2020 Program Year
TDHCA | Multifamily Finance Division
Multifamily Direct Loan Program

2020 National Housing Trust Fund (NHTF)

Multifamily Minimum Rehabilitation Standards

Proposed, as revised 6/02

IMPORTANT NOTICE REGARDING THESE STANDARDS

TDHCA encourages the reproduction and distribution of this document to all relevant parties participating in Rehabilitation; including but not limited to, staff, general contractors, and subcontractors. If not distributed, at a minimum, all parties with the ability to exercise control over the Development must be informed and so acknowledge compliance with all applicable construction requirements, building codes, necessary materials, accessibility standards, installation methods, etc., regardless of whether expressly stated herein. As such, these Standards must be included in all construction and maintenance documents by reference. Moreover, specific sections may be expressly required in, or the Standards in their entirety, may be required to be attached to particular documents, as determined by the Department.

Moreover, it is important to remember these Standards serve as a starting point for eligible NHTF-assisted Multifamily Rehabilitation activities. Additional project requirements, rules, and regulations WILL APPLY and may be more detailed in Program Documents. IT IS THE RESPONSIBILITY OF THE DEVELOPMENT OWNER/BORROWER TO ENSURE COMPLIANCE WITH ANY AND ALL APPLICABLE PROGRAM REQUIREMENTS, RULES, AND REGULATIONS THAT MAY BE REQUIRED IN ADDITION TO THE MINIMUM CONDITIONS PROVIDED IN THESE STANDARDS.

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NHTF MINIMUM REHABILITATION STANDARDS
MULTIFAMILY DIRECT LOAN PROGRAM

2020 Program Year
(*ending* Aug. 31, 2021)

Introduction

These National Housing Trust Fund (NHTF) Minimum Rehabilitation Standards (hereinafter referred to as "Standards") are intended to provide the minimum acceptable standards for affordable multifamily rental housing developments Rehabilitated in whole or part using Multifamily Direct Loan Program (MFDL Program) NHTF funds in the State of Texas.

These Standards are designed to ensure clarity, efficiency, and feasibility in the successful completion of eligible rehabilitation projects. Accordingly, these Standards only provide the necessary descriptions of the minimum elements of rehabilitation, as required by the U.S. Department of Housing and Urban Affairs (HUD) and 24 CFR §93.301(b). Accordingly, these Standards only address those minimum standards for: (1) Health and Safety; (2) Major Systems; (3) Lead-Based Paint; (4) Accessibility; (5) Disaster Mitigation; (6) Uniform Physical Condition Standards (UPCS); and (5) Property Condition or Capital Needs Assessment (SCR/CNA).

Recommendations made in applicable Mandatory Assessments regarding health and safety or life expectancy of major systems must be implemented. Additionally, estimates (based on age and condition) of the remaining useful life of major system(s) are required to be conducted upon project completion of each major system, in accordance with 24 CFR §93.301(b)(1)(ix). If the remaining useful life of one or more major system is determined to be less than the applicable period of affordability, a replacement reserve shall provide adequate monthly payments to effectively repair or replace the systems as needed. 24 CFR §93.301(b)(1)(ix).

Unless otherwise required, these Standards do not supersede or preempt State and local codes, ordinances, and requirements for developing and maintaining the Development. All applicable codes, ordinances, and zoning requirements must also be adhered. In the absence of State or local building codes, ordinances, or requirements for Rehabilitation, the International Existing Building Code (IEBC) or International Building Code (IBC) (as applicable) of the International Code Council (ICC), in the version adopted by the Multifamily Direct Loan Rule, 10 TAC Chapter 13, shall apply in addition to these minimum Standards.

Definitions

The following words and terms, when used in these Standards, shall have the meaning as provided herein, unless the context clearly indicates otherwise. Any capitalized terms or phrases not specifically mentioned in this section shall have the meaning as defined in Title 10, Part 1, Chapter 1 of the Texas Administrative Code (**Administration**), Title 10, Part 1, Chapter 2 of the Texas Administrative Code (**Enforcement**), Title 10, Part 1, Chapter 10 of the Texas Administrative Code (the **Uniform Multifamily Rules**), Title 10, Part 1, Chapter 11 of the Texas Administrative Code (the **Qualified Allocation Plan (QAP)**), Title 10, Part 1, Chapter 13 of the Texas Administrative Code (the **Multifamily Direct Loan Rule**)(collectively referred to as the **State Multifamily Rules**); or as otherwise defined in Tex. Gov't Code, Chapter 2306 (the **Governing Statute**), §141, 142, and 145 of the Internal Revenue Code (the **Code**), or 24 CFR Part 91, Part 92, Part 93, and 2 CFR Part 200.

1. **Accessible Route--**a continuous, unobstructed path connecting all accessible elements and spaces in a facility or building that complies with the space and reach requirements of the applicable accessibility standard(s).
2. **Plumbing Fixtures--**all relevant plumbing components, which include toilets, urinals, bidets, faucets, lavatories, sinks, showers, bathtubs, and floor drains. Plumbing appliances include washing machines, dishwashers, domestic water heaters, garbage disposals, and water softeners.
3. **Plumbing System**--all relevant plumbing components, which include but are not limited to: piping, fittings, devices, faucets, containers and receptacles that are used to supply, distribute, receive or transport potable water and wastewater.
4. **Substandard Conditions**--any condition that threatens the health and/or safety of the occupants. Substandard Conditions include any condition which threatens, defeats, or will lead to the lack of functional viability of a single feature of a structure. Hazardous conditions are a type of Substandard Conditions.

Minimum Standards for Major Systems

(24 CFR §93.301(b) and 24 CFR §93.301(b)(1)(ix))

Major Systems

These Standards provide the minimum rehabilitation requirements for Major Systems herein. In accordance with 24 CFR §93.301(b), the Major Systems with minimum standards provided herein are:

- foundation;
- structural support, roofing;
- cladding & weatherproofing;
- plumbing;
- electrical; and
- heating, ventilation, and air conditioning (HVAC).

General Requirements, Standard Conditions, and Substandard Conditions

The Minimum Standard Conditions and Substandard Conditions for each Major System are sufficiently detailed in method and material to provide the MINIMUM threshold for Rehabilitation activities that NHTF-assisted Multifamily Developments MUST MEET OR EXCEED.

It is important to remember any threshold requirements provided herein do not supersede or preempt State and local codes, ordinances, and requirements for building and maintenance with which NHTF-assisted housing must comply. Rather, compliance must be accomplished in addition to meeting or surpassing these Standards. In the absence of such State or local building codes, ordinances, or other requirements, the applicable version(s) of the International Existing Building Code (IEBC) or International Building Code (IBC) of the International Code Council (ICC), as adopted in 10 TAC Chapter 13, shall apply in addition to these Standards.

Determining the Scope of Work

This section shall guide the determination as to the minimum scope of work required. In conjunction with the mandatory property assessments required in these Standards, a determination must consider the requirements of the ICC Code Set, in the version adopted by 10 TAC Chapter 13 and as applied to these Standards. Accordingly, the determination will consider the ICC Principles of Safety, Capacity, and Convenience.

Each repair should be detailed as required through the use of plans, drawings, specifications (conforming to the MasterFormat) and work write-ups. At a minimum, each repair should be detailed in a work write up that accurately specifies the location, required demolition (if applicable), and the methods and materials for the project -- all with enough detail to determine the desired outcome or finished product. Work write ups may reference plans and specifications as needed but must be detailed enough to complete repairs.

1.0 Basic Site Work

a. Minimum Standard Conditions. The subject lot or defined site shall be free of debris, garbage or other accumulations of site stored items which create possibilities of infestations. The site should be generally level as allowed by natural topography, well drained, and accessible. Additional drainage

features should be added if need is evidenced by existing erosion, standing water or evidence of water damage. In addition to any applicable requirements herein, any and all deficiencies noted in the Uniform Property Conditions Standards or the 2012 ICC Property Maintenance Code must also be addressed.

b. Substandard Conditions. Substandard conditions for Basic Site Work include but are not be limited to those conditions listed in **(1) – (14)**, for which adequate repair or replacement is required, as applicable and further detailed herein:

(1) Accumulated debris, waste, or garbage either in enclosed areas such as storage buildings or on the property;

(2) Deteriorated outbuildings, sheds, wells, privies, or other structures which are no longer in use or are made unusable by their condition;

(3) Holes, ditches, exposed water meter boxes or other condition which creates a tripping hazard, excluding drainage ditches which are part of a designed drainage system;

(4) Rodents, insects, or other infestations;

(5) Standing water or depressions which hold water during wet weather;

(6) Leaking water supply or leaking sewage system;

(7) Obsolete sanitary piping systems such as Orangeberg, clay or other non-standard pipe;

(8) Scaling, calcified or otherwise compromised water supply lines;

(9) Exposed pipes, railings or other installations creating tripping hazards;

(10) Damaged, missing or deteriorated walkways, steps and decks which create tripping hazards or are otherwise unsafe;

(11) Stairways or steps above 30" from the finished grade without a functioning guard rail;

(12) Except on an Accessible Route any change in level in a walkway shall not be greater than ¾";

(13) On any Accessible Route any change in level shall not be greater than ½". Any change in level between ¼" and ½" must be beveled 45 degrees; and

(14) Any walkway or driveway that exceeds 5% damage in the form of cracking, spalling, holes, heaving or other damage.

c. Other Conditions/Requirements.

(1) Debris and Brush Removal. The premises shall be free from accumulations of rubbish and garbage that present health and safety hazards. The premises shall be free from trees and shrubs that are damaging the dwelling or present a hazard. Tree limbs in danger of falling on roof areas shall be removed. No vegetation should touch existing buildings, utility service lines, fences, or extend over walkways or parking areas.

(2) Drainage. Surface drainage shall be diverted to a storm sewer or other approved point of collection that does not create a hazard. Lots need to be graded to drain surface water away from the foundation at a minimum slope of 6" within the first 10'. Where lot lines or other physical barriers prohibit this, drains, swales, and/or rain gardens shall be constructed to ensure drainage away from the structure. Use of alternative drainage methods must be approved by TDHCA. Rain gutters shall be installed if none exist. Gutters shall slope 1" for every 20 linear feet with downspouts installed at a minimum every 40'. Downspouts must empty into a splashblock or be diverted at least five feet from the building. Special care must be taken to not discharge water onto adjacent properties.

(3) Driveways, Sidewalks, and Patios. Paved surfaces shall be free from hazards which can cause tripping and falling. Paved surfaces adjacent to the foundation shall not slope towards the structure so that water can collect at the foundation. If tripping hazards and drainage problems exist, the paved surface shall be removed and rebuilt.

(A) Driveways. Following existing driveway demolition, all organic matter shall be removed. Subsoil shall be compacted uniformly and evenly. Forms shall be constructed to provide a minimum slope of 1/8" per foot away from the house and at a depth to provide 4" of concrete. Install either number 4 rebar on 12" centers or 6" x 6" number 10 welded reinforcing wire. Expansion joints shall be installed at all radius points, sidewalk intersections and house slab tie-ins. Concrete mix shall provide a minimum of 3,500 psi at 28 days. If reinforcing steel is not used, control joints shall be sawed in every 10' and be broom finished. Asphalt or gravel driveways may be installed if concrete is prohibitively expensive due to the length of a driveway, or if they are customary for the neighborhood.

(B) Sidewalks and Patios. Following existing sidewalk demolition, all organic matter shall be removed. Subsoil shall be compacted uniformly and evenly. Forms shall be constructed to provide a minimum slope of 1/8" per foot away from any building, at a depth to provide 3 ½" of concrete, and at least 3' wide. Accessible Route cross slope shall not exceed 2%. Expansion joints shall be installed at all radius points, sidewalk intersections and slab tie-ins. Control joints shall be sawed in every 5' and be room finished. If sidewalks and patios are installed and are connected to an entry door an accessible entry will be required.

