



**Homes and
Community Renewal**

**Housing
Trust Fund
Corporation**

Design Handbook

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Office of Housing Preservation

and

Office of Finance and Development

www.nyshcr.org

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Albany, NY 12207

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Blue text is used to indicate substantive revisions
incorporated since the August 2017 edition
of the Design Handbook

NYS HCR Design Handbook.....

Table of Contents

Section 1.....Purpose and Goals

1.01 Purpose of Handbook.....	5
1.02 Design Goals and Objectives.....	6

Section 2.....Construction Contracting Requirements

2.01 Publicized, Competitive Bidding Process.....	13
2.02 Pre-Selected Builder Requirements.....	13
2.03 General Construction Contracting Requirements.....	14
2.04 Federal Labor Standards.....	14

Section 3.....Submission Requirements

3.01 Application Submission Requirements and Design Review Criteria.....	15
3.02 Post Award Submission Requirements	20
3.03 Construction Administration.....	26

Section 4.....Design and Specification Requirements

4.01 Applicable Programs and Housing Activities.....	29
4.02 Applicable Codes, Regulations and Laws.....	30
4.03 Design Requirements.....	34
4.04 Specification Requirements.....	41

Appendices.....

Appendix A Contact Information.....	56
Appendix B Owner / Architect Contract Provisions	57
Appendix C SECTION REMOVED.....	58
Appendix D Owner / Contractor Contract Provisions	59
Appendix E Area Calculations.....	60
Appendix F HTFC Preservation Standard.....	64
Appendix G Accessibility Requirements.....	68

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Section 1.....

Purpose and Goals

1.01 Purpose of Handbook

The Design Handbook has been created to assist the applicant and architects in creating functional, safe, durable and cost-effective projects which provide minimum housing standards for the benefit of residents. This handbook applies to new construction and (to the greatest degree practical) substantial rehabilitation projects. For Moderate Rehabilitation Projects, see Appendix F, "HTFC Preservation Standards." The handbook includes submission, design and specification requirements and design goals and objectives. To ensure that the design is coordinated with other applicable submission criteria and program requirements, project applicants and architects should also refer to the following publications:

- Capital Programs Manual (CPM)
- DHCR's 9% Low-Income Housing Credit Qualified Allocation Plan (QAP) for the Low-Income Housing Credit Program (9% LIHC)
(For projects jointly funded with 9% LIHC)
- New York State Low-Income Housing Tax Credit Program (SLIHC)
(For projects jointly funded with SLIHC)
- Request for Proposals (RFP)- Multi-Family Programs
- Unified Funding Application Instructions
- Unified Funding Reference Materials

All publications, including the Design Handbook, can be obtained online at <http://www.nyshcr.org>.

The purpose of the handbook is to apprise the applicant and their architects of HCR's design and specification requirements, so they can be incorporated into a project's design and development budget at the time an application is submitted for funding administered by New York State Homes and Community Renewal (HCR) and the New York State Housing Trust Fund Corporation (HTFC).

Potential applicants needing technical assistance on the design requirements contained in this manual prior to submitting an application for funding are encouraged to contact the Office of Finance and Development (OFD)'s Regional Offices.

Projects are recommended for funding to the Commissioner/CEO based upon competitive scoring criteria and technical reviews performed by HCR's Underwriting and Architectural/Engineering staff to determine a project's economic and design feasibility. See Section 3.01 for Application Submission Requirements and Design Review criteria.

The Applicant is responsible to ensure that all application submission requirements prepared by the project architect are provided. All application submissions must also meet certain threshold criteria including program eligibility, site control and site selection requirements. (Refer to Site Requirements in the Capital Programs Manual for more detailed information.)

HCR reviews each application for cost effectiveness and cost reasonableness. If selected for an award, the cost represented in the application will be incorporated into the funding commitment. Therefore, the applicant should make sure that the project's scope of work, as represented by the architect's plans and specifications, is well defined and that the preliminary cost estimate is accurately prepared by a construction contractor or cost estimator.

