RIHousing

National Housing Trust Fund Rehabilitation Standards

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I. PURPOSE OF STANDARDS

A. The National Housing Trust Fund Rehabilitation Standards (known herein as the "HTF Standards") are designed to outline the requirements for building rehabilitation for all RIHousing National Housing Trust Fund (HTF) funded multi-family housing projects. The HTF Standards are applicable to all RIHousing HTF-funded rehabilitation projects. The HTF Standards, though a requirement specifically to the development entity in direct receipt of RIHousing HTF funding, are written to provide guidance to all relevant members of a project development team.

B. The goal of the RIHousing HTF program is to provide functional, safe, affordable and durable housing that meets the needs of the tenants and communities in which the housing is located. The purpose of the HTF Standards is to ensure that property rehabilitation puts each building in the best possible position to meet this goal over its extended life and that, at a minimum, all health and safety deficiencies are addressed.

C. If a project is out of compliance with the HTF Standards, the recipient shall bring to the attention of RIHousing staff the specific portion of the project that does not comply, stating the reasons for non-compliance. RIHousing staff will make a determination as to whether an exception to the HTF Standards shall be granted.

Note: At the time of publication and adoption of the HTF Standards, the adopted codes referenced are those currently in force. As standards and codes change and are put into effect by the governing authorities having jurisdiction, the new standards and codes will apply in lieu of those referenced.

II. ADDITIONAL STANDARDS

A. Standards: In addition to the requirement that recipients of National Housing Trust Fund funding must conform to these HTF Standards, developments must also conform to RIHousing's Guidelines for Development ("RIH Guidelines"). **Where conflicts exist between these HTF standards and the RIH Guidelines, the most stringent standards shall apply.** The HTF Standards and the RIH Guidelines include the following:

1. The Housing Trust Fund Standards (HTF Standards) include three guidance documents:

    a. **These HTF Standards**

    b. **Exhibit A**: The Property Maintenance Code Inspection Form, also known as the "Inspectable Items and Observable Deficiencies form".

        i. Exhibit A is designed to exceed the Rhode Island Property Maintenance Code SBC-8-2013 and the Uniform Physical Condition Standards (UPCS). The form, also called the "Inspectable Items and Observable Deficiencies form", includes descriptions of the types and degrees of deficiency for each item that any HTF-assisted project must address, at a minimum. Deficiency categories are: minor (Level 1), major (Level 2) or severe (Level 3). If the housing is occupied at the time of construction or rehabilitation, any life-threatening deficiencies must be identified

and addressed immediately, per the instructions noted in Exhibit A. All other deficiencies found using Exhibit A will need to be addressed in the project's scope of work per coordinated review with RIHousing staff.

c. **Exhibit B**: The Capital Needs Assessment (CNA) Guidance.

i. Exhibit B is a tool for HTF recipients to plan for the long-term physical health of the affordable housing properties constructed or rehabilitated using HTF funding. The completion of a Capital Needs Assessment is critical to determining the scope of work, and thus in determining the project's capital expenses (Section V of these Standards). Further, the CNA is critical to determining the expected useful life of all building systems, and thus in determining the needed replacement reserves for maintenance expenses (Section VI of these Standards).

2. The RIHousing Guidelines for Development (RIH Guidelines) documentation is available online at http://www.rhodeislandhousing.org/sp.cfm?pageid=570#anchor1.

a. Link note: Select Section 3: Guidelines for Development (PDF) on the webpage referenced above.

b. The remaining sections of the HTF Standards will reference the parts and page numbers of the Guidelines for Development (see red text throughout this document on cross-referencing directions). **Please note** that the RIH Guidelines are updated annually and page number references are representative only of the Guidelines in effect for the current year. For this version of the HTF Rehab Standards, the **2019 Guidelines for Development** are in effect, available on the RIHousing website, see link above.

B. The implementation of the most stringent standards to the design and construction of the housing rehabilitation (Section II.A above) is the responsibility of both the HTF recipient and RIHousing:

1. HTF recipients are required to use both these HTF Standards, Exhibit A and Exhibit B of these HTF Standards, and the RIH Guidelines, as guides in developing construction documentation (in coordination with architects and engineers) to be included in project applications.

2. RIHousing Design and Construction staff will review construction documents (required per § 93.301(a)(2)(iv) and § 93.301(b)(2) of HTF Regulations) to make sure that the most stringent standards have been applied to all design, construction and health & safety components of the project. The Design and Construction staff will use these HTF Standards to check the standards against the referenced sections of the RIH Guidelines. The analysis of most stringent standards application will occur at the following project timeframe milestones:

a. The Scope and Cost Review process during the application review period;

b. Construction contract documents review process between preliminary award and funding commitment;

c. And all phases of inspection (required prior to processing funding requisitions, upon unit occupancy, etc.)

III. QUALITY OF WORK

A. HTF recipients shall ensure that all rehabilitation work is completed in a thorough and workmanlike manner in accordance with:

1. Industry practice and contractually agreed upon plans and specifications (cross-reference with Section 2 of RIH Guidelines, (pages 4 -7)) and

2. Mutually agreed upon change orders during the construction process (cross-reference with Section 5 of RIH Guidelines, Part A, (pages 32 & 34)). HTF recipients will employ best practice industry standards relating to quality assurance to verify all work completed.

B. Project Design Professionals

1. Projects will be designed by licensed professional per the Rhode Island Rules and Regulations for Design Professionals (http://www.bdp.state.ri.us/). All architects, engineers and design professionals shall be registered and/or licensed in the State of Rhode Island.
2. It is the responsibility of each licensed professional to ensure that the scope of work is completed in accordance with the generally accepted practices in their discipline, as well as designing the project to be in full conformance with all the applicable Federal, State and local codes. (See Section IV below for Code Compliance and Section V below for Scope of Work determination.)
3. In addition, the architect or engineer will provide contract specifications that stipulate quality standards, materials choices and installation methods and standards. Such specifications may reference other appropriate standards set by different trades associations and testing agencies such as ASTM, Underwriters Laboratory (U/L), Tile Council of America, Gypsum National Roofing Contractors Association (NRCA) Architectural Woodwork Institute, SMACNA, AFME, etc.

C. By meeting the various code requirements as a minimum standard (see Section IV below), together with the other standards herein or in attendant RIHousing policies, each building rehabilitation project is assured to be brought up to an acceptable level of rehabilitation.

D. Warranties shall be required per the standard construction contracts on all materials, equipment and workmanship.

IV. CODE COMPLIANCE & HEALTH AND SAFETY

A. All work shall comply with all applicable Rhode Island State and local codes, ordinances, and zoning requirements (cross-referenced to Part I of RIH Guidelines, (page 1)). Key currently updated Rhode Island State Building & Fire Code Regulations are located at: http://sos.ri.gov/divisions/Open-Government/State/building-and-fire-codes.