(4) Ramps. On Accessible Routes, ramps shall meet the requirements of the 2010 ADA and the applicable Accessibility requirements provided in these Standards.

(5) Vermin and Insects. The premises shall be free from infestations of vermin and wood-boring insects. Inspections shall be performed by state licensed extermination contractors if evidence of infestation exists. Conditions which increase or cause infestation shall be removed (e.g. accumulation of rubbish garbage, unsanitary conditions, presence of consistent moisture, untreated wood in contact with soil, etc.). One or more of the following termite treatments shall be included in the Rehabilitation if infestation is observed; chemical termiticide treatment, termite baiting system installed and maintained according to the manufacturer's label, use of pressure-preservative treated wood, use of naturally durable termite-resistant wood, and/or termite shields.

(6) Landscaping for Additions. When an addition is built, underground utilities run, grade changes made, or the soil is otherwise disturbed, proper compaction and a fine finish grading shall be done and seed, sod or native plants shall be installed matching as closely as possible the existing surrounding yard.

2.0 Foundations

a. General Requirements and Standard Conditions. Foundation work shall be completed in its entirety prior to beginning work on other areas of the housing unit(s). Leveling shall be done in such a manner as to provide an acceptable degree of tolerance. When leveling takes place, doors, windows and other openings shall be reasonably plumb, level and easy to operate. Interior wall coverings shall be repaired and Plumbing Systems shall be inspected to insure the system functions as intended. Foundation leveling shall include grading of the soil to provide a slope away from the home of at least 6" for the first 10'. If the lot does not allow for this grade, a French drain shall be installed to drain water away from the house, or swales shall be designed and built to control rain water runoff. Refer to Section 6.3 (relating to Minimum Standards for Sanitary Drainage).

Foundation walls shall be a minimum of 6" above grade, or 4" above grade if masonry veneer is existing or will be installed. Underpinning shall be required when foundation leveling is a part of Rehabilitation. Any room additions shall comply with the 2015 IRC or later.

In regards to safety, the ICC contains provisions considered necessary for safe installation; however, they are merely minimum requirements. Providing a safe foundation, leveling, repair, or installation and minimizing hazards can be done by following the principles of foundation construction and stabilization, fully complying with any limitations placed on the use of products and materials and permitting only qualified persons to participate.

With foundations, capacity refers to its ability to carry live and dead loads with respect to the soil's plasticity. Unsafe conditions often occur because existing foundations were not properly planned or designed for the soil conditions at the site low to the ground making it difficult to access Plumbing Systems. Convenience also refers to similar concerns, whereby crawlspaces are often too low to the ground, making it difficult to access Plumbing Systems. While raising the housing may not be feasible, every practical effort must be made to increase the crawlspace clearance to a minimum of 12" above grade when leveling housing.

b. Substandard Conditions. At a minimum, repair or replacement is required if any of the conditions in (1) – (7) exist:

(1) Evidence of wood destroy insect damage;
(2) Water and/or fire damage or dry rot to wooden piers, beams, joists, and subfloor;
(3) Inadequate support of beams, sills, or joists;
(4) Lack of drainage away from the home;
(5) Cracked, damaged, buckled skirting;
(6) Untreated wood in contact with the soil; or
(7) Any other condition which meets the definition of a hazardous or substandard condition.

c. Other Requirements/Conditions.

(1) Slab on Grade. All concrete floors shall be without serious deterioration or conditions that present a falling or tripping hazard. With existing concrete floors, cracks longer than six inches in concrete slabs, 3/4 inch along walkways or steps, or any missing or uneven sections shall be repaired. Slab on grade foundations that are failing, as demonstrated by an inspection by a structural engineer, shall not be rehabilitated.

(2) Pier and Beam. Piers shall have allowable spans between piers or posts. Piers shall support beams which in turn support floor joists. Joists must not be more than 24" on center and, if not continuous, overlap beams shall be at least 12". If major leveling is required, a structural engineer shall inspect the foundation to determine the number of piers that need to be added, repaired, or replaced.

Newly installed footings shall be a minimum of 12" below undisturbed ground surface and the surface shall be level. Termite shields shall be installed on newly installed posts, regardless of pier material.

Skirting shall extend four inches below and at least 18" above grade or up to the exterior cladding and be lapped and fastened under the cladding material. Access to the crawlspace shall be 18" high by 24" wide (if in the floor) or 16" high by 24" wide (if on the perimeter wall), and is not allowed to be installed under a door. Venting of the crawlspace shall be one square foot per 350 square feet of crawl space area and one vent opening within three feet of each corner. Crawlspace floor shall be covered with six mil polyethylene. Skirting is not permitted in flood zones.

3.0 Structural Support and Roofing

3.1 Roofing Systems

a. Description. All relevant roofing components, which include but are not limited to, trusses, rafters, ridge beams, collar ties, ceiling joists, top plates of walls, and sheathing. Moreover, Truss Designs for Replacement Roofs complying with wood roof framing, includes: slope, span, and spacing; location of all joints, required bearing widths; design loads; joint connector type and description; lumber size, species, and grade; connection requirements; bracing locations; and roof tie-downs and uplift resistance details for high wind areas, or as otherwise provided in Section R802 of the 2015 IRC.

b. General Requirements and Standard Conditions. The Roof System and the roof covering shall safely support the loads imposed. Framing and decking shall be structurally sound, properly fastened, and form a sound base for attaching the roof covering. The Roof System shall be configured to provide a positive drainage plane.

c. Substandard Conditions. At a minimum, any Roof System that is incapable of safely supporting the load or fails to safely provide adequate drainage must be repaired or replaced. Deteriorated, missing or loose framing or sheathing must also be corrected. Generally, repair or replacement is required for any applicable condition listed in (1) – (10):

(1) Multiple layers of roof covering materials (more than two);

(2) Water damage caused by leaks through the roofing system;

(3) Missing, worn, or upturned shingles;

(4) Damaged, missing, or improperly installed roof jacks, flashings, drip edges on both rakes and eaves;

(5) Exposed nails or other fasteners;

(6) Structural damage to trusses;

(7) Extensive patchwork and repairs;

(8) Missing, damaged, loose, leaking, blocked, improperly sloped gutters and downspouts;

(9) Wear and tear leading to a failed system within five years from the initial inspection; or

(10) Any other Hazardous or Substandard condition.

3.2 Structures

a. General Requirements and Standard Conditions. Roof structures incapable of safely supporting the load or providing adequate slope for drainage shall be repaired or replaced. Sagging roofs shall be replaced or stabilized. Stabilization of sagging roofs that will not be replaced shall be designed by a structural engineer.

b. Other Requirements/Conditions.

(1) Truss Design for Replacement Roofs. Truss designs for replacement roofs shall comply with wood roof framing in Section R802 of the 2015 IRC which includes; slope, span, and spacing; location of all joints, required bearing widths; design loads; joint connector type and description; lumber size, species, and grade; connection

requirements; bracing locations; and roof tie-downs and uplift resistance details for high wind areas.

(2) Roof Framing for Replacement Roofs. Purlin support braces shall be installed every 4' O.C. Continuous purlins shall be installed between support braces. Purlins shall be a minimum of 2" x 4" studs. Ceiling joists shall comply with Span Tables R802.4(1) and R802.4(2).

(3) Sheathing Replacement. 5/8" CDX plywood shall be installed with clips spaced O.C. between rafters for rafter spacing of 24".

(4) Ventilation. Unconditioned attics shall be cross ventilated. A one to one ratio shall be installed; for every one foot of soffit vent area there shall be one foot of ridge, gable, or turtle vent area. Soffit vents shall have baffles installed providing at least one inch of airspace to prevent wind washing and/or attic insulation blocking soffit vents. All vents shall have corrosion-resistant wire cloth screening or similar material.

(5) Radiant Barrier. A radiant barrier should be installed in all accessible attic areas.

Powered attic vents, whether connected to the structure's electrical system or powered by photovoltaic, are not allowed.

3.3 Roof Covering

a. General Requirements and Standard Materials. Asphalt shingles shall be fastened to solidly sheathed decks. Asphalt shingles shall be used only on roof slopes of 2:12 or greater slope. Slopes, if applicable, less than 2:12 require appropriate membrane designed for such surfaces. Metal roof panels must either be naturally corrosion resistant or provided corrosion resistance per the manufacturer's requirements. Metal roofs shall only be installed on slopes of 3:12 (for lapped, nonsoldered-seam), ½:12 (for lapped, nonsoldered-seam panels with applied lap sealant), or ¼:12 (for standing-seam roof systems). Otherwise, roof weatherproofing, reinforcement, and surfacing shall be completed in accordance with applicable provisions of the IBC or IEBC.

(1) Flashings. Flashings shall be installed in a manner that prevents moisture from entering walls or the roof through penetrations, at eaves and rakes, at wall/roof intersections, wherever there is a change in roof slope or direction and around roof openings. Wall/roof intersections extending to eaves shall be provided with kick-out flashing. All wall/roof intersections shall have step flashing with at least 1" space between the roof covering and the adjacent wall cladding. Metal flashings shall be a No. 26 galvanized sheet metal and corrosion resistant. A cricket or saddle shall be installed on the ridge side of any chimney or penetration greater than 30" wide.

(2) Valley Flashings. Closed valleys (covered with asphalt shingles) shall be lined with one ply of smooth roof roofing or self-adhering polymer modified bitumen underlayment prior to asphalt shingle installation.

4.0 Minimum Standards for Walls, Ceilings, & Flooring

4.1 Walls and Ceilings

a. General Requirements and Standard Conditions. On exterior walls, all defects or deterioration that would allow the elements to enter wall cavities shall be corrected through Rehabilitation. Replacement of sections of walls and ceilings shall match adjoining materials as closely as possible (e.g. thickness of the existing material). When replacement of entire wall

or ceiling coverings or sections of them is replaced, priming and painting of the entire wall or ceiling shall be completed.

b. Substandard Conditions. Repair or replacement is required if any condition listed in (1) – (7) exists:

(1) Water damage or dry rot of siding, trim, or interior wall coverings;
(2) Exposed nails or popped seams;
(3) Peeling or chipped paint, holes, cracks, or gaps in interior wall coverings or exterior cladding;
(4) Broken, fire damaged or missing exterior cladding;
(5) Sagging or missing ceiling sections;
(6) Wood destroying insect damage in exterior cladding; or
(7) Any other condition characterized Hazardous or Substandard.

c. Other Requirements/Conditions.

(1) Walls.

(A) Exterior Walls. If removing the exterior cladding, deteriorated exterior wall sheathing, studs, and bottom and top plates shall be replaced. Deteriorated or missing insulation shall be replaced and wall cavities shall be insulated to a minimum R-13.

Masonry repair or replacement shall match existing masonry as closely as possible, installed plumb, true, and in line with existing courses. If weep holes are filled or nonexistent, they shall be provided at least every 3' at the slab and at least 1 above each window.

Siding repair or replacement shall match existing siding as closely as possible and provide for a positive drainage plain. All joints and seams shall fall on center of wall framing. Overlap and water sealing shall be completed in accordance with the manufacturer's installation instructions.

(B) Interior Walls. A structural engineer shall inspect interior bearing walls that are proposed to be moved. Non-bearing walls do not require a structural engineer. Moved or newly installed walls shall be constructed with 2x4 studs with the bottom plate securely fastened to the floor and the top plate securely fastened to ceiling joists.

All new gypsum board shall be installed according the manufacturer's installation instructions and shall be installed a minimum of ½" above the finished floor, taped, floated, and feathered prior to painting. New wall coverings shall not show noticeable blemishes or dents and tape shall not show after painting. All interior walls shall be painted with a No Volatile Organic Compound (VOC) paint.

(C) Bathroom Walls. Bathroom walls that are to be replaced shall be replaced with appropriate backer board. If tile will be installed in the shower/tub area, concrete board, or equivalent, shall be installed. Green board shall be installed in the rest of the bathroom. Bathroom wall coverings shall be installed a minimum of ½" above the finished floor, taped, floated, and feathered prior to painting.

