energy Auditor.
 - e. Other methods will be considered upon written request.
6. In no case shall the whole building ventilation rate be reduced below minimum ventilation requirements per ASHRAE 62.2 standards.
 7. Where ventilation rates do not meet ASHRAE 62.2 standards, mechanical ventilation shall be provided to maintain minimum ventilation rates.
 8. The use of Infra Red camera scans to assist in the thermal envelope diagnostic review is recommended. Documentation of thermal imaging is encouraged.

G. Work Plan and Contingencies:

1. Each recipient of KHC funding for rehabilitation shall be responsible for obtaining any required tests and surveys prior to construction.
2. Each recipient of KHC funding for rehabilitation shall develop a detailed work write up for each dwelling under rehab.
3. Each recipient of KHC funding for rehabilitation shall develop a work plan for each rehab project and shall execute the work in a manner which will not cause reworking of completed phases of construction.
4. Each recipient of KHC funding for rehabilitation shall develop a cost estimate of proposed construction activities which shall include at least 5% up to a maximum 10% contingency for unforeseen expenditures. Contingency funds may be used for hidden damage not observed in the initial evaluation of the structure.
 - Contingency may not be used for additional features, or amenities not identified in the initial evaluation of the property.

H. Quality Assurance: The contractor shall furnish a written material and labor warranty on the dwelling improvements for one full year after completion.

Division 2: Existing Conditions

A. Hazardous Materials: Each recipient of KHC funding for rehabilitation shall make reasonable efforts to avoid sites that contain known hazardous materials, such as but not limited to: Asbestos, Radioactive Waste, Biological Hazards, PCBs, Mercury, Toxic Molds, and Radon.

1. Hazardous materials shall be abated or mitigated prior to commencement of rehabilitation activities.
2. In all houses constructed prior to 1978, Lead Based Paint shall be addressed per EPA requirements.

B. Evaluation of Existing Structure: All structures targeted for rehab shall be evaluated for projected rehabilitation costs. Any structure requiring more than \$40,000.00 of total rehab construction costs to comply with this code, or the currently adopted Kentucky Residential Code, shall not be considered for rehabilitation. Structures with unstable foundations, extensive termite damage, extensive deterioration, or faulty construction likely to result in collapse shall not be considered.

1. Lead-based paint abatement costs shall not be considered rehabilitation costs for this purpose.

2. Historic preservation costs shall not be considered rehabilitation costs for this purpose.

C. Existing Code Violations: Rehab activities shall remedy all active code enforcement actions or violations cited by the local authority having jurisdiction or utility provider.

Division 3: Concrete

- A. Existing Concrete:** If included in the scope of work, existing exterior concrete shall be free of defects such as deterioration, cracks or joints with an elevation change more than ½”, or conditions which render the concrete structure unsuitable for structure’s intended purpose.
- B. Exterior Concrete:** All new exterior concrete flatwork and stairs shall be free of hazardous defects and shall conform to the latest revised Standard Specification for Portland cement, ASTM C595. All 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).
1. Expansion-joint material shall be ½-inch thick asphalt-impregnated pre-molded fiber, ASTM D1752. Follow American Concrete Institute (ACI) 318.
 - Expansion joints shall be installed at connections to permanent structures and connections to adjoining flatwork, such that occur at the primary structure, concrete stairs, driveways, public sidewalks, light fixture standards, and similar fixed structure connections.
 2. Flat work shall be minimum 4-inches thick.
- C. Concrete Finishes:** All new exterior concrete flatwork and stairs shall be finished to a non-slip water resistant finish, such as a broom finish or equivalent.

Division 4: Masonry

- A. Brick:** When the scope of work addresses existing brick construction, brick veneer shall be in good condition or restored, free of holes, breaks, deterioration, or other defective conditions, and all joints shall be restored to a weather tight surface.
1. Defective units shall be replaced with units similar in texture, weight, and color to the original brick.
 2. Loose and/or deteriorated joints shall be restored by acceptable tuck pointing methods, with mortar similar in composition to the original mortar.
- B. Concrete Masonry Units (CMU):** When the scope of work addresses Concrete Masonry Units restoration, all masonry units (Concrete Block) shall be in good condition or restored, free of holes, breaks, deterioration, or other defective conditions, and all joints shall be restored to a weather tight surface.
1. Deteriorated units shall be replaced.
 2. Cracked joints may indicate unstable foundation conditions. If cracks are minor and do not indicate foundation failure; they shall be filled with a suitable vinyl concrete patch material.
 3. Holes in units and joints may be filled with mortar.

Division 5: Metals

A. Flashings: When the scope of work requires replacement or repair of flashings, the following standards shall be met:

1. All replacement metal flashing materials shall be corrosion resistant and minimum nominal thickness of 0.019 inch.
2. Corrosion resistant flashing in contact with pressure treated lumber, containing copper, shall not be aluminum material.

B. Railing:

1. All metal railings shall be structurally sound.
2. Metal handrails and guards shall be properly anchored to safely resist required loads specified by Kentucky Residential Code.

C. Awnings: When the scope of work includes restoration of awnings:

1. All existing metal awnings shall be properly anchored to the structure and properly surface coated.
2. Awnings shall be cleaned and painted if defective surface conditions exist.

Division 6: Woods and Plastics/Rough Carpentry/Millwork

A. Stair Construction

1. New stairs

- a. All **new exterior** stairs shall have risers not greater than 7" and a minimum tread depth of 11".
- b. **New interior** stair construction shall meet the current Kentucky Residential Code regarding dimensions, handrails, and guards.

2. Existing stairs

- a. Existing **interior** stairs shall not be reduced in rise or tread depth from the original design.
- b. Existing **exterior** stairs, guards and handrails shall be in good condition and capable of supporting normally imposed loads.

3. Guards

- a. All stairs with open landings, balconies, or porches more than 30 inches above grade or the floor below, shall have guardrails.
- b. All guardrails shall be safe, securely and firmly fastened in place.
- c. When the scope of work calls for guard installation, they shall be a minimum of 36" in height above the adjacent walking surface.
 - **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:
 - Solid wall
 - Railing system with solid infill
 - Railing system with balusters spaced so that a sphere of 4-inch diameter may not pass through.
 - The triangular area on stair sides at the tread, riser, and railing may not pass a 6-inch diameter sphere.
 - Stair risers shall be closed. Open risers are not permitted.

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. When the scope of work calls for handrail installation, they shall be mounted no less than 34" and no more than 38" above the leading nose of the stair treads.

B. Wood Decking and Porches: Existing exterior wood decks shall be free of loose, deteriorated, rotten materials, securely attached to the main structure, or properly supported by a structurally sound foundation and support system. All repairs and reconstruction of exterior decks shall meet current Kentucky Residential Code and/or the American Wood Council's, Prescriptive Residential Wood Deck Construction Guide.

- The Prescriptive Residential Wood Deck Construction Guide is available as a free download at: <http://www.awc.org/publications/dca/dca6/dca6.pdf>

C. Exterior Wood: When the scope of work addresses installation of exterior wood all new exterior wood 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.