Applicable state codes include but are not limited to:

1. Rhode Island Building Code SBC-1-2013

2. Rhode Island One and Two-Family Dwelling Code SBC-2-2013
3. Rhode Island Plumbing Code SBC 3-2013
4. Rhode Island Mechanical Code SBC-4-2013
5. Rhode Island Electrical Code SBC-5-2013
6. Rhode Island Property Maintenance Code SBC-6-2013
7. Rhode Island Energy Conservation Code SBC-8-2013
8. Enforcement and Implementation Procedures for Projects Under the Jurisdiction of the State of Rhode Island SBC-9
9. Code Interpretations SBC-10
10. Public Building Accessibility Meeting Standards SBC-17
11. Fuel Gas Code SBC-19-2013
12. Rhode Island Rehabilitation Building and Fire Code for Existing Buildings and Structures SRC-1-202
13. Rhode Island Fire Safety Code, 2013
14. NFPA 1, Fire Code, 2012
15. NFPA 101, Life Safety Code, 2012
16. NFPA 72, National Fire Alarm and Signaling Code, 2010 edition
17. NFPA 13, Installation of Sprinkler Systems, 2010 edition
18. NFPA 720, Installation of Carbon Monoxide Detection and Warning Equipment, 2012 edition

B. Please note that the HTF recipient must demonstrate compliance with all state and local codes through project affiliation with professional design team drawing certifications (e.g. architectural design stamp) and/or other approved methods such as state inspector certification.

C. A code review analysis will be produced by the project's design professionals itemizing the applicable codes for each area of discipline.

V. SCOPE OF WORK DETERMINATION

A. In developing scopes of work, HTF recipients will work with RIHousing to ensure that all requirements are satisfied under these HTF Standards (and its exhibits) and RIHousing Guidelines, and that the proposed scope of work meets the goals of Part I above.

B. RIHousing approval of all scopes of work is required in accordance with RIHousing standard practice as outlined in RIHousing Policy & Procedures for Project Underwriting.

C. While it is required that a project application include a preliminary scope of work, RIHousing staff will review and propose revisions to the scope of work between the preliminary award of HTF funds and the commitment of HTF funds to a project.

VI. EXPECTED USEFUL LIFE / REHABILITATION SCOPE & CAPITAL PLANNING

A. In developing scopes of work on housing rehabilitation projects, HTF recipients will consider the remaining expected useful life of all building components with regards to building long-term sustainability and performance. Specifically, each building component

with a remaining expected useful life of less than the applicable HTF period of affordability (30 years) shall be considered for replacement, repair or otherwise updated. Additionally, new building components with an expected useful life of less than 30 years shall be considered for future replacement (for entire expected useful life requirements, see Exhibit B, Appendix II).

B. The industry standard period for CNAs is 20 years; however, project CNAs must be updated every five years during the life of the project to ensure projected capital needs through the 30-year HTF affordability period are anticipated and planned for. The initial CNA will cover years 1-20. The first 5-year update will be done in year 5 and cover years 6-25. The second 5-year update will be done in year 10 and will cover years 11-30.

C. Once a scope of work has been developed by the HTF recipients and their development team, the HTF recipient must also develop a capital plan in compliance with RIHousing policy on Capital Needs Assessments. Whether or not a particular building component has been replaced, repaired or otherwise updated as part of the rehabilitation scope of work, all building components and major systems must demonstrate adequate replacement reserves funding to be viable for at least 20 years (the length of the capital plan), with subsequent updates every five years during the 30-year affordability period.

    - Example #1: Kitchen cabinets with a remaining useful life of 8 years may be permitted to remain in place and not included in the rehabilitation scope. However, adequate funding shall be demonstrated in the building capital plan to replace those cabinets in year 8 of the post-rehabilitation capital plan.

    - Example #2: If a building component such as a new roof is installed during the rehabilitation and this roof has an expected useful life of 25 years, it will not show up on the initial CNA as needing replacement during that 20-year period. However, since RIHousing requires updates of CNA's to be performed every 5 years, it will show up on the next 20-year CNA which will be performed in year 5 of the project and cover years 6-25. During these 5-year CNA updates, the project reserve contributions will be reviewed to ensure all future capital expenditures articulated in the CNA are adequately funded through the 30-year affordability period.

D. Monthly replacement reserves contributions of at least $25 per unit per month (pum) are required through the 30- year affordability period. If the initial 20-year CNA and capital plan (and/or any subsequent 5-year updates) indicate that replacement costs for the period exceed the amount generated by a $25 pum contribution, a higher pum contribution will be required.

E. HTF recipients and their development teams should ensure that all building components are analyzed as part of a comprehensive effort to balance rehabilitation scope and capital planning in a way that maximizes long-term building performance as much as possible within the parameters of both development and projected operational funding available.

VII. ENERGY EFFICIENCY

A. All RIHousing HTF-funded projects shall be subject to the RIHousing "Policy on Sustainability and Water Conservation in Multifamily Residential Properties." Contained within this policy are as follows and can be found in detail in Section VII-C below. As outlined in those standards, all projects will either achieve the target energy efficiency objectives of the standard or present RIHousing with an operational case for project sustainability pursuant to the financial structure of the project (cross-reference with RIH Guidelines, Division 1, General Requirements, Part B., (pages 10-11) and Section 6, (pages 47-49)).

B. In both the design and implementation of project rehabilitation scopes of work, particular emphasis should be made to maximize the effectiveness of the energy efficiency related work scopes (cross-reference with RIH Guidelines (pages 10-11) and Section 6, (pages47-49)).

C. **Sustainability and Water Conservation Standards:** Building healthy buildings requires a systematic approach to building planning. All the choices we make in our designs and specifications affect other choices in the system. RIHousing cannot list all the factors in building healthy homes in one place in a specification. Each application will be assessed according to the degree to which each development team succeeds in designing healthier and more sustainable developments (cross-reference with RIH Guidelines for Development, Division 1, General Requirements, Part B. on (pages 10-11) and Section 6, (pages 47-49)).

- All buildings must be designed to meet RI Energy Conservation Code SBC-8-2013.
- New construction multi-family homes financed through RIHousing are encouraged to achieve Energy Star Certification under the last iteration of the guidelines, Version 3.1 revision 8. At a minimum, all new construction homes are required to meet National Grid's Rhode Island Residential New Construction Tier 2 Program Requirements.
- All completely rehabilitated buildings must be compliant with National Grid's Rhode Island Residential New Construction Code Plus, Tier 1 or Tier 2 Requirements. RIHousing strongly encourages all developments to meet the highest energy retrofit program requirements that their financing will allow.
- Energy Star Program Rebates at development completion for building, lighting and appliances are required. Anticipated Energy Star Rebates and NGRID rebates are to be included as a capital source in the development budget**.**
- All Moderate Rehabilitated Buildings are encouraged to seek energy efficiency program incentives and rebates from N-Grid when upgrading boilers, lighting, insulation, air sealing and appliances.
- Promote Healthy Home / Asthma free design by thoroughly ventilating a building prior to occupancy.
- Owners that intend to design their developments to LEED or similar sustainable standards must demonstrate that their projects are cost effective and must seek non-federal or state funding for all third party verifications and commissioning.
- Building team approach. (Partnering with the owner, architect, contractor and RIHousing throughout the design phase)

- Design basement spaces to be dry and conditioned to minimize mold and mildew. Discourage the use of unnecessary drywall in basement areas.
- Building design to meet Rhode Island climate.
- Provide adequate space for comprehensive trash recycling.
- All newly installed plumbing fixtures shall meet the current published EPA Water Sense standards.
- Properties with site irrigation systems shall be equipped with time clocks, rain sensors, abatement meters and drip systems at plantings.

VIII. DISASTER MITIGATION (No Cross-Reference in RIH Guidelines)

A. To the extent applicable/relevant, the housing must be improved to mitigate the potential impact of potential disasters (e.g. earthquakes, hurricanes, floods, wildfires) in accordance with state or local codes, ordinances, and requirements, or such other requirements that HUD may establish.