New wall coverings shall not show noticeable blemishes or dents and tape shall not show after painting. All bathroom walls shall be painted with a semi- or high-gloss paint No Volatile Organic Compound (VOC) paint.

(2) Ceilings. For ceiling structure, see the Roofing Chapter. Replacement of ceiling coverings shall be with 5/8" Type X gypsum board. Fastening shall be in accordance with the manufacturer's installation instructions. All new gypsum board shall be taped, floated, feathered, primed, and painted with at least 2 coats of No Volatile Organic Compound (VOC) paint. When ceilings are replaced, all ceiling fixtures removed and reinstalled for replacement shall be air sealed.

(3) Painting and Finishes. All areas not to be painted shall either be removed and reinstalled or completely covered to prevent overspray or splatter. Receptacle and switch plates shall be removed and reinstalled.

(A) Interior Walls: All walls that were repaired or replaced shall be painted with at least two coats of No Volatile Organic Compound (VOC) paint. Bathroom walls shall have a semi- or high-gloss sheen.

(B) Exterior Walls: Replaced or repaired exterior cladding, with the exception of brick veneer, shall be painted with at least two coats of exterior grade paint. Existing exterior walls not replaced or repaired but still painted must comply with all applicable requirements in (i) – (iv):

(i) The ground shall be protected with a drop cloth. For pre-1978 housing determined or assumed to have lead-based paint, all scraped paint shall be disposed of in accordance with applicable HUD and EPA guidelines, and as provided in these Standards;

(ii) Peeling and chipped paint shall be scraped loose;

(iii) The entire area to be painted shall be power washed prior to painting; and

(iv) All areas not to be painted (e.g. windows, doors and their trim, exterior lighting fixtures) shall be covered to prevent overspray.

(C) Trim and Baseboards. All installed trim around doors, windows, and floors shall be painted with at least one coat of No Volatile Organic Compound (VOC) paint on both sides (except for baseboard trim).

4.1 Minimum Standards for Flooring

a. General Requirements and Standard Conditions. All flooring, including transitions between rooms, must be effective, relatively level, free of tripping hazards, and adhere to or exceed all applicable Accessibility standards. Floor covering and subflooring(s) must function as intended, as demonstrated through sufficient inspection. Related deficiencies must be corrected during Rehabilitation, as provided in these Standards.

b. Substandard Conditions. Deteriorated, inadequate, and weakened floor framing and subfloors can be the result of poor initial construction, foundation settling or failure, careless remodeling, water, or wood boring insects. A thorough inspection shall be conducted to identify all subfloor and flooring deficiencies.

(1) Repair or Replacement. The conditions in (A) – (D) require corrective measures be completed:

(A) Damaged, rotten, loose, weak or otherwise deteriorated subfloor;

(B) Torn, missing, broken, or otherwise damaged floor covering that creates a tripping hazard;
(C) Missing baseboards, shoe molding, or transition strips; or
(D) Any other condition that meets the definition of Hazardous or Substandard.

In doing so, repairs to severely sloped or uneven floors must satisfy all corrective measures or replacement will be required. New floor coverings shall be installed because the existing floor covering is ineffective, there are obvious trip hazards, because the subfloor was replaced, or because other work requires it, such as increasing the square footage of a room.

Replacement flooring may be required if necessary for Accessibility purposes; other concurrent work; or significant subflooring repairs/replacement occur. If required, any and all applicable Foundation work must be completed first. Thereafter, flooring replacement shall be conducted in accordance with the manufacturer's installation requirements.

c. Other Requirements/Conditions.

(1) Subfloor.

(A) Concrete Slab. If the concrete slab foundation is functioning as intended and is relatively level, no additional subfloor preparation is required. If it is functioning as intended, but not relatively level or has settlement cracks, self-leveling flooring compound shall be installed prior to installation of the floor covering.

(B) Bathrooms, Kitchens, and High Traffic Areas. When replacing subflooring in bathrooms, kitchens, and high traffic areas (e.g. hallways, breezeways) in housing with pier and beam foundations, the newly installed subfloor shall be 19/32" high performance paneling or 3/4" CDX plywood installed as the subfloor with floor joists not more than 24" on center.. All subfloor shall be installed with screws and include subfloor caulking adhesive.

(C) Other Habitable Rooms. Other habitable rooms requiring subfloor replacement shall have 3/4" CDX plywood installed as the subfloor with floor joists not more than 24" on center. All subfloor shall be installed with screws and include subfloor caulking adhesive.

(2) Floor Coverings.

(A) Kitchens and Bathrooms. Replacement floor coverings in kitchens, bathrooms, laundry rooms, and utility rooms shall be water resistant. Transitions between rooms shall match the new floor covering or match as closely as possible existing floor covering that is left in place. Sheet vinyl and VCT shall not be used in rooms with Plumbing Fixtures in pier and beam housing. Replacement floor coverings shall be selected for durability, safety, and ease of maintenance.

(B) Other Habitable Rooms. Replacement flooring in other habitable rooms may include VCT, however laminate planks or ceramic tile is preferred (if ceramic tile is installed on a pier and beam foundation, the floor system may need to be structurally reinforced to support the extra load). Transitions between rooms shall match the new floor covering or match as closely as possible existing floor covering that is left in place. Sheet vinyl shall not be installed. Replacement floor coverings shall be selected for durability, safety, and ease of maintenance.

(C) Vinyl Composition Tile (VCT). VCT shall be 12" x 12" x 1/8" and stored inside a conditioned space for a minimum of 48 hours prior to installation to allow materials to condition to the inside environment. VCT shall be fitted tightly, with no gaps showing at

walls, doors, or trim. Full cover shall be achieved. Base boards or shoe molding shall be installed.

(D) Laminate Planks. Laminate flooring shall be stored inside a conditioned space for a minimum of 48 hours prior to installation to allow materials to condition to the inside environment, and installed per the manufacturer's instructions. Door trim may need to be cut to fit planks seamlessly between rooms. Laminate planks shall be fitted tightly, with no gaps showing at walls, doors, or trim. Full cover shall be achieved, but it shall not fit tightly against walls so that it is allowed to "float". Base boards or shoe molding shall be installed.

(E) Carpeting. Carpeting is generally discouraged; removal of existing carpeting should be conducted where practicable. Otherwise, carpeting must of good quality, in sanitary condition, and preferably low pile. Carpet installation must be completed per the manufacturer's instructions and over appropriate pad(s). Carpet installation is not permitted in kitchens or bathrooms. Replacement floor covering(s) shall be selected for durability, safety, and ease of maintenance.

5.0 Other Cladding and Weatherproofing (*e.g.* Windows, Doors, Siding, Gutters)

5.1 Minimum Standards for Doors and Windows

a. General Requirements and Standard Conditions. Applicable Foundation work must be completed prior to repairing or replacing doors and windows. Each habitable room that contains a window shall have at least one window that is in operable condition and capable of being held in the open condition without assistance or device. Habitable bedrooms must have a minimum of one window that meets egress requirements. Bathrooms, bedrooms and utility rooms shall have a door that is easily operable and fitted with functioning hardware that tightly latches the door.

All windows repaired or replaced as part of the scope of work must operate safely, effectively, and conveniently regardless of user's age or ability. Each window must have an operable screen. Repaired or replaced windows must meet or exceed the requirements of an Energy-Star Rating. Additionally, blinds or window coverings must be provided for all windows.

b. Substandard Conditions. At a minimum, the conditions in (1) – (11) must be repaired or replaced:

(1) Broken, missing or cracked window panes;
(2) Rotten or deteriorated sills, frames or trim;
(3) Missing seal or sealant or dried, cracked or missing putty or caulking around window panes;
(4) Windows painted shut, inoperable or difficult to open and close;
(5) Security bars that do not open from the inside without any special knowledge or tools;
(6) Windows and exterior doors that do not lock;
(7) Broken, damaged, or deteriorated doors;
(8) Doors that do not shut and latch or lock smoothly with the strike plate;
(9) Exterior doors that are not listed as exterior doors;
(10) Rotted, deteriorated or damaged thresholds, jambs, frames, or trim; and
(11) Any other condition that can reasonably be characterized as Hazardous or Substandard.

5.2 Minimum Standards for Doors

a. General Requirements and Standard Conditions.

All doors shall be in good operating order, easy to open, close and latch. All replacement doors must be installed true and plumb with trim installed on both sides. Hardware style (e.g. knob, lever handle, passage), finish (e.g. chrome, brushed nickel, satin), and any glazing shall be identified in the scope of work. All doors that come into contact with interior walls when opened shall have base board mounted, rubber tipped door stops installed.

(1) Interior Doors. Interior door replacements must be installed true and plumb, with trim installed on both sides. Bathroom doors shall be able to be locked.

(2) Exterior Doors. Exterior doors include, but are not limited to, doors connecting the conditioned space with an attached garage. Replacement exterior doors must be at least Energy Star qualified, or its equivalent, double bore exterior doors. Doors connecting the conditioned space to an attached garage shall also be fire rated. All exterior doors shall be keyed alike with a sufficient number of key copies provided to the residents.

b. Other Requirements/Conditions.

(1) Accessibility and Universal Design. Accessible doors may be required depending on the Unit or Household Type(s). Universal design principles state that housing should be built to accommodate any person regardless of age or physical ability. Consultation(s) should be made to determine whether the conditions in (A) – (C) are necessary:

(A) Heavily used Interior doors widened to accommodate a 36" door with a threshold no higher than 1/8". If not feasible due to structural constraints, clear swing hinges can be installed;

(B) Automatic door openers can be installed; and

(C) Lever handles will be installed on all doors.

5.3 Minimum Standards for Windows

a. General Requirements and Standard Conditions. All windows shall be in good operating order, easy to open, close, latch, and lock. Windows that cannot be repaired must be adequately replaced. Flashing materials shall provide a positive drainage plane.

b. Performance Chart. Replacement windows shall meet or exceed Energy-Star or equivalent Ratings. The Performance Chart included herein provides the minimum performance ratings required for all replaced and, if practical, repaired windows.

Performance: **Performance Measure:**	**CZ2**	**CZ3**	**CZ4**
U-Factor	0.65	0.50	0.35
SHGC	0.35	0.35	Not Required

5.4 Minimum Standards for Gutters and Downspouts

a. General Requirements and Standard Conditions. All gutters and downspouts must be installed or replaced (repair alone is insufficient). Gutters shall have a slope no less than 1:20 and all seams made weather tight, if applicable. Downspouts shall be installed at a minimum every 40' and shall discharge water at least five feet from the foundation. Drainage five feet away from the

foundation may be accomplished through the installation of a French drain, swales, or other means of directing water away from the foundation. Water shall not be discharged onto an adjoining property.

6.0 Plumbing, Potable Water, and Sanitary Sewer Systems

6.1 Minimum Standards for Plumbing Systems

a. General Requirements and Standard Conditions. The Plumbing System must effectively provide both a safe and adequate supply of potable water, and a safe and sanitary method of distributing wastewater. Effective Plumbing Systems adhere to the mandatory plumbing principles in (1)-(7):

(1) Sewer gases shall not be allowed to enter any housing Unit;

(2) Sewer leaks must be identified, repaired or replaced, and improper disposal methods discontinued;

(3) Water leaks must also be identified and repaired or replaced;

(4) Water must be free from hazardous contaminants and safe for drinking, bathing and other uses.

(5) An adequate supply of water must be available for all water needs, which includes having adequate pressure at each fixture.

(6) Supply, drain, waste, and vent pipes shall not interfere with structural integrity. Notching and drilling of structural members shall comply with the requirements of the 2009 IRC, Figure R602.6(1) and (2).