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

Division 7: Thermal and Moisture Protection

A. Fascias: When the scope of work includes restoration of fascia repairs or replacement shall meet the following requirements:

1. Wood fascias shall be properly surface coated with painted surfaces free of peeling, cracks, or other defective conditions which will allow moisture to penetrate into the wood.
2. Fascias may be covered with factory finished 0.019" minimum thickness aluminum where local ordinances allow.
3. All decayed wood shall be replaced with solid material before covering with metal.

B. Exposed Wood: All replacement wood exposed to elements of weathering shall consist of naturally durable hardwoods, composite materials suitable for exterior exposure, or pressure-treated wood.

1. All pressure-treated wood shall have a minimum preservative retention rate for above ground applications and a minimum preservative retention rate for all wood in contact with the ground as required by the manufacturer.

C. Reroofing: When the scope of work includes roof work, this section shall apply:

1. Roof Structure

- a. Structural elements of the roof support system shall be evaluated prior to commencement of reroofing activities.
- b. All defective rafters shall be repaired, replaced, or otherwise braced to safely withstand live loads during reroofing activities.
- c. Where roof covering is replaced, all substrate shall be repaired to a sound condition, free of rot or deterioration, suitable to support and anchor the new roofing material.

2. **Roof Covering**

- a. The roof and flashing shall be sound, tight, and not have defects that admit rain.
- b. Roof drainage shall be adequate to prevent dampness or deterioration in the walls or interior portion of the structure.
- c. Existing roof drains, gutters and downspouts shall be in good repair and free from obstructions.
- d. Roof water shall be discharged in a manner so as to not cause moisture problems to the structure.
- e. When the scope of work calls for roof covering, existing roof coverings shall be removed prior to recovering with new shingles or metal.
 - **Exception:** When only one layer of asphalt or fiberglass roof covering exists, in a condition suitable to support one new roof layer, it may be covered with only one layer of fiberglass, asphalt, or metal roofing material.
- f. Roof coverings shall be installed in accordance with the manufacturer's installation instruction.

3. **Asphalt or Fiberglass Shingles:** New dimensional or 3-tab shingles shall have a minimum warranty period of 25 years.

4. **Underlayment:** Where roof coverings are removed to the decking below, #15 felt shall be applied to the full area of the deck, including overhangs and porches. Underlayment shall be applied in accordance with the currently adopted Kentucky Residential Code.

5. **Ribbed Sheet Metal:** Metal roof coverings shall be applied in accordance with the manufacturer's installation instructions and meet ASTM A 924 corrosion resistance requirements.

6. **Manufactured Home Roof Repair or Replacement.** Any product used to coat, cover, repair, or replace a manufactured home roof must be installed per manufacturer's installation instructions and/or recommendations. Written documentation by a qualified engineer for the installation of a product(s) is also acceptable.

7. **Flashing**

- a. All step flashings, counter flashings, and crickets shall be repaired or reconstructed, where a roof covering is added or replaced.
- b. Flashing at roof penetrations, such as plumbing vents, attic vents, electrical risers, or similar roof penetrations, shall be provided and replaced where a roof covering is replaced.

D. **Gutters and Downspouts**

1. Where roof water drainage causes deterioration to the structure or accumulation of water near the foundation, roofs shall have gutters and downspouts and shall be appropriately designed with a minimum 5" gutter and 2"x 3" downspouts.
 - Exception: Local authorities may require reproduction of box or half-round style gutters. In this case, local requirements shall prevail.
 - Exception: Manufactured homes with integral guttering systems.
2. All downspouts shall empty onto concrete or composite splash blocks, or be piped to an approved location. Thin, lightweight, plastic splash blocks are not acceptable.

3. Rain water discharge shall runoff in a manner that does not create a nuisance, cause foundation damage, or infiltrate under or into the structure, or other structures.

E. Siding

1. Existing siding shall provide a weather tight barrier, free of holes or deterioration that admits rain into the walls of the structure.

F. Replacement Siding: All new siding material shall be installed in accordance with the manufacturer's installation instructions.

1. **Substrate Repair:** Where siding is replaced, all substrate shall be repaired to a sound condition, free of rot or deterioration, suitable to support and anchor the new siding material.
2. **Weather resistant membrane:** Where siding is removed and replaced, a weather resistant membrane (Tyvek or similar) shall be installed per manufacturer's specification.
3. **Flashing:** All windows and doors shall be properly flashed before new siding is installed.
4. **Approved Materials:** All new siding shall consist of one or more of the listed materials below:
 - a. **Composite:** Fiber cement siding, primed, with two-coat minimum finish or factory finish.
 - b. **Metal:** 0.024" minimum thickness aluminum or galvanized steel with factory finish.
 - c. **Vinyl:** 0.040" minimum thickness, UV protected.
 - d. **Wood:** cedar or redwood stained or primed once with 2-coat minimum finish.

G. Insulation

1. When the scope of work addresses the installation of insulation in the thermal envelope, insulation shall be added in all ceilings with accessible attics, floors with crawl spaces, and any cavity exposed or opened during rehabilitation to provide at least the minimum R-value listed in the currently adopted International Energy Conservation Code.
 - a. It is highly encouraged to install the R-value recommended in the energy audit software with a savings to investment ratios (SIR) of \geq one.
 - b. Baffles shall be provided at the intersection of exterior walls and ceilings to allow adequate passage of ventilation air where insulation is added to the attic.
 - c. All insulation blown in walls (other than mobile homes) must be dense-packed to a minimum density of 3.5 pounds per cubic foot of volume.
 - d. When using prefab wall plugs (that will remain exposed) to cover holes created for the purpose of blowing wall or ceiling insulation the client must agree in writing before work on this measure begins.
 - e. Insulation blown into the under-belly of a mobile home must be supported by a covering system (or material(s)) capable of supporting the weight of the insulation.

H. Air Infiltration: When included in the scope of work the following standards shall apply.

1. When exposed/uncovered during rehab activities, 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.
2. **Air Barriers:** 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.

3. **Access Hatches and Doors Air Sealing and Insulation:** 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.
 - When loose fill insulation is installed, provide a wood framed or equivalent baffle or retainer to provide a permanent means of maintaining the installed *R*-value of the loose fill insulation.
 4. **Recessed Lighting:** Recessed luminaries installed in the building thermal envelope, shall be sealed to limit air leakage between conditioned and unconditioned spaces.
 - a. All recessed luminaries 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.
 - b. A boxed enclosure may be built with type x gypsum over existing fixtures provided it fulfills the manufacturer's clearance to combustibles specifications for the existing fixture.
- I. **Crawl Space:** Where a crawl space is found to hold water or retain moisture sufficient to promote mold growth, the following standards shall be met:
1. Accessible crawl spaces shall be free from construction debris and standing water.
 2. Install a drainage system to relieve water retention.
 3. Provide an access door per current KRC requirements.
 4. Provide ventilation per current KRC requirements.
 5. Repair or install a minimum 6 millimeter vapor barrier on the floor of the crawl space to provide a tight, vapor retardant membrane.