B. Specifically regarding flood hazards, the most relevant potential natural disaster for the State of Rhode Island:

1. Projects shall meet FEMA federal regulation, and HUDs' floodplain management requirements at 24 CFR 55, including the 8-Step Floodplain Management Process (when applicable) at 24 CFR 55.20.

2. Projects shall meet fluvial erosion prevention requirements per local municipality regulations.

IX. BIDDING AND PROJECT MANAGEMENT (Cross-Reference with RIH Guidelines, Sections 1, Part A, (pages 3-4) and Section 5, (pages 32-43) and RIH Underwriting Guidelines))

All projects will be bid in accordance with the RIHousing procurement policy, which applies to all RIHousing HTF-funded projects. HTF recipients will submit a project management plan with their application that will outline how the project will be managed (e.g. General Contractor (GC) competitive bid process using an AIA A101 Stipulated Sum Agreement or General Contractor (GC) open book, negotiated bid process using AIA A102 COST PLUS FEE with GMP agreement). Any changes to project management operational structure that substantially varies from the plan provided to RIHousing at the time the HTF funding is awarded requires prior notification to RIHousing HTF staff.

X. PROJECT ARCHITECTURAL REHABILITATION DESIGN STANDARDS

A. BUILDING OCCUPANCY & CONSTRUCTION TYPE (No Cross-Reference in RIH Guidelines)

1. Fire resistance rating separation requirements per code
2. Shall comply with Rhode Island Fire Safety Code, 2013, NFPA 1, 2012 and NFPA 1012012

B. HISTORIC BUILDINGS (No Cross-Reference in RIH Guidelines)

1. Shall comply with NFPA 1012012

2. Shall comply with RI SBC -1-2013 & SBC-2-2013
3. Historic buildings shall be rehabilitated in a manner consistent with the requirements of Section 106 of the National Historic Preservation Act and the Secretary of Interior's Standards for Rehabilitation and Guidelines for Rehabilitation of Historic Buildings. In addition, all scopes of work shall be reviewed and approved by the Rhode Island Preservation & Heritage Commission Office.

C. **ACCESSIBILITY REQUIREMENTS** (Cross-Reference with standards found at RIH Guidelines, Section 3, Division 1 Part F, (page 12) & Section 6, (page 49))

1. Housing that is rehabilitated with HTF funds must meet all applicable federal and state regulations regarding accessibility for persons with disabilities. An overview of these requirements is provided below; however, the applicability of these rules is complex and therefore it is recommended that developers seeking HTF funds consult with a qualified design professional.

2. General Requirements:
   a. Projects shall meet applicable Federal and State Regulations and Rules
   b. The number of accessible apartment units shall be determined by the code requirements
   c. Projects shall comply with the American's with Disabilities Act (ADA), Title II (for public entities) and Title III (for places of public accommodations) implemented at 24 CFR parts 35 and 36, and 2010 ADA Standard for Accessible Design and attendant Design Guide (DOJ), as applicable
   d. Projects, if applicable, shall comply with the Fair Housing Act, which states in part that covered multifamily dwellings as defined by HUD's implementing regulations at 24 CFR 100.201 must meet the design requirements at 24 CFR 100.205
   e. Projects shall comply with the accessibility standards in the Rhode Island State Building Code SBC-1-2013.
   f. Projects shall comply with the Rhode Island Public Buildings Accessibility Meeting Standards SBC-17.

3. Projects shall comply with other standards as may apply or be required by funding sources

4. Projects, if applicable, shall comply with Section 504 of the Rehabilitation Act of 1973 implemented at 24 CFR Part 8
   a. For "substantial" rehabilitation (projects with 15 or more total units and the cost of rehabilitation is 75% or more of the replacement cost):
      i. At least 5% of the units (1 minimum) must be made fully accessible for persons with mobility impairments based on the Uniform Federal Accessibility Standards (UFAS)
      ii. In addition, at least 2% of the units (1 additional unit minimum) must be made accessible for persons with sensory impairments.
      iii. Common spaces must be made accessible to the greatest extent feasible
   b. For projects with "less-than-substantial" rehabilitation (anything less than "substantial"), the project must be made accessible to the greatest extent feasible

until 5% of the units are physically accessible, and common spaces should be made accessible as much as possible.

D. **BUILDING DESIGN** (Cross-reference with RIH Guidelines Section 3, (pages 8-31) and Section 6 Additional Recommended Practices (pages 47-49))

1. HTF recipients are encouraged to draft an architectural program document outlining the goals for the project.
2. Building access – in general the access to a building shall be safe, logical, readily identifiable, sheltered from the weather, and meeting the exit requirements to a public way. Pathways of circulation within a building shall also be safe and logical.
3. Means of egress components shall be in conformance with Rhode Island Fire Safety Code, 2013 and NFPA 101, 2012 including complete layout of the exits, corridor and stair dimensional requirements and arrangement, doors sizes and swings, door hardware, panic exit devices, door self-closers, interior finishes, walking surfaces, fire separations, stair enclosures, guards and railings, ramps, occupant load calculations, illumination, and signage.
4. Apartment layout:
   a. Room sizes –minimum in accordance with RI SBC-1-2013 & RI SBC-2-2013.
   b. Interior environment shall comply with RI SBC-1-2013 & RI SBC-2-2013. Note: Sections of IBC Chapter 12 not specifically adopted by State of Rhode Island are to be used as a design guideline parameter.
   c. Kitchens – in general, for apartment buildings – each unit will have a functional and code-compliant kitchen
      i. SRO's and other special housing types may be an exception
   d. Baths – in general, for apartment buildings – each unit will have a functional and code compliant bath in accordance with RI SBC-1-2013 & RI SBC-2-2013
      i. SRO's and other special housing types may be an exception
5. Storage – adequate clothes closets, pantry and general storage shall be provided.
6. Amenity Spaces - provision for laundry facilities, bike storage, trash & recycling, and other utility or common spaces may be made in accordance with the goals of the project program. HTF recipients are encouraged to consider adding such amenities as may be appropriate to enhance the livability of the housing for the tenants.
7. Solid Waste Disposal – provision shall be made to enable the tenants and property management staff to handle and store solid waste and recycling plan approved by RIHousing.
8. Existing outbuildings and utility structures which are being retained, shall be in sound and serviceable condition, and not create health, safety, or undue maintenance issues for the project.

XI. REHABILITATION CONSTRUCTION STANDARDS

A. **SITE** (Cross-reference with RIH Guidelines Section 3, Division 2 (pages 13-15))

1. General:

a. Assure that the site is safe, clean and usable, and designed with details, assemblies and materials to provide ongoing durability without undue future maintenance.
b. Site design and engineering shall be by a licensed professional civil engineer, or other qualified professional.
c. Design and systems shall conform to all applicable codes, rules and regulations:
    i. Local and municipal zoning
    ii. 2013 Rhode Island Fire and Building Code or current adopted
d. A Project Review Sheet shall be submitted to the Rhode Island Department of Environmental Management (RIDEM) to determine other permit requirements related to site design and construction:
    i. Sewer and Septic – Rhode Island Waste Water System and Potable Water Supply Rules – RIDEM permit
    ii. Domestic Water - Rhode Island Waste Water System and Potable Water Supply Rules - RIDEM permit.
    iii. Storm Water Permits relating to erosion control and storm water management and discharge RIDEM permit.
    iv. Hazardous Waste Site Remediation RIDEM permits.
    v. Access to State Highways – RI Department of Transportation (RIDOT) rules and regulations as may be required
    vi. RIDOT Physical Alteration permits.
    vii. Wetlands – Review with State Water Quality Division permit.
    viii. RI Coastal Resources permits

2. Sprinkler water service – Underground water service as required for building sprinkler system shall be in accordance with NFPA 24.