1.02 Design Goals and Objectives

The primary purpose in creating this Design Handbook is to aid applicants and architects in producing functional, safe, durable, and cost-effective housing. Our other objective is to add value to communities, pride amongst occupants, and promote healthy living. The following objectives must be included, where applicable, in developing design solutions that work to enhance community neighborhoods and create housing projects that promote community pride.

1.02.01 Site Development

- A. Site development should be compatible with project surroundings, e.g.:
 - 1. Maintain neighborhood scale.
 - 2. New and existing setbacks should be consistent.
 - 3. Building heights and bulk, as seen from the street, should be respected.
 - 4. Use building materials which are compatible with the neighborhood.

- B. Neighborhood traffic patterns should be respected, e.g.:
 - 1. Internal roads should relate to existing and planned alignments of abutting neighborhood roads, but at the same time should discourage through traffic and speeding.
 - 2. Curb cuts should be minimized, and alternate parking solutions found.
 - 3. Intersections should generally be at right angles, avoiding off-sets.
 - 4. If an existing pedestrian or bikeway system exists in the surrounding area, site development should enhance and continue the system.
 - 5. Acoustic buffers must be provided if outside noise levels are higher than 65 decibels.
 - 6. Building massing and pedestrian pathways should enhance connections to nearby parks, plazas, and open spaces.

- C. Open space should be useful and accommodating, e.g.:
 - 1. Provisions should be made to accommodate both social interaction and privacy for residents.

2. Sitting areas and walkways should be arranged to facilitate conversation, casual interaction, social contact (e.g.: orientate seating toward street activities), and recreational walking.
3. A clear separation in the use of public and private space should be made.
4. Outdoor space and public sidewalks should be shaded and made attractive by the presence of trees.
5. Paved areas should be characterized by high quality, easily maintained materials which are attractive in terms of their color and texture.
6. Provide children's play areas with play equipment in family projects of 20 or more dwelling units, including multi-site projects located on contiguous sites. Play equipment shall be selected to promote physical activity and use for all age groups from toddlers to adolescents. Children's defined play areas should be safe, related to their building unit and located so as not to disturb residential activities. e.g.:
 - Private outdoor space used for children's play should be located for easy supervision.
 - Play areas for the younger groups should be accessible without crossing a vehicular path.
 - Play areas should only be located adjacent to a drive or parking lot if protected by physical barriers capable of stopping a moving car.
 - Play areas should be distinct. Separate areas for toddlers/preschoolers, and teenagers should be provided in family projects.
 - Safety surfaces shall be used at play equipment in conformance with U.S. Product Safety Commission guidelines, latest edition. Gravel, wood chips and rubber chips/beads are not considered accessible for the mobility impaired, are not considered healthy for children and are not to be utilized.
 - Play areas should be enclosed with fencing to provide safety and protection to children.
 - Play areas are to be located on an accessible route to allow access to individuals in wheelchairs.
 - Play equipment shall be selected to provide equivalent play experiences and opportunities for children with disabilities.
7. Equipment for adult fitness opportunities is encouraged. At projects with children's play areas, it is recommended to strategically place areas for adult fitness opportunities near children play areas to encourage adults to engage in physical activities while supervising children's play.
8. Picnic facilities are encouraged to promote family and social activities.
9. Secure, sheltered, and easily accessible bicycle storage facilities are encouraged to promote transportation by bicycle and recreational bicycle use.
10. Existing trees should be maintained.
11. Outdoor space that contains flower and vegetable gardens that are suitable for both adults and children are encouraged as an attractive exterior environment which promotes the perception of safety, personal value, and a home-like atmosphere.