Division 8: Doors, Windows, and Glazing

- A. **Exterior Doors:** When the scope of work includes the installation of doors, the following standards shall be followed.
1. All exterior doors shall be 1 ¾" thick, insulated and made of steel or other equally durable material or solid wood. (not particleboard)
 2. All exterior doors shall be appropriately finished as recommended by the manufacturer, and in a sound, weather stripped, weather tight, good condition.
 3. When enlarging an exterior door it shall be a minimum of 36" wide.
- B. **Interior Doors:** When the scope of work includes the installation of doors, the following standards shall be followed.
1. Existing interior doors shall be a minimum of 1 ⅜" thick.
 2. Existing interior doors shall be solid wood, composite, or hollow core panel doors, in good condition, properly finished, and operable.
 3. Defective interior doors shall be replaced or restored to good condition and operate properly.
- C. **Door Accessories:** When the scope of work includes replacement of door hardware, the following standards shall be followed.
1. All egress doors shall be evaluated for being readily openable from the side of egress.
 2. All egress doors shall be readily openable from the side from which egress is to be made without the use of a key or special knowledge or effort.

3. When the scope of work includes installation of other door accessories, all door accessories shall be quality material with no plastic latches or inferior hardware.
 - a. **Latches, knobs, and hinges** shall be metal with polished or brushed finish.
 - b. **Exterior Door Hardware:** All entry doors shall be equipped with a brass plated, or other durable metal finished, key lock knob or handle and deadbolt.
 - c. **Interior Door Hardware:** All interior doors shall be equipped with brass-plated, or other durable metal finished, knobs or handles.
- D. Units with more than one bedroom:** The scope of work shall not create a condition where bedrooms constitute the only means of access to other bedrooms or habitable spaces and shall not serve as the only means of egress from other habitable spaces.
- E. Kitchens and non-habitable spaces:** The scope of work shall not create a condition where kitchens and non habitable spaces are used for sleeping purposes.
- F. Existing Windows: Windows not included in the scope of work shall meet the following standards.**
1. **Glazing:** All existing windows shall be sound and weather tight with no holes or missing panes.
 2. **Frames:** Window frames shall be free of defective conditions such as rotten components, peeling paint, inferior glazing compound, missing counter weights, or condition which will render the window unsafe to operate, or will not provide an effective weather tight barrier.
 3. **Operation:** Every window, other than fixed windows, shall be easily openable and capable of being held in position by window hardware.
- G. Replacement Windows:** All replacement windows shall meet the following criteria.
1. All window frames must be of solid vinyl, thermally broken aluminum, fiberglass, wood, or wood clad.
 2. All glazing shall be double-paned.
 3. The vapor seal on the glazing must have a minimum ten-year warranty.
 4. All windows shall have a minimum one-year warranty on the operation of the window.
 5. All windows shall have a National Fenestration Rating meeting current minimum energy code requirements for Zone 4.
 6. Windows at grade level shall have security latches which will not require special knowledge or tools to operate from the inside of the window.
 7. Safety glazing shall be installed in hazardous locations, as defined by Kentucky Residential Code, where replacing existing glazing in hazardous locations.
 8. When the scope of work calls for window replacement, all windows in rooms used for sleeping purposes shall have a window or door, meeting Section R310 of the Kentucky Residential Code, connecting directly to the outside of the structure into an open court or yard. Removal of window sashes is not an acceptable method to meet the minimum opening requirements of the Kentucky Residential Code for emergency escape and rescue.
 - **Exception:** Replacement, emergency escape and rescue, windows are allowed provided the window opening size is not decreased. Documentation of previous window size must be kept in client file.
- H. Attic Access Opening:** When the scope of work includes the installation of attic access the following standards must be followed unless conditions exist making these specifications unattainable. In such cases a reasonable effort must be made to comply as close as possible.

1. In all attic spaces with headroom of 30" or more, minimum 22" by 30" attic access shall be provided.
2. All access openings must weather stripped (or air sealed) and be insulated to the same R-value as the adjacent attic space.

I. Crawl Space Access Opening

1. Existing crawl space access must be evaluated so at a minimum, the opening must have a functioning door and latch.
2. When the scope of work includes the installation of crawl access the following standards shall be followed unless conditions exist making these specifications unattainable. In such cases a reasonable effort must be made to comply as close as possible.
 - a. Crawl spaces shall be provided with a minimum 16" by 24" opening and shall not be located under an exterior doorway.
 - Exception: Openings through the floor shall be a minimum of 18" by 24".
 - b. Access openings located in the exterior foundation wall shall be no less than 16" by 24".
 - c. Access openings below grade; shall have an areaway, with the areaway floor below the threshold of the access door. Width and height of the areaway shall not be less than 16" by 24".

Division 9: Finishes

A. Exterior Finishes: When the scope of work includes repair or replacement of exterior finishes, the following standards shall apply.

1. All exterior finishes shall be free of holes, loose material, peeling paint, deterioration, mold, dirt, or other defective conditions.
2. All trims and soffits shall be constructed to resist the entry of insects or vermin into concealed spaces of the structure.

B. Wood: When the scope of work includes repair or replacement of exterior wood, the following standards shall apply.

1. All unfinished exterior exposed wood shall have a minimum preservative retention rate for above ground applications and a minimum preservative retention rate for all wood in contact with the ground, as specified by the manufacturer.
2. Use of CCA Treated lumber shall be prohibited.

C. Posts and Columns: When the scope of work includes repair or replacement of exterior posts and columns, the following standards shall apply.

1. All front porch columns shall be capable of supporting the roof dead load plus live loads and be 4"X4" minimum pressure treated wood, extruded aluminum, fiberglass, or other factory-made, finished material.
2. Replacement front porch columns shall closely match original design.
3. Side or rear decks and porches may have a minimum of 4" X 4" pressure treated posts, at a maximum length of 10', supporting the roof above.

D. Handrails: Where handrails are required or included in the scope of work, the following standards shall apply.

1. All hand railing shall be smooth and splinter-free.
2. The paint, seal coat, or factory finish shall be in good condition or restored to retard deterioration of the handrail.

3. Exterior handrails shall be constructed of naturally durable wood, pressure treated wood, vinyl, metal, or composite material.
4. Seals or stains shall not be acceptable treatment methods for applications where pressure treated or naturally durable material is required.
 - a. Seals or stains may be used to preserve the integrity of treated wood handrail material.

E. Fiber Cement Siding

1. On structures rehabbed for resale, existing siding shall be in good condition.
2. When the scope of work calls for new installation, siding shall be factory finished or be painted with at least two coats of exterior grade paint.

F. Exterior Ceiling

1. Existing exterior ceilings, such as those that occur on porches, shall be free of openings to concealed spaces of the structure.
 - a. Exception: Required ventilation openings are allowed provided insect screens are installed to protect from entry of insects or vermin into the concealed space.
2. **Solid Backing:** When the scope of work includes using vinyl or aluminum material for porch ceilings, provide a rigid, solid backing such as OSB or plywood.

G. Carpet Padding: When the scope of work calls for new installation, carpet shall be a minimum of 7/16" thick, 6-lb. minimum re-bond polyurethane.