3. Drainage – assure that the grading surrounding the building will slope away from the building and drain properly, without ponding or erosion.

4. Sewer connections to municipal sewage systems and on-site waste water treatment system:
    a. Existing sewer laterals that are to be reused should be evaluated to assure that they are serviceable and have a remaining useful life of 30 years, or are covered by the 20-year capital plan and/or subsequent 5- year updates during the 30-year affordability period.
    b. New systems designed to conform to the State "Wastewater System & Potable Water Supply Rules" RIDEM permit) regulations.

5. Water service:
    a. Existing municipal water supplies to buildings shall be evaluated to assure that they are serviceable, of adequate capacity and have a remaining useful life of 30 years, or are covered by the 20-year capital plan and/or subsequent 5-year updates during the 30-year affordability period.

b. Required new systems shall be designed to conform to the State "Wastewater System & Potable Water Supply Rules" RIDEM permit) regulations, and the American Waterworks Association (AWWA) guidelines.

6. Vehicular access to public way – site design shall conform to local zoning and RI Department of Transportation regulations, as well as be sensible in its layout to maximize vehicular and pedestrian safety.

7. On-site Parking – parking shall be adequate for project type, meet local codes, and be designed to drain well, with a durable appropriate surface material. Handicapped parking shall be provided as required. Designers may utilize Institute of Transportation Engineers (ITE) guidelines in the design.

8. Pedestrian access and hardscape – In general, paved walkways within the site will be designed to provide sensible pedestrian access from the public way into the site, from parking areas, and provide access to buildings. All walkways should generally conform to applicable codes for width and slopes, and fall protection. Site stairs shall be safe and sound, constructed of durable materials, with proper rise and run, and with code approved railings as required. Accessible routes into buildings shall be provided as required by code.

9. Site amenities – site amenities may be provided which enhance the livability of the project including playground areas, seating, benches, patio areas, picnic tables, bike racks, grills, and fencing, etc.

10. Mailboxes - Provision will be made for USPS-approved cluster mailbox units if required by the USPS.

11. Landscaping – lawns, ground cover, planting beds, perennial plants, shrubs and trees may be provided to enhance the livability, and to provide a positive aesthetic sense.
    a. Planting choices specified should be low maintenance, non-invasive species, of an appropriate size and scale and located, when adjacent to building structures, with regard to their size at maturity.

12. Solid waste collection & storage –Provision shall be made for the outdoor storage and collection of solid waste and recycling materials in receptacles (dumpsters, wheeled trash cans, totes). Enclosures with gates shall be provided and must be accessible as required by code.

13. Site lighting with shielded fixtures may be provided to illuminate parking and pedestrian walkways, and will conform to local zoning.
    a. Energy efficient lighting shall conform to current Energy Star Standards and the RIHousing "Policy on Energy Efficiency & Water Conservation in Multi-family Residential Properties" (see section VII-C of these standards).

14. Fuel Storage – On site outdoor placement and storage of fuels per applicable regulations and utility requirements.

15. Underground or overhead utilities – as regulated by code and utility rules.

B. **FOUNDATIONS** (Cross-Reference with RIH Guidelines Section 3, Division 3 (page 15))

1. Existing foundations shall be examined by qualified professionals
   a. Foundations to be adequately sized, free of broken components or deterioration which may compromise the load bearing structural integrity.
   b. Design and implement structural reinforcements or reconstruction as necessary.
2. Above-grade masonry unit block or brick shall be reasonably stable, plumb and sound with no missing units or voids.
3. Pointing of mortar joints shall be specified as necessary to assure the continued integrity of the structural assembly.
4. New below-grade structures to conform to RI SBC-1-2013 & RI SBC-2-2013 as appropriate.
5. Basement floors:
   a. Mechanical rooms - Provide sound concrete floors with raised housekeeping pads for equipment.
   b. Tenant accessed utility spaces (storage, laundry rooms, etc.) – provide sound concrete floors.
   c. Dead spaces
      i. provide concrete rat slabs,
      ii. where earthen floors are to remain, provide wear layer of peastone (or similar suitable material) over vapor barriers.
6. Moisture mitigation
   a. Water and damproofing – where possible and as may be required by existing conditions of groundwater and storm-water intrusion into subsurface portions of buildings, provide waterproofing or damp proofing as appropriate.
   b. Provide vapor barriers covered with a wear layer of pea-stone over earthen basement or crawl space floors to remain.
   c. Ventilation of basements and crawl spaces per RI SBC-1-2013 & RI SBC-2-2013.

C. **MASONRY COMPONENTS** (Cross-Reference with RIH Guidelines Section 3, Division 4 (page 15))

1. Buildings with masonry bearing walls shall be examined for their structural integrity. Existing masonry building components shall be examined to assure sound condition, and repaired as necessary to provide the load-bearing capacity, resistance to water penetration, and aesthetic quality to assure the assemblies will perform for the purpose intended. Masonry shall be plumb, and structurally sound.
2. Repair or replace deteriorated portions or missing units. Brick veneer shall be sound, or repaired to be sound.
3. Masonry mortar joints shall be sound, and free of loose or deteriorated mortar, with no voids. Pointing of mortar joints shall be specified as necessary to assure the continued integrity of the structural assembly, and prevent water intrusion.

4. Historic masonry designated to remain shall be restored to sound serviceable condition, and in accordance with Section 106 of National Historic Preservation Act. Where masonry is considered historic, repairs will be carried out utilizing the Secretary of the Interior's "Standards of Rehabilitation" (https://www.nps.gov/tps/standards/rehabilitation.htm) and related NPS Preservation Briefs for "Repointing Mortar Joints on Historic Masonry Buildings"
5. Chimneys
    a. Assure structural integrity, reconstruct, and point as necessary
    b. If used for fuel heating appliances – provide lining as may be required by code and as prescribed by the heating appliance manufacturer.

D. **STRUCTURE** (Cross-Reference with RIH Guidelines Section 3, Division 1, Part G (page 12))
1. A qualified professional shall examine each building's load-bearing structure, and assess its existing condition to determine suitability of continued use.
2. In general, structure evaluation and design shall be in conformance with RI Building and Fire Code, current edition.
    a. In most residential rehab projects where there is no change in use, it is not expected that the structure will be brought up to new construction standards.
    b. Consideration shall be given if there are any proposed changes in use which would impact the historical loading.
3. Deficiencies identified shall be addressed and repairs designed and specified as necessary to correct such conditions:
    a. Repairs shall be made to any deteriorated load-bearing structural elements.
    b. Reinforce, install supplemental or replace structural members determined not to be adequate for use.