12. Storm water management areas shall be fenced or provided with other recognized design measures, such as an aquatic bench designed to NYS DEC standards, to ensure safety for children and other residents of the project or the surrounding neighborhood.
- D. Common project space should be secure. Public ways and exterior spaces should be visible from dwelling units and interior common spaces, e.g.:
 1. Avoid recessed or hidden spaces.
 2. Public spaces should permit easy supervision by security forces.
 3. Security cameras that cover the exterior grounds of the site may be included in projects with heightened security concerns.
 4. The entire parking area should be visible from a point at the exit.
 5. Stairways should exit into areas that are visible to the public and nearby dwellings.
 6. In projects with individual dwelling unit entrances, parking areas should be small and in proximity to dwellings to allow supervision of space and one's own car.
 - E. Access to buildings and all other facilities within the site should be easy, convenient and shall include Accessible Routes in compliance with the applicable building code, Fair Housing Act and other applicable regulations, such as Section 504 of the 1973 Rehabilitation Act.
 1. Paved walkways and drives should provide a direct and visible connection between the street and main entrance door.
 2. All sidewalks to the main building or unit entrances and sidewalks that are part of an Accessible Route shall be concrete.
 - F. Community facilities should abut the most public walkways of the pedestrian system and be generally central to all units.
 - G. All essential portions of the pedestrian system should be passable in poor weather, i.e. capable of being mechanically snow plowed, sheltered from sweeping winds, and well drained to prevent flooding and icing.
 - H. Building entrances should provide shelter from sun, wind, and precipitation.
 - I. Where possible, ramps should be provided instead of or in addition to stairs. Exterior ramps, stairs and their respective approaches to the ramps must be designed so water and snow will not unnecessarily accumulate on them.
 - J. Building and open spaces should be oriented and arranged to benefit from environmental conditions.
 - K. Sun should enter each dwelling unit some part of the day year-round.
 - L. Interesting and enjoyable views to areas outside the site should be afforded from dwellings, indoor common areas, and outdoor sitting areas.

- M. Site development, including utility and infrastructure work, shall be limited to that required for the subject project. The cost of site development work that benefits other projects, existing or future, shall be equitably prorated between the projects. Future developments may be subject to reimbursing site development costs if such future development obtains a benefit from the subject project's development. An exception will be allowed for work required by the local jurisdiction for expanding existing infrastructure to the subject project. Refer to the Capital Programs Manual for more information on shared development costs.

1.02.02 Shared Common Space

- A. Community space should be informal, varied and accessible.
- B. Community space should be functionally and visually related to the circulation pattern of the building or buildings.
- C. The main entrance and community space should be in a central location.
- D. Encourage stair usage by locating stairs near the building's entrance, and integrate the stair with the principal areas of orientation and travel within the building. Stairs must be accessible, visible, attractive, and well-lit. Provide stair signage next to elevators to encourage stair use.
- E. The interior of a community space should be directly visible from major circulation points.
- F. Common outdoor spaces in the form of balconies or terraces should be provided adjacent to and as extensions of indoor community spaces wherever possible.
- G. Common support areas should be easily located and accessible.
- H. Tenants should be able to collect mail without obstructing traffic.
- I. Laundry facilities shall be located, equipped, and configured for accessibility.
- J. Interior public circulation and elevators should be safe and secure.
- K. Security cameras may be included in interior public spaces, including hallways, stairways, and community rooms at projects with heightened security concerns.
- L. Elevator lobbies should have a waiting area and wall indicators describing elevator progress which can be clearly read.
- M. Corridors should be a minimum of five feet in width at all points.