(7) Plumbing work shall be performed by state licensed individuals, and plumbing inspections performed by experienced and qualified individuals knowledgeable in the field of plumbing.

b. Substandard Conditions. Existence of any condition listed in (1)-(11) shall require, at a minimum, adequate repair or replacement. If replaced, newly installed Plumbing Systems, piping, and fittings must be properly installed, connected, free flowing; and must be free of leakage and corrosion of water or sewer gases.

(1) Lack of any required condition, as provided in (A) – (F):
- (A) Continuous sanitary water supply;
- (B) Continuously functioning sanitary waste water disposal system;
- (C) Functioning shut-off valves at toilets, sinks and lavatories;
- (D) Access to waste lines such as clean-outs;
- (E) A minimum of one functioning toilet, bathroom sink, or tub/shower;
- (F) Functioning kitchen sink; or

(2) Septic system or Plumbing Fixtures not performing as intended;

(3) Leaks in any supply or waste lines;

(4) Deteriorated, corroded, or leaky supply or drain pipes;

(5) Supply or drain piping consisting of a mixture of different types of piping or fittings, or is run in an inefficient manner;

(6) Missing, blocked, or improperly installed required conditions listed in (A)-(D):
- (A) Vent pipes;
- (B) Gas shut off valve on natural gas Domestic Water Heater (DWH);
- (C) Temperature and pressure-relief valve (TPRV) on DWH;

(D) Shut off valves at the water meter, each toilet, each sink, DWH, or tub/shower locations; or

(7) Natural gas domestic water heaters (DWH) located in bathrooms, bedrooms, closets or utility rooms where a clothes dryer is present;

(8) Natural gas DWH combustion air taken from conditioned space;

(9) Inadequate natural gas DHW vent (e.g. not double walled or skirted at roof penetrations);

(10) Rusted or corroded DHW pipes or storage tanks; and

(11) Any other condition reasonably characterized Hazardous or Substandard.

6.2 Minimum Standards for Potable Water

a. **General Requirements and Standard Conditions.** Water service lines shall be properly connected to a public or approved private system functioning as intended. All newly installed supply lines must be flushed and fittings tested. Privately owned wells and systems must also be tested for water quality. Testing must occur prior to commencing Rehabilitation; and must be conducted by a local health department or other qualified, unaffiliated source. Appropriate corrective measures are required for privately supplied water determined not suitable for use.

b. **Other Requirements/Conditions.**

(1) Water Supply. All dwellings shall have adequate, safe, and potable water supplied through a safe Plumbing System to all fixtures.

(2) Water Quality. Supply systems shall provide for the delivery of potable water through a safe system of piping, free from leaks and other defects and not subject to the hazards of backflow. If supplied water is not free of bacteria, chemicals, excessive minerals, relatively free of odor, taste, color and turbidity, corrective measures to improve water quality (e.g. water softening, water filtering) should be installed.

(3) Exterior Pipe Protection. All newly installed exterior water lines shall be buried at a minimum depth of 6” below the final grade, or be protected from freezing in accordance with local climate.

(4) Water Pressure. The average static pressure at the building entrance shall be between 40-80 psi. If pressure exceeds 80 psi, an approved pressure reducing device shall be installed. If pressure is less than 40 psi, a thorough evaluation shall be conducted to determine the reason(s) for low pressure and appropriate corrective measures shall be completed.

(6) Pipes. New supply water piping shall be type “L” copper tubing with wrought copper solder joint fittings, PEX, or CPVC. All fittings shall be compatible with pipe material. Joints between dissimilar metals shall be made with dielectric fittings to prevent joint deterioration due to electrolysis. All piping shall be adequately supported to prevent sagging or breakage.

(7) Valves. The main water line shall have an accessible service shut-off valve for each building or Unit, as applicable. All hot and cold water supply lines feeding all Plumbing Fixtures shall be equipped with functional and accessible shut-off valves. Access panels for tub/shower enclosures must be provided for access to valves and maintenance, if possible with wall and plumbing configuration prior to rehabilitation. Movement of plumbing fixtures or similar changes are not required to create access. All valves shall be tested and must not leak.

6.3 Minimum Standards for Sanitary Drainage

a. General Requirements and Standard Conditions. The sanitary drainage system consists of the pipes designed to provide adequate circulation of air, exhaust of sewer gasses, prevent loss of water seals in traps and provide for wastewater flowing out of the home and into an approved sewage disposal system. All fixtures shall be connected to an approved sewage disposal system and free of leaks. New sewage disposal systems shall comply with EPA and Texas Commission on Environmental Quality (TCEQ) requirements.

b. Substandard Conditions.

(1) Unapproved Private Systems. Unapproved systems include pit privies, cesspools, ponds, lakes, streams and rivers. If any of these systems are in use, they must be abandoned and the housing Unit must be connected to an approved sewer disposal system.

(2) On-Site Sewage Facilities (OSSF). Prior to conducting Rehabilitation, all OSSF systems shall be inspected by a licensed OSSF inspector. If not performing as intended, an existing OSSF system must be repaired, replaced, or abandoned as provided in (A)-(B):

(A) Repair or Replacement. If repair is suitable, the tank shall be drained and all components tested and repaired or replaced. Special attention must be given to the drainage field; tree cutting and site clearing of the field may be required and replacement made. The drainage field must be designed for the existing soil conditions and the water table at the site and installed by a licensed installer.

(B) Abandonment. If a public system is available to connect to, and the existing OSSF system has reached the end of its Useful Life, abandonment is required. The existing tank shall be pumped, collapsed, and filled. A licensed plumber shall connect the housing to a public system and include a clean out close to the home.

c. Other Requirements/Conditions.

(1) Traps. Bell traps, "S" traps, and drum traps are prohibited. If any of these exist, they shall be replaced with a "P" trap. All fixtures shall be trapped and conform to the requirements in (A)-(F):

(A) All waste lines shall be trapped by a water seal trap as near to the fixture as possible but in no case more than 24" from the fixture;

(B) All traps shall be set level with respect to their water seals and sink traps shall be protected from contact and damage if sinks are made accessible for individuals using wheelchairs or other mobility device(s);

(C) Trap size shall not be less than the following inside diameters: 1 ¼" for lavatories; 1 ½" for tubs, showers, kitchen sinks and dishwashers; 2" for clothes washers and; and 3" for floor drains in utility rooms;

(D) No trap shall be larger than the drainage pipe coming from a fixture;

(E) Access panels shall be provided to enclosed traps and concealed connections, if possible with wall and plumbing configuration prior to rehabilitation. Movement of plumbing fixtures or similar changes are not required to create access; and

(F) Wall and ceiling openings for plumbing shall be air sealed with caulk (gap less than ¼") or expanding foam (gaps more than ¼").

(2) Vents. Plumbing Systems shall be designed to prevent sewer gases from entering the housing Unit(s), allow waste to adequately drain into an approved sewer system, and shall be vented to the exterior so that water released from fixtures may draw in air to allow for smooth and even drainage. All vents must also meet or exceed the requirements in (A) – (E):

(A) All Plumbing Systems shall have at least one main vent stack, running from the main drain through the roof, terminating to the exterior. If only one main vent exists, it shall be no less than 3" inside diameter from top to bottom;

(B) Plumbing vent systems shall only be used for the purpose of venting the system;

(C) Existing vents shall be at a minimum 6" above the high side of the roof penetration. Newly installed vents shall be a minimum 12" above the high side. Through the roof vent penetrations shall be flashed and sealed to provide a positive drainage plain;

(D) All vent stacks terminating in an attic shall be extended or replaced. No vent stacks shall terminate near any window or door or under soffits; and

(E) Air admittance valves are allowed as long as they are American Society of Sanitary Engineering (ASSE) 1051-2009 approved and installed in accordance with the manufacturer's installation instructions.

6.4 Minimum Standards for Plumbing Fixtures

a. General Requirements for Standard Conditions. All Plumbing Fixtures shall be free of leaks or defects which interfere with their ability to perform as intended. Existing fixtures in good and safe working order are generally not required to be repaired or replaced.

b. Other Requirements/Conditions. Any and all replacement Plumbing Fixtures and appliances must be installed per the manufacturer's installation instructions, including water sealing, and must be completed in accordance with all applicable requirements provided in (1)-(7):

(1) All replacement fixtures shall meet or exceed the requirements of WaterSense qualified or equivalent products. Kitchen faucets requiring replacement shall provide 2.2 gallons per minute (GPM) and a 15-year drip free warranty. The scope of work must identify the height toilet(s), whether it is round or elongated, and whether a new faucet is single lever or not.

(2) All replacement plumbing appliances must meet or exceed the requirements of Energy Star, or equivalent, qualified products.

(3) All replacement shower fixtures shall use anti-scald control devices. Access panels shall be provided to these valves, if possible with wall and plumbing configuration prior to rehabilitation. Movement of plumbing fixtures or similar changes are not required to create access.

(4) All fixtures shall be supported and securely attached in a manner consistent with normal installation methods and installed level.

(5) All faucets shall have the hot water line on the left side of the faucet. Existing supply lines that are reversed shall be changed.

(6) If existing garbage disposals are not performing as intended or are not hardwired to the electrical system, they shall be removed, repaired or replaced. New garbage disposals shall be hard wired and switched in an accessible location as close as possible to the kitchen sink.

(7) All repaired or replacement fixtures and appliances shall be tested for leaks and proper operation.

6.5 Minimum Standards for Domestic Water Heaters (DWH)

a. General Requirements and Standard Conditions. All DWHs, with the exception of tankless water heaters, shall have, at a minimum, a 30 gallon storage capacity that can supply a continuous flow of hot water that is at least 102 degrees F, with gas or electric shut-off valves as well as cold water supply shut-off valves, all installed and functioning as intended. Larger capacity DWHs may be installed if necessary to serve larger households. Replacement DWHs shall meet or exceed the requirements of Energy Star qualified, or equivalent, products.

(1) Temperature and Pressure Release Valve (TPRV). Each unit shall be equipped with a TPRV must capable of releasing pressure at 150 psi or 210 degrees Fahrenheit. Water release shall extend to the exterior of the housing, if possible with wall and plumbing configuration prior to rehabilitation. Movement of plumbing fixtures or similar changes are not required to create access.

(2) DWH Enclosure. Each DSW shall be enclosed in a sealed closet designed for this purpose, with gas DSWs having combustion air drawn from outside the conditioned space. Gas DWHs inside conditioned spaces must be in separate closets that is not in the same room as a clothes dryer or any type of exhaust vent. All DWHs installed in a garage must be installed at a minimum 18" AFF with primary drainage draining to the exterior. DWHs in other locations shall be supported by a minimum three foot concrete base, if possible with wall and plumbing configuration prior to rehabilitation. Movement of plumbing fixtures or similar changes are not required to install a concrete base.