H. Sheet Carpet: When the scope of work calls for new installation, sheet carpet shall be 25 oz. minimum, 100 percent nylon. Other options include Berber type with blended fiber. High traffic areas, such as hallways, shall have 30 oz. minimum.

I. Sheet Vinyl: When the scope of work calls for new installation, sheet vinyl shall be minimum 10 mil wear layer or approved equal. Provide product adhesive and underlayment as recommended by the manufacturer. All surfaces shall be clean, dry, and appropriate temperature during installation. Vinyl sheet flooring shall conform to the requirements of ASTM F 1303, Type I.

J. Vinyl Tile: When the scope of work calls for new installation, vinyl tile shall meet the following standards:

1. Vinyl tile shall be minimum thickness of 1/8".
2. Provide product adhesive and underlayment as recommended by the manufacturer.
3. All surfaces shall be clean, dry, and appropriate temperature during installation.
4. Follow manufacture's recommendation for pattern layout.

K. Wood Flooring:

1. When the scope of work calls for new installation, wood flooring shall be tongue and groove hardwood, factory finished; or have a minimum of three coats of site-applied, UV-protective polyurethane.
2. Where interior floors are repaired in the scope of work, holes in hardwood floors shall be repaired, sanded and finished with closely matching finishes to the original finish.

L. Other Flooring Products

1. When the scope of work calls for new installation, ceramic tile and laminates installed per manufacturer's recommendations may be used.
 - a. Existing broken tiles shall be replaced with similar size, color and texture.

- M. Kitchen and Bath Floor Covering:** When the scope of work calls for installation of kitchen and bath floor covering, kitchens and bathrooms shall be covered with a smooth non absorbent material such as ceramic tile, sheet vinyl, vinyl tile, or vinyl slabs.
- N. Interior entries:** When the scope of work addresses the floor covering on the interior side of the main entry door, there shall be an uncarpeted, finished floor area. This area shall be no less than 16 square feet.
- O. Interior Door Finish:** When the scope of work addresses interior door finish, interior doors shall be finished and free of defective conditions. One or more of the following finishes may be utilized.
1. **Paint:** Primed once, with two-coat satin, semi-gloss finish on all sides and faces.
 2. **Stain:** Stain or oil on all sides and faces, with three-coat varnish, polyurethane finish
 3. **Prefinished Doors:** Factory Finished doors are acceptable.
- P. Water-Resistant Drywall:** Where a rehab involves a complete removal of drywall in bathrooms and near areas where it may become wet, water resistant drywall shall be used as the replacement wall board in areas set forth as follows.
1. Water-resistant gypsum board (commonly called green board) must be used on all walls in the bathroom and within six horizontal feet of wall surfaces where the drywall can be splashed such as kitchen sink, next to water heater and/or washer.
 2. When a tub/shower unit is on an exterior wall, provide water-resistant gypsum board behind the tub/shower unit.
 3. Water-resistant gypsum, when used on ceilings must be rated for the span.
- Q. Interior Wall Finishes:** Where a rehab involves renewal of interior wall finishes, all existing interior wall finishes included in the scope of work shall be free of conditions such as peeling paint, holes, loose material, deteriorated surfaces, mold, mildew, and rot.
1. **Drywall repairs:** Shall be sanded to a smooth finish prior to applying primer paint.
 2. **Paint:** Patches in existing drywall and all new drywall shall be primed once with two-coat finish paint. Gloss, semi-gloss, or satin finish shall be used for bathrooms, laundry, and kitchens.
 3. **Paint over existing painted walls:** All repainted walls shall have coverage sufficient to completely hide the previous color. Primer and two finish coats may be required to accomplish this requirement.

Division 10: Specialties

- A. Entries:** When the scope of work includes the installation of exterior entry components, the following standards shall be followed unless conditions exist making these specifications unattainable. In such cases a reasonable effort must be made to comply as close as possible.
1. All main entries shall have a concrete, treated wood, or other hard surface exterior stoop, porch or deck not to exceed 8 ¼" below the top of the threshold and have a minimum dimension of 36" by 36".
 2. Secondary entries shall have a landing on the exterior of the door opening if the finished interior floor is more than 30" above the exterior adjacent grade or floor surface. Secondary exterior entries with less than 30" above grade elevation shall have a stair with a landing at grade level

- B. Bath:** Rehabbed bathrooms in homes for resale shall be equipped, at a minimum, with the following:
1. Medicine cabinet with storage and mirror 16" wide by 20" tall (minimum)
 - Other combinations of mirror and storage may be acceptable by approval of KHC Design and Construction Review Department.
 2. Wall-hung toilet paper dispenser
 3. 18" (minimum) towel bar
 4. Shower rod
- C. Site Address: Homes rehabbed for resale shall meet the following standards:**
1. When the scope of work addresses installation of street address numbers, they shall be displayed on the structure in an area visible from the street for each dwelling.
 - Exception: Where a structure is located more than 100 feet from the street or road, or where local jurisdiction's regulations allow, street address numbers may be displayed on the mailbox near the street.
 2. Characters shall be of contrasting color in relation to the background where they are applied.
 3. Arabic numbers and alphabet letters shall be displayed in English language and minimum ½" stroke width and 4" in height.
- D. Mail Boxes:** Each dwelling rehabbed for resale shall have a mailbox installed per US Postal Service regulations unless client waives this requirement due to not receiving mail at the residence.

Division 11: Equipment

- A. Radon Reduction: In units known to have high radon levels:**
1. Units found to be at or above, 4 pCi/l (PicoCuries per liter of air), shall install a Radon reduction system during the rehabilitation.
- B. Combustion Appliances**
1. Combustion Appliance Zone (CAZ) worst-case scenario draft test shall be performed on all atmospheric combustion appliances per BPI standards by qualified staff at the time of initial house evaluation.
 2. CAZ testing must be conducted at the conclusion of any day that air sealing or other measures that may contribute to the air tightness of the combustion appliance zone(s) have been performed.
 3. All CAZ test results during the construction phase and post inspection must pass acceptable standards.
 4. If the initial CAZ tests reveal unacceptable results, the scope of work must state that this condition must be corrected first before proceeding with other work.
 5. Documentation of all CAZ testing must be kept in the client file.

Division 12: Furnishings

- A. Cabinets and Drawers: Where the scope of work includes replacement or repair of cabinetry the following standards shall apply:**
1. **Existing Cabinets:** Cabinets shall be of sound construction and free of deterioration, with all doors, drawers, shelves, hardware, and other features in good condition and with a clean and sanitary finish.
 2. **Replacement Cabinets**

- a. Cabinet fronts shall be made of solid wood (not particleboard).
- b. Doors, draws and fronts shall be factory finished.
- c. Cabinet ends shall be finished with appropriate veneer.
- d. All cabinets shall be Kitchen Cabinet Manufacturers Association (KCMA) approved.