- N. All projects are encouraged to provide activity spaces furnished with exercise equipment to accommodate diverse occupant groups.
- O. In addition, senior housing projects (for persons 55 years of age or older) must include:
1. A communal gathering area that provides privacy from the main building entrance.
 2. Common areas that have sufficient *pre-view* area, so the resident can choose to join present participants or to withdraw.
 3. Common areas should have flexibility for multi-purpose uses and provide an intimate atmosphere for socialization.
 4. Comprehensible path systems, such as loop corridors, an orientating central atrium or other interior space.
 5. Path systems that allow a preview of the route ahead.
 6. Windows that enhance residents' inside/outside reference system to facilitate inside navigation and spatial orientation, particularly if the complex has several wings or is built on a sloping lot.
 7. Latent cues that make visually distinctive landmarks or reference points such as plant groupings, fish tanks, art work, distinctive curtains or wall paper, personal décor, specific furnishings such as a piano, specific areas such as beauty shop/chapel/post office/elevators, etc.
 8. Consideration of varied finish treatments/colors per floor or wing for distinction of place and way-finding.
 9. Reference symbols to identify such features as elevators, dining halls, etc. placed both parallel and perpendicular to the object so as to be seen from both direct and lateral approaches.
 10. Wall mounted handrails that are easily grasped on each side of corridors in multi-unit buildings.
 11. Exit signs lowered for the vision impaired who often have limited upward vision.
 12. Contrasting colors/surfaces, or the provision of edge cues used on stairs. This will distinguish one step from another and differentiate between steps and risers.
 13. Changes in the level of illumination graduated to accommodate a slower dark/light adaption rate.
 14. General lighting that:
 - Is indirect, to avoid glare.
 - Is evenly distributed, to reduce shadows.
 - Increases the number of lighting fixtures in dwelling units to provide more even light distribution to compensate for age related vision loss;(The Illuminating Engineering Society recommends that persons aged 60+ be provided with twice the level of light required for persons 20 years of age).
 15. Large, tactile, contrasting-colored numerals and signs used in elevators, on appliances, on doors, etc. to compensate for declining ability to distinguish edges, small details, and certain colors.
 16. Signage colors that are not pastel tones, dark shades, greens, blues, and violets which are difficult to differentiate, as eyes yellow with age.
 17. Lighting that reduces visual fatigue and gives better color rendition.

18. Alarm/warning systems that are available to include both visual and audible Signals.
19. Visual signals available to augment doorbells.

1.02.03 Dwelling Unit Space

A. Kitchen

1. Kitchens should have natural light.
2. Kitchens should have direct and easy access from the exterior.
3. Kitchens having no available natural light should open up to the living room/dining room via a pass-thru window arrangement.
4. Placement of refrigerators in a circulation path should be avoided.

B. Living Room/Dining Room

1. Living Room/Dining Room areas should have windows that allow for viewing the exterior when seated.
2. Through circulation should be avoided.
3. The unit's entry area should be separated or screened from the living room/dining room.
4. A minimum of one wall, preferably two, should be provided with no fenestration to allow for adequate furniture placement.

C. Bedrooms

1. Bedrooms should be located away from parking or street noise whenever possible.
2. Closets should be used to provide a sound barrier between bedrooms.
3. Bedrooms should be grouped together and located away from living/dining/kitchen.

D. Bathrooms

1. Vanities should be provided with all lavatory sinks, unless bathrooms are to be handicapped accessible.
2. Bathrooms should be located outside of, but adjacent to bedrooms.

E. Storage

Walk-in storage closets should be provided with a light and wall switch.

F. Dwelling Units for Seniors

In addition, senior housing projects (for person 55 years of age or older) must include:

1. Complete apartments provided rather than studio/efficiency units. Complete apartment units (including kitchen, bathroom, living room, dining area, and bedroom) are appropriate for older persons because they prefer to cook, eat and entertain in their own apartments. Complete apartments are also non-institutional in appearance and provide greater privacy. Sufficient living/dining room space allows and encourages socialization with guests.

2. Individual treatment of apartment entryways that facilitates way-finding, reduces institutional appearance, and enhances individualism.
3. Window sill heights that are no greater than 32 inches above finished floor to allow viewing the outside from a seated position.
4. Pantry cabinetry provided in lieu of wall cabinets over the stove and refrigerator.

Section 2.....

Construction Contracting Requirements

At the time of application, the applicant must identify one of two options available to secure a construction contractor. The first option is for the applicant to seek construction bids through a publicized, competitive process. The second option is for the applicant to identify and select a builder at the time of application submission. The requirements for both options are explained below.

2.01 Publicized, Competitive Bidding Process

The applicant electing to publicly and competitively bid the construction portion of their project must indicate this elective at the time of application submission.