(3) Energy Factors (EF) Table. Replacement DHWs shall meet or exceed the Energy Factors (EF) requirements identified by size and type in the Energy Factors (EF) Table:

2020 Program Year Energy Factors (EF) Table		
Energy Factors (EF): Replacement DSWs must meet or exceed the EF identified for each size in this table. **Storage Size (Gal):**	**Gas DWH EF**	**Electric DWH EF**
30	0.63	0.94
40	0.61	0.93
50	0.59	0.92
60	0.57	0.91
70	0.55	0.90
80	0.53	0.89

7.0 Electrical Systems

7.1 Minimum Standards for General Electrical Service

a. General Requirements and Standard Conditions. Electrical systems must provide a safe and adequate supply of electrical current that meets the needs of the residents. Accordingly, Electrical Systems must meet or exceed the safety and efficiency requirements provided in (1)-(6), which require that the system is:

(1) Properly grounded and free of hazards with all components properly secured and covered to prevent contact or electric shock;

(2) In good condition, with all electrical components up to date, lacking deterioration, and free of shorts;

(3) Sufficiently providing adequate, consistent, and appropriate current and voltage levels at each outlet, fixture, and piece of equipment, as per its intended use;

(4) Equipped with conductors, fixtures, boxes, and equipment that are properly sized and rated for their intended use;

(5) Adequate for its current use considering resident behavior and lifestyles;

(6) Equipped with an adequate quantity of appropriately located lighting, receptacles, and switches; and

(7) Maintained, repaired, or otherwise replaced primarily in accordance with the ICC Principles of Safety, Capacity, and Convenience.

b. Substandard Conditions. At a minimum, repair or replacement is required if any of the conditions in (1)-(17) exist:

(1) Inadequate capacity (e.g. excessive use of power strips and/or multiple outlet adaptors);

(2) Two-wire systems (lacking grounding);

(3) Wiring or components missing, broken, disconnected, loose, burnt or melted, unsupported, corroded, cracked, or split;

(4) Panel boxes that show evidence of water intrusion or infestation;

(5) Frayed or burnt wiring or wire insulation;

(6) Circuits, switches, receptacles, or wiring is not compatible with the amperage or other characteristics of the electricity in use;

(7) Flexible cords are used as permanent wiring (unless Non-Metallic (NM) cable(s) otherwise installed in accordance with local building codes);

(8) Exposed wiring on interior walls or the exterior that are not protected in conduit or raceways (unless Non-Metallic (NM) cable(s) otherwise installed in accordance with local building codes);

(9) Receptacles in bathrooms and kitchens within 6’ of a water source and exterior receptacles that are not ground fault circuit interrupter (GFCI) protected;

(10) Reverse polarity;

(11) Unlabeled circuits;

(12) Missing cover plates;

(13) Components not securely attached to the structure;

(14) Inadequate lighting in rooms and outside of entry doors; or

(15) Any other condition reasonably characterized as meeting the definition of a Hazardous or Substandard Condition.

c. Other Requirements/Conditions. Additions, alterations, renovations, and repairs to electrical systems and equipment must be conducted in accordance with the applicable requirements of new electrical systems and equipment by appropriately licensed electricians. Rehabilitation of existing systems and equipment is generally not simultaneously required to comply with the overlapping, otherwise applicable provisions of the IEBC. Nevertheless, any and all additions,

alterations, and repairs MUST NOT cause existing electrical systems or equipment to become unsafe, hazardous, or overloaded. IBC 2015, Appendix K (Administrative Provision).

7.2 Minimum Standards for Existing Wiring and Fixtures

a. General Requirements and Standard Conditions. Existing electrical service and components must be safe, efficient, and in good working condition for its intended use. Moreover, the capacity of the system must meet the demand of the residents. Replacement is not mandatory for existing service and components that meet or exceed these Standard Conditions, unless otherwise required by code or local ordinance. Voluntary replacement may be permitted to more efficiently and cost-effectively meet the needs of the community and the current or intended demands of the residents.

b. Substandard Conditions. Overloaded circuits are not permitted and must be addressed by separating the load and adding an adequate number of circuits necessary to safely and efficiently carry the load.

c. Other Requirements/Conditions.

(1) Secure Fastening of Fixtures and Equipment. All components shall be securely fastened to framing members by mechanical means. No fixture or socket shall hang by unsupported wiring. All existing receptacles, switches, and junction boxes shall contain a proper cover plate. In no case shall the structural integrity of the building be compromised.

2. New Wiring. New wiring shall be installed in a neat and workmanlike manner with all wiring run inside of walls. If wall or ceiling cavities are not accessible, wiring shall be run in properly sized and rated raceway or wire mold, secured along the walls with proper fasteners, flush to the surface and straight.

3. Aluminum Wiring: All aluminum wiring in housing to be rehabilitated shall be replaced with a 3-wire system and in accordance with these Standards. Properly sized service aluminum entry wiring is generally not required to be replaced.

4. Knob and Tube Wiring. Knob and tube wiring shall be replaced with a 3-wire system and in accordance with these Standards.

7.3 Minimum Standards for Sizing of Service and All Electrical Homes

a. General Requirements and Standard Conditions. The service entrance cable shall have the same rating (amperage) as the meter base and service equipment. Replacement of a service entrance shall require calculation of the usage or load within the building to assist in determining the appropriate size. The service entrance must be properly sized for its intended post-Rehabilitation capacity. Room-by-room specifications noting electrical outlets and fixtures shall be included in the scope of work. Nameplate ratings of all appliances must be reviewed for actual VA ratings.

b. Other Requirements/Conditions:

Main Service Panel. Panels shall be in proper working condition with no evidence of overheating, arcing, corrosion, or failure. The panel shall bear the UL label and shall be

marked as suitable for service equipment. Any panels (or installed breakers) identified as substandard by the U.S. Consumer Product Safety Commission shall be replaced. Panels with evidence of malfunction or deterioration shall be replaced.

7.4 Minimum Standards for Material and Equipment Installation

General Requirements and Standard Conditions. All materials, components, and equipment shall be listed or labeled by a qualified electrical products testing laboratory (e.g. "UL" or "CSA"). Listed materials, components, and equipment must be installed per the intended use, with location determined in accordance with the manufacturer's installation instructions.

7.5 Minimum Standards for Grounding

General Requirements and Standard Conditions. All electrical systems shall consist of a single phase 3-wire grounded neutral service entrance and shall provide system grounding and equipment grounding protection.

The service panel shall be connected to the grounding electrode system and an eight foot (8') galvanized or copper clad steel ground rod. All electrical panels shall meet or exceed the bonding requirements of the National Electrical Code (NEC).

If present, metal water pipes shall be bonded to the grounding electrode systems as a means to ground the Plumbing System and prevent pipes and fixtures from becoming energized and hazardous.

All wiring and equipment shall be grounded in accordance with the grounding requirements of the NEC.

7.6 Minimum Standards for Overcurrent Protection

a. General Requirements and Standard Conditions. The number of circuits installed shall not exceed the rating on the panel. The selection of a panel shall provide room for future expansion. All circuits shall be clearly, accurately, and permanently labeled with tags provided. All unused openings shall be properly plugged, capped or sealed with listed materials.

b. Substandard Conditions. Tandem breakers shall only be used in panels designed for them. The use of tandem breakers in order to exceed the 16 circuits permitted on an 100 amp panel shall not be permitted. Any service equipment containing fuse over-current protection shall be replaced with properly rated circuit breaker type over-current protection devices.

c. Other Requirements/Conditions. Panel board over-current devices shall be properly sized and located at the exterior in a subpanel if the main service panel is in the interior. All existing circuits shall be load tested for tripping.

7.7 Minimum Standards for Service Panel and Sub-Panel Connections

a. General Requirements and Standard Conditions. All existing or new service panels shall be securely fastened to the dwelling. All panel boxes shall be listed and enclosed in 16 gauge sheet steel cabinets with doors and catches. Conductors entering the service shall have proper connectors and shall be securely and neatly attached at terminals. All circuits shall be marked and identified inside the panel box and any sub-panels.

b. Substandard Conditions. Wires shall not have any obvious nicks in the insulation and shall be properly bonded. Service panels shall not be located in bathrooms or closets. When replacement is necessary, the design and location of the service panel shall be considered in conjunction with the relevant needs and desires of the residents.

c. Other Requirements/Conditions.

(1) Panel Boxes. If replacement is required, new panel boxes and subpanels must be installed at 48" AFF (as measured from the main shut off switch or to the highest breaker in the box). Relevant local code requirements will apply with regard to this measurement should this Section 7.7(c) conflict with the local code.

(2) Weather head(s). Weather heads shall be at least 12' above the finished grade.

(3) Sub-panels. Sub-panels, add-on boxes, or disconnects to existing services for additional circuits shall be allowed only if the existing service equipment is listed and designed for such extension and the installation is in compliance with the NEC. Sub-panels are allowed if the existing service panel has adequate capacity but no available expansion slots.

(4) Service Disconnect. The main disconnect shall be accessible and clearly marked as a service disconnect.

7.8 Minimum Standards for Branch Circuits

a. General Requirements and Standard Conditions. Protection against physical damage of exposed electrical equipment shall be provided throughout Rehabilitation.

b. Other Requirements/Conditions.

(1) Dedicated Circuits. No less than one dedicated 20 amp circuit shall be present for each bathroom and no less than two 20 amp small appliance branch circuits serving the kitchen. A dedicated circuit shall not serve other receptacles. All 240 volt appliances or equipment shall be on separate circuits. The number of small appliances used by the occupants shall be taken into consideration when planning the circuit loads and placement of receptacles to avoid overloading a circuit and to eliminate the use of extension cords or multiplex outlets. Additional circuits may be necessary and are allowed. Dedicated circuits are required for at least those appliances listed in subparagraphs (A) – (L) of this paragraph, if applicable and as sized in accordance with the manufacturer's instructions:

(A) Refrigerators;
(B) Separate freezers;
(C) Electric range or cook top;
(D) Electric oven;
(E) Clothes dryer;
(F) Electric water heater;
(G) Electric furnace/air handler;
(H) Microwave oven;
(I) Air conditioner;

(J) Sump pumps and water wells;
(K) Septic system aerators; and
(L) Any other major electric appliance.

(2) Circuit Load Distribution. All circuit wiring shall be properly sized to serve the load.
(3) Two-wire Systems. All 2-wire, ungrounded wiring shall be replaced with 3-wire, grounded wiring.
(4) Unused Switches, Receptacles, Fixtures, Conductors and Openings. Unused switches, receptacles, fixtures, and conductors that are obtainable or otherwise within reach shall be removed. All unused openings in outlets, devices, junction boxes, conduit bodies and fittings, raceways, cabinets, and equipment cases or housings shall be effectively closed with knockout seals to prevent vermin, insects, and building materials from coming into contact with wiring.
(5) Wire Splices. All splices shall be placed in accessible and listed junction boxes that are properly covered.
(6) AFCI Protected Circuits. All newly installed branch circuits that supply 15 and 20 amp receptacles installed in family rooms, dining rooms, living rooms, parlors, libraries, dens, sun rooms, recreational rooms, closets, hallways and similar rooms or areas shall be protected by a combination type arc-fault circuit interrupter installed to provide protection of the branch circuit.

7.9 Minimum Standards for Receptacles

a. General Requirements and Standard Conditions. All replacement receptacles must be tamper resistant, and shall be listed/labeled and installed per manufacturer's instructions. Boxes must be specifically designed for its intended purpose, properly sized (rated for the size of the circuit), and mechanically fastened with attached cover plates installed. Receptacles located in damp or we areas must be weatherproof and the wiring shall be run in boxes, conduit(s) and fittings that are listed for wet locations.

(1) Receptacle Locations

(A) All Rooms. All habitable spaces must have receptacles. In each family room, dining room, living room, parlor, library, den, sun room, bedroom, recreation room, or similar room or area, receptacles shall be installed so that at a minimum each wall has at least one receptacle. Receptacles shall be spaced so that at no point along the perimeter of the floor is more than 6' from a receptacle. Other rooms that are not regularly used by residents/occupants are permitted to have only a minimum of one receptacle per room. Receptacles should not be located lower than 15" above the finished floor.

(B) Bathrooms. All bathrooms must have at least one dedicated 20 amp receptacle outlet that is GFCI protected and located at least 3' from the outside edge of the sink. The receptacle shall be located not lower than 30" and not higher than 48" above the finished floor. Receptacles shall not be located within or directly over a bathtub or shower stall, and shall be at least 12" from the outer edge of the bathtub or shower opening.

(C) Kitchens. The kitchen shall have GFCI protected duplex receptacles on at least two separate 20 amp appliance circuits at the kitchen counter top spaced not more than 48" from each other. A separate dedicated, non-GFCI protected receptacle shall be

required for each refrigerator and electric range or cook top, located directly behind it.

(D) Other Exterior(s). Exterior receptacles shall be GFCI protected and enclosed in a listed or labeled weatherproof box. One shall be required at the front of the house and one at the back.

