



**Housing Finance
Agency**

2027 Design & Architectural Standards

Draft – May 2026

Office of Multifamily | Effective December 1, 2026

Seeking to Provide Input?

OHFA will be accepting comments on these draft standards beginning Friday, May 15, 2025 through Monday, June 29, 2026 at 5:00 p.m. Eastern Time. Comments may be submitted via e-mail to DAS@ohiohome.org.

Please join the June Multifamily Committee Meeting for a presentation of the 2027 DAS draft. Register here ([Microsoft Virtual Events Powered by Teams](#))

Table of Contents

General Requirements	4
G1. Introduction	4
<i>Applicability</i>	4
<i>Notice & Disclaimer</i>	4
G2. Definitions	5
<i>Construction Categories</i>	6
<i>OHFA Square Footage Calculation</i>	7
G3. Codes and Compliance Standards	8
G4. Adaptability & Accessibility Laws	8
<i>Americans with Disabilities Act (ADA), Title III</i>	9
<i>Fair Housing Amendments Act of 1988 (FHA)</i>	9
<i>Section 504 of the Rehabilitation Act of 1973 (Section 504)</i>	9
<i>504 Unit Types</i>	9
G5. OHFA Accessibility Requirements	10
<i>Number of Section 504 Mobility Units</i>	10
<i>Additional Features for 504 Mobility Units</i>	11
<i>Important Reminders</i>	12
Guidelines for New Construction	13
N1. Applicability	13
N2. Radon Reduction and Prevention	13
<i>Applicability</i>	13
<i>Requirements</i>	13
N3. OHFA Design Requirements	14
Guidelines for Rehabilitation	20
R1. Applicability	20
R2. Lead-Based Paint Hazard Reduction	20
<i>Applicability</i>	20
<i>Requirements</i>	20
R3. Radon Reduction and Prevention	21
<i>Applicability</i>	21
<i>Requirements</i>	21
R4. Sustainability	22
<i>Third Party Certifications</i>	22

	<i>HERS Rater</i>	22
R5.	Minimum Scope of Work	23
	<i>Expectations at Project Completion</i>	23
R6.	OHFA Design Requirements	24
APPENDIX A:	Physical Capital Needs Assessment Standards	30
	<i>Purpose</i>	30
	<i>Qualifications</i>	30
	<i>Definitions</i>	30
	<i>Scope</i>	31
	<i>Process</i>	31
	<i>Guidance</i>	31
APPENDIX B:	OHFA PCNA Table of Contents	33
APPENDIX C:	OHFA EUL Table	36

General Requirements

G1. Introduction

OHFA's intent in implementing Design & Architectural Standards is to provide a set of guidelines for developers that promotes our mission to create and preserve safe, decent, affordable housing for low- and moderate-income Ohioans. The four principals that shape the DAS are:



Affordability

Improve energy & resource efficiency to reduce utility costs to the project and residents. Minimize future tenant damage, in concert with Durability goals below.



Durability

Promote the use of durable materials that reduce day-to-day maintenance costs, and prioritize replacement of essential systems during rehabilitation.



Quality of Life

Create safe and healthy living conditions, in an environment that upholds the dignity and worth of residents. Enhance & respect the fabric of the local community.



Accessibility

Address the need for more units that can accommodate those with disabilities or mobility challenges. Encourage architectural adaptations beyond the code minimum.

Within this framework, OHFA endeavors to create standards that thoughtfully balance mission and cost considerations, while creating flexibility that allows applicants to support the unique needs of their residents.

Applicability

The following Design and Architectural Standards (DAS) apply to all Ohio Housing Finance Agency (OHFA) funded projects. Sections beginning with "G" apply to all projects, sections beginning with "N" apply to new construction and adaptive re-use projects, and sections beginning with "R" apply to rehabilitation. *Italic blue text* within the guidelines identifies requirements that are specific to Affordable Assisted Living (AAL), and apply to AAL projects in addition to all other standards.

The DAS represents the minimum requirements necessary to receive OHFA funding; requirements may be increased or modified by a program-specific guideline or an incentive. Applicants should consult the relevant program guidelines for further information. The DAS under which the project was approved for funding must be used from application throughout compliance.

Notice & Disclaimer

All requirements are exclusive of federal, state, and local law or regulation that may further dictate design requirements. If there is a conflict between the requirements of applicable codes and/or the DAS, the most stringent requirement will prevail. The DAS is subject to modification pending developments in federal, state, and OHFA policy.

Nothing in the DAS should be construed to waive, override, modify, or extinguish any legal or regulatory responsibility, including those governing accessibility issues. OHFA does not certify project adherence to building code or other legal or design requirements. OHFA does not, by the execution or performance of any architectural review function, assume liability or otherwise become responsible for any owner, developer, architect, construction contractor or other person's obligation. Applicants and funding recipients are explicitly advised to seek independent legal advice regarding non-OHFA design and construction requirements particularly as they relate to accessibility.

G2. Definitions

Unless otherwise noted, all definitions must be the same as the applicable building code.

Adaptive Reuse: See [Construction Categories](#)

Assemblies: A portion of a building system, piece of equipment, or building element.

Circulation Space: The path inside a building for access to living units, storage areas, common areas, ingress and egress areas, and other spaces designed for resident use.

- *Examples:* Hallways, stairways, and areas that lead to other rooms

Common Space: A room or space outside the residential living unit designed for resident use that does not presuppose a usage fee or participation in an activity for free enjoyment of the space.

- *Examples:*
 - Circulation space - hallways, elevators, lobby, etc.
 - Community space - meeting rooms, community rooms, lounges, mail rooms, community dining rooms, etc.
 - Property management space - management offices

Dedicated Program Space: A room or space outside the residential living unit designed exclusively for tenant use that has a fixed activity or program-driven purpose. These spaces are not considered part of Common Space.

- *Examples:* Counseling space, wellness and health clinic areas, day care centers, puzzle/game rooms, libraries, fitness rooms, hair salons, computer rooms, commercial kitchens for AAL residents, AAL staff laundry areas and housekeeping closets

Design and Construction Features Form (DCF): The form submitted with the application that states all of the design-related features that will be included in the project. Compliance throughout the rest of the project period is checked against this information. The DCF can be found on OHFA's website under Forms on the specific webpage for the funding round being sought.

Expected Useful Life (EUL): The average amount of time in years that an item, assembly, component, or system is estimated to function without material repair when installed new and assuming routine maintenance is practiced. This is also used as the standard for new material durability/acceptability in rehabs, adaptive reuse, and new construction. A new material must conform to the applicable expected useful life as defined in the EUL table.

Net Rentable Area: The sum of the unit area, balcony area, garage (if included with the unit) and tenant storage area.

New Construction: See [Construction Categories](#)

Physical Capital Needs Assessment (PCNA): An inspection and resulting report for a property that provides detail on the property's current overall physical condition and identifies immediate physical

needs, significant deferred maintenance, and an opinion of costs to remedy physical deficiencies. EUL values are used in a Capital Needs Assessment when assessing the current condition. Remaining useful life (RUL) is used to evaluate existing materials in meeting OHFA required durability.

Project: The whole of one or more residential structures and appurtenant structures, equipment, roads, walks, and parking lots which are covered by a single application for OHFA funding, or are treated as a whole for processing purposes, whether or not located on a common site.

Remaining Useful Life (RUL): Subjective estimate based upon observations, or average estimates of similar items, assemblies, components, or systems, or a combination thereof, of the number of remaining years that an item, assembly, component, or system is estimated to be able to function in accordance with its intended purpose before warranting replacement. Such period of time is affected by the initial quality of an item, assembly, component, or system, the quality of the initial installation, the quality and amount of preventive maintenance exercised, climatic conditions, and extent of use.

Rehabilitation: See [Construction Categories](#)

Scope of Work Form (SoW): The form submitted with the application is used to define all major building materials and systems for new construction, rehabilitation, and adaptive reuse. The SoW can be found on OHFA's website under Forms on the specific webpage for the funding round being sought.

Support Space: A room or space outside the residential living unit that is not intended for resident use.

- **Examples:** Mechanical areas, janitor closets, security offices, fire control stations, supply and mechanical storage areas

Construction Categories

The following construction categories relate solely to the application of these Guidelines and shall not be used to define project requirements or scopes outside of the criteria defined in these Guidelines.

- **New Construction:** Ground-up construction of a new building or buildings. Includes site preparation for, and construction of, entirely new structures whether or not the site was previously occupied.
- **Moderate Rehabilitation A*:** A renovation where the dwelling unit demising walls and most interior walls remain, and the new scope of work is built within the existing dwelling unit compartment. A project that is Moderate Rehab A includes the majority replacement of one Major Building System (See [Minimum Scope of Work](#)) and partial replacement of any or all other building systems, as dictated by the building condition and evaluation of RUL in the PCNA report.
- **Moderate Rehabilitation B*:** A renovation where the dwelling unit demising walls and most interior walls remain, and the new scope of work is built within the existing dwelling unit compartment. A project that is Moderate Rehab B includes the majority replacement of at least two Major Building Systems (See [Minimum Scope of Work](#)) and partial replacement of any or all other building systems, as dictated by the building condition and evaluation of RUL in the PCNA report.
- **Substantial Rehabilitation*:** A renovation where the majority of the interior walls, finishes, systems and MEP infrastructure are demolished, and a new scope of work is constructed within the existing building shell. These projects are also sometimes referred to as "gut" rehabs.
- **Adaptive Reuse:** A substantial renovation that occurs in a building or space that undergoes a change of use to residential occupancy, as defined by the applicable building code. If the

building has undergone a change of use to residential occupancy less than 24 months prior to the submission of application to OHFA, it will be considered an Adaptive Reuse.

** OHFA requires that applicants identify their rehab project as either Moderate Rehabilitation A, Moderate Rehabilitation B, or Substantial Rehabilitation. This identification assists with data collection and may be tied to incentives in specific competitive programs.*

OHFA Square Footage Calculation

Developments must use the following standards for measuring square footage:

Multifamily buildings

- Building Owners and Managers Association (BOMA) – BOMA 2023 for Multi-Family and Hospitality Properties, Gross Method (ANSI/BOMA Z65.4)

Single-family, 1, 2, or 3-family dwelling, or townhome buildings

- BOMA - Gross Areas Standard (ANSI/BOMA Z65.3)

The area calculations for either of the above must include 100% of the building in which the project is contained regardless of whether that space is leased or condominiumized to another entity, and includes:

- All buildings, including those without Building Identification Numbers (BINs)
- Free-standing community buildings
- Maintenance buildings and sheds
- Picnic shelters/gazebos
- Garages
- Carports
- Porches

The calculation should not include:

- Trash enclosures
- Concrete patios without roofs
- Sidewalks

All square footage must be calculated and certified in the AHFA and the DCF by the Architect of Record.

G3. Codes and Compliance Standards

All developments must conform to the below requirements:

Buildings with four or more units:

- [Ohio Administrative Code 4101:1 Board of Building Standards: Ohio Building Code \(OBC\)](#), including any and all referenced codes.

Buildings with three or fewer units:

- [Ohio Administrative Code 4101:8 Board of Building Standards: Residential Code of Ohio \(RCO\)](#), including any and all referenced codes.