E. **ENCLOSURE - SHELL** (Cross-reference with RIH Guidelines Section 3, Division 5, 6, 7, 8 & 9 (pages 16 thru 23) & Section 6 Additional Recommended Practices, (pages 47-49))
1. Roofing
    a. Existing
        i. Examine existing roofing and flashing systems to determine suitability for continued use. Continued life expectancy of existing roofing should be a minimum of 30 years, or covered by the 20-year capital plan and/or subsequent 5-year updates during the 30-year affordability period.
        ii. Repair existing roofing as required.
        iii. Existing historical slate roofs shall be repaired in accordance with the Secretary of the Interior's "Standards for Rehabilitation" project requirements if applicable (https://www.nps.gov/tps/standards/rehabilitation.htm).

    b. New Roofing
        i. New roofing shall be installed where existing roofing does not meet requirements for continued use.

ii. New roofing system components shall be compatible, and include - the nail base, the underlayment layer, ice & water shield self-adhesive membrane flashings, metal flashings and roofing.
- Strip existing roofing and dispose of properly.
- Examine exposed existing substrate for structural soundness
- Install new roofing system per code and per NCRA trade practices, and manufacturer specifications.
- Flashings – deteriorated flashings shall be replaced, and the weather proof integrity of the roof system shall be assured.

c. Ventilation
   i. Roof assemblies shall be properly ventilated in accordance with applicable code requirements, and appropriate building science detailing.

2. Exterior Finishes
   a. Cladding
      i. Wood Siding –
         - Examine existing siding for soundness – shall be free of major cracks, rot, and other deterioration which may compromise its useful life and be suitable to hold exterior paint.
         - Siding shall be free of gaps and holes and provide continuous weatherproof system.
         - Repair or re-side as necessary to provide a weather resistant enclosure.
         - Replace existing wood siding on historic buildings as necessary in accordance with the Secretary of the Interior's "Standards for Rehabilitation" project requirements.
      ii. Masonry
         - Masonry bearing walls and veneers shall be restored as necessary
            1. Refer to Section XI C – Masonry
            2. Refer also to Section XI F.2.b for insulation requirements
            3. All work on historic masonry shall be done in accordance with the Secretary of the Interior's "Standards for Rehabilitation" project requirements.
      iii. Other existing cladding system types and materials shall be repaired and/or restored in-kind with matching or similar materials to provide a durable weather resistant enclosure.

3. Trim – Exterior trim and architectural woodwork.
   a. Existing wood trim:
      i. Existing trim to remain must be sound, free of defects and deterioration which compromises its use.
      ii. Repair and restore trim to usable condition. Patch or replace in kind any deteriorated wood trim components.

iii. Repair of historic woodwork and trims shall be in accordance with the Secretary of the Interior's "Standards for Rehabilitation" project requirements.

b. New wood trim shall be installed in a workmanlike manner. Reference may be made to Architectural Woodwork Institute (AWI) standards.
c. Other trim materials (PVC, cementitious, etc.) which are suitable may be used as appropriate and shall be installed per manufacturer's recommendations.
d. Trim which is part of the weather tight enclosure shall be flashed or caulked with joint sealers as necessary to prevent water intrusion.

4. Paint
   a. In general, all existing exterior wood surfaces shall receive new paint coatings, except as appropriate due to the recent application of paint and/or the sound condition of existing coatings
   b. Examine surfaces and apply paint only to sound acceptable materials / surfaces.
      i. Prepare surfaces properly, removing loose or peeling previous paint.
      ii. Paint prep shall be done in accordance with applicable lead safe standards. (See Section XI N.1.b of these HTF Standards.)
   c. Before painting, assure that any moisture issues which may compromise the life expectancy of the paint system are remedied.
   d. Exterior paint systems shall be compatible, and installed in accordance with manufacturers' specifications.

5. Porches, decks and steps
   a. Existing porches, decks, steps and railings proposed to remain shall be examined and repaired as necessary. Repair and reconstruction shall be carried out to assure that they will have a continued useful life of 30 years, or covered by the 20-year capital plan and/or subsequent 5-year updates during the 30-year affordability period.
      i. Inspect structure for soundness and reconstruct any deteriorated members as required.
      ii. Install new support piers as may be required.
      iii. Patch existing decking with matching materials, or install new durable decking.
   b. Railings
      i. shall be sound and adequately fastened to meet code requirements for structural loading. Repair or replace in-kind as appropriate.
      ii. Shall meet code requirements for height of protective guards, or have supplemental guards installed.
   c. Steps shall be safe and sound and meet applicable codes, with railings as necessary.
   d. Historic porches designated to remain shall be restored to sound serviceable condition, and in accordance with the Secretary of the Interior's "Standards for Rehabilitation" project requirements.
   e. All porch elements shall be able to withstand the weather elements to prevent premature deterioration.

F. **ENCLOSURE – THERMAL** (Cross-Reference with RIH Guidelines Section 3, Division 7, Part A (pages16-18) & Part E. (pages 18-19) & Section 6, (pages 47-49))

1. Energy Efficiency - In general, most buildings will be rehabbed with a goal of increasing the thermal shell efficiency.
   a. All RIHousing HTF funded projects shall be subject to the RIHousing "Policy on Sustainability and Water Conservation in Multifamily Residential Properties." Contained within this policy are as follows and can be found in detail in Section VII-C. As outlined in those standards all projects will either achieve the target energy efficiency objectives of the standards or present RIHousing with an operational case for project sustainability pursuant to the financial structure of the project.
   b. In both the design and implementation of project rehabilitation scopes of work, particular emphasis should be made to maximize the effectiveness of the energy efficiency related work scopes.

2. Insulation
   a. Insulation levels shall conform to the RIHousing "Policy on Sustainability & Water Conservation in Multi-family Residential Properties" Contained within this policy are as follows and can be found in detail in section VII-C.
   b. Masonry walls shall be insulated utilizing current building science detailing to ensure ongoing integrity of masonry systems.

3. Air sealing – comply with the Rhode Island Multifamily Air Sealing Protocol (MASP) per the RIHousing "Policy on Sustainability & Water Conservation in Multi-family Residential Properties". Contained within this policy are as follows and can be found in detail in section VII-C.
   a. Attention must be paid to the air barrier of each building and should be well thought out, detailed, and carefully executed.
   b. Blower door testing shall be performed to verify compliance and successful execution.

4. Indoor air quality
   a. In general, all thermal upgrades to a building will take into consideration indoor air quality and moisture control/mitigation, and apply the current state of the art building science in this regard. Treatment of existing stone, concrete or masonry basement walls and of existing basement earthen floors or uninsulated basement slabs will be taken into consideration with regard to the need for moisture mitigation.

5. Ventilation
   a. Venting of crawl spaces, attics and sloped ceilings shall be per code.
   b. See Section XI E.1.c of these HTF Standards for roof assembly ventilation.

G. **ACOUSTICAL TREATMENTS** (Cross-Reference with RIH Guidelines Section 3, Division 7, Part D. Sound Insulation (page 18))

Dwelling units separated acoustically per RI SBC-1-2013 & RI SBC-2-2013 as a guideline minimum standard.

H. **DOORS** (Cross-Reference with RIH Guidelines Section 3, Division 8, Part B (page 21) and Section 6, (pages 47-49))

1. General
    a. Doors to meet code requirements of Rhode Island Fire Safety Code, 2013 and NFPA 101, 2012
    b. Meet egress requirements for dimensions, swing and clearances, and be accessibility compliant as required.
    c. Be sound and secure.
    d. New doors shall be installed per manufacturers' recommendations and standard trade practice standards.
    e. Flash properly, and have shim spaces insulated.
    f. Existing doors to remain should be examined and determined to be suitable for reuse with a remaining life after restoration of 30 years, or covered by the 20-year capital plan and/or subsequent 5-year updates during the 30-year affordability period.
        i. Restore as required to provide useful life.
        ii. Shall be tested and modified as necessary to operate properly.
        iii. Install new weather stripping and sweeps to provide seal against weather elements and air infiltration.
        iv. Historic doors designated to remain shall be restored to sound serviceable condition, and in accordance with the Secretary of the Interior's "Standards for Rehabilitation" project requirements.