(2) GFCI Protection. Receptacles located in bathrooms, kitchens, in a garage, at the exterior, and anywhere else located within 6' of a sink, shall be GFCI protected. Single use, dedicated receptacles for use by equipment and appliances such as washing machines and sump pumps shall not be GFCI protected, and shall be single, rather than duplex, receptacles when replaced.

7.10 Minimum Standards for Lighting

General Requirements and Standard Conditions. Every habitable room and all living spaces (e.g., bathroom, toilet room, laundry room, furnace or utility room, and hallways) shall be provided adequate natural or artificial lighting, as applicable, and in accordance with paragraphs (1) – (3) of this section:

(1) Natural lighting. Natural lighting must be provided by exterior glazed openings that generally open directly onto a public way, yard, or court. The net glazed area generally must span a minimum eight (8) foot area of the floor in the room or adjoining space served.

(2) Artificial lighting. Artificial lighting must provide at least an average illumination of 10 footcandles (107 lux) over an area of the room served at a height of 30 inches above the floor.

(3) Safety lighting. All stairways (e.g. interior within dwelling unit and exterior serving dwelling unit(s)) must be illuminated by at least one artificial light fixture controlled by a remote wall switch located at the top and bottom of the stairway.

7.10 Minimum Standards for Fixtures and Switches

a. General Requirements and Standard Conditions. All replacement fixtures shall be listed or labeled, Energy Star qualified or equivalent, and must be installed in accordance with the manufacturer's installation instructions. If existing fixtures are in a good and safe condition, securely fastened to framing members, replacement is not required.

b. Substandard Conditions. No fixture or receptacle shall hang from a base by unsupported wiring.

c. Other Requirements/Conditions.

(1) Fixture and Switch Locations. At a minimum, a permanently installed lighting fixture controlled by a wall switch is required in each room of the structure. Switches shall not be located in tub/shower areas or behind the swing of a door. All new wall switches must be located in a convenient and Accessible location.

(2) Closet Fixtures. All light fixtures installed in closets shall be surface mounted or recessed can lights. Recessed can lights shall be Insulation Contact Air Tight (ICAT) rated or its equivalent. Closet fixtures shall be a minimum 6" away from any storage, clothing, or other items, and have a protective cover over the bulb.

(3) Lamps (Light Bulbs). All replacement lamps must meet or surpass the industry standards for Energy Star qualified or equivalent Compact Florescent Lamps (CFLs) or Light Emitting Diodes (LEDs). Refer to Section 4.12 (*regarding* Minimum Standards for Lighting) for additional details.

7.11 Minimum Standards for Smoke and Carbon Monoxide Detectors

a. General Requirements for Smoke Detectors. Each dwelling shall have listed or labeled smoke detectors installed in each bedroom and in the hallway immediately adjacent to bedrooms. Smoke detectors shall draw their primary power from the electrical system, with battery backup, and without interruption except for over current protection. Smoke detectors shall be interconnected so that all detectors sound the alarm when any one senses smoke

b. General Requirements for Carbon Monoxide Detectors. In dwellings with attached garages and/or fuel-fired appliances, carbon monoxide detectors shall be installed. CO detectors shall be listed as complying with UL 2075 and installed outside the immediate vicinity of bedrooms. CO detectors shall be permanently installed and hard wired to the electrical system with battery backup.

8.0 Heating, Ventilation, and Air Conditioning (HVAC)

8.1 Minimum Standards for HVAC Systems

a. General Requirements and Standard Conditions. In conjunction with other systems, the HVAC system of a housing unit must effectively maintain a comfortable living environment for the residents/occupants. At a minimum, paragraphs (1) – (3) of this Section 8.1(a) require all HVAC systems:

(1) Provide a reliable source of heated or cooled air, as applicable, and at a comfortable temperature for all habitable rooms;
(2) Control ventilation and indoor air quality; and
(3) Be free of contaminants that negatively affect indoor air quality.

b. Substandard Conditions. Repair or replacement is required if any Hazardous condition applies, which include but are not limited to, those listed in paragraphs (1) - (14) of this Section:

(1) Lack of a steady and dependable source of heating and cooling to all living areas;
(2) Gas-fired air handler inside the conditioned space which draws; combustion air from the interior;
(3) Combustion gases not venting to the exterior;
(4) Leaking, damaged, rusted or cracked heat exchanger;
(5) Leaking, corroded or damaged gas supply pipe;
(6) Missing gas shut-off at each appliance;
(7) Lack of a functioning pilot or electric start;
(8) Inadequate duct system that does not supply necessary conditioned air to all living areas;
(9) Leaking ducts or returns;
(10) Mismatched or poorly repaired equipment;
(11) Deficiencies are too numerous to justify repair expenses;
(12) Unvented gas-fired wall heaters in enclosed rooms. If existing, the wall unit shall be removed and the gas line capped;
(13) Gas-fired kitchen stoves and/or ovens without ventilation to the exterior;
(14) Lack of a functioning carbon-monoxide detector in homes with gas-fired appliances or equipment.

c. Other Requirements/Conditions.

(1) Sizing and Selecting a New System. Replacement heating and cooling equipment shall be sized in accordance with the current version of the Air Conditioning Contractors of America (ACCA) 16 Manual J or other approved methodology. Equipment selection shall comply with the current version of ACCA Manual S or other approved methodology. Data for heating and cooling loads shall be calculated in accordance with required post-rehabilitation conditions.

(2) Installation. Installation of new systems shall comply with the manufacturer's installation instructions, as appropriate for the fuel source. All replacement equipment shall have a permanent electrical receptacle, switch, light fixture near the equipment, and installed in an accessible manner so that future inspecting, maintaining, and repairing the system can be completed.

(3) Programmable Thermostat. A programmable thermostat shall be installed when a new heating and cooling system is installed. Upon installation, the temperature settings shall be done by the contractor, the occupants shall be educated on using the thermostat and the instructions and warranty shall be provided to the occupants. The location of the thermostat shall be in a central location and not within 3' of doors, windows, appliances, or televisions and installed not higher than 48" AFF, measured from the center of the thermostat.

(4) Specific Requirements for Cooling Equipment.

(A) Climate Zones.

(i) Cooling equipment in Climate Zones 2 and 3 shall be 14.5 Seasonal Energy Efficiency Ratio (SEER)/12 Energy Efficiency Ratio (EER) Energy Star qualified, or its equivalent; or alternatively, shall be a heat pump.

(ii) Cooling equipment in Climate Zone 4 shall be 13 SEER, or its equivalent; or alternatively, shall be a heat pump.

Refer to Section 8.1(c)(3) of these Standards for details regarding Heating Equipment.

(B) Indoor Air Handler. If the indoor air handler is being replaced, the outdoor coil shall also be replaced and it shall be matched to the indoor air handler, unless the outdoor coil is in good working condition and is compatible and properly sized to the new indoor air handler.

(5) Specific Requirements for Heating Equipment.

(A) Climate Zones.

(i) Heating equipment in Climate Zones 2 and 3 shall be greater than or equal to 80% AFUE gas furnace (or its equivalent); greater than or equal to 8.2 HSPF/14.5 SEER/12 EER air-source heat pump, Energy Star qualified with electric backup (or its equivalent); or alternatively, shall be a ground-source heat pump, Energy Star qualified (or its equivalent).

(ii) Heating equipment in Climate Zone 4 shall be greater than or equal to 90% AFUE gas furnace (or its equivalent); greater than or equal to 8.5 HSPF/14.5 SEER/12 EER air-source heat pump, Energy Star qualified with electric backup (or its equivalent); or alternately, shall be a ground-source heat pump, Energy Star qualified (or its equivalent).

8.2 Minimum Standards for the Distribution System.

a. General Requirements and Standard Conditions. The distribution system (e.g. ductwork) must provide an adequate supply of conditioned air to each habitable room, as well as an adequate amount of return air from each habitable room. Existing distribution systems must be inspected to determine whether the system is operating efficiently, properly balanced, and adequately supplying conditioned air -- as this is required for all habitable rooms.

b. Other Requirements/Conditions.

(1) Duct Cleaning. If the distribution system is dirty, but is otherwise operating effectively, duct cleaning is required. This requires complete duct sealing by mechanical means and with duct mastic (so as to adequately eliminate the source of dirt and debris entering the system). Duct cleaning must include all dryer vents.

(2) Replacement and Relocation. Replacement shall ensure all newly installed distribution systems are sized per the current version of the ACCA Manual D (or other Agency-approved methodology). Every effort should be made to relocate the replacement distribution system to the conditioned space through the installation of dropped soffits. If this is not possible, locating the distribution system in the attic shall require mechanical fastening, sealed with duct mastic, and insulated to R-8. Distribution systems shall not be located at the exterior of the home exposing the system to the elements

(3) Installation. Connections and routing of new ductwork shall be completed without kinks or sharp bends and without excessive coiled or looped flexible ductwork. All connections shall be mechanically fastened, sealed with mastic, and properly supported. Runs shall be insulated to R-8 if installed in unconditioned space.

(4) Room Pressurization. Room pressure balancing systems are recommended. Unbalanced distribution systems require transfer grills or jumper ducts to be installed to provide balance with rooms when doors are closed (with respect to the rest of the housing unit). Undercutting doors is prohibited.

8.3 Minimum Standards for Ventilation and Indoor Air Quality

a. General Requirements and Standard Conditions. At a minimum, sufficient ventilation must be provided so as to ensure adequate, continuous, non-contaminated air circulation throughout the Development.

b. Additional Requirements/Conditions.

(1) Exhaust fans. Exhaust fans shall comply with or exceed the applicable requirements in 2012 IRC, Chapter 15, and must be at least Energy Star qualified (or its equivalent). All bathroom, toilet rooms, and kitchen fans shall exhaust to the exterior (either through the roof or a gable wall), be mechanically fastened, sealed with duct mastic, insulated to R-6, and have a mechanical damper. Flashing shall be installed to provide a positive drainage plain. Flex duct terminating at a gable vent is prohibited.

(A) Bathroom and Toilet Room Exhaust Fans. All bathrooms and toilet rooms must be ventilated by exhaust fans (vented to the outside) unless an operable window is present. If a continuous fan is installed, it shall be greater than or equal to 20 cfm. Intermittent fans shall be greater than or equal to 50 cfm. Neither shall exceed 1.5 sones. Bathroom exhaust fans shall be installed on a dedicated GFCI protected circuit. Light kit, night light, and/or a heating element may be included with exhaust fans. Combustion appliances venting to the exterior shall not be located in bathrooms.

(B) Kitchen Exhaust Fans. Kitchens require mechanical exhaust fan(s) (e.g. kitchen range hoods) be installed unless adequately ventilated by an existing and operational exhaust fan (vented to the outside). If a continuous fan is installed, it shall be greater than or equal to 5 cfm. Intermittent fans shall be greater than or equal to 100 cfm.

(C) Garage Exhaust Fans. If a garage is attached to a Unit (e.g. sharing a common wall), then a UL listed exhaust fan shall be installed in the garage and connected to the operation of the garage door. The exhaust fan must at least turn on when the door is opened and off after 20 minutes.

(2) Supply Air. If supply air is installed and connected to the return plenum, subparagraphs (A) - (D) of this paragraph shall apply, which requires:

(A) Supply air inlets must not be located within 10 linear feet from known contamination sources such as stacks, vents, exhaust hood, or vehicle exhaust;

(B) Rodent and insect screens must be installed;

(C) Ventilation must come directly from the outdoors and not from adjacent dwelling units, garages, crawlspaces, or attics; and

(D) The duct must be mechanically fastened, sealed with duct mastic, insulated to R-6, and shall have a mechanical damper.