Industrialized Units (OBC or RCO):

- [Ohio Administrative Code 4101:10 Ohio Industrialized Unit Rules \(IU\)](#)

All developments must also conform to the requirements set forth in the following, as applicable:

- [Ohio Department of Development Residential Rehabilitation Standards \(RSS\)](#)
- [HUD's National Standards for the Physical Inspection of Real Estate \(NSPIRE\)](#)
- Local codes, zoning codes, and fire codes as required by the jurisdiction or funding source.
- If receiving funding from the **HOME Investment Partnerships Program**, developments must meet all requirements as outlined in [24 CFR §92.251 – Property Standards](#).
- If receiving funding from the **National Housing Trust Fund**, developments must meet all requirements as outlined in [24 CFR §93.301 – Property Standards](#).
- If receiving funding from the **Community Development Block Grant – Disaster Recovery program**, developments must meet all requirements as outlined in [83 FR 5844](#)
- *Affordable Assisted Living (AAL) projects must conform to the design requirements for Residential Care Facilities in [O.A.C. Rules 3701-16](#), including but not limited to [O.A.C. Rules 3701-16-13, 3701-16-14, 3701-16-15, and 3701-16-16](#). Residents must be allowed access to enter and exit the facility at will.*

All drawings and specifications must be prepared under direct supervision of an Ohio Licensed (active and current) Architect in accordance with the Architectural Practice Act, bear the license number of the architect, and if the architect is part of any business structure other than a sole proprietorship, he or she must include the Project Design Firm registration number on the drawings. The drawings are required to be signed and sealed by the Architect of Record.

G4. Adaptability & Accessibility Laws

Developments may be subject to one or more of the below accessibility laws, depending on the date of construction, type of space, funding sources utilized, and other project-specific information. The burden of compliance rests with the project team. Owners/developers and/or architects will be required to certify to OHFA that they have complied with applicable regulations.

Additionally, all projects must to comply with the accessibility requirements as outlined in the [Ohio Building Code, Chapter 4101:1-11](#), which includes the use of [ANSI/ICC A117.1-2017](#) for the design and construction of accessible units.

When more than one law and accessibility standard applies, that requirement takes precedence which affords greater accessibility.

Americans with Disabilities Act (ADA), Title III

- Applicable to common areas open for public use, such as a property management or rental office.

Fair Housing Amendments Act of 1988 (FHA)

- Applicable to all new multi-family housing consisting of four or more dwelling units per building built for first occupancy after March 13, 1991.
- Applicant must identify a single safe harbor that will be used to demonstrate compliance with the Act's design and construction requirements.

Section 504 of the Rehabilitation Act of 1973 (Section 504)

- While typically applicable to recipients of federal financial assistance, OHFA requires that all developments receiving OHFA funding meet the accessibility design requirements of Section 504. **See further OHFA requirements related to Section 504 in the next section: OHFA Accessibility Requirements.**
- Section 504 applies to the entire project including all sites, all buildings, designated residential units, all common areas, and all site features. Applicant must identify a single accessibility standard for compliance with Section 504 requirements: either the Uniform Federal Accessibility Standards (UFAS), the 2010 ADA Standards for Accessible Design with identified exceptions (see [HUD's 2014 Deeming Notice](#)), or an equivalent standard as permitted per [24 CFR 8.32](#).

504 Unit Types

- Mobility Unit: Is fully accessible for persons with mobility disabilities.
 - All 504 units, including Mobility, must be provided in a variety of unit configurations and distributed throughout the development and buildings. When units are on multiple floors, distribution includes units on multiple floors. The distribution neither precludes nor requires an accessible unit on all floors.
- Sensory Units: Units that are accessible for persons with hearing or visual disabilities. Required features include:
 - Hard-wired doorbell systems for entry. Audio/visual notification devices are required in all habitable spaces (e.g. living rooms, bedrooms, and bathrooms). Where doorbell signals are located in sleeping areas, they shall have controls to deactivate the signal.
 - Physical peephole at the main entry to the unit, providing a minimum 180-degree range of view.
 - Audio/visual notification devices for life safety systems.

G5. OHFA Accessibility Requirements

Number of Section 504 Mobility Units

Depending on construction category and population served, OHFA requires that a certain number of dwelling units meet Section 504 requirements for persons with mobility and sensory impairments:

- Affordable Assisted Living:
 - 20% of units must meet Section 504 Mobility standards
 - 10% of units must meet Section 504 Sensory standards
- Seniors (New Construction) & Tenants w/ Special Housing Needs (New Construction):
 - 10% of units must meet Section 504 Mobility standards
 - 2% of units must meet Section 504 Sensory standards
- General Occupancy (New Construction) and All Rehab:
 - **OPTION A:** 10% of units must meet Section 504 Mobility standards.
 - **OPTION B:** 5% of the dwelling units must meet Section 504 Mobility standards and another 5% must meet the requirements for *Semi-ambulatory units* as defined here:
 - *Semi-ambulatory units* are intended to serve people with crutches, canes & walkers. Requirements include: stair and ramp handrails with compliant extensions (if applicable), compliant stair nosings, compliant grab bars at toilets and tubs/showers, compliant accessible entry and accessible path through the unit. In units with showers, a compliant shower seat must be provided. In all cases, “compliant” refers to compliance with the project’s selected accessibility standard for Section 504 compliance. Task- or day- lighting must be provided at kitchen sink and range. Where at least one parking space is provided for each dwelling unit, at least one accessible parking space is required to be located in proximity to the entry for each semi-ambulatory unit.
 - **OPTION C:** 5% of the dwelling units must meet Section 504 Mobility standards and another 5% must meet the requirements for *Flex units* as defined here:
 - *Flex units* are intended to allow developers the greatest flexibility to choose how to best serve their resident population. Applicant should submit a proposal for a unit that is designed to exceed Fair Housing requirements and serve a specific population(s) of residents (e.g. persons with sensory processing issues, intellectual & developmental disabilities, learning disabilities, chronic illness, mobility or sensory impairment, etc.) The evaluation and acceptance of these proposals is at OHFA’s discretion.
 - 2% of units must meet Section 504 Sensory standards

Additional Features for 504 Mobility Units

OHFA recognizes that the demographic of wheelchair users has changed in many ways since the implementation of Section 504 in 1973. To a large extent, the requirements of Section 504 are only a minimum threshold and are not sufficiently meeting the daily needs of those with a serious mobility impairment.

In addition to following the requirements of the project’s selected accessibility standard for Section 504 compliance, applicant must select the indicated number of additional features from each column to provide in all 504 Mobility units (including units in addition to the federally required 5%):

Column A1 – pick one	Column B – pick one	Column C – pick four
Range/cooktop does not exceed nominal 34” in height	Pull-out drawers or pull-out pot organizers in multiple base cabinets	Cooktop adjacent to sink (on contiguous counter, no more than 4ft away measured edge to edge)
Oven with side-opening door	Wall oven	Full height pantry
Auto operator at unit entry	Roll-under cooktop	Side-by-side refrigerator
Entry door with fob/card reader, key pad, or lock box for easier caregiver entry	Kitchen sink with “enhanced reach range” as defined in ANSI A117.1-2017 Section 606.5 (and exceptions 1 & 2)	Space designated for wheelchair charging in appropriate location with appropriate electrical outlets
Stair lift (in multi-story units)	Pull-down storage in multiple upper cabinets	Ice and water dispenser within reach range
	Eat-at peninsula or island in kitchen with overhang and room for at least two wheelchairs	Swing-up grab bar on open side of toilet, meeting ANSI A117.1-2017 609.8 for structural strength
Column A2 – pick one (whole building)	Auto operator at all common area trash chute room doors	Dishwasher
More than one elevator serving building	Remote control of thermostat by resident	Storage in bathroom (e.g. for healthcare supplies)
Permanent generator that provides power to elevator	Double acting hinge, pocket or barn door at all passage doors	Manual pull to close door on all passage doors within unit and any exterior doors
Playground or splash pad designed for wheelchair-inclusive play	42” wide leaf for all passage doors	Grab bars installed at toilets and tubs/showers
Casement windows with all operating hardware within reach range	Washer/dryer by owner in unit meeting the project’s chosen accessibility standard for Section 504	Closets with no doors; install curtain rods instead (rehab must remove any residual door hardware)
		Pull-out work surface near the oven, refrigerator or microwave

OHFA will accept proposed accessibility features beyond the provided list that are relevant and necessary to the applicant’s development. The applicant will be required to clearly describe the additional feature(s) and provide justification for the comparability in cost and value to the other items in the column. The evaluation, acceptance, and classification of these items is at OHFA’s discretion.

Important Reminders

- Accessible units must have comparable features to non-accessible units, including counter space and storage comparable to what is provided in non-accessible kitchens & bathrooms.
 - Storage should be compared assuming removable base cabinets will be removed, and only considering storage within reach range in accessible units. *Exact equivalency in linear feet is encouraged but not expected. Adding a 15" wide pantry cabinet in accessible unit kitchens is one recommendation for ensuring comparable storage.*
- An accessible route to and accessible use of the dumpster is required unless the building includes an interior trash chute or trash room for residents, and residents are therefore not required to take their trash to a dumpster outside of the building.

Guidelines for New Construction

N1. Applicability

The Guidelines for New Construction, in addition to the General Requirements above, apply to the ground-up construction of a new building(s) as well as projects defined as Adaptive Reuse.

N2. Radon Reduction and Prevention

Applicability

The requirements in this section apply to all OHFA-funded New Construction. Additionally, certain federal and state funding sources already require developments utilizing their funding to adhere to program-specific requirements for radon testing and mitigation (for example, any development subject to HUD's environmental review regulations at 24 CFR Part 50 and Part 58). Developments subject to these program-specific requirements should continue to follow the applicable guidance related to radon.

Radon testing, mitigation, and laboratory work for developments to be funded with OHFA resources must be performed by individuals who meet the certification and licensure requirements as outlined in OAC 3701-69. The most current testing standard for the applicable building type, as of the date the testing occurs, should be followed: [EPA's Current Radon Standards of Practice](#)

Requirements

Developments must incorporate radon-resistant construction techniques into their project. Radon-resistant construction techniques include:

- a gas permeable layer such as gravel beneath the lowest building floor slab,
- a vapor retarding layer on top of the permeable layer,
- a vertical vent pipe from the permeable layer through the roof to vent outside,
 - (all vent piping must be located and designed for minimal effect on building appearance)
- sealing and caulking of all cracks, joints and penetrations in the slab or basement, and
- installation of a junction box in the attic or highest interior space for use with an in-line suction fan if one is required for future active removal of radon.

Once construction/renovation is complete, but prior to occupancy, radon testing must be conducted in accordance with the current ANSI/AARST testing standards for the applicable structure. This includes testing in 100% of all ground-contact dwelling units and non-residential ground-contact rooms, as well as 10% of the upper floor dwelling units (with at least one unit tested on each floor) to determine the need for installation of exhaust fans (i.e. "active" removal).

If any sample result from the post-construction sampling meets or exceeds 4.0 pCi/L of radon, exhaust fans must be installed to convert the passive radon removal systems to active removal systems. Any area with test results above the action level must be retested after installation of fans until satisfactory results are obtained.

N3. OHFA Design Requirements

These requirements are specific to OHFA. They are in addition to all other applicable local and state codes, including those governing accessibility.

N3.1. Site Design

- N3.1.1.** Proposed sites for new construction must meet the requirements in [24 CRF 988.55\(e\)](#).
- N3.1.2.** All main entries must have a roof, awning, or overhang over the entry area. Covering must be a minimum of 30" in depth (54" in depth for mobility units) and at minimum match the width of the entry door(s).
- N3.1.3.** Provide landscaping, which at a minimum must include grass or ground cover. Existing trees should be maintained where possible.
 - N3.1.3.1.** Project landscaping must not use species identified by the Ohio Department of Agriculture or Ohio Department of Natural Resources as invasive in Ohio. During construction, measures must be implemented to remove invasive species and prevent their re-establishment.
- N3.1.4.** All new sidewalks along the accessible route must be a minimum of 5-feet in width.
- N3.1.5.** For single family dwellings, sidewalks from a front door must connect to a driveway or public route.
- N3.1.6.** Stormwater management areas must be provided with recognized design measures to ensure safety for children and other residents of the project or the surrounding neighborhood. Overflow and drainpipes must have safety grating.