B. Countertops: Where the scope of work includes replacement or repair of countertops the following standards shall apply:

- 1. **Existing Countertops:** Countertops and vanity tops shall be a smooth non-absorbent finish and free of defects such as holes, cracks, porous materials, or other defects which may retain moisture or food particles.
- 2. **Replacement Countertops**
 - a. Shall be molded roll-backed, laminate plastic or Formica with finished ends and sealed at the cut out for the kitchen sink or basin.
 - b. Other appropriate materials may be used such as synthetic molded tops, recycled glass tops, or other green construction friendly material.
 - c. Consult the KHC Department of Design and Construction Review.

C. Closet Storage/Accessories: In homes rehabbed for resale or included in the scope of work, clothes closets shall contain 12" deep shelf, including a coat rod. Shelves with integrated hangar hooks may also be used.

Division 13: Special Construction

A. Laundry: Laundry facilities located on the second floor shall be equipped with a washer overflow pan piped to carry the overflow to an appropriate location. This requirement covers new installations only, but recommended where feasible for existing locations.

B. Storage areas: Projects which incorporate accessory storage buildings or areas may be preferred in the award of funding. If storage areas are provided, in the scope of work, the following minimum design shall apply.

- 1. The storage area shall be a minimum of 48 sq. ft. for all units over 960 square feet of living space.
- 2. Interior ceiling height shall be a minimum of 7' in all storage areas and the width or depth shall not be less than 4' in any interior dimension.
- 3. Provide a pre-hung 3'0 x 6'8" entry door to the storage area with an entry lock.
- 4. The storage area may be provided by any of the following:
 - a. A free-standing building architecturally similar to the house.
 - b. Wood buildings, with T-111 or equal plywood siding, painted a compatible color with the primary structure are acceptable.
 - c. Unfinished crawl space area.
 - d. Metal buildings are not permitted.
- 5. Units that utilize an unfinished crawl space area for storage must create an appropriately-sized room with a concrete floor and provide the following:
 - a. A pre-hung metal entry door 3'0" x 6' 8"
 - b. 20-min. fire separation (walls and ceiling)
 - c. A switched light fixture
 - d. Adequate ventilation for hazardous fumes
 - e. Access to the remainder of the crawl space.

6. Storage areas attached to the unit. Attached storage areas should be designed to complement and blend in with the home. This area shall have a concrete floor and provide the following:
 - a. Footings complying with local frost depth requirements.
 - b. A pre-hung metal entry door 3'0" x 6' 8"
 - c. 20-min. fire separation (walls and ceiling)
 - d. A switched light fixture
 - e. Adequate ventilation for hazardous fumes

C. Ramps

1. It may be necessary to provide a ramp in the rehab project. If a ramp is provided it shall be constructed in compliance with ANSI A 117.1, ADA, UFAS, or any other nationally recognized accessibility code.
2. Ramps shall be constructed of approved materials suitable for the purpose, or a combination of materials in the following list.
 - a. **Composite:** PVC or other with non-skid surface.
 - b. **Concrete:** with non-skid surface.
 - c. **Metal:** galvanized steel, or aluminum with non-skid surface.
 - d. **Wood:** Pressure treated lumber.
 - All exterior 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. The use of CCA treated lumber shall be prohibited.

Division 21: Fire Suppression

- Reserved for future use

Division 22: Plumbing

A. Existing Plumbing: Where a rehab involves replacement or repair of plumbing elements or installation of new water supply or septic systems, the following standards shall apply:

1. All fixtures, water supply lines, and drain/waste/vent lines shall be in working condition, free of obstructions, leaks, or other defects which interfere with proper operation or sanitation of the system.
2. Defective fixtures shall be replaced with new, energy saving features.
3. **Drain/waste/vent systems** shall be connected to a public sewer or to an approved private sewage disposal system. Newly installed private systems shall be approved by the local health department.
4. **Water supply** shall be from either a public supply system or an approved private supply. Private supplies shall be approved by the local authority having jurisdiction.
 - a. Water supply lines shall be insulated in all areas subject to freezing temperatures.
 - b. Replacement fixtures shall be provided with water shut off valves at the fixture location or a central manifold which will isolate the individual fixture for servicing. The building's main shut off valve shall not be acceptable for this requirement.

B. New Plumbing

1. All repair, replacement, addition, or new installation of plumbing systems shall meet the Kentucky Plumbing Code and shall be approved by a state certified plumbing inspector.
2. Ordinary repairs and fixture replacement may not be subject to inspection by the state certified inspector, but shall be subject to the applicable plumbing code.
3. The following specifications shall be the minimum size and/or quality for replacement plumbing fixtures
 - a. **Bath tubs** shall be 30" minimum from approach side to wall; made of fiberglass, acrylic, porcelain, or cultured marble.
 - b. **Faucet housings** shall not be plastic.
 - c. **Lavatories** shall be 15" minimum diameter; made of fiberglass, acrylic, porcelain, or, cultured marble.
 - d. **Showers** shall be 36" x 36" minimum; made of fiberglass, acrylic, ceramic, or, cultured marble.
 - e. **Toilets** shall be maximum 1.6 GPF; made of porcelain.
 - f. **Kitchen sinks** shall be 6" deep minimum, stainless steel double bowl.
 - g. **Laundry facilities and hot water heaters**, located on the second floor or higher, shall have an overflow pan piped into a DWV system, positive drain to the outdoors, or an approved floor drain. This requirement is for new installations but is recommended for existing locations.
 - h. **Water heaters** shall have a minimum energy factor efficiency of .93 for electric and .67 for gas fired water heating equipment.

Division 23: Heating Ventilating and Air Conditioning

A. Existing HVAC Systems

1. All existing mechanical appliances, fireplaces, solid-fuel burning devices, cooking appliances, water heating appliances and HVAC equipment shall be evaluated for efficiency and inspected for defective or inadequate operation, ductwork, clearance to combustibles, safety controls, energy supply, combustion air supply, combustion gas venting, insulation, air sealing, and equipment.
2. If the system is capable of serving the intended purpose and defective conditions exist, the defects shall be corrected to provide the most efficient operation of the existing system.
3. Fuel-burning equipment shall combust fuel safely and operate as close to the designed Annual Fuel Utilization Efficiency (AFUE) as possible.
4. Flue gases (oxygen and carbon monoxide), stack temperature, draft and smoke (where applicable) shall be within acceptable limits.
5. A pre and post rehab Combustion Appliance Zone (CAZ) worst case scenario draft test shall be performed on all atmospheric combustion appliances per BPI standards.
6. CAZ testing is highly recommended at the conclusion of each work day, especially when measures affecting the tightness of the envelope are being performed.
7. Combustible fuel burning appliances, their fuel supply lines, and their venting systems shall be inspected and tested for proper sizing, operation, leaks, deterioration, adequate combustion, clearance to combustibles and shall be in compliance with the manufacturers installation requirements, and where applicable NFPA 54, NFPA 211 and NFPA 31.
8. Furnaces, air conditioners, heat pumps, and air handlers more than 20 years old shall be replaced with energy efficient equipment.