2. Apartment doors

    Apartment unit entry doors shall be fire rated as required.

3. Other doors – Access doors shall meet code requirements for fire rating.

4. Door hardware shall operate properly, be secure and shall meet accessibility standards Rhode Island Fire Safety Code, 2013 and NFPA 101, 2012.

I. **WINDOWS** (Cross-Reference with RIH Guidelines Section 3, Division 8, Part A (pages 20-21) and Section 6, (pages 47-49))

1. Windows shall be of legal egress size when required by code. In townhouse apartments, existing windows which are non-conforming egress size shall be reviewed and meet the RI SBC-1-2013, SBC-2-2013, Rhode Island Fire Safety Code, 2013 and NFPA 101, 2012

2. Existing windows:
    a. Existing windows to remain should be examined and determined to be suitable for reuse with a reasonable remaining life after restoration of 30 years without undue future maintenance, or covered by the 20-year capital plan and/or subsequent 5-year updates during the 30-year affordability period.
    b. Capable of providing adequate seal against air infiltration, weather elements, and be determined to be appropriately energy efficient in keeping with the overall energy efficiency strategy of the project.
    c. Install new weather stripping to provide seal against weather elements and air infiltration.

d. Air seal shim spaces and window weight pockets if possible.
e. Restore and modify as required to provide useful life.
f. Shall be tested and modified as necessary to operate smoothly and properly per code.
g. Historic windows designated to remain shall be restored to sound serviceable condition, and in accordance with the Secretary of the Interior's "Standards for Rehabilitation" project requirements.
h. Hardware shall be intact and operational, or be replaced with new hardware as required

3. New Windows:
   a. Where existing windows do not meet the standards for egress, condition, and/or energy efficiency deemed appropriate to the project, they shall be replaced by new windows.
   b. New windows shall be code compliant and conform with the RIHousing "Policy on Sustainability & Water Conservation in Multi-family Residential Properties". Contained within this policy are as follows and can be found in detail in section VII-C.
   c. Additionally, new window units should be tested assemblies meeting ASTM standards for water penetration & air leakage.
   d. All windows shall be installed per manufacturer's installation guidelines and specifications, and shall incorporate appropriate detail, flashings, joint sealers, and air sealing techniques.

J. **INTERIOR FINISHES** (Cross-reference with RIH Guidelines Section 3, Division 9, Parts A & B (pages 22 -23) and Section 6, (pages 47-49))

1. In general, all interior finishes will be new and installed per manufacturer's recommendations and the standards of quality construction per trade practices and associations related to the particular product or trade.

2. Rhode Island Fire Safety Code 2013, NFPA 101, 2012 (Reference also Chapter 8 of the RI SBC-1-2013).

3. Walls & ceilings
   a. Where existing finishes are proposed to remain, they will be determined to meet the standard of being sound, durable, lead-safe, and have a remaining useful life of no less than 30 years, or covered by the 20- year capital plan and/or subsequent 5-year updates during the 30-year affordability period.
   b. Where existing finishes are proposed to remain as part of a fire rated assembly, the State Preservation & Heritage Commission Office shall assist in making a determination as to the suitability. Refer to codes as they pertain to archaic materials, and relevant NPS Preservation Briefs.

4. Flooring
   a. Existing wood flooring in good condition should be repaired, sanded and refinished.
   b. All new flooring materials (resilient flooring, wood flooring, laminate flooring, carpet, and/or ceramic tile) shall be installed over suitable substrates per manufacturer's specs and the trade association practices.

5. Trim - Wood trim and architectural woodwork
    a. Existing trim shall be repaired and restored to usable condition, free of deterioration which compromises its use. Repair of historic woodwork & trims shall be in accordance with the Secretary of the Interior's "Standards for Rehabilitation" project requirements (https://www.nps.gov/tps/standards/rehabilitation.htm).
    b. New wood trim shall be installed in a workmanlike manner. Reference may be made to AWI standards.
6. Paint - In general, all interior ceiling, wall, and trim surfaces shall receive renewed coatings of paint (or other clear/stain) finishes. Painting shall be done in a workmanlike manner, and in accordance with the manufacturer's recommendations. All painting including preparation of existing surfaces shall be done in a lead-safe manner (See Section XI N.1.b).

K. **SPECIALTIES** (Cross-Reference with RIH Guidelines Section 3, Division 10, (pages 23-24))

1. Toilet accessories – each bath will have appropriate accessories such as towel bars, robe hooks, bath tissue holders, etc., installed and securely fastened in place. Accessories shall be located per accessibility requirements where necessary.
2. Medicine cabinets and mirrors – install in each apartment bath as appropriate.
3. Signage and identification – building signage shall be provided as appropriate:
    a. Including building address 911 #'s, apartments' identification, building directory, exits, stairways, common and utility spaces, etc. shall be in conformance with Rhode Island Fire Safety Code, 2013, NFPA 101, 2012 Life Safety Code, and be accessibility compliant and 911 approved.
4. Exit signage will be provided as required by code and be accessibility compliant as required.
5. Fire protection specialties – provide fire extinguishers in buildings, and in apartments as required by code and/or by state or local fire marshal "AHJ". Locate as directed by AHJ.
6. Shelving – provide durable, cleanable shelving for pantries, linen closets, clothes closets and other storage as appropriate, securely fastened in place.

L. **EQUIPMENT** (Cross-Reference with RIH Guidelines Section 3, Division 11 (pages 24-25) and Section 6, (pages 47-49))

1. All new equipment to be ENERGY STAR® rated. Existing equipment to be retained and continued to be used shall be in serviceable condition with an expected useful life of 30 years, or covered by the 20-year capital plan and/or subsequent 5-year updates during the 30- year affordability period.
2. Equipment shall conform to the RIHousing "Policy on Sustainability & Water Conservation in Multi-family Residential Properties". Contained within this policy are as follows and can be found in detail in section VII-C.
3. Kitchen appliances –

a. provide new, full-size (30", 4 burner) stove and refrigerator in each apartment.
b. Existing appliances to be reused shall be in good and serviceable condition.
c. Provide other appliances (such as microwaves) as may be appropriate to the project.
d. All appliances in accessible apartment units shall be accessibility compliant, and located in an arrangement providing required clear floor spaces.

4. Laundries –where adequate space is available and when appropriate to meet the project goals, washers and dryers may be provided in laundry rooms or in apartments.
   a. Heat pump dryers are encouraged where appropriate and readily available.
   b. Where a project is served by natural gas, consideration of the use of natural gas dryers is encouraged. In projects not served by natural gas, propane fired dryers should be considered for cost of operation reasons where feasible and appropriate.

5. Solid waste handling – Provide trash and recycling receptacles as appropriate to enable the tenants and property management staff to handle and store solid waste in compliance with Rhode Island Resource Recovery Corporation's Rules and Regulations. Playground: For all family-oriented developments, HTF recipients shall demonstrate that playground facilities are in reasonable proximity or shall incorporate a playground as part of the development.