N3.2. Building Design

- N3.2.1.** The maximum common area, using the Common Space definition for what constitutes common area, must not exceed 20 percent of the total gross building square footage.
- N3.2.2.** Common area hallways must be a minimum of 42" in width.
- N3.2.3.** Building and all dwelling units must have no-step entry (1/2" or less) at main entrance.
- N3.2.4.** Elevators
 - N3.2.4.1.** All developments that exceed three stories must have an elevator accessible to all residents.
 - N3.2.4.2.** Developments serving seniors or a PSH population with a high rate of disability must not exceed one story unless the building has an elevator accessible to all residents. This requirement does not apply to single-family homes, 1-, 2-, or 3-family dwellings, or townhouses.
- N3.2.5.** Laundry
 - N3.2.5.1.** If laundry facilities are not provided on-site, all affordable units must include washer and dryer hookup. *This requirement does not apply to Affordable Assisted Living if laundry service is included for all residents.*

N3.3. Unit Sizes

- N3.3.1.** All affordable units must meet the following minimum size requirements:

N3.3.1.1. 0-bedroom/Efficiency units (i.e. studio, efficiency): 400 square feet

N3.3.1.1.1. Assisted Living: 350 square feet

N3.3.1.2. 1-bedroom units: 550 square feet

N3.3.1.2.1. Service Enriched: 450 square feet

N3.3.1.2.2. Assisted Living: 450 square feet

N3.3.1.3. 2-bedroom units: 750 square feet

N3.3.1.4. 3-bedroom units: 950 square feet

N3.3.1.5. 4+ bedroom units: 1,100 square feet

N3.3.2. Single-room occupancy units (SROs) are not permitted.

N3.3.3. Senior Developments may not have any unit larger than two bedrooms. *AAL projects may not have any unit larger than one bedroom.*

N3.3.4. All affordable units must include adequate storage space for unit residents:

N3.3.4.1. At least 6 LF of hanging storage for Efficiency and 1-bedroom units, plus an additional 4 LF for every additional bedroom

N3.3.4.2. At least 2 LF of full-height shelving in a hall or bathroom

N3.3.4.3. At least 3 LF of kitchen base or pantry cabinets (not including removable cabinets)

N3.3.5. *For Affordable Assisted Living, 100% of residential units must be on an accessible level on an accessible path and must have an accessible path throughout the unit.*

N3.4. Bedroom Sizes

N3.4.1. All affordable unit bedrooms must meet the following minimum size requirements:

N3.4.1.1. Primary bedroom: 120 square feet

N3.4.1.2. Secondary bedrooms: 100 square feet

N3.4.2. Closets are excluded from the required minimum bedroom sizes identified above.

N3.4.3. At a minimum, three- and four-bedroom affordable units must support double occupancy in each bedroom under local zoning and building requirements.

N3.5. Bathrooms

N3.5.1. Affordable units must provide a minimum number of bathrooms based on unit size:

N3.5.1.1. 0-bedroom/Efficiency units (i.e. studio, efficiency): 1 full bathroom

N3.5.1.2. 1-bedroom units: 1 full bathroom

N3.5.1.3. 2-bedroom units: 1 full bathroom

N3.5.1.4. 3-bedroom units: 1.5 bathrooms

N3.5.1.5. 4+ bedroom units: 2 full bathrooms

N3.5.2. Multi-story townhomes must have a visitable toilet room, as defined in ANSI A117.1-2017 Section 1105.6, on the accessible floor.

N3.5.3. All 504 mobility units provided must have one roll-in shower.

N3.5.3.1. If a trench drain is not provided at the threshold of the roll-in shower, then a floor drain must be provided outside of the shower. When a floor drain is used, it must be approximately at the center of the open floor.

N3.5.4. Provide loop handles on drawers and cabinets.

N3.5.5. PLAM countertops may not have sharp 90-degree corners, in case of a bathroom fall. Either chamfer or radius the corner, or provide a modified profile (beveled, eased, ogee, bullnose, etc.) at the front edge. OHFA does not require any specific profile or dimension of radius.

N3.5.6. *For Affordable Assisted Living, 100% of resident bathrooms must be designed to meet Section 504 for mobility units, including a roll-in shower.*

N3.6. Kitchen & Appliances

N3.6.1. All affordable unit kitchens must include:

N3.6.1.1. Either a stand-alone range that is at least 30-inches wide or a cooktop and wall oven;

N3.6.1.1.1. *For Affordable Assisted Living, a microwave (or other cooking appliance) with a dedicated 20-amp outlet may be provided instead.*

N3.6.1.2. An Energy Star-certified refrigerator (minimum 7 cubic feet);

N3.6.1.3. An Energy-Star certified dishwasher (if provided); and

N3.6.1.4. Loop handles on drawers and cabinets

N3.6.2. *For Affordable Assisted Living, all kitchen appliances shall be 100% electric.*

N3.6.3. All kitchen venting must exhaust to the outside of building. This may be by hood, ceiling vent or wall vent.

N3.6.4. Kitchens must have at least a 12" wide countertop "landing zone" on each side of stove and sink, and at least one side of refrigerator. This may be shared with another appliance and/or required work surface if applicable. Microwaves are permitted in landing zones.

N3.7. Doors

N3.7.1. Interior doors must meet the following requirements:

N3.7.1.1. Minimum 32" clear width

N3.7.1.2. Solid wood, semi-solid core or solid core (fully supported face veneers, e.g.: particle board core, foam core), or insulated steel.

N3.7.1.2.1. Closet doors (not including mechanical) are exempt from this requirement.

N3.7.1.3. Lever-style handles are required on all doors with latches or locks. Doors without latches or locks must still have hardware that is easy to operate with one hand.

N3.7.1.4. Bi-fold or accordion-type doors are not permitted.

N3.7.1.5. Doors on an accessible route may not close faster than 5 seconds from a 90-degree open position, unless on a code-approved hold open.

N3.8. Floor Coverings

- N3.8.1.** If removable cabinets are used, the flooring and walls underneath the cabinet must be finished.
- N3.8.2.** Floor coverings must be non-glare and slip resistant.
- N3.8.3.** Interior stairs must have anti-slip strips on front edge of steps in color-contrast material.

N3.9. Durability

- N3.9.1.** All new work must be constructed with materials that have an Expected Useful Life (EUL) that meets or exceeds the numbers given in the OHFA EUL table found in [Appendix C](#). For example, asphalt shingles should be 30-year shingles.
- N3.9.2.** Material Specifications:
 - N3.9.2.1.** Vinyl siding must be at least 0.042 inches in thickness
 - N3.9.2.2.** Exterior insulation finishing system (EIFS) is prohibited, with the exception of decorative trims that are applied to an appropriate exterior cladding and located more than 7ft above ground level.
 - N3.9.2.3.** Thin brick must be mud set and may not have a metal grid system. Thin brick systems must have a minimum 30 year warranty.
 - N3.9.2.4.** Insulation must meet the ASHRAE 90.1 Standard at the time of OHFA application (e.g. -2019)
 - N3.9.2.5.** Windows and exterior doors must meet at minimum Version 6 (V6) Energy Star rating for climate zone 5.
 - N3.9.2.5.1.** Window manufacturer must provide a letter identifying number of windows provided to the project complying with Energy Star V6 and windows U-value, infiltration and wind speed rating per V6.
 - N3.9.2.5.2.** HERS rater must certify those windows were installed on the project.
 - N3.9.2.5.3.** Storefront windows that are not typically Energy Star rated should meet the U-value requirements for Energy Star V6 if possible.
 - N3.9.2.6.** Cabinet materials must be in accordance with the requirements of ANSI A161.1 "Minimum Construction Performance Standards for Kitchen Cabinets" and must also have solid wood doors/fronts.
 - N3.9.2.7.** Carpet must be solution-dyed nylon or equivalent solution-dyed high-performance commercial fiber. Olefin carpets are prohibited. If a pad is required, a closed-cell pad must be used with antimicrobial and water-resistant material. Carpet is only permitted in the following development types and locations:
 - N3.9.2.7.1.** Management and social service office areas;
 - N3.9.2.7.2.** Bedrooms in residential living units (except for PSH);
 - N3.9.2.7.3.** In senior developments and AAL, carpet is permitted in living/dining rooms if a walk-off area is provided at exterior and entry doors.
 - N3.9.2.7.4.** In senior developments and AAL, carpet tile is permitted in corridors if applicant presents a plan for quarterly professional cleaning.

N3.9.2.8. Moisture-resistant gypsum board is required in the following areas:

- N3.9.2.8.1. Ceilings with bathroom or toilet rooms directly above.
- N3.9.2.8.2. Within 4 feet horizontally and vertically of any water source.
- N3.9.2.8.3. Within 4 feet in any direction behind laundry/clothes washing machines, water heaters, water meters, etc.
- N3.9.2.8.4. On walls less than 4 feet from sprinkler service controls and water service lines located in service rooms.
- N3.9.2.8.5. Behind public drinking fountains.
- N3.9.2.8.6. Exterior walls within sub-grade or partially sub-grade dwelling units.

N3.9.2.9. *For Affordable Assisted Living:*

- N3.9.2.9.1. *All outside corners in common areas and Section 504 mobility units must have corner guards.*
- N3.9.2.9.2. *In common areas and Section 504 mobility units, baseboards shall be impact-resistant and at least 7.25" high. The interior of closets is exempt from this requirement.*
- N3.9.2.9.3. *All common area and unit entry doors shall have kickplates or be high-pressure laminate doors.*

N3.9.3. Construction Practices:

- N3.9.3.1. Seal all holes and penetrations connected to interior with UV stable materials
- N3.9.3.2. Weepholes should not be sealed and should include corrugated vents or rope wicks
- N3.9.3.3. All downspouts must empty onto concrete splash blocks with a positive slope away from the building or be piped to an appropriate location.
- N3.9.3.4. Paved surface adjacent to refuse collection area must be designed to provide adequate bearing for heavy garbage trucks.
- N3.9.3.5. Any wall-hung sinks must have concealed floor and stud-braced carriers. For wall-hung sinks on masonry walls, a carrier arm bracket mounted on epoxy studs may be used.

N3.10. Building Systems

N3.10.1. Plumbing systems

- N3.10.1.1. Water heaters must meet current (adopted by Ohio at the time of 80% drawing submittal to OHFA) version of ASHRAE 90.1.
- N3.10.1.2. All plumbing fixtures must have lever-style handles. Anti-scald faucets are required for all sinks, bathtubs, and showers.

N3.10.2. HVAC systems

- N3.10.2.1. Must meet current (adopted by Ohio at the time of 80% drawing submittal to OHFA) version of ASHRAE 90.1.
- N3.10.2.2. Thermostat and controls must be easy to read and simple to operate.
- N3.10.2.3. All affordable units must be air conditioned.

N3.10.2.4. Package Terminal Air Conditioner (PTAC) units are not permitted. *Package Terminal Heat Pump (PTHP) units are permitted only in Affordable Assisted Living (AAL) projects:*

N3.10.2.4.1. *Sleeves must be composite nonconductive energy efficient type. Sleeves must be re-sealed as necessary to prevent air infiltration after any future equipment replacement.*

N3.10.2.4.2. *Units may not have open (i.e., non-closing) ducts to the exterior.*

N3.10.2.4.3. *One PTHP unit is required in each habitable space (e.g., living room and bedroom). Duct kits are not permitted.*

N3.10.2.5. Stacked or adjacent mechanical units must allow for the access, service, and replacement of one unit without the removal of another.