B. Replacement Heating Ventilating and Air Conditioning Equipment

1. All dwelling units, receiving an upgrade to the HVAC system, shall be heated and cooled using high-efficiency equipment.
2. Heat pump systems shall have a minimum SEER (Seasonal Energy Efficiency Rating) rating of 14.5 with a minimum HSPF (Heating Seasonal Performance Factor) rating of 8.2.
3. Fuel oil and gas fired furnaces and boilers shall have an AFUE efficiency of 92 percent or higher.
4. Electric-resistance-only heat systems are not permitted.
5. Alternative HVAC systems may be evaluated for use by KHC's Department of Design and Construction.
6. All replacement systems shall be sized in accordance with ASHRAE Manual J including mini-split and zoned systems.

C. Duct Sealing and Insulation: Where the scope of work includes new duct installation the following standards shall apply:

1. All ducts, including exhaust vent ductwork, installed in unconditioned spaces, outside the thermal envelope of the structure, shall be sealed and insulated with an insulation wrap of minimum R-8 value.
2. Duct penetrations between conditioned space and unconditioned space through floors, walls, and ceilings, shall be sealed with approved materials, preventing conditioned air from entering unconditioned space or escaping to the exterior. This includes sealing supply duct boots to the floor, wall, or ceiling membranes and around through penetrations.
3. Duct insulation shall extend to the floor, wall, or ceiling membrane where the supply duct passes through unconditioned space and terminates at a membrane of conditioned space.
4. Duct systems, located outside the thermal envelope of the dwelling, shall be pressure tested by qualified staff in accordance with the following criteria.
 - a. Post construction test: Leakage to outdoors shall be less than or equal to 8 cf/m (226.5 L/min) per 100 ft² (9.29 m²) of *conditioned floor area* or a total leakage less than or equal to 12 cf/m (12 L/min) per 100 ft² (9.29 m²) of *conditioned floor area* when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure.
 - b. All register boots shall be taped or otherwise sealed during the test.
 - c. *Documentation of all duct testing (Pre and Post) shall be kept in the client file.*

D. Programmable Thermostats

1. All newly installed HVAC systems shall be controlled by a programmable thermostat.
2. Existing programmable thermostats must be evaluated to ensure the device can still deliver the features designed by the manufacturer.

E. Building Ventilation

1. The dwelling must be evaluated for compliance with Section 4 of the ASHRAE 62.2-2010 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings.
2. In no case shall the whole building ventilation rate be reduced below minimum whole-building ventilation requirements of ASHRAE 62.2 standards.
3. Where ventilation rates do not meet ASHRAE 62.2 standards, mechanical ventilation shall be provided to maintain minimum ventilation rates.
4. Existing exhaust ventilation discharge must be evaluated for proper discharge location.
 - a. Relocation of exhaust vents may be required if located too close to fresh air intakes of the dwelling.

F. Range Hoods: When the scope of work includes installation of a range hood, the following standards shall apply:

1. All dwelling units shall be equipped with a minimum 150 CFM range hood vented to the exterior of the building.
2. Use manufacturer's recommended ducting material sized per installation instructions.
3. Exhaust ducting shall be concealed with a finish similar to the adjacent cabinetry where it extends above the wall cabinets through the ceiling.
4. Exhaust ducts shall terminate, at the exterior of the structure, in an exhaust hood, equipped with a back draft damper.

Exceptions and Considerations:

- a. Designs utilizing Energy Recovery Ventilation technology may use a recirculation hood as a part of the ventilation design in combination with other intake and exhaust air openings.
- b. Hoods vented to the exterior may contribute to compliance with ASHRAE 62.2.
- c. If a waiver is granted, recirculation hoods shall be equipped with an activated charcoal filter.

G. Bathroom Ventilation: When the scope of work involves rehabilitation of a bathroom, the following standards shall apply:

1. Bathrooms shall have a properly installed ventilation fan, minimum 50 CFM, vented to the exterior, penetrating the structure's outermost membrane.
 - a. Ventilation fans vented to the exterior may contribute to compliance with ASHRAE 62.2.

Exception: A ventilation fan is not required where existing window openings provide minimum ventilation required by KRC.
2. Exhaust fan ducts systems shall be equipped with a back draft damper, terminate at the exterior of the structure, in a receptacle designed for this use and location.

H. Clothes Dryer Exhaust: Newly installed clothes dryers shall exhaust directly to the exterior, through the exterior membrane of the structure.

1. Exhaust ducts shall terminate, at the exterior of the structure, in an exhaust hood, equipped with a back draft damper.
2. Ducts shall be minimum 4" diameter with a smooth interior surface.
3. Joints shall be joined together in the direction of air flow.
4. No fasteners or screws shall penetrate the walls of the duct.
5. Exhaust ducts shall not be more than 25' equivalent length from the laundry area to the exterior of the structure. 90 degree ells = 5' equivalent length. 45 degree ells = 2.5' equivalent length. Straight duct is 1' linear length = 1' equivalent length.
6. In the laundry area, a maximum 8' length of flexible duct may be connected from the dryer exhaust duct to the clothes dryer.

I. Existing Clothes Dryer Exhaust:

1. Existing clothes dryer exhaust ducts shall be inspected and replaced if constructed of flexible, corrugated duct material.
2. Existing exhaust ducts shall be cleaned if blockage is discovered during inspection.
3. Existing clothes dryers exhausting to the interior environment shall be vented as closely as possible, in equivalent length of pipe run, to new exhaust installation requirements.

Division 26: Electrical

- A. Existing electrical system:** In homes rehabbed for resale or if electrical alterations are included in the scope of work, the electrical system shall be evaluated for suitable size, minimum provisions, and electrical hazards by a licensed electrical contractor. The system shall meet the following minimum standards.
1. All visible deficiencies and hazards shall be corrected.
 2. All receptacle outlets in bathrooms, laundry rooms, kitchens, and outdoor outlets shall be protected by a ground fault circuit interrupter (GFCI).
 3. All entrances, common hallways, interior and exterior stairways, bathrooms, kitchens, laundry rooms, and HVAC equipment rooms shall contain at least one luminary and it shall provide adequate lighting for the area.
 - a. All permanently installed light fixtures shall have Energy Efficient lamps installed.
 - b. All other rooms shall contain at least one wall switch controlled light.
 - c. Repairs may require local authority inspections.
- B. Additions, Alterations, New Wiring**
1. All new wiring or extensions of the existing electrical system shall meet the current edition of the National Electrical Code and shall be inspected and approved by the local authority having jurisdiction.
 2. Additional loads may require re-evaluation of the service size.
- C. Rehab Involving Complete Removal of Plaster or Wallboard:**
1. In addition to meeting the requirements of the NEC, each room, hall, stair, and walk in closet shall have a minimum of one switch-operated overhead light.
 2. Kitchens shall include switch-operated lighting over the cooking area, the sink area and the general or dining area.
 3. Bathrooms shall be equipped with switch-operated lighting over the lavatory area and the general area.
 4. Smoke detectors shall be installed in accordance with the current edition of the Kentucky Residential Code.

Division 27: Communications

- A. Minimum Provisions: Homes rehabbed for resale shall comply with the following standards.**
1. If the dwelling is not prewired, means to connect to telephone and cable communication devices must be considered. If feasible the following provisions shall be provided.
 - a. Provide wiring for communication devices, or a roughed-in box and blank trim plate, with a raceway and pull string leading to an accessible area such as the attic or crawlspace, to allow the future installation of the required communication devices.
 - b. A raceway shall also be provided from the point of service to an accessible area within the structure.