M. **FURNISHINGS - CASEWORK** (Cross-Reference with RIH Guidelines Section 3, Division 12 (page 25))

1. Kitchen cabinetry and counters
   a. Existing cabinetry and/or countertops proposed to remain shall be in good condition with a remaining useful life of 30 years, or covered by the 20-year capital plan and/or subsequent 5-year updates during the 30-year affordability period.
   b. New cabinetry
      i. High-pressure plastic laminate and/or wood exterior surfaces. Minimum ¾" thickness of face frames and 5/8" thickness for doors, drawer faces and end panels. ½" thick shelves. Solid wood doors preferred.
      ii. All cabinets shall meet requirements for HUD severe use. Cabinet doors will be equipped with raised or recessed panels and door knobs. The use of flat panel cabinet doors shall be reviewed on a case-by-case basis. Door pulls shall be installed at handi-capped units. Shall be of good quality, meeting ANSI/KCMA A161.1-2012 "Performance & Construction Standards for Kitchen Cabinetry and Bath Vanities" standards. Other industry standards for cabinetry may be used as guidelines, such as the Kitchen Cabinet Manufacturer's Association (KCMA) "Severe Use Specification – 2014," the Architectural Woodwork Institute's (AWI) Woodwork Standards and Cabinet Fabrication Handbook.
      iii. Counter Tops: Materials - laminate with rolled front edge and backsplash.
         - Shop fabricated as one piece assembly where possible. Seal field joints.
         - Installed level and securely fastened to cabinetry

2. Bath cabinetry and counters – vanity lavatory tops, when used, should be one piece integral bowl with integral backsplash

N. **SPECIAL CONSTRUCTION** (Cross-Reference with RIH Guidelines Section 3, Division 13 (page 25-26))

1. Hazardous materials and remediation – see "RIHousing Guidelines for Development Section 3.3 (Environmental Guidelines including HUD's Lead Safe Housing Rule, see page 67 of RIH Guidelines).
    a. Asbestos – project will be assessed for the existence of asbestos-containing building materials by qualified professionals:
        i. National Emission Standards for Hazardous Air Pollutants (NESHAP) apply.
        ii. Removal of asbestos shall be carried out per Federal EPA and State regulations and rules.

    b. Lead - Health and Safety and Lead Safe Housing
        i. All scopes of work performed pursuant to this rehabilitation standard shall support the maintenance of project compliance with the Rhode Island Department of Health Rules and Regulations for Lead Poisoning Prevention R23-24.6PB and Rhode Island Department of Environmental Management Regulations 9 & 24.
        ii. Lead-Based Paint
            - Federal and state regulations related to lead-based paint apply to target housing, which is defined as any housing constructed prior to 1978, except housing for the elderly or persons with disabilities (unless a child of less than 6 years of age resides or is expected to reside in such housing for the elderly or persons with disabilities). Rehabilitation of target housing must be completed in a manner which insures the health and safety of workers and residents, especially children. A number of regulations apply when lead painted surfaces are disturbed in residential properties, primarily requiring the appropriate training of workers and the use of safe work practices. In some cases, use of federal funds for rehabilitation will trigger a higher level of lead paint treatments based on the amount of federal money being used. The following regulations must be adhered to during all rehabilitation of target housing:

Federal Regulations:

- HUD Lead Safe Housing Rule (24 CFR, Part 35) requires various levels of evaluation and treatment of lead paint hazards when federal money is used for rehabilitation of target housing.
- EPA Renovation Repair and Painting Rule (40 CFR Part 745) – Requires contractors conducting renovation, repair or maintenance that disturbs paint in target housing or child-occupied facilities to be licensed by EPA and use lead-safe work practices to complete the work. HTF recipients must ensure contractors are properly trained and licensed. More information is available at: http://www2.epa.gov/lead

- HUD/EPA Disclosure Regulations (24 CFR, Part 35, Subpart A) – Requires owners of target housing to disclose all lead paint records and related information to potential buyers and/or tenants. More information is available at: http://portal.hud.gov/hudportal/documents/huddoc?id=DOC_12347.pdf
- OSHA Lead in Construction Rule (29 CFR Part 1926.62) - Proscribes personal protection measures to be taken when workers are exposed to any lead during construction projects. More information is available at: https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10641
- Rhode Island Rules and Regulations for Lead Poisoning Prevention, R23-24.6-PB, April 2014 (T) Title 18, Chapter 38:
    - Rhode Island law requires all work that disturbs paint in target housing and child care facilities to be completed using lead safe work practices. Rehabilitation completed according to the federal regulations described above will generally fulfill this requirement. Rhode Island does ban certain unsafe practices that are allowed under some of the federal regulations, including power sanding and grinding, dry scraping, and use of certain kinds of paint strippers.

O. **CONVEYANCE SYSTEMS** (Cross-Reference with RIH Guidelines Section 3, Division 14 (page 26))

1. Elevators may be installed when appropriate and possible, when such elevator is part of the project's program goals, or as required by code, as follows:
    a. Installed per code NFPA 101,
    b. Rhode Island Fire Safety Code, 2013
    c. ASME 17.1-17.3 Safety Code for Elevators - 2013
    d. State of Rhode Island Elevator Safety Code, 2012

2. Existing elevators and lifts may be retained if they are appropriate to the use of the building and in serviceable condition with an expected useful life of 30 years, or covered by the 20-year capital plan and/or subsequent 5- year updates during the 30-year affordability period, and approved by agencies having jurisdiction.

P. **MECHANICAL** (Cross-Reference with RIH Guidelines Section 3, Division 15 (pages 26-30) and Section 6, (pages 47-49))

1. General:
    a. All mechanical systems shall be designed by a mechanical engineer or other qualified professional.
    b. Energy efficiency:
        i. All RIHousing HTF funded projects shall conform to the RIHousing "Policy on Sustainability & Water Conservation in Multi-family Residential Properties". Contained within this policy are as follows and can be found in detail in section VII-C.

ii. As outlined in the HTF Standards, all projects will either achieve the target energy efficiency objectives of the standard or present RIHousing with an operational case for project sustainability pursuant to the financial structure of the project.
iii. In both the design and implementation of project rehabilitation scopes of work, particular emphasis should be made to maximize the effectiveness of the energy efficiency related work scopes.

c. All mechanical systems shall meet all applicable codes:
   i. Rhode Island 2013 Fire & Building Code & NFPA 101 Life Safety Code, 2012 Edition
   ii. Rhode Island Mechanical Code, RI SBC-4-2013.
   iii. Rhode Island Fuel Gas Code, RI SBC-19-2013
   iv. Rhode Island Plumbing Code, RI SBC-3-2013. 2012 Rhode Island Fire & Building Code
   v. Rhode Island Energy Conservation Code, RI SBC-8-2013 as they may apply:
   vi. Plumbing fixtures will be accessibility compliant as required.
   vii. Rhode Island Rules & Regulations for Boiler and Pressure Vessels (R.I.G.L -28-25) effective 12/12/2011 as it pertains to boilers and pressure vessels (http://sos.ri.gov/documents/archives/regdocs/released/pdf/3b493e49b0a2a162589891f1e4b0f9c3/4721.pdf Page 16).

2. Fire protection
   a. In general, all buildings assisted with HTF funds shall have fire suppression as required by applicable codes with approved sprinkler systems installed as required by Rhode Island Fire Safety Code, 2013, NFPA 101, 2012 and NFPA 1, 2012:
      i. System design to conform to applicable NFPA standard 13, 2013.
      ii. System installed by State approved persons holding appropriate licenses.
   b. Where possible, piping for the sprinkler system shall be concealed.