Mandatory Development and Unit Standards

Health and Safety

NHTF-assisted housing must be free of all health and safety defects, must meet minimum standards of habitability and functionality, and all inspected items with an observed deficiency must be corrected. Additionally, NHTF-assisted housing is subject to the requirements in 24 CFR §93.301(b)(1)(i) regarding identifying life-threatening deficiencies, which must be identified and addressed immediately if the housing is occupied at the time of rehabilitation. All critical health and safety items, which pose the possibility of death or more than a remote possibility of a critical health issue from long or short-term exposure by one or more of the occupants, shall be addressed. All items that threaten the integrity of the unit, because of failure to replace will lead to deterioration, collapse, or other failure of a housing component shall be addressed. All life-threatening deficiencies will be identified as part of the development's Scope and Cost Review and will be required to meet all applicable local code requirements. Life-threatening deficiencies are reported on the TDHCA Uniform Physical Condition Standards Checklist (Attachment A) for Developments subject to TDHCA compliance monitoring. This checklist indicates what constitutes a health and safety defect. These deficiencies are categorized as "Level 1", "Level 2" or "Level 3" according to HUD Final Dictionary of Deficiency Definitions (PASS) Version 2.3 dated 03/08/2000.

Standards for work performed and materials used will adhere to the requirements of the International Existing Building Code (IEBC) or International Building Code (IBC), as applicable, in the version adopted by 10 TAC § 13.9 Construction Standards.

Lead-Based Paint

NHTF-assisted housing is subject to the regulations at 24 CFR Part 35, subparts A, B, J, K, and R regarding lead-based paint poisoning prevention in residential structures. Applicants, developers, and builders of any project requiring the rehabilitation of structures built prior to 1978 must read, fully understand, and comply with 24 CFR Part 35, subparts A, B, J, K, and R.

The safety of children under the age of six, pregnant women and women of childbearing years are the most important to protect from lead based paint exposure. The occupants may be an older couple, but have the grandchildren who visit frequently, thus exposing a child under six to lead hazards. To be effective, lead abatement work must accomplish the following:

- Identify all possible lead hazards;
- Identify the household and family characteristics;
- Provide qualified contractors to perform work;
- Provide adequate monitoring of work; and
- Ensure that all identified lead-based paint hazards are eliminated and that the unit is physically clear of lead dust above the allowable amounts.

Inspection and testing for lead-based paint must be completed prior to determination of the scope of rehabilitation, a copy of the inspection and testing report must be provided as part of the work write-up.

It is to the responsibility of the inspector to identify the lead hazards and family characteristics. The Scope and Cost Review must be provided to the party conducting the lead-based paint, and the Development Owner must implement the mitigation recommendations of the testing report. A plan must also be put in place for the scheduling of the work, including any necessary relocation.

In addition to following EPA and HUD rehabilitation regulations on lead-based paint abatement, all projects are required to adhere to the State lead-based paint abatement rules found in the Texas Administrative Code, Title 25, Chapter 295, Subchapter I - Texas Environmental Lead Reduction prior to project completion. The Texas Environmental Lead Reduction Rules (TELRR) cover several areas of lead-based paint activities in housing including the training and certification of persons conducting lead inspections, risk assessments, abatement, and project design.

Accessibility

NHTF-assisted housing must meet the accessibility requirements of 24 CFR Part 8 (implementing Section 504 of the Rehabilitation Act of 1973) and Titles II and III of the Americans with Disabilities Act (implemented at 28 CFR Parts 35 and 36), as applicable upon project completion. “Covered multifamily dwellings”, as defined at 24 CFR §100.201, must also meet applicable design and construction requirements at 24 CFR §100.205 (implementing Fair Housing Act) and as further described in 10 TAC Chapter 1, Subchapter B. Additionally, the Scope and Cost Review Report must include an analysis of compliance with the Department's accessibility requirements relating to the Site and Development Requirements and Restrictions described in the above subchapter of the Texas Administrative Code and identify the specific items in the scope of work and costs needed to ensure that the Development will meet these requirements upon project completion.

Disaster Mitigation

Where relevant, NHTF-assisted housing must be improved to mitigate the impact of potential disasters, in accordance with applicable State and local codes, ordinances, and requirements, in addition to the Uniform Physical Condition Standards or other requirements established by HUD. Threshold requirements in the Texas QAP are applicable to NHTF-assisted rehabilitation projects. 10 TAC Chapter 11 requires all reconstruction Developments located within a 100 year floodplain as identified by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps to develop the site in full compliance with the National Flood Protection Act and all applicable federal and state statutory and regulatory requirements. The Applicant will have to use floodplain maps and comply with regulation as they exist at the time of commencement of construction. Applicants requesting NHTF funds must also meet the federal environmental provisions under 24 CFR §93.301(f)(2)(vi). If no FEMA Flood Insurance Rate Maps are available for the proposed Development Site, flood zone documentation must be provided from the local government with jurisdiction identifying the 100 year floodplain.

Standards for work performed and materials used will adhere to the requirements of the International Existing Building Code (IEBC) or International Building Code (IBC), as applicable, in the version adopted by 10 TAC §13.9, Construction Standards.

Furthermore, Section 13.9 requires all developments financed with Direct loans located in designated disaster sites as described in 28 TAC §5.4008 to comply with 28 TAC §5.4011 (relating to Applicable Building Code Standards in Designated Catastrophe Areas for Structures Constructed, Repaired or to Which Additions Are Made On and After January 1, 2008). Designated Catastrophe Areas include areas prone to wind damage. These areas are to adhere to building standards set forth by the Building Code for Windstorm Resistant Construction ("Texas Windstorm Code"), effective September 1, 1998. Amendments to the Texas Windstorm Code are adopted by reference, initially effective on June 1, 2002. Starting September 1, 2020, the Texas Windstorm Code was updated to require adherence to the 2018 International Residential Code (IRC) or the 2018 International Building Code (IBC).

As the climate changes, it is evident that disaster mitigation standards must adapt to a wider range and increased frequency of catastrophic events. As such, 28 TAC §5.4008(d) requires at least bi-annual review of the standards set forth in 28 TAC §5.4001 et. seq. The Building Code Advisory Committee authorized and further described at 28 TAC §5.4800 is charged with reviewing the building code standards specified in the plan of operation set forth in 28 TAC §5, and is required to recommend any changes to these standards that the committee deems appropriate. Work performed and materials used within the IEBC or IBC include provisions for wind resistance, water resistance, fire resistance and temperature extremes. Requirements include but are not limited to exterior walls, roof assemblies and rooftop structures, structural design for minimum design loads (snow, wind, rain, flood, ice, and earthquake as well as the required load combinations), foundations, instillation and material quality for masonry, steel, wood, glass, gypsum products, and plastics.

Although earthquakes in Texas are rare, the IEBC and IBS does supply requirements intended to ensure that structures can adequately resist seismic forces. These seismic provisions represent the best available guidance on how structures should be designed and constructed to limit seismic risk.Broadband Infrastructure

HTF-assisted housing must provide for the installation of broadband infrastructure to be completed in accordance with 24 CFR §93.301(b)(2)(vi) and at no charge to the residents. 10 TAC §11.101(b)(4)(A).

Environmental Requirements

HTF-assisted housing must meet the minimum environmental requirements in 24 CFR §93.301(f)(2).

Development and Unit Amenities

Housing improvements beyond those described in these Standards must include all applicable amenities and energy and water efficiency features in accordance with 10 §TAC 11.101(b)(4), (5), and (6), as amended.

Inspections, Construction Documents, & Compliance (24 CFR §93.301(b)(2)-(3))

Inspections

All NHTF-assisted rehabilitation projects must comply with TDHCA written inspection procedures. TDHCA will conduct initial, mid-progress, and final inspections during construction to identify any deficiencies that must be addressed and ensure that all work is in accordance with approved standards, as applicable. *See*, 24 CFR §93.301(b)(3). TDHCA is responsible for initial and ongoing on-site inspections for rental housing during the affordability period. *See*, 24 CFR §§93.301(b)(3) and 93.301(e); *see also*, 10 TAC §13.11(Post-Award Requirements).

Work Write-Ups

Each repair should be detailed as required through the use of plans, drawings, specifications (conforming to the MasterFormat work write-ups). At a minimum each repair should be detailed in a work write up that specifies the location, required demolition, and methods and materials with enough detail to determine the desired outcome or finished product. Work-write ups can reference plans and specifications as needed but must be detailed enough to complete repairs. Moreover, work write-ups must comply with State and local codes, ordinances, requirements, and TDHCA standards.

Cost Estimates

Written Cost Estimates are required for all NHTF-assisted rehabilitation projects. Cost estimates must be reasonably prepared and submitted to the Department for approval in accordance with Title 10, Part 1, Chapter 10 of the Texas Administrative Code and these Standards. *See*, 24 CFR 93.301(b)(2) and (3); *see also,* 10 TAC §13.11(Post-Award Requirements)(regarding documents that must be submitted to the Department for review and approval prior to loan closing).

NHTF Annual Auditing, Recordkeeping, and Certifications

NHTF-assisted housing must comply with the auditing, recordkeeping, and cost certification requirements of 24 CFR §93.406 and 24 CFR §93.406.

Scope of Work and Post-Rehabilitation Standards

Uniform Physical Conditions Standards (UPCS)

All Developments funded by the Department must be decent, safe, sanitary, in good repair, and suitable for occupancy throughout the entire Affordability Period. 10 TAC §10.621; 24 CFR §5.703.

At a minimum, NHTF-assisted housing must comply with HUD's Uniform Physical Condition Standards (UPCS], as found in 24 CFR §5.705 and further provided for in 24 CFR §5.703. Developments must also comply with all local health, safety, and building codes; ordinances; and zoning requirements. Developments in jurisdictions without applicable State or local building codes must adhere to the International Existing Building Code (IEBC), and where the International Building Code (IBC)) of the International Code Council in addition to the UCPS. Refer to **Appendix A: Uniform Physical Condition Standards (UPCS)** for additional details.

AND

Scope and Cost Review (SCR)

This report is required for NHTF-assisted Rehabilitation Developments. The SCR Report must be prepared in accordance with 10 TAC §11.306 (relating to Scope and Cost Review Guidelines) and submitted as required under 10 TAC §11.205(3)(relating to Scope and Cost Review (SCR)). Importantly, the report must be accompanied by the Department's SCR Supplement in the form of an excel workbook as published on the Department's website. Refer to **Appendix B: Scope and Cost Review (SCR)** for additional details.

AND

Capital Needs Assessment (CNA)

All NHTF-assisted Rehabilitation Developments must also submit a capital needs assessment (CNA) estimating the useful life of each major system. 10 TAC §11.205(3). The CNA shall determine the work to be performed and identify the long-term physical needs of the project. 24 CFR §93.301(b)(1)(ii). Moreover, the assessment must include a comparison between the local building code and no earlier than the 2015 version of the IEBC of the International Code Council. 10 TAC §11.205(3). If the remaining useful life of one or more major system is less than the applicable period of affordability, a replacement reserve must be established with adequate monthly payments made to repair or replace the systems as needed. See, 24 CFR §93.301(b)(1)(ii); *see also*, 10 TAC §10.404 (Reserve Accounts).

In addition to the minimum CNA requirements, the Report must be accompanied by the Department's SCR Supplement in the form of an excel workbook as published on the Department's website. 10 TAC §11.205(3)(relating to Scope and Cost Review(SCR)). Refer to **Appendix C: Capital Needs Assessment (CNA)** for additional details.

APPENDIX TO
2020 NHTF MINIMUM REHABILITATION STANDARDS

APPENDIX A: Uniform Physical Condition Standards (UCPS)

Introduction

All Developments funded by the Department must be decent, safe, sanitary, in good repair, and suitable for occupancy throughout the entire Affordability Period. 10 TAC §10.621; 24 CFR §5.703. This requires that, at a minimum, NHTF-assisted housing comply with HUD's Uniform Physical Condition Standards (UPCS) provided in 24 CFR Part 5, Subpart G.

Importantly, the UPCS is a minimum threshold requirement for NHTF-assisted housing. Developments are still responsible for complying with applicable local health, safety, and building codes; ordinances; and zoning requirements. Even Developments in jurisdictions without applicable State or local building codes must still comply with the 2012 International Existing Building Code (IEBC) in addition to the UPCS.