Division 28: Electronic Safety and Security

- A. Fire Detection and Alarm**

1. **Smoke Alarms:** Smoke alarms shall be installed in existing and rehabbed dwellings at all of the following locations:
 - a. On the ceiling or wall outside of each separate sleeping area in the immediate vicinity of bedrooms no more than 8' from the bedroom door.
 - b. Within each room used for sleeping purposes.
 - c. In each story within a dwelling unit, including basements and cellars but not including crawl spaces and uninhabitable attics.
 - In dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.
2. Smoke alarms shall be interconnected in a manner that activation of one alarm will activate all of the alarms in the individual unit.
3. The alarm shall be clearly audible in all bedrooms, over background noise levels, with all intervening doors closed.
4. Smoke alarms in existing areas are not required to be interconnected where alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space, or basement available which provides access for interconnection without the removal of interior finishes.
5. Smoke alarms shall receive their primary power from the building wiring, provided that such wiring is served from a commercial source, and shall be equipped with a battery backup.
6. Exceptions: Smoke alarms are permitted to be solely battery operated in buildings where:
 - a. No construction is taking place.
 - b. Where a wireless interconnected smoke alarm system, with a minimum 10 year warranty for the smoke alarms, is installed.
 - c. Buildings that are not served from a commercial power source.
 - d. Areas of buildings undergoing alterations or repairs that do not result in the removal of interior wall or ceiling finishes exposing the structure, providing access for wiring.
 - If there is an attic, crawl space or basement available which could provide access for building wiring, without the removal of interior finishes, this exception will not apply.

B. Carbon Monoxide Alarms

1. UL listed carbon monoxide alarm(s) shall be installed outside of each sleeping area, in the in the immediate vicinity of all bedrooms, if one or both of the following conditions exist:
 - a. The dwelling contains fuel burning appliances.
 - b. The dwelling has an attached garage.

Division 31: Earthwork

A. Drainage: Homes rehabbed for resale or if correction of drainage is included in the scope of work, shall comply with the following standards:

1. Conditions causing inadequate drainage or standing water near the structure shall be corrected to provide adequate drainage away from the structure by one or more of the following suggested methods:
 - a. Adjust backfill to allow for 6" fall in 10' (4% slope) away from the foundation walls.
 - b. Adjust grade to create a swale to divert water away from the foundation walls.

- c. Install a French drain near the structure and discharge to an approved drainage system, ditch, or water retention area.
- d. An agency proposed and KHC approved method.

Division 32: Exterior Improvements

Sections A, B, C, D, and E shall apply to all houses rehabbed for resale.

- A. Existing Trees and Shrubbery:** Trees, shrubs, and other plantings shall be in a condition which does not prohibit access to the structure or utility connections, or cause damage to the structure or walkways.
- B. Parking/Driveways:**
1. Existing parking and driveways shall be restored to a good condition.
 2. The parking area shall be one of the following materials:
 - a. Crushed #57 limestone gravel, 4" thick, and compacted
 - b. Hot mix asphaltic concrete pavement
 - c. Concrete
 3. For urban locations where onsite parking is not typical, local, street parking regulations shall apply.
- C. Walkways**
1. **Existing walkways** shall be in a good condition and free of cracks and joints with elevation changes greater than ½". Defective conditions, such as excessive deterioration, shall be corrected by replacing the defective area.
 2. All dwelling units shall have a paved walkway, from the parking area or street, to the dwelling's main entrance.
 3. New walkways shall be constructed a minimum of 42" in width and 3 ½" in thickness.
 - a. Walkways shall not exceed 5% slope in the direction of travel.
 - b. Walkways shall have 2% cross slope, perpendicular to the direction of travel or crowned in the center, to allow for proper drainage.
 - c. Walkways shall have isolation joints at connections to structures and cross walks. The isolation joint shall be of ½" thick asphalt-impregnated molded fiber.
- D. Public walks**
1. Public walkways shall be free of hazardous conditions and excessive deterioration.
 2. Replacement of public walks shall be completed in accordance with the local authority's having jurisdiction, rules and regulations.
 3. Replacement walkways shall be ADA compliant.
- E. Soil Treatment-Termite Protection:** If termites are discovered during initial evaluation or rehabilitation of the structure, provide proper and complete termite treatment by a licensed exterminator.

Division 33: Utility Services

- A. Capacity: Houses rehabbed for resale or if utilities are altered in the scope of work, shall meet the following standards.**
1. All utility services shall be sized to adequately provide sufficient power, flow, volume, pressure, and drainage to allow for safe, dependable service of appliances and fixtures.

2. Insufficient supply of utilities shall be corrected during the rehabilitation process.

Appendix #1

Health Safety issues:

Air quality:

Deficiency: You see mold or mildew or evidence of water infiltration or other moisture producing conditions.

Deficiency: You detect strong propane, natural gas, or methane gas odors that could:

- Pose a risk of explosion/fire.
- Pose a health risk if inhaled.

Deficiency: You detect sewer odors.

Electrical:

Deficiency: You see exposed bare wires or openings in electrical panels.

Deficiency: You see water leaking, puddling or ponding on or immediately near any electrical apparatus. This could pose a risk of fire, electrocution or explosion.

Combustible materials:

Deficiency: Flammable materials or combustible materials are improperly stored near a heat or electrical source, causing the potential risk of fire or explosion.

Indoor Garbage:

Deficiency:

- Too much garbage has gathered; more than the planned storage capacity.

-OR-

- Garbage has gathered in an area not sanctioned for staging or storing garbage or debris.

Hazards

Deficiency: You see any physical defect that could cause cutting or breaking human skin or other bodily harm, generally in commonly used or traveled areas.

Deficiency: You see any physical defect that poses a tripping risk, generally in walkways or other traveled areas. Typically, the defect must present at least a three-quarter inch deviation.

Infestation:

Deficiency: You see evidence of infestation of insects, including roaches and ants, throughout a unit or room, especially in food preparation and storage areas.

Deficiency: You see evidence of rats or mice sightings, rat or mouse holes, or droppings.

Level 3 Deficiencies:

Bathroom:

(lavatory) *Level 3:* The sink cannot be used, because the sink or associated hardware is missing or has failed.

(drains) *Level 3:* The fixtures are not usable, because the drain is completely clogged or shows extensive deterioration.

(faucets in bathroom) *Level 3:* You see a steady leak that is adversely affecting the area around it.

-OR

The faucet or pipe cannot be used.

(shower/tub) *Level 3:* The shower or tub cannot be used for any reason. The shower, tub, faucets, drains, or associated hardware is missing or has failed.

(water closet) *Level 3:* The bowl is fractured or broken and cannot retain water.

-OR

The water closet/toilet is missing.

-OR

There is a hazardous condition.

-OR

The water closet/toilet cannot be flushed, because of obstruction or another defect.

Help/Call System:

(call for aid) *Level 3:* The system does not function.