N3.10.2.6. *For Affordable Assisted Living, HVAC must be in a room or enclosure either locked or not readily accessible without tools, or propose other HVAC units that would assist in regulatory compliance with OAC 3701-16-16.*

N3.10.3. Electrical systems

N3.10.3.1. Provide adequate non-glare lighting throughout.

N3.10.3.2. Switches must be rocker, touch light, or hands-free.

N3.10.3.3. Outlets, phone jacks and data ports should be installed at least 18" A.F.F.

N3.10.3.4. *For AAL, electrical panels must be locking type requiring key access.*

Guidelines for Rehabilitation

R1. Applicability

The Guidelines for Rehabilitation apply to the remodel of any existing residential building or space, in addition to the General Requirements at the beginning of the document.

R2. Lead-Based Paint Hazard Reduction

OHFA is committed to the reduction of lead-based paint hazards in housing throughout Ohio. Deteriorating lead-based paint and its resulting lead dust are the most common causes of elevated blood lead levels in children in Ohio. Because of Ohio's aging housing stock, many residents are susceptible to lead hazards. Over 25% of housing units in Ohio were built before 1950, when the first laws banning lead-based paint were enacted. Over two-thirds of housing units in Ohio were built in 1979 or earlier, pre-dating the federal ban on lead in house paint.

Applicability

The requirements in this section apply to all properties seeking OHFA funding for rehabilitation of a pre-1978 structure.

Certain properties may be exempt and are able to seek an exception to this requirement:

- Properties found not to have lead-based paint during earlier testing that meet the requirements of prior evaluations.
- Properties where all lead-based paint has been identified and removed using approved methods.
- Properties in an area where state and local governments banned lead-based paint prior to January 1, 1978.

Additionally, certain federal and state funding sources already require developments utilizing their funding to adhere to program-specific requirements for the reduction of lead-based paint hazards. Developments subject to these program-specific requirements should continue to follow the applicable guidance related to lead-based paint.

Requirements

Developments must comply with the requirements outlined in the [HUD Lead Safe Housing Rule](#) (24 CFR 35), specifically subparts A, B, J, and R as well as any other subparts applicable to the project. In general, this means projects must:

- Conduct an evaluation of lead-based paint hazards (i.e., a risk assessment, paint inspection, or a combination of the two).
 - For properties in good condition, a lead hazard screen risk assessment may be performed first to determine whether a full risk assessment is necessary.
- Control identified lead hazards per Ohio Department of Health and HUD hazard reduction requirements.

- Pass clearance testing of work area prior to re-occupancy.
- Inform occupants of evaluation and hazard control activities and results and provide the HUD/EPA Lead Hazard information disclosure pamphlet.

Develop a lead hazard control plan for the property which includes an ongoing lead-safe maintenance program. Additionally, developments must meet all other local, state, and federal requirements related to lead-based paint as may apply including those related to disclosure, professional qualifications, lead-safe work practices, etc.

R3. Radon Reduction and Prevention

Applicability

The requirements in this section apply to all OHFA-funded rehabilitation and adaptive reuse. Additionally, certain federal and state funding sources already require developments utilizing their funding to adhere to program-specific requirements for radon testing and mitigation (for example, any development subject to HUD's environmental review regulations at 24 CFR Part 50 and Part 58). Developments subject to these program-specific requirements should continue to follow the applicable guidance related to radon.

Radon testing, mitigation, and laboratory work for developments to be funded with OHFA resources must be performed by individuals who meet the certification and licensure requirements as outlined in OAC 3701-69. The most current testing standard for the applicable building type, as of the date the testing occurs, should be followed: [EPA's Current Radon Standards of Practice](#)

Requirements

Developments must incorporate radon-resistant construction techniques into their project. Radon-resistant construction techniques that might be incorporated during rehabilitation include:

- vertical vent pipe(s) from the permeable layer through the roof to vent outside,
 - (all vent piping must be located and designed for minimal effect on building appearance)
- installation of a junction box in the attic or highest interior space for use with an in-line suction fan if one is required for future active removal of radon.

Rehabilitation Projects may request an exception to the requirement for a radon mitigation system based on pre-construction testing results below 4.0pCi/L. If the highest result of testing conducted before construction is between 2 and 4 pCi/L, it is recommended that a passive system is still installed in all impacted areas (as a building becomes more airtight the level of radon is more likely to increase).

Regardless of any exception granted, radon testing after construction but before occupancy is required. Testing must be conducted in accordance with the current ANSI/AARST testing standards for the applicable structure. If any result from the post-construction testing is at or above the threshold (4.0 pCi/L) a passive radon system must be installed in the impacted area, and the area must be retested after installation and the radon system adjusted (including installing exhaust fans to convert the passive system to an active system) until satisfactory results are obtained. Radon testing, mitigation, and laboratory work for developments to be funded with OHFA resources must be performed by individuals who meet the certification and licensure requirements as outlined in OAC 3701-69.

R4. Sustainability

In addition to meeting all energy efficiency requirements as stated in the Ohio Building Code or Residential Code, all OHFA funded projects must meet the requirements of one of the below energy efficiency or green building certifications.

Certification from a Home Energy Rating System (HERS) rater that the requirements have been met is required upon construction completion. At OHFA's discretion, exceptions may be granted for an otherwise qualified and licensed professional to verify compliance with the DAS in projects unable to retain a HERS rater in their area.

Certification from the applicable green building rating system itself is recommended but not required.

Third Party Certifications

Developments must utilize the most current version of the below certifications. The current version is the version applicable at the time of project application to the certifying body.

- Enterprise Green Communities Certification or EGC Plus Certification
- Leadership in Energy & Environmental Design (LEED) Residential - Silver Level Certification or higher
- ICC/ASHRAE 700 National Green Building Standard (NGBS) - Silver Level Certification or higher
- Energy Star Homes or Energy Star MFNC
- Passive House Initiative - Passive House Certification
- PHIUS - Passive House Certification
- WELL Certification (requires recertification)
- Fitwel Certification (requires recertification)
- Energy Star NextGen Certified Homes & Apartments
- Zero Energy Ready Homes (ZERH)
- Living Building Challenge (LBC) Zero Carbon Certification
- Green Globes by Green Building Initiative, Inc. (GBI)
- GreenPoint Rated by Habinex
- An equivalent ANSI-approved rating system

HERS Rater

Use of a HERS rater is required for all projects, and certification by a HERS rater for the following:

- The development meets or exceeds the higher of either the certification selected or the Ohio Energy Code using the current ASHRAE 90.1 (e.g. 2019)
- For Rehab: The post-construction blower door test must achieve 12 ACH or lower.

HERS Rater must be engaged at the application or preliminary phase through construction completion.

R5. Minimum Scope of Work

Any rehabilitation projects seeking HTC (competitive or non-competitive) must significantly address major building systems (MBS). See [Construction Categories](#) for more information on how MBS are linked to the various levels of Rehabilitation. MBS must be significant to the building and its use, normally expected to last the useful life of the building, and not cosmetic. The “major systems” in HOME and NHTF Property Standards are equivalent to OHFA’s MBS. Major Building Systems are as follows:

1. Structural: Concrete, Masonry, Metals
2. Thermal and Moisture Protection
3. Conveying Equipment (elevators)
4. Fire Suppression
5. Plumbing
6. Heating, Ventilation, and Air Conditioning (HVAC)
7. Electrical, Communications, Electronic Safety and Security
8. Earthwork, Exterior Improvements
9. Utilities

Total replacement of a Major Building System is not required, but the greater part (at least 50%) must be replaced. If the project consists of multiple buildings with different needs, each building may designate different Major Building Systems for replacement. A new and substantial addition to the project (i.e. a new community building, sprinkler system, or elevator) can constitute a Major Building System for purposes of determining sufficient scope. Interior finishes and casework cannot be used to meet the major building systems requirement and are assumed to be included in all OHFA funded rehabilitation projects.

All building systems/assemblies in need of replacement and/or repair as identified in the PCNA or identified by the architect must be included in the scope of work, regardless of if these elements are part of a Major Building System identified above. This includes items identified in the PCNA as having an RUL of less than 50%.

- Applicants are advised to submit an exception request if they plan to keep existing materials having an RUL of less than 50% but determined to be in excellent condition and not intended for replacement.
- Applicant must also submit an exception request if they intend to replace any items having an RUL of 50% or greater and not showing need for replacement.
- New materials must be at 100% RUL.

OHFA may require the applicant to adjust the scope of work if the proposed scope of work does not meet these minimum requirements or address all the items identified in the PCNA.

Expectations at Project Completion

All rehabilitation projects must be complete in scope such that materials and finishes appear clean and consistent. Mismatched, patchwork, or unwashed materials and finishes will not be accepted at completion of any rehabilitation. All deficiencies observed in the PCNA must be addressed. Materials such as carpet, vinyl composite tile (VCT) thickness, vinyl siding, building systems, and mechanical systems may not be patched or repaired if they do not meet the OHFA DAS for the year in which the project was funded. Door hardware should be uniform in style throughout dwelling units. Exterior concrete, stairs, play equipment, shelters, and outbuildings shall be in good condition upon completion without damage, rust, or rot and must have a painted or weather cover meeting OHFA’s DAS.

Any exception to this standard must be in writing from OHFA prior to LIHTC equity closing or Housing Development Assistance Program (HDAP) closing, whichever occurs first. The project scope of work, budget and underwrite may need to be revised to meet the above intent.

R6. OHFA Design Requirements

These requirements are specific to OHFA. They are in addition to all other applicable local and state codes, including those governing accessibility.

R4.1. Site Design

R4.1.1. Provide landscaping, which at a minimum must include grass or ground cover. Existing trees should be maintained where possible.

R4.1.1.1. Project landscaping may not use species identified by the Ohio Department of Agriculture or Ohio Department of Natural Resources as invasive in Ohio. During construction, measures must be implemented to remove invasive species and prevent their re-establishment.

R4.1.2. Any new sidewalks along the accessible route must be a minimum of 5-feet in width.

R4.1.3. For single family dwellings, sidewalks from a front door must connect to a driveway or public route.

R4.1.4. Stormwater management areas must be provided with recognized design measures to ensure safety for children and other residents of the project or the surrounding neighborhood. Overflow and drainpipes must have safety grating.

R4.2. Building Design

R4.2.1. If the footprint of the existing building is being expanded, maximum common area, using the Common Space definition for what constitutes common area, must not exceed 20 percent of the total gross building square footage.

R4.2.2. Elevators

R4.2.2.1. If an elevator is existing, it must be maintained and be accessible to all residents.

R4.2.2.2. Developments serving seniors or a PSH population with a high rate of disability must not exceed one story unless the building has an elevator accessible to all residents. This requirement does not apply to single-family homes, 1-, 2-, or 3-family dwellings, or townhouses.

R4.2.3. Laundry

R4.2.3.1. If laundry facilities are currently provided on-site, this amenity must be maintained.

R4.3. Unit Sizes

R4.3.1. All affordable units must meet the following minimum size requirements:

R4.3.1.1. 0-bedroom/Efficiency units (i.e. studio, efficiency): 400 square feet

R4.3.1.1.1. *Assisted Living: 350 square feet*

R4.3.1.2. 1-bedroom units: 500 square feet

R4.3.1.2.1. Service Enriched: 450 square feet

R4.3.1.2.2. *Assisted Living: 450 square feet, or for projects receiving Historic Tax Credits all 1-bedroom units combined must average 500 square feet*

R4.3.1.3. 2-bedroom units: 700 square feet

R4.3.1.4. 3-bedroom units: 950 square feet

R4.3.1.5. 4+ bedroom units: 1,100 square feet

R4.3.2. Single-room occupancy units (SROs) are not permitted.