UPCS Compliance Inspections

The Department's Compliance Division or its Affiliate(s) is responsible for conducting UPCS inspections of NHTF-assisted multifamily developments. *See* §200.853. Inspection frequency will be determined using the scoring and ranking methodology of HUD's Real Estate Assessment Center (REAC). *See* §200.857(a) – (b). Unless otherwise determined by the Department, UPCS Inspections will be conducted once every three years during the Affordability Period.

During an Inspection, observable deficiencies for inspectable items will be identified for all major areas of NHTF-assisted rehabilitated housing, including the **(1) Site; (2) Building Exterior; (3) Building Systems; (4) Dwelling Units; (5) Common Areas; and (6) Health and Safety Considerations**. Correcting deficiencies is an important part of the Applicant/Borrower's ongoing responsibility to maintain the physical state of the Development so that it is decent, safe, sanitary, and in good repair. This responsibility must be maintained throughout the entire Affordability Period.

Depending on the type of Deficiency identified, the responsibility to address and remedy Deficiencies may either be (1) immediate or (2) completed with the project's scope of work.

1. **Life Threatening Deficiencies (LTD)** are identified in the Exigent Health and Safety Report(s) and require immediate attention or remedy. **For projects involving the acquisition or rehabilitation of occupied housing, Life Threatening Deficiencies MUST be immediately addressed AND remedied**. Life Threatening Deficiencies include, but not are limited to, the following (categorized below by major Inspectable Areas):

   Site:

   - Air Quality – propane/natural gas/methane gas detected
   - Electrical Hazards – exposed wires/open panels; water leaks on/near electrical equipment

   Building Exterior:

   - Electrical Hazards – exposed wires/open panels; water leaks on/near electrical equipment
   - Emergency Fire Exits – Emergency/Fire Exits Blocked/Unusable
   - Fire Escapes – blocked egress/ladders; visibly missing components
   - Windows – security bars prevent egress

Building Systems:

- Domestic Water – misaligned chimney/ventilation system
- Electrical System – missing breakers/fuses; missing covers
- Fire Protection – missing/damaged/expired extinguishers
- Air Quality – propane/natural gas/methane gas detected
- Electrical Hazards – exposed wires/open panels; water leaks on/near electrical equipment
- Emergency Fire Exits – emergency/fire exits blocked/unusable
- HVAC – misaligned chimney/ventilation system

Common Areas:

- Electrical – missing breakers; missing covers
- HVAC – misaligned chimney/ventilation systems
- Outlets/Switches/Cover Plates – missing/broken
- Windows – security bars prevent egress
- Electrical Hazards – exposed wires/open panels; water leaks on/near electrical equipment
- Emergency Fire Exits – emergency/fire exits blocked/unusable

Unit:

- Electrical System – missing breakers/fuses; missing covers
- Air Quality – propane/natural gas/methane gas detected
- Electrical Hazards – exposed wires/open panels; water leaks on/near electrical equipment
- Emergency Fire Exits – emergency/fire exits blocked/unusable
- Water Heater – misaligned chimney/ventilation system
- HVAC System – misaligned chimney/ventilation system
- Outlets/Switches – missing; missing/broken cover plates
- Smoke Detector – missing/inoperable
- Windows – security bars prevent egress

2. **Non-Life Threatening Deficiencies** generally include all other observable deficiencies. Any and all Non-Life Threatening Deficiencies must be completed with a project's scope of work and thus corrected prior to project completion. Non-Life Threatening Deficiencies include but are not limited to those listed as "NLT" or "Non-Life Threatening Deficiencies" in ***Attachment A – TDHCA Uniform Physical Condition Standards Checklist (UPCS Checklist)***.

Required Documentation

All NHTF-assisted multifamily housing must complete and timely submit the ***TDHCA Uniform Physical Condition Standards Checklist (UPCS Checklist)*** to the Department for review and approval.

APPENDIX B: Scope and Cost Review (SCR)
(10 TAC §11.205(3); 10 TAC §11.306)

Introduction

All NHTF-assisted Developments (excluding Reconstruction) must submit a Scope and Cost Review (SCR) Report. The SCR must meet the minimum requirements provided in 10 TAC §11.306 (relating to Scope and Cost Review Guidelines) and 10 TAC §11.205(3)(relating to Required Third Party Reports: Scope and Cost Review). Pursuant to 10 TAC §11.306(a), the objective of the SCR is to provide a self-contained report that comprehensively details and evaluates the current conditions of the Development, and identifies a scope of work for the proposed repairs, replacements, and improvements to an existing multifamily property.

Scope and Cost Review Guidelines

The SCR author must evaluate the sufficiency of the Applicant's scope of work and provide an independent review of the Applicant's proposed costs. It is the Applicant's responsibility to ensure the scope of work and cost estimates (including the Development Cost Schedule) submitted in the Application are provided to the author, as these must also be included in the SCR Report. Importantly, the report should be in sufficient detail for the Underwriter to fully understand all current conditions, scope of work and cost estimates. The report must also include the following statement, "any person signing this Report acknowledges that the Department may publish the full report on the Department's website, release the report in response to a request for public information and make other use of the report as authorized by law." 10 TAC §11.306(a).

Under 10 TAC §11.306(b), the SCR must include analysis in conformity with the American Society for Testing and Materials (ASTM) "Standard Guide for Property Condition Assessments. Baseline Property Condition Assessment Process (ASTM Standard Designation: E 2018)," unless the exceptions in 10 TAC §11.306(f) or (g) apply. Moreover, 10 TAC §11.306(c) requires good quality color photographs of the subject Real Estate (front, rear, and side elevations, on-site amenities, interior of the structure) be included. Photographs should be properly labeled. Photographs of the neighborhood, street scenes, and comparables must also be included.

Discussion and analysis must be provided for 10 TAC §11.306(d)(1) – (8). This includes, but is not limited to, discussion and analysis of:

(1) Descriptions of Current Conditions;
(2) Descriptions of Scope of Work;
(3) Useful Life Estimates;
(4) Code Compliance;
(5) Program Rules;
(6) Accessibility Requirements;
(7) Reconciliation of Scope of Work and Costs; and
(8) Cost Estimates.

Any costs not identified and discussed in sufficient detail in the SCR as part of 10 TAC §11.306(d)(6), (d)(8)(A), and (d)(8)(B) will not be included in the underwritten Total Development Cost in the Report.

Third Party, Unrelated, and Nonaffiliated Author(s)

The SCR shall be conducted by a Third Party at the expense of the Applicant, and addressed to Texas Department of Housing and Community Affairs as the client. Copies of reports provided to the Department which were commissioned by other financial institutions should address the Texas Department of Housing and Community Affairs as a co-recipient of the report, or letters from both the provider and the recipient of the report should be submitted extending reliance on the report to the Texas Department of Housing and Community Affairs. 10 TAC §11.306(h).

The SCR report must also include a statement that the individual and/or company preparing the SCR report will not materially benefit from the Development in any other way than receiving a fee for performing the SCR. Because of the Department's heavy reliance on the independent cost information, the provider must not be a Related Party to or an Affiliate of any other Development Team member. The SCR report must contain a statement indicating the report preparer has read and understood the requirements of 10 TAC §11.306 (esp., §11.306(i)).

Health and Safety Recommendations

Any recommendations made in the SCR regarding health and safety, life expectancy of major systems (structural support; roofing; cladding and waterproofing; plumbing; electrical; and heating, ventilation, and air conditioning) must be implemented. 10 TAC §13.9(1); 24 CFR §93.301(b)(1)(ix) (requiring an estimate (based on age and condition) of the remaining useful life of these systems be conducted upon project completion of each major system). If the remaining useful life of one or more major system is less than the applicable period of affordability, a replacement reserve must provide adequate monthly payments, so as to repair or replace the systems as needed. 24 CFR §93.301(b)(1)(ix).

For properties originally constructed prior to 1978, the SCR and rehabilitation scope of work must be provided to the party conducting the lead-based paint and/or asbestos testing. 10 TAC §13.9(2). The rehabilitation must implement the mitigation recommendations of the testing report. 10 TAC §13.9(2).

Required Documentation

Attachment B – TDHCA Scope and Cost Review (SCR Supplement)

The SCR must include the Department's Scope and Cost Review Supplement (SCR Supplement) in the excel form published on the Departments website (and attached for reference purposes). The purpose of the SCR Supplement is to consolidate and show reconciliation of the scope of work and costs of the immediate physical needs identified by the SCR author with the Applicant's scope of work and costs provided in the Application. The consolidated scope of work and costs shown on the SCR Supplement will be used by the Underwriter in the analysis, as it details the projected repairs and replacements through at least thirty (30) years.

APPENDIX C: Capital Needs Assessment (CNA)
(24 CFR §93.301(b)(1)(ii))

Introduction

All NHTF-assisted Rehabilitation Developments must also submit a capital needs assessment that estimates the useful life of each major system. The CNA will determine the work to be performed and identify the long-term physical needs of the project. 24 CFR §93.301(b)(1)(ii). If the remaining useful life of one or more major system is less than the applicable period of affordability, a replacement reserve must be established with adequate monthly payments made to repair or replace the systems as needed. 24 CFR §93.301(b)(1)(ii).

Importantly, the CNA must adhere to all applicable requirements of 10 TAC §11.205(3)(relating to Required Third Party Reports), including being accompanied by the Department's SCR Supplement in the excel form published on the TDHCA website (and attached to these Standards for reference purposes).

Capital Needs Assessment Guidelines

The CNA must be completed by an independent, Third Party engineer or architect approved by the Department. The performing engineer or architect must:

- conduct an interview with the appropriate onsite Development personnel (e.g. property management, maintenance personnel) to assess prior, ongoing or chronic repairs, maintenance issues, and deficiencies;

- complete an onsite visit and physical inspection of both the interior and exterior units and structures on the property;

- analyze and provide recommendations regarding the presence of environmental hazards and potential efficiency or other mitigation considerations, in accordance with these standards;

- analyze and provide recommendations as to the reasonability of the proposed budget as it relates to the work to be performed, including but not limited to an analysis of the: (1) Development Site; (2) Structural Systems; (3) Interior Systems; and (4) Mechanical, Plumbing, Electrical, HVAC, and Safety (e.g. fire protection, elevator requirements, safety lighting) Systems and related requirements; and

- depending on the aforementioned determinations, the assessment must assess and provide recommendations regarding the proposed budget as it relates to the conclusions of the assessment. Moreover, any and all components of major systems reaching the end of their useful life or otherwise bearing critical conditions, must be identified. If the remaining useful life of any major system is less than 50% of the expected useful life, immediate rehabilitation (replacement or repair, as appropriate) is required. If the remaining useful life of any component of the major systems is less than the term of the affordability period, replacement reserves with adequate payments being made as required to finance future repair(s) or replacement(s) is required.

Required Documentation

Attachment B – TDHCA Scope and Cost Review (SCR Supplement)(as detailed in APPENDIX B).

ATTACHMENTS TO
2020 NHTF MINIMUM REHABILITATION STANDARDS

ATTACHMENT A: Uniform Physical Condition Standards Checklist (UPCS Checklist) (available as posted on the TDHCA website at https://www.tdhca.state.tx.us/pmcomp/inspections/docs/REAC-UPCS-Inspection-Checklist.pdf and as may be amended from time to time on the TDHCA Compliance (Physical Inspections) webpage at https://www.tdhca.state.tx.us/pmcomp/inspections/physical.htm).

ATTACHMENT B: Scope and Cost Review Cost Schedule (SCR Supplement)(available as posted on the TDHCA website at https://www.tdhca.state.tx.us/readocs/17-PCASupplementExample.xls and as may be amended from time to time on the TDHCA Real Estate Analysis webpage at https://www.tdhca.state.tx.us/rea/index.htm).