3. Plumbing
   a. Where existing components of a system are to be reused, they will be examined and determined to be in good condition, code compliant and have a remaining useful life of a minimum of 30 years, or covered by the 20-year capital plan and/or subsequent 5-year updates during the 30-year affordability period. Substandard or critical non-code compliant components shall be replaced.
   b. Use water-saving shower heads and faucet aerators as required by the RIHousing "Policy on Sustainability & Water Conservation in Multi-family Residential Properties". Contained within this policy are as follows and can be found in detail in section VII-C.
   c. All fixtures, piping fittings and equipment shall be lead-free in accordance with the Rhode Island Plumbing Rules.

d. Kitchen fixtures – When existing kitchen fixtures are not reused in accordance with a. above, new sinks and faucets, and associated plumbing shall be installed in each apartment.
e. Bath fixtures – When existing bath fixtures are not reused in accordance with a. above, new water saving toilets, tubs and tub surrounds, lavatory sinks, and faucets shall be installed in each apartment.
    i. Three and four-bedroom apartments are encouraged to be designed to include 1½ baths minimum where adequate space is available.
f. Provision for laundry rooms or laundry hook-ups may be made per project's program requirements.
g. Provision for other utility plumbing for janitor sinks, floor drains, outdoor faucets, drains for dehumidification systems, etc., may be made as desired or required.

4. Heating
    a. System design:
        i. Designed and constructed to conform to the RIHousing "Policy on Sustainability & Water Conservation in Multi-family Residential Properties". Contained within this policy are as follows and can be found in detail in section VII-C.
        ii. Where existing components of a system are proposed to be reused, they will be examined and determined to be in good and serviceable condition, code compliant and have a remaining useful life of a minimum of 30 years, or covered by the 20-year capital plan and/or subsequent 5-year updates during the 30-year affordability period.
    b. Temperature control - The temperature in each apartment shall be individually thermostatically controlled.
    c. Provide adequate heat in common spaces.

5. Pipe Insulation:
    a. Insulate all hot and cold water pipes for both domestic and mechanical use to conserve heat and minimize condensation. Large buildings require insulation on all domestic and mechanical hot and cold water piping throughout the building. In handicapped units all exposed pipes shall be insulated with a protective insulated jacket.
    b. Insulate interior rainwater conductors.
    c. For hot and cold water and mechanical pipes up to 2", insulation shall be 1" thick. For larger pipes, insulation shall be 1.5" thick. For runouts insulation thickness shall be ½".

6. Avoid installing plumbing piping in exterior walls.
    a. Minimum equipment efficiencies per Efficiency Rhode Island's Energy Conservation Code RI SBC-8-2013.
    b. Motors and pumps – high efficiency Brushless Permanent Magnet Pumps (BLPM) with variable frequency drives (VFD).
    c. Control wiring and control strategies with outdoor temperature reset.

d. Finned Tube Radiation – where used - high output heavy gauge enclosure baseboard finned tube radiation is recommended to provide a more durable product with a longer expected useful life. Replace existing as appropriate.

7. Ventilation
   a. Code-compliant indoor air quality will be addressed by the installation of either exhaust only or balanced (heat recovery) ventilation systems as required by:
      i. Fire protection of system ducts per NFPA 101, 2012
      ii. ASHRAE 62.2
   b. RIHousing "Policy on Sustainability & Water Conservation in Multi-family Residential Properties". Contained within this policy are as follows and can be found in detail in section VII-C. Balanced mechanical ventilation systems are encouraged.
   c. Ventilation controls shall be per applicable codes
8. Domestic Hot Water:
   a. System shall be designed RIHousing "Policy on Sustainability & Water Conservation in Multi-family Residential Properties". Contained within this policy are as follows and can be found in detail in section VII-C.
   b. Install pipe insulation per code.

Q. **ELECTRICAL** (Cross-Reference with RIH Guidelines Section 3, Division 16 (pages 30-31) and Section 6, (pages 47-49))

1. Project electrical design should be done by a licensed electrical engineer, or other qualified professional.
2. Project electrical must be installed by a licensed electrician
3. Energy efficiency:
   a. RIHousing "Policy on Sustainability & Water Conservation in Multi-family Residential Properties". Contained within this policy are as follows and can be found in detail in section VII-C. Design shall be comply with all the applicable codes:
      - Rhode Island State Fire & Building Code, 2013
      - NFPA 101, 2012 Life Safety Code
      - NFPA 72, National Fire Alarm and Signaling Code, 2010
      - NFPA 720, Standard for the Installation of Carbon Monoxide Detection and Warning Equipment, 2012 edition.
4. In general, the electrical system should be new throughout a building:
   a. Where existing service entrances, disconnects, meters, distribution wiring, panels, and devices are proposed to remain, they will be examined and determined to be in good condition, code compliant and have a remaining useful life of a minimum of 30 years, or covered by the 20-year capital plan and/or subsequent 5-year updates during the 30-year affordability period. The designer, in concert with the State electrical inspector, shall examine the system and equipment. Existing components of the electrical system may be reused as appropriate. Substandard or critical non-code compliant components shall be replaced.

5. Utility connections shall be installed per the rules and regulations of the electrical utility.
6. Electrical service and metering:
   a. The service entrance size shall be calculated to handle the proposed electrical loads.
   b. Metering and disconnects shall be per code and mounted at approved locations.
7. Elevator wiring shall conform to the ANSI 17.1 as modified by the Rhode Island Elevator Safety Code, 2012.
8. Electrical distribution system:
   a. Lighting and receptacle circuits shall be designed per code.
   b. Locations and layout of devices and lighting to be logical and accessibility compliant where required.
   c. Provision shall be made for the wiring of dedicated equipment circuits and connections for heating, ventilation equipment/exhaust fans, pumps, appliances, etc.
9. Artificial Lighting shall be provided using Rhode Island Energy Conservation Code, RI SBC-8-2013.
   a. HTF recipients are required to upgrade to Energy Star® Category.
10. Site lighting with shielded fixtures may be provided to illuminate parking and pedestrian walkways, and will conform to local zoning.
    a. Energy Star compliant site lighting fixtures are required.
11. Emergency and exit lighting/illuminated signage shall be per the Rhode Fire Safety Code, 2013, NFPA 101, 2012, Life Safety Code.
12. Fire detection and alarms:
    a. Shall be installed as required by code: NFPA 101, and comply with NFPA 72, 2010 and NFPA 1, 2012.
    b. Smoke detectors shall be installed per Rhode Island Fire Safety Code, 2013.
    c. CO detectors shall be installed per 2013 Rhode Island State Fire and NFPA 720, 2012.
    d. Where required – system annunciation shall be in accordance with NFPA 1, 2012.
13. Communication low-voltage wiring – provisions for TV, telephone, internet data, security, and intercoms should be considered and installed as appropriate to the project's use and livability.
14. PV Solar – an optional solar-powered photovoltaic panel system may be installed in accordance with the National Electrical code, RI SBC-5-2013, State energy code, and the regulations of the governing utility.

These <u>Housing Trust Fund Standards</u> include two additional guiding documents:

Exhibit A: The Property Maintenance Code Inspection Form, also known as the "Inspectable Items and Observable Deficiencies form"

Exhibit B: Capital Needs Assessment (CNA) Guidance