R4.3.3. Senior Developments may not have any unit larger than two bedrooms.

R4.3.4. All affordable units must include adequate storage space for unit residents:

R4.3.4.1. At least 6 LF of hanging storage for Efficiency and 1-bedroom units, plus an additional 4 LF for every additional bedroom

R4.3.4.2. At least 2 LF of full-height shelving in a hall or bathroom

R4.3.4.3. At least 3 LF of kitchen base or pantry cabinets (not including removable cabinets)

R4.3.5. *For Affordable Assisted Living, 100% of residential units must be on an accessible level on an accessible path and must have an accessible path throughout the unit.*

R4.4. Bedroom Sizes

R4.4.1. All affordable unit bedrooms must meet the following minimum size requirements:

R4.4.1.1. Primary bedroom: 110 square feet

R4.4.1.2. Secondary bedrooms: 90 square feet

R4.4.2. Closets are excluded from the required minimum bedroom sizes identified above.

R4.5. Bathrooms

R4.5.1. All 504 mobility units provided must have one roll-in shower.

R4.5.1.1. If a trench drain is not provided at the threshold of the roll-in shower, then a floor drain must be provided outside of the shower. When a floor drain is used, it must be approximately at the center of the open floor.

R4.5.2. Provide loop handles on drawers and cabinets.

R4.5.3. PLAM countertops may not have sharp 90-degree corners, in case of a bathroom fall. Either chamfer or radius the corner, or provide a modified profile (beveled, eased, ogee, bullnose, etc.) at the front edge. OHFA does not require any specific profile or dimension of radius.

R4.5.4. *For Affordable Assisted Living, 100% of resident bathrooms must be designed to meet Section 504 for mobility units, including a roll-in shower.*

R4.6. Kitchen & Appliances

R4.6.1. All affordable unit kitchens must include:

R4.6.1.1. Either a stand-alone range that is at least 24-inches wide or a cooktop and wall oven;

R4.6.1.1.1. *For Affordable Assisted Living, a microwave (or other cooking appliance) with a dedicated 20-amp outlet may be provided instead.*

R4.6.1.2. An Energy Star-certified refrigerator (under-counter refrigerators will not be accepted);

R4.6.1.3. An Energy-Star certified dishwasher (if provided); and

R4.6.1.4. Loop handles on drawers and cabinets

R4.6.2. *For Affordable Assisted Living, all kitchen appliances shall be 100% electric.*

R4.6.3. Existing kitchen exhaust systems must be retained if they have a 6” minimum diameter duct, and are ducted directly to the exterior. If the PCNA documents that the existing kitchen exhaust duct is less than 6” or nonexistent, then recirculating hoods may be used instead.

R4.6.4. Kitchens must have at least a 9” wide countertop “landing zone” on each side of stove and sink, and at least one side of refrigerator. This may be shared with another appliance and/or required work surface if applicable. Microwaves are permitted in landing zones.

R4.7. Doors

R4.7.1. Interior doors must meet the following requirements:

R4.7.1.1. Existing bedroom and bathroom doors, if replaced, must be replaced with solid wood, semi-solid core or solid core (fully supported face veneers, e.g.: particle board core, foam core), or insulated steel.

R4.7.1.2. Existing door widths may remain as is except for Section 504 mobility units.

R4.7.1.3. Lever-style handles are required on all doors with latches or locks. Doors without latches or locks must still have hardware that is easy to operate with one hand.

R4.7.1.4. Bi-fold or accordion-type doors are not permitted.

R4.7.1.5. Common area and mobility unit doors may not close faster than 5 seconds from a 90-degree open position, unless on a code-approved hold open.

R4.8. Floor Coverings

R4.8.1. If removable cabinets are used, the flooring and walls underneath the cabinet must be finished.

R4.8.2. Floor coverings must be non-glare and slip resistant.

R4.8.3. Interior stairs must have anti-slip strips on front edge of steps in color-contrast material.

R4.9. Durability

R4.9.1. All new work must be constructed with materials that have an Expected Useful Life (EUL) that meets or exceeds the numbers given in the OHFA EUL table found in [Appendix C](#). For example, asphalt shingles should be 30-year shingles.

R4.9.2. Specific materials designated as historic by the State Historic Preservation Office of Ohio (SHPO) as addressed in writing by SHPO are exempt from individual requirements. The letter must be provided at application and include each item specifically addressed to meet this exemption.

R4.9.3. Material Specifications:

R4.9.3.1. Vinyl siding must be at least 0.042 inches in thickness

- R4.9.3.2. New exterior insulation finishing system (EIFS) is prohibited, with the exception of decorative trims that are applied to an appropriate exterior cladding and located more than 7ft above ground level. If existing EIFS is intended to remain, applicant must provide a report documenting the condition of the existing EIFS, condition of the building envelope at the EIFS location, and making recommendations for any repair or replacement to maintain the integrity of the building envelope over the entirety of the compliance period. Rehab scope of work must incorporate those recommendations, subject to OHFA's review.
- R4.9.3.3. Thin brick must be mud set and may not have a metal grid system. Thin brick systems must have a minimum 30 year warranty.
- R4.9.3.4. Any insulation that is installed or accessible during the rehabilitation (e.g. attic insulation) must be upgraded to meet the ASHRAE 90.1 Standard at the time of OHFA application (e.g. -2019)
- R4.9.3.5. New and replacement windows and exterior doors must meet at minimum Version 6 (V6) Energy Star rating for climate zone 5.
- R4.9.3.5.1. Window manufacturer must provide a letter identifying number of windows provided to the project complying with Energy Star V6 and windows U-value, infiltration and wind speed rating per V6.
 - R4.9.3.5.2. HERS rater must certify those windows were installed on the project.
 - R4.9.3.5.3. Storefront windows that are not typically Energy Star rated should meet the U-value requirements for Energy Star V6 if possible. Any existing storefront windows must be in good condition with the frames intact and the thermal seals unbroken.
- R4.9.3.6. Cabinet materials must be in accordance with the requirements of ANSI A161.1 "Minimum Construction Performance Standards for Kitchen Cabinets" and must also have solid wood doors/fronts.
- R4.9.3.7. Carpet must be solution-dyed nylon or equivalent solution-dyed high-performance commercial fiber. Olefin carpets are prohibited. If a pad is required, a closed-cell pad must be used with antimicrobial and water-resistant material. Carpet is only permitted in the following development types and locations:
- R4.9.3.7.1. Management and social service office areas;
 - R4.9.3.7.2. Bedrooms in residential living units (except for Service Enriched housing developments);
 - R4.9.3.7.3. In senior developments, carpet is permitted in living/dining rooms only if a walk-off area is provided in front of any exterior/entry door.
 - R4.9.3.7.4. In senior developments and AAL, carpet tile is permitted in corridors if applicant presents a plan for quarterly professional cleaning.
- R4.9.3.8. Any gypsum board that is installed or replaced as part of the rehab scope must be moisture-resistant gypsum board in the following areas:
- R4.9.3.8.1. Ceilings with bathroom or toilet rooms directly above.
 - R4.9.3.8.2. Within 4 feet horizontally and vertically of any water source.

- R4.9.3.8.3. Within 4 feet in any direction behind laundry/clothes washing machines, water heaters, water meters, etc.
- R4.9.3.8.4. On walls less than 4 feet from sprinkler service controls and water service lines located in service rooms.
- R4.9.3.8.5. Behind public drinking fountains.
- R4.9.3.8.6. Exterior walls within sub-grade or partially sub-grade dwelling units.

R4.9.3.9. *For Affordable Assisted Living:*

- R4.9.3.9.1. *All outside corners in common areas and Section 504 mobility units must have corner guards.*
- R4.9.3.9.2. *In common areas and Section 504 mobility units, baseboards shall be impact-resistant and at least 7.25" high. The interior of closets is exempt from this requirement.*
- R4.9.3.9.3. *All common area and unit entry doors shall have kickplates or be high-pressure laminate doors.*

R4.9.4. Construction Practices:

- R4.9.4.1. Seal all holes and penetrations connected to interior with UV stable materials
- R4.9.4.2. Weepholes should not be sealed and should include corrugated vents or rope wicks
- R4.9.4.3. All downspouts must empty onto concrete splash blocks with a positive slope away from the building or be piped to an appropriate location.
- R4.9.4.4. Paved surface adjacent to refuse collection area must be designed to provide adequate bearing for heavy garbage trucks.
- R4.9.4.5. Any wall-hung sinks must have concealed floor and stud-braced carriers. For wall-hung sinks on masonry walls, a carrier arm bracket mounted on epoxy studs may be used.

R4.10. Building Systems

R4.10.1. Plumbing systems

- R4.10.1.1. Water heaters must meet current (adopted by Ohio at the time of 80% drawing submittal to OHFA) version of ASHRAE 90.1.
- R4.10.1.2. All plumbing fixtures must have lever-style handles. Anti-scald faucets are required for all sinks, bathtubs, and showers.
- R4.10.1.3. All existing buildings must have shut-off valves replaced with full port stainless steel shut-off valves.
- R4.10.1.4. *At Affordable Assisted Living, an automatic sprinkler system is required in accordance with OAC 1301:7-7-09 Fire protection systems (f) 903.2.6 Group I.*

R4.10.2. HVAC systems

- R4.10.2.1. Must meet current (adopted by Ohio at the time of 80% drawing submittal to OHFA) version of ASHRAE 90.1.
- R4.10.2.2. Thermostat and controls must be easy to read and simple to operate.

R4.10.2.3. All affordable units must be air conditioned.

R4.10.2.4. Package Terminal Air Conditioner (PTAC) units are not permitted. Package Terminal Heat Pump (PTHP) units are permitted only in rehabilitation projects in openings where PTHPs or PTACs currently exist.

R4.10.2.4.1. Sleeves must be replaced with composite nonconductive energy efficient type. Sleeves must be re-sealed as necessary to prevent air infiltration after any future equipment replacement.

R4.10.2.4.2. Duct kits may not block controls or windows.

R4.10.2.4.3. Units may not have open (i.e., non-closing) ducts to the exterior.

R4.10.2.4.4. AAL projects require an individual PTHP unit per habitable space (e.g., living room and bedroom).

R4.10.2.5. Stacked or adjacent mechanical units must allow for the access, service, and replacement of one unit without the removal of another.

R4.10.2.6. For Affordable Assisted Living, HVAC must be in a room or enclosure either locked or not readily accessible without tools, or propose other HVAC units that would assist in regulatory compliance with OAC 3701-16-16.

R4.10.3. Electrical systems

R4.10.3.1. Provide adequate non-glare lighting throughout.

R4.10.3.2. Switches must be rocker, touch light, or hands-free.

R4.10.3.3. Outlets must meet HUD's **NSPIRE standard** for GFCI protection.

R4.10.3.4. Obsolete electrical panels, meter equipment, disconnects etc. throughout the entire property must be replaced. This includes electrical panels that contain components that are not readily and commonly available at a reasonable cost. Common examples include: Federal Pacific, Wadsworth, Bryant, Sylvania, Challenger, Cleveland (Cleveland Switch Board), Push-O-matic, Zinsco, any screw-in fuses, any split buss panels, etc. Replacement equipment must show load calculations for any major load change such as HVAC.

R4.10.3.4.1. Where MDP or disconnects utilize renewable cartridge fuses (such as Bussmann, Cooper, etc) these are not considered obsolete.

R4.10.3.4.2. Where panels no longer manufactured have currently manufactured replacement breakers. These replacement breakers must have an Underwriters test letter from the replacement breaker manufacturer that allows the new U/L rated breakers to be installed in the project specific obsolete panel make and model number.

R4.10.3.5. Smoke alarms must be installed to meet HUD's **NSPIRE standard**.