Interior Unit Ceilings:

(ceiling) *Level 3:* You see bulging, buckling, sagging, or a problem with alignment.

(ceiling) *Level 3:* You see a hole that penetrates the area above. You can see through it.

(ceiling water damage) *Level 3:* On 1 ceiling, you estimate that a very large area (more than 1 square foot) of its surface has been substantially saturated or damaged by mold or mildew. The ceiling surface may have failed.

Unit Doors:

(doors) *Level 3:* At least 1 bathroom door or entry door is not functioning or cannot be locked because of damage to the frame, header, jamb, threshold, lintel, or trim.

(door hardware) *Level 3:* A bathroom door or entry door does not function as it should because of damage to the door's hardware.

-OR

A bathroom door or entry door that requires locking cannot be locked because of damage to the door's hardware.

(doors surface damage) *Level 3:* One door has a hole or holes larger than 1 inch in diameter, significant peeling/cracking/no paint, rust that affects the integrity of the door surface, or broken/missing glass.

(security doors) *Level 3:* A security door is not functioning or missing.

Comment:

Level 3: "Missing" applies only if a security door that should be there is not there.

(doors) *Level 3:* The seals are missing on 1 entry door, or they are so damaged that they do not function as they should.

(doors) *Level 3:* A bathroom door or entry door is missing.

-OR

You estimate that more than 50% of the unit doors, not including bathroom doors and entry doors, are missing.

Electrical System:

(electrical system) *Level 3:* One or more fixed item(s) of sufficient size and weight can impede access to the unit's electrical panel during an emergency.

(breakers/fuses) *Level 3:* You see any carbon residue, melted breakers, or arcing scars.

(electrical leaks/corrosion) *Level 3:* Any corrosion that affects the condition of the components that carry electrical current.

-OR

Any stains or rust on the interior of electrical enclosures.

-OR

Any evidence of water leaks in the enclosure or hardware.

(electrical wiring) *Level 3:* You see any nicks, abrasions, or fraying of the insulation that expose any conducting wire.

(GFCI protection) *Level 3:* The GFI does not function.

(fuses/breakers) *Level 3:* You see an open breaker port.

(electrical covers) *Level 3:* A cover is missing, and you see exposed electrical connections.

Floors:

(floors) *Level 3:* You see bulging, buckling, sagging, or a lack of horizontal alignment.

(floor covering) Level 3: You estimate that more than 50% of any single floor surface is affected by Level 1 deficiencies.

-OR

The condition causes a safety problem.

Level 1: For any single floor surface, you see deficiencies in areas of the floor surface. You estimate that 5% to 10% of the floor is affected, and there are no safety problems.

(floor water damage) Level 3: On 1 floor, you estimate that a very large area (more than 1 square foot) of its surface has been substantially saturated or damaged by mold or mildew. The floor surface may have failed.

(floors deterioration) Level 3: You see large areas of rot, more than 4 square feet, and applying weight causes noticeable deflection.

(floor covering) Level 3: You estimate that more than 50% of any single soft floor covering is damaged.

-OR

Damage to the soft floor covering exposes the underlying material.

Water Heater:

(water heater deterioration) Level 3: Because of this condition, the equipment or piping does not function.

(water heater inoperable) Level 3: After running, water from the hot water taps is not warmer than room temperature.

(water heater leaking) Level 3: You see water leaking.

(water heater vent) Level 3: You see any misalignment of an exhaust system on a gas fired or oil fired unit that may cause improper or dangerous venting of gases.

(water heater pressure relief) Level 3: You see that the pressure relief valve on the unit water heating system is either missing or does not extend to the floor.

Heating System:

(heating unit) Level 3: At least 1 cover is missing or substantially damaged, allowing contact with heating/surface elements or associated fans.

(HVAC inoperable) Level 3: The HVAC system does not function; it does not provide the heating or cooling it should. The system does not respond when the controls are engaged.

(HVAC vent) Level 3: You see any misalignment of an exhaust system on a gas fired, oil fired or coal unit that may cause improper or dangerous venting of gases.

Kitchen:

(kitchen cabinets) Level 3: You see that more than 50% of the cabinets, doors, or shelves are missing or the laminate is separating.

(kitchen drains) *Level 3:* The drain is completely clogged or has suffered extensive deterioration.

(kitchen leaks) *Level 3:* You see a steady leak that is having an adverse affect on the surrounding area, and the faucet or pipe is not usable.

(range hood) *Level 3:* The exhaust fan does not function.

-OR

You estimate that the flue may be completely blocked.

(kitchen range) *Level 3:* The unit is missing.

-OR

Two or more burners are not functioning.

-OR

The oven is not functioning.

(kitchen refrigerator) *Level 3:* The refrigerator is missing.

-OR

The refrigerator does not cool adequately for the safe storage of food.

(kitchen sink) *Level 3:* The sink or hardware is either missing or not functioning.

Laundry:

(laundry) *Level 3:* Dryer vent is missing, damaged or is visually determined to be inoperable (blocked). Dryer exhaust is not effectively vented to the outside.

Electrical System:

(lighting) *Level 3:* In more than 2 rooms, a permanent light fixture is missing or not functioning, and no other switched light sources are functioning in the rooms.

(outlets/switches) *Level 3:* An outlet, switch or both are missing.

(outlet/switch cover plates) *Level 3:* A cover plate is missing, which causes wires to be exposed.

Porch:

(porch railings) *Level 3:* The baluster or side rails enclosing this area are loose, damaged or missing, limiting the safe use of this area.

Smoke Detectors:

(smoke detectors) *Level 3:* A single smoke detector is missing or does not function as it should.

Stairs:

(stairs) *Level 3:* A step is broken or missing.

(handrails) *Level 3:* The handrail for 4 or more stairs is either missing, damaged, loose or otherwise unusable.

Walls:

(walls) *Level 3:* You see bulging, buckling, sagging, or that the wall is no longer vertically aligned.

(walls damage) *Level 3:* You find a hole of any size that penetrates an adjoining room. You can see through the hole.

-OR

Two or more walls have Level 2 holes.

Level 2: In a wall, you find a hole, missing tile or panel, or other damage that is larger than a sheet of paper, 8 ½ inches by 11 inches, and does not penetrate the adjoining room. You cannot see through it to the adjoining area.

(walls trim) *Level 3:* You see significant areas of deterioration in the wall surfaces, and you estimate that more than 50% of the wall area is affected.

(walls water damage) *Level 3:* On 1 wall, you estimate that a very large area (more than 1 square foot) of its surface has been substantially saturated or damaged by mold, or mildew. The wall surface may have failed.

Windows:

(window glass) *Level 3:* You see that a window pane is broken or missing from the window sash.

(window security) *Level 3:* A window is not functioning, but cannot be secured. In the immediate area, there are no other windows that are functioning properly.

(window sealing) *Level 3:* There are missing or deteriorated caulk, seals and/or glazing compound with evidence of leaks or damage to the window or surrounding structure.

(window security bars) *Level 3:* Exiting or egress is severely limited or impossible, because security bars are damaged, improperly constructed/installed, or security bars that are designed to open cannot be readily opened.