R4.10.3.6. For AAL, electrical panels must be locking type requiring key access.

APPENDIX A: Physical Capital Needs Assessment Standards

Purpose

A Physical Capital Needs Assessment (PCNA) represents a third-party qualified professional's opinion of a property's current overall physical condition and identifies significant deferred maintenance, existing deficiencies, and material building code violations that affect the property's use and its structural and mechanical integrity.

Qualifications

PCNAs must be prepared by an individual who has experience in the preparation of PCNAs and possesses a professional qualification/license in architecture or engineering. If the individual does not have a professional qualification/license in architecture or engineering, they must have at least 5 years of experience preparing PCNAs.

The third-party qualified professional preparing the PCNA must not be connected in any way to the project, including serving as the design architect, project architect of record, general contractor, property manager or sponsor. OHFA may grant an exception for small projects and adaptive reuse projects.

Definitions

OHFA will use the following definitions per ASTM E2018-15 or current standard.

- **Physical deficiency:** a conspicuous defect or deferred maintenance of a subject property's material systems, assemblies, components, or equipment as observed during completion of the PCNA. This definition specifically excludes deficiencies that may be remedied with routine maintenance, miscellaneous minor repairs, normal operating maintenance, etc., and excludes minor conditions that generally do not present material physical deficiencies of the subject property.
- **Deferred maintenance:** physical deficiencies that could have been remedied with routine maintenance, normal operating maintenance, etc., excluding minor conditions that generally do not present a material physical deficiency to the subject property.
- **Good condition:** in working condition and does not require immediate or short-term repairs above an agreed threshold.
- **Fair condition:** in working condition but may require immediate or short-term repairs above an agreed threshold.
- **Poor condition:** not in working condition or requires immediate or short-term repairs substantially above an agreed threshold.
- **Immediate costs:** opinions of costs that require immediate action as a result of any of the following: (1) material existing or potentially unsafe conditions, (2) material building or fire code violations, or (3) physical deficiencies that if left uncorrected would be expected to result in or contribute to critical element or system failure within one year or will result most probably in a significant escalation of its remedial cost.

- **Short-term costs:** opinions of costs to remedy physical deficiencies, such as deferred maintenance, which may not warrant immediate attention, but require repairs or replacements that should be undertaken on a priority basis in addition to routine preventive maintenance.

Scope

OHFA requires a PCNA for all projects involving rehabilitation, including adaptive reuse projects. The PCNA must conform to ASTM E2018-24 or current standards and must reflect the current condition of the building. PCNAs produced for USDA or RAD projects may be used with OHFA approval of an Exception Request prior to submission.

The PCNA must identify any repair items that represent an immediate threat to health and safety, and all other significant defects, deficiencies, items of deferred maintenance, and material building code violations that would limit the expected useful life of building systems or assemblies. The PCNA must identify electrical and mechanical systems in detail with the manufacture, mechanical efficiencies, and/or component types (reference Section L. 2.3.3. Electrical systems for list of common obsolete panels).

The PCNA must include a completed [PCNA Table of Contents template](#) (including page numbers) and all items specified in [Appendix B: PCNA Table of Contents](#).

Process

The professional shall conduct a site visit and physical inspection of interior and exterior of units and structures, including:

- 25% of all dwelling units (if less than 50 total units)
- 20% of all dwelling units (if 50 to 99 total units)
- 15% of all dwelling units (if 100 total units or more)
- All accessible units
- All common facilities
- All site improvements
- All building exteriors

The units sampled must be comprehensive of all unit and building types. The site visit(s) must be within one year of the submission to OHFA. The PCNA provider may attest that the PCNA remains valid or provide a letter of amendment without requiring an additional site visit, up to 1 year after issuance. OHFA may require the third-party qualified professional to update any report that is greater than 6 months old at the time of submission.

The PCNA professional must interview available on site property management and maintenance personnel and inquire about past repairs/improvements, pending repairs and existing or chronic physical deficiencies.

Guidance

The following are additional requirements.

- The PCNA should be a point-in-time observation of existing conditions.
- The PCNA should not give direction or guidance outside the scope of providing observation.
- The PCNA should not address or be catered to competitive scoring items.
- For Adaptive Reuse/Historic projects, the PCNA should make a point-in-time observation of all aspects of the building but give substantial details on structure, façade, and items to remain.

- When the age of an assembly is unknown, it should be stated as such. However, the condition must still be evaluated even if the age is an estimate or unknown.
- The EUL/RUL of an item does not equate to need. Need is the second half of evaluation for replacement that must be documented.
- Existing accessibility items should only be addressed in the PCNA if the owner requests it and the PCNA provider is adequately qualified to provide such an evaluation.
- When evaluating a system or assembly, the following questions must be clearly answered in the PCNA:
 - What is the current condition?
 - Does it need to be replaced?
 - How much of the system needs to be replaced (as a percentage)?
- Building systems and their assemblies should be documented through photographs specifically highlighting areas of concern.
- Indicate when relying on information from the owner (“the owner reports the new windows were installed in....”).

APPENDIX B: OHFA PCNA Table of Contents

This PCNA Table of Contents (TOC) template must be used in all PCNAs submitted to OHFA. All items in the TOC must be included in the PCNA. If an item is not applicable, it must be stated as such.

Section	Page #
1. Executive Summary	
1.1 General description of property (use, size, age, location, construction category, design style, occupancy status)	
1.2 Name of consultant preparing the PCNA	
1.3 Name of user of the PCNA	
1.4 User's position with respect to the subject property	
1.5 Date of the site visit	
1.6 General physical condition	
1.6(a) Subject property's general physical condition	
1.6(b) Summary of the apparent level of preventive maintenance exercised	
1.6(c) Summary of any significant deferred maintenance	
1.6(d) Schedule of material physical deficiencies	
1.6(e) Any significant capital improvements that are pending, in-progress, or were recently implemented	
1.6(f) Any significant findings resulting from research (This should include material life-safety code and building code violations)	
1.7 Opinions of costs	
<i>Present the aggregate sum of opinions of costs segregated between immediate and short-term costs.</i>	
1.8 Deviations from ASTM E2018-15 or current standard	
1.9 Consultant/Field Observer relationship	
1.10 Recommendations/Discussions	
1.10(a) Briefly identify those assemblies and systems necessitating further study, research, testing, intrusive survey, or exploratory probing.	
1.10(b) This section also may be used to discuss any obvious major deviations from the subject property description provided by the user to the consultant, ongoing repairs or improvements, or other relevant issues.	
2. Purpose and Scope	
2.1 Provide a short paragraph specifically stating the purpose the PCNA should serve and the client's position with respect to the real estate transaction. If the client does not disclose the PCNA's purpose or its role to the consultant, the PCNA should so state.	
2.2 Identify the improvements that comprise the subject property.	
2.3 Provide an outline of the scope of work completed for the PCNA and methods utilized.	
2.4 If there were any constraints preventing the consultant from performing the PCNA in accordance with this outline, these constraints should be identified.	
3. System Descriptions and Observations	

<p><i>For each major building system listed in the OHFA EUL Table, provide a brief description of each system and its assemblies and observed physical deficiencies, if any. Please notate with corresponding numbers listed in the EUL Table. Include all:</i></p> <ul style="list-style-type: none"> <i>The item’s Estimated Useful Life (based on the OHFA EUL table) and Remaining Useful Life;</i> <i>The item’s current physical condition, stated as “good”, “fair”, or “poor”;</i> <i>and</i> <i>PCNA provider’s recommendation for critical replacements/repair.</i> <p><i>This list should not be considered all-inclusive. Conversely, some items may not be applicable to the subject property and should be noted as such.</i></p>	
<p>4. Document Reviews and Interviews</p>	
<p><i>Identify any material information relating to physical deficiencies of the subject property resulting from the review of documents and interviews conducted.</i></p>	
<p>5. Additional Considerations</p>	
<p><i>Identify any material additional considerations or out of scope considerations that are included in the PCNA. This may include:</i></p> <ul style="list-style-type: none"> <i>Capital improvements, enhancements, or upgrades to building components, systems, or finishes; and/or</i> <i>Improvements, capital expenditures, repairs, maintenance and other activities that are or may be required at a future date, except as needed in the review of short term and long-term needs; and/or</i> <i>Environmental considerations, such as mold, asbestos, or lead-based paint.</i> 	
<p>6. Opinions of Costs</p>	
<p>6.1 Identification of material physical deficiencies and suggested remedies, including opinions of costs.</p>	
<p><i>For each material physical deficiency, the consultant should provide a suggested remedy, which may include recommending further research or testing, or both, if appropriate in the consultant’s opinion.</i></p>	
<p><i>Opinions of costs should be provided for material physical deficiencies and not for repairs or improvements that could be classified as: (1) cosmetic or decorative; (2) part or parcel of a building renovation program (3) tenant improvements/finishes; (4) enhancements to reposition the subject property in the marketplace; (5) for warranty transfer purposes; or (6) routine or normal preventive maintenance, or a combination thereof.</i></p>	
<p><i>Identify all Immediate Repairs as occurring in year zero and project the expected reserve requirements necessary for at least the following 20 years of operations.</i></p>	
<p>6.1(a) Immediate Costs (table)</p>	
<p><i>Identify each material physical deficiency, suggested remedy, and opinion of cost.</i></p>	
<p>6.1(b) Short-term Costs (table)</p>	

<i>Identify each material physical deficiency, suggested remedy, and opinion of cost.</i>	
6.1(c) Replacement Reserves/Ongoing Physical Needs (table)	
<i>Provide opinion of cost for all long-term capital expenses. Long-term capital expenses are typically based on the expected useful life of the building systems and assemblies.</i>	
6.1(d) Costs for Additional Study	
<i>Provide the opinions of costs for additional study for any physical deficiencies that warrant further study/research or design, testing, exploratory probing, and exploration of various repair schemes, or a combination thereof, in order to determine the appropriate suggested remedy or scope.</i>	
7. Qualifications	
<i>Provide the qualifications for the professionals contributing to and completing the PCNA.</i>	
8. Limiting Conditions	
<i>Provide all limiting conditions of the PCNA.</i>	
9. Exhibits	
9.1 Representative photographs *	
9.2 Pre-survey questionnaire	
9.3 User/owner submitted documents	
9.4 Photocopied plot plans, sketches, etc.	
9.5 Inspected units list (unit number, size, accessibility)	
9.6 Other exhibits considered appropriate by the consultant	

Representative photographs must typically include photographs of existing roof condition, exterior windows, sidings, doors, gutters downspouts, existing site feature conditions(ex: swimming pools, play areas, maintenance building, garages, dumpster etc.), interior unit conditions(includes all room), mechanical units, electrical panels (type), Accessible unit (includes all room), Common areas such community room, laundry room etc.), Asphalt paving condition, sidewalk condition, site signage, fence, parking etc.

APPENDIX C: OHFA EUL Table

Note: this table is sorted by **CSI Divisions** with assemblies and parts grouped within the divisions. Each Division corresponds with the format of the OHFA Scope of Work (SoW) excel form.

Any materials used in OHFA projects (New or rehab) must be in the table to be used in OHFA projects. This includes existing items to remain.

Division	Section	Assembly	Description	Family	Senior
Division 3			Concrete		
	3-A		Framing		
		3-A-i	Reinforced concrete	100	100
	3-B		Exterior Stairs & Railings		
		3-B-i	Exterior Stairs, Concrete	50	50
	3-C		Balcony/Porch/Canopy		
		3-B-ii	Balcony/Porch, concrete	40	40
		3-B-iv	Canopy, Concrete	50	50
	3-D		Foundation		
		3-A-i	Slab, reinforced concrete	100	100
		3-A-ii	Slab, post tensioned	100	100
		3-A-iii	Continuous reinforced concrete footer and CMU stem wall	100	100
		3-A-iv	Piers, reinforced concrete footer and CMU pier	100	100
Division 4			Masonry		
	4-A		Framing		
		4-A-i	Reinforced masonry, concrete masonry units (CMUs)	100	100
		4-A-ii	Solid Masonry (obsolete)	100	100
Division 5			Metals		
	5-A		Framing		
		5-A-i	Tie downs, clips, braces, straps, hangers, shear walls/panels	75	75
		5-A-ii	Steel, beams, trusses	100	100
		5-A-iii	Steel frame and sheet metal or insulated panel sheathing	100	100
	5-B		Exterior Stairs & Railings		
		5-B-i	Exterior Stairs-steel frame/stringer	40	40
		5-B-ii	Exterior Stair Tread-metal, concrete filled	20	20
		5-B-iii	Fire escapes, metal	50	50
		5-B-iv	Railings, metal	50	50
	5-C		Balcony/Porch/Canopy		
		5-C-i	Balcony/Porch, steel frame	40	40
		5-C-ii	Canopy, Metal	40	40
	5-D		Foundation		
	5-E		Interior Metal Stairs & Railings		

Division	Section	Assembly	Description	Family	Senior
		5-E-i	Interior Stairs	50	50
		5-E-ii	Interior Stair and loft railings	15	25
Division 6			Wood, Plastics, and Composites		
	6-A		Framing		
		6-A-i	Wood, timbers, dimensioned lumber, laminated beams, trusses	100	100
		6-A-ii	Roof wood frame and board or plywood sheathing	75	75
	6-B		Exterior Stairs and Railings		
		6-B-i	Exterior Stairs, wood frame/stringer	30	30
		6-B-i	Exterior Stair Tread-wood	15	15
		6-B-i	Railings, wood	20	20
		6-B-i	Railings, composite	50	50
	6-C		Balcony/Porch/Canopy		
		6-C-i	Wood decking	20	20
		6-C-ii	Composite decking	50	50
		6-C-iii	Balcony/Porch, wood frame	25	25
		6-C-iv	Canopy, Wood	40	40
	6-D		Foundation		
		6-D-i	Piers, treated timber post/pole	40	40
	6-E		Interior Stairs and Railings		
		6-E-i	Interior wood Stairs	50	50
		6-E-ii	Stair and loft railings	15	25
Division 7			Thermal & Moisture Protection		
	7-A		Flashing & Moisture Protection		
		7-A-i	Foundation Waterproofing	40	40
		7-A-ii	Caulking and Sealing	15	15
		7-A-iii	Concrete/Masonry Sealants	10	10
		7-A-iv	Wood waterproofing and sealants	10	10
		7-A-v	Building wraps & moisture resistant barriers	50	50
		7-A-vi	Paints and stains, exterior	8	8
	7-B		Sloped Roofs		
		7-B-i	Asphalt Shingle	30	30
		7-B-ii	Metal	50	50
		7-B-iii	Slate shingle	75	75
		7-B-iv	Clay/cementitious barrel tile	60	60
		7-B-v	Wood Shingle, Cedar Shakes/Shingles	25	25
	7-C		Low Slope/Flat Roofs		
		7-C-i	Low slope-Built-up Roof, with gravel finish	20	20
		7-C-ii	Low slope-Built-up Roof, no mineral or gravel finish	10	10

Division	Section	Assembly	Description	Family	Senior
		7-C-iii	Low slope-Adhered rubber membrane, (EPDM)	15	15
		7-C-iv	Low slope-Thermoplastic membrane, (TPO, vinyl)	15	15
		7-C-v	Low slope-Rubberized/elastomeric white/cool roof	15	15
	7-D		Roof Drainage, Trim & Accessories		
		7-D-i	Gutters/Downspouts, aluminum	20	20
		7-D-ii	Gutters/Downspouts, copper	50	50
		7-D-iii	Low slope-roof drains, scuppers	30	30
		7-D-iv	Soffits, Wood, Vinyl, Metal	20	20
		7-D-v	Fascia, Wood, Vinyl	20	20
		7-D-vi	Roof Hatch	30	30
		7-D-vii	Service Door	30	30
		7-D-viii	Roof Skylight	30	30
	7-E		Attics & Eaves		
		7-E-i	Screened gable end or soffit Vents	30	30
		7-E-ii	Roof vents, passive	40	40
		7-E-iii	Roof Vents, powered	20	20
	7-F		Crawl Spaces, Envelope Penetrations		
		7-F-i	Sealed crawl space system	40	40
		7-F-ii	Vents, screens, covers	30	30
		7-F-iii	Vapor Barrier (VDR) ground or underfloor	30	30
		7-F-iv	Penetrations, caulking/sealing	15	15
	7-G		Insulation		
		7-G-i	Loose fill, fibre glass, cellulose, mineral wool	50	50
		7-G-ii	Batts, blankets, rolls, fibre glass or mineral wool	60	60
		7-G-iii	Rigid foam board	60	60
		7-G-iv	Sprayed foam	60	60
	7-H		Façades, Curtainwall, or Sidewall System		
		7-H-i	Aluminum Siding	40	40
		7-H-ii	Vinyl Siding	25	25
		7-H-iii	Cement Board Siding	45	45
		7-H-iv	Plywood/Laminated Panels	20	20
		7-H-v	Stucco, over wire mesh/lath	50	50
		7-H-vi	Metal/Glass Curtain Wall	40	40
		7-H-vii	Precast Concrete Panel (tilt-up)	60	60
		7-H-viii	Brick/block veneer	60	60
		7-H-ix	Stone Veneer	50	50
		7-H-x	Glass Block	50	50
		7-H-xi	Cedar/Redwood shakes, clapboard	50	50

Division	Section	Assembly	Description	Family	Senior
		7-H-xii	Pine board, clapboard	50	50
Division 8					
Openings					
	8-A		Exterior Doors & Entry Systems		
		8-A-i	Unit Entry Door, Exterior, solid wood/metal clad	25	30
		8-A-ii	Common Exterior Door, aluminum and glass	30	30
		8-A-iii	Common Exterior Door, solid wood /metal clad	25	25
		8-A-iv	Storm/Screen Doors	5	10
		8-A-v	Sliding Glass Doors	25	30
		8-A-vi	French or Atrium Doors, wood/metal clad	25	30
		8-A-vii	Automatic Entry Doors	30	30
		8-A-viii	Commercial Entry Systems	50	50
		8-A-ix	Overhead Door	30	30
		8-A-x	Automatic Opener, overhead door	20	20
	8-B		Windows		
		8-B-i	Wood, (dbl, sgl hung, casement, awning, sliders)	35	45
		8-B-ii	Wood, fixed pane, picture	40	45
		8-B-iii	Aluminum	35	40
		8-B-iv	Vinyl	30	30
		8-B-v	Vinyl/Alum Clad Wood	50	50
		8-B-vi	Storm/Screen Windows	7	15
	8-C		Interior Doors		
		8-C-i	Interior, hollow core doors	20	25
		8-C-ii	Interior doors, solid core, wood, metal clad, fire rated	30	35
		8-C-iii	Door trim	20	30
		8-C-iv	Wall trim (base, chair rail, crown moldings)	30	35
		8-C-v	Passage & lock sets	15	20
		8-C-vi	Bifold & sliding doors	15	20
Division 9					
Finishes					
	9-A		Interior finished walls, ceilings, floors – (Common Areas & Dwelling Units)		
		9-A-i	Drywall	35	40
		9-A-ii	Plaster	50	50
		9-A-iii	Paints, stains, clear finishes, interior	15	20
		9-A-iv	Wallpapers	15	20
		9-A-v	Wall tile, ceramic, glass, natural stone	35	50
		9-A-vi	Floor tile, ceramic, natural stone	40	50
		9-A-vii	Concrete/Masonry/Terrazo	75	75
		9-A-viii	Hardwood floor (3/4" strip or parquet)	50	50
		9-A-ix	Wood floor, laminated/veneered	20	25

Division	Section	Assembly	Description	Family	Senior
		9-A-x	Resilient tile or sheet floor (vinyl, linoleum)	15	20
		9-A-xi	Carpet	6	10
		9-A-xii	Acoustic tile/drop ceiling	15	20
Division 10		Specialties			
	10-A		Mailboxes & Postal Equipment		
		10-A-i	Interior Mail Facility	20	25
	10-B		Storage Accessories		
		10-B-i	Closet/storage specialties, shelving	20	25
		10-B-ii	Mirrors & medicine cabinets	20	25
		10-B-iii	Bath accessories (towel bars, grab bars, etc)	7	12
Division 11		Equipment			
	11-A		Appliances		
		11-A-i	Refrigerator/freezer	15	15
		11-A-ii	Range, cook top, wall oven	20	25
		11-A-iii	Range hood	20	25
		11-A-iv	Microwave	10	10
		11-A-v	Disposal (food waste)	7	10
		11-A-vi	Compactors (interior, residential grade)	7	10
		11-A-vii	Dishwasher	10	15
		11-A-viii	Clothes washer/dryer	10	15
		11-A-ix	Ceiling fans	15	15
Division 12		Furnishings & Casework			
	12-A		Windows		
		12-A-i	Window treatments, drapery rods, shades, blinds, etc	15	25
	12-B		Amenities/ Common Areas		
		12-B-i	Indoor recreation and fitness equipment	10	15
		12-B-ii	Seating for entertainment centers	15	25
	12-C		Kitchen & Baths		
		12-C-i	Cabinets & vanities	20	25
	12-D		Counter Tops		
		12-D-i	engineered stone	50	50
		12-D-ii	solid surface, stainless steel	40	50
		12-D-iii	plastic laminates, wood	15	25
		12-D-iv	Vanity tops, cultured marble, molded acrylic, fiberglass	25	35
Division 14		Conveying Equipment			
	14-A		Elevators/ Escalators		
		14-A-i	Electrical switchgear	50	50
		14-A-ii	Electrical wiring	30	30

Division	Section	Assembly	Description	Family	Senior
		14-A-iii	Elevator controller, call, dispatch, emergency	10	20
		14-A-iv	Elevator cab, interior finish	10	20
		14-A-v	Elevator cab, frame	35	50
		14-A-vi	Elevator, machinery	20	30
		14-A-vii	Elevator, shaftway doors	10	20
		14-A-viii	Elevator, shaftway hoist rails, cables, traveling	20	25
		14-A-ix	Elevator, shaftway hydraulic piston and leveling	20	25
		14-A-x	Escalators	50	50
Division 21			Fire Suppression		
	21-A		Sprinklers and Standpipes		
		21-A-i	Building fire suppression sprinklers, standpipes	50	50
		21-A-ii	Fire pumps	20	20
		21-A-iii	Fire hose stations	50	50
		21-A-iv	Fire extinguishers	10	15
Division 22			Plumbing		
	22-A		Water Supply and Waste Piping		
		22-A-i	PVC/CPVC pipe, supply and waste	75	75
		22-A-ii	Copper/brass hard pipe, supply	75	75
		22-A-iii	Copper Tube, supply	50	50
		22-A-iv	Galvanized pipe, supply	40	40
		22-A-v	Cast iron sanitary waste	75	75
		22-A-vi	Domestic Cold Water Pumps	20	20
		22-A-vii	Sewage Ejectors	50	50
		22-A-viii	Commercial Sump Pump	20	20
		22-A-ix	Residential Sump Pump	15	15
		22-A-x	Water Softener/Filtration	15	15
	22-B		Domestic Water Heating		
		22-B-i	DHW circulating pumps	15	15
		22-B-ii	DHW storage tanks	15	15
		22-B-iii	Exchanger, in tank or boiler	15	15
		22-B-iv	External tankless heater, gas or electric	20	20
		22-B-v	Solar hot water	20	20
		22-B-vi	Residential hot water heater, gas or electric	12	15
		22-B-vi	Flue, gas water heaters	35	35
	22-C		Fixtures		
		22-C-i	Faucets & valves	15	20
		22-C-ii	Bathtubs & sinks: cast iron	75	75
		22-C-iii	Bathtubs & sinks: enameled or stainless steel, fiberglass	40	40

Division	Section	Assembly	Description	Family	Senior
		22-C-iv	Bathtubs & sinks: porcelain	50	50
		22-C-v	Toilets/bidets/urinals	40	40
		22-C-vi	Flush valves	10	15
		22-C-vii	Tub/shower units or integrated assemblies	30	30
Division 23			HVAC		
	23-A		Centralized Heating/Cooling Equipment		
		23-A-i	Boilers, Oil Fired, Sectional	25	25
		23-A-ii	Boilers, Gas/Dual Fuel, Sectional	25	25
		23-A-iii	Boilers, Gas/Dual Fuel, Low MBH	30	30
		23-A-iv	Boilers, Gas/Dual Fuel, High MBH	40	40
		23-A-v	Boilers, Gas Fired Atmospheric	25	25
		23-A-vi	Boilers, Electric	20	20
		23-A-vii	Boiler Blowdown and Water Treatment	25	25
		23-A-viii	Boiler Room Pipe Insulation	25	25
		23-A-ix	Boiler Room Piping	50	50
		23-A-x	Boiler Room Valves	25	25
		23-A-xi	Boiler Temperature Controls	15	15
		23-A-xii	Heat Exchanger	35	35
		23-A-xiii	Combustion Air, Duct with Fixed Louvers	30	30
		23-A-xiv	Combustion Air, Motor Louvers and Duct	25	25
		23-A-xv	Combustion Waste Flue	40	40
		23-A-xvi	Cooling tower	25	25
		23-A-xvii	Chilling plant	20	20
		23-A-xviii	Steam supply station	50	50
		23-A-xix	Free standing chimney	50	50
	23-B		Centralized Heat/Air/Fuel Distribution		
		23-B-i	Fuel oil/propane storage tanks	40	40
		23-B-ii	Remediate/remove abandoned tanks/fuel lines	100	100
		23-B-iii	Fuel transfer system	25	25
		23-B-iv	Gas/oil distribution lines	50	50
		23-B-v	Gas meter	40	40
		23-B-vi	2 pipe/4 pipe hydronic distribution-above grade	50	50
		23-B-vii	2 pipe/4 pipe hydronic distribution-in ground	25	25
		23-B-viii	Hydronic/Water Circulating Pumps	20	20
		23-B-ix	Hydronic/Water Controller	20	20
		23-B-x	Radiation-steam/hydronic (baseboard or freestanding radiator)	50	50
		23-B-xi	Fan Coil Unit, Hydronic	30	30
		23-B-xii	Central exhaust fans/blowers	20	20

Division	Section	Assembly	Description	Family	Senior
	23-C		Decentralized and Split HVAC Systems (Dwelling/Common Area)		
		23-C-i	Electric heat pump, condenser, pad or rooftop	15	15
		23-C-ii	Electric AC condenser, pad or rooftop	15	15
		23-C-iii	Electric furnace/air handler	20	20
		23-C-iv	Gas furnace/air handler	20	20
		23-C-v	Hydronic heat/electric AC air handler	25	25
		23-C-vi	Hydronic feed electric heat pump/air handler	25	25
		23-C-vii	Wall mounted electric/gas heater	25	25
		23-C-viii	Electric baseboard heater	30	30
		23-C-ix	PTAC Thruwall (packaged terminal air conditioning)	15	15
		23-C-x	Window or thru-wall air conditioners	10	10
		23-C-xi	Package HVAC roof top	15	15
		23-C-xii	Air filtration/humidity control devices (humidifiers, HRV's)	20	20
		23-C-xiii	Duct, rigid sheet metal, insulated if not in conditioned space	35	35
		23-C-xiv	Duct, flexible, insulated	20	20
		23-C-xv	Duct, sealing-mastic or UL 181A or 181B tape.	20	20
		23-C-xvi	Diffusers, registers	20	20
		23-C-xvii	Fireplace, masonry & firebrick, masonry chimney	75	75
		23-C-xviii	Fireplace, factory assembled	35	35
		23-C-xix	Fireplace insert, stove	50	50
		23-C-xx	Chimneys, metal, and chimney covers	35	35
	23-D		HVAC Controls		
		23-D-i	Dwelling/common area thermostat	15	20
		23-D-ii	Heat sensors	15	15
		23-D-iii	Outdoor temperature sensor	10	10
	23-E		Exhaust and Fans		
		23-E-i	Bath/kitchen vent/exhaust fans	15	15
Division 26			Electrical (Building)		
	26-A		Electric Service & Metering		
		26-A-i	Building service panel	50	50
		26-A-i	Building meter	40	40
		26-A-i	Tenant meters, meter panel	40	40
	26-B		Electrical Distribution		
		26-B-i	Tenant electrical panel	50	50
		26-B-ii	Unit/building wiring	50	50
	26-C		Electric Lighting & Fixtures		
		26-C-i	Switches & outlets	35	35
		26-C-ii	Lighting - exterior entry	15	20

Division	Section	Assembly	Description	Family	Senior
		26-C-iii	Lighting- interior common space	25	30
		26-C-iv	Lighting - Tenant Spaces	20	25
		26-C-v	Doorbells, chimes	20	25
Division 27			Communications		
	27-A		Telecommunications Equipment		
		27-A-i	Satellite dishes/antennae	20	20
		27-A-ii	Telecom panels & controls	20	20
		27-A-iii	Telecom cabling & outlets	20	20
	27-B		Integrated Audio-Video Systems and Equipment for Theaters		
		27-B-i	Theater projection for Entertainment centers	15	25
Division 28			Electronic Safety and Security		
	28-A		Alarm, Security & Emergency Systems		
		28-A-i	Tenant space alarm systems	10	15
		28-A-ii	Residential smoke detectors	5	7
		28-A-iii	Call station	10	15
		28-A-iv	Emergency/auxiliary generator	25	25
		28-A-v	Emergency/auxiliary fuel storage tank	25	25
		28-A-vi	Emergency lights, illuminated signs	5	10
		28-A-vii	Smoke and fire detection system, central panel	15	15
		28-A-viii	Buzzer/intercom, central panel	20	20
		28-A-ix	Tenant buzzer / intercom /secured entry system	20	20
	28-B		Other Systems		
		27-B-i	Pneumatic Lines and Controls	30	30
		27-B-ii	Auto-securing doors/entries/lock down	30	30
Division 31			Earthwork		
	31-A		Storm Water Drainage		
		31-A-i	Catch basins, inlets, culverts	50	50
		31-A-ii	Marine or stormwater bulkhead	35	35
		31-A-iii	Earthwork, swales, drainways, erosion controls	50	50
		31-A-iv	Storm drain lines	50	50
		31-A-v	Stormwater management ponds	50	50
		31-A-vi	Fountains, pond aerators	15	15
	31-B		Access and Egress		
		31-B-i	Security gate - lift arm	10	10
		31-B-ii	Security gate - rolling gate	15	15
	31-C		Site Utilities-Water		
		31-C-i	Water Mains/Valves	50	50
		31-C-ii	Water Tower	50	50

Division	Section	Assembly	Description	Family	Senior
		31-C-iii	Irrigation System	25	25
	31-D		Radon Systems		
		31-D-i	Foundation suction, drainage, moisture or radon gas controls/alarms	10	10
		31-D-ii	Crawl space, (de)pressurization, fans, pumps, radon gas alarms	10	10
Division 32 Exterior Improvements					
	32-A		Paving, Curbing and Parking		
		32-A-i	Asphalt Pavement	25	25
		32-A-ii	Asphalt Seal Coat	5	5
		32-A-iii	Concrete Pavement	50	50
		32-A-iv	Curbing, Asphalt	25	25
		32-A-v	Curbing, Concrete	50	50
		32-A-vi	Parking, Gravel Surfaced	15	15
		32-A-vii	Permeable Paving Systems (brick, concrete pavers)	30	30
		32-A-viii	Striping and Marking	15	15
		32-A-ix	Signage, Roadway / Parking	15	15
		32-A-x	Carports, wood frame	30	30
		32-A-xi	Carports, metal frame	40	40
	32-B		Flatwork (walks, plazas, terraces, patios)		
		32-B-i	Asphalt	25	25
		32-B-ii	Concrete	50	50
		32-B-iii	Gravel	15	15
		32-B-iv	Permeable Paving (brick, concrete pavers)	30	30
	32-C		Landscaping and Appurtenances		
		32-C-i	Fencing, chain-link	40	40
		32-C-ii	Fencing, wood picket	15	20
		32-C-iii	Fencing, wood board (=>1"x 6")	20	25
		32-C-iv	Fencing, wrought Iron	60	60
		32-C-v	Fencing, steel or aluminum	20	25
		32-C-vi	Fencing, concrete Masonry unit (CMU)	30	30
		32-C-vii	Fencing, PVC	15	20
		32-C-viii	Signage, Entrance/Monument	25	25
		32-C-ix	Mail Kiosk	15	20
		32-C-x	Retaining Walls, heavy block (50-80 lb)	60	60
		32-C-xi	Retaining Walls, re-enforced concrete masonry unit (CMU)	40	40
		32-C-xii	Retaining Walls, treated timber	25	25
		32-C-xiii	Storage sheds	30	30
	32-D		Recreational Facilities		

Division	Section	Assembly	Description	Family	Senior
		32-D-i	Sport Court- asphalt	25	25
		32-D-ii	Sport Court- synthetic	15	20
		32-D-iii	Sport Court-hardwood	50	50
		32-D-iv	Tot Lot (playground equipment)	10	15
		32-D-v	Tot Lot- loose ground cover	3	5
		32-D-vi	Pool Deck	15	15
		32-D-vii	Pool/Spa Plastic Liner	8	8
		32-D-viii	Pool/Spa pumps and equipment	10	10
		32-D-ix	Decks-treated lumber	20	20
		32-D-x	Decks-composite	50	50
Division 33			Utilities/ Electrical		
	33-A		Site Utilities-Electric		
		33-A-i	Electric distribution center	40	40
		33-A-ii	Electric distribution lines	40	40
		33-A-iii	Transformer	30	30
		33-A-iv	Emergency Generator	25	25
		33-A-v	Solar Photovoltaic panels	15	15
		33-A-vi	Photovoltaic Inverters	10	10
		33-A-vii	Pole mounted lights	25	25
		33-A-viii	Ground lighting	10	10
		33-A-ix	Building Mounted Lighting	10	10
		33-A-x	Building Mounted High Intensity Discharge (HID) Lighting	10	20
	33-B		Site Utilities-Gas		
		33-B-i	Gas Main	40	40
		33-B-ii	Gas Supply Lines	40	40
		33-B-iii	Site Propane, Storage & Distribution	35	35
		33-B-iv	Gas lights/fire pits	20	20
	33-C		Site Utilities-Sewer		
		33-C-i	Sanitary Sewer lines	50	50
		33-C-ii	Sanitary waste treatment system	40	40
		33-C-iii	Lift Station	50	50
	33-D		Site Utilities-Trash		
		33-D-i	Dumpsters	15	15
		33-D-ii	Compactors (exterior, commercial grade)	20	20
		33-D-iii	Recycling containers/equipment	15	15
		33-D-iv	Composting, organic recycling equipment	10	10