This method of contractor selection requires the applicant to openly advertise in a well-known local newspaper for a period of four days and have a minimum bidding period of four weeks before bids are received. MBE/WBE outreach requirements will be part of the bidding process. Upon receipt of bids, the applicant and architect must notify HCR of the bidding results and the name of the selected lowest qualified bidder. The contractor's schedule of values must also be submitted to HCR at that time. HCR/HTFC reserves the right to require that the project be rebid or to negotiate a reduction in the scope of work if all bids received are higher than the project's estimated total construction cost.

If no contractor has been selected at the time of application submission, the applicant must ensure that the terms of the Owner/Architect Agreement include a provision for a detailed construction cost estimate based upon the preliminary drawings and specifications prepared by the cost estimator.

2.02 Pre-Selected Builder Requirements

The applicant who elects to include a Builder (General Contractor or Construction Manager (CM) as Constructor) with their application for funding will be required to indicate the Builder's previous professional experience in producing low income housing units and the role the Builder will play during the development and construction phases of the project.

In addition, a pre-selected Builder will be responsible for providing a detailed cost estimate of the construction work based upon the preliminary drawings and specifications with the application submission. The construction cost estimate must include all builder's fees such as general requirements; builder's overhead; and builder's profit. General requirements that are special conditions such as security, impact fees, etc. to a project should be detailed on a separate itemized listing.

All MBE/WBE requirements applicable to the pre-selected contractor must be documented through the contractor's selection process for sub-contractors and suppliers.

Refer to the current edition of the Capital Programs Manual (CPM) for allowable charges concerning builder's fees, MBE/WBE requirements and additional information concerning selection and contracting requirements for the Builder.

2.03 General Construction Contracting Requirements

The applicants, architects and contractors should refer to the Capital Programs Manual for related information on the selection of a builder, construction manager, bonding requirements for payment and performance, and additional contract requirements. Refer also to Section [3.02.06 Contract Documents](#).

2.03.01 Manufactured Housing Requirements

The applicants electing to produce housing through the use of a manufactured housing company, may choose either of the options above for construction contracting. However, the purchase contract and supervision of such housing must be done as a subcontract to the general contractor's/CM's contract.

2.04 Federal Labor Standards

See the Capital Programs Manual and funding round reference material for the specific information concerning the Federal Labor Standards.

Section 3.....

Submission Requirements

The following sections explain the specific items and level of detail required for the application, architect's contract, bid, contract, and close-out submissions. Completeness will be determined based upon compliance with these submission requirements. Incomplete submissions will not be reviewed by staff. Complete submissions will be reviewed, and comments provided to the project applicant. Design professionals are advised to familiarize themselves with other documents that may contain additional design and construction requirements. These include; the annual Request for Proposals issued for the Multi-Family Unified Funding Programs; and the Qualified Allocation Plan for projects seeking a Low-Income Housing Credit allocation, or State Low-Income Housing Credit allocation.

All submissions referenced in this section, from preliminary design documentation at the project application to the final construction contract documents, shall be the responsibility of a single licensed design professional or firm.

3.01 Application Submission Requirements and Design Review Criteria

The most critical review is that of the preliminary documents. Listed below are the documents reviewed by the HCR A&E Bureau:

1. Proposal Summary
2. Organization's Relevant Experience
3. Site Specific Information
4. Building Information
5. Preliminary Design Documents
6. Outline Specifications
7. Detailed Cost Estimate
8. Development Budget
9. Development Timetable
10. Zoning Compliance
11. Site Photographs

The review criteria for each of the above-listed documents are as follows:

- A. **The Proposal Summary:** Reviewed for an overall understanding of the proposed project; to identify any special housing conditions that may need to be addressed by the design solution based on a specified tenancy; and to verify the number and unit mix indicated in the summary with the information found within the drawings.

- B. **The Organization's Relevant Experience:** Reviewed to ascertain the project applicant's development team members' experience. The experience of the architect selected by the project applicant is reviewed to determine if the architect has sufficient knowledge and expertise in designing low-income housing; has historic preservation experience, should the building be identified as such; and, to identify any previous experience that HCR has had with the project architect.
- C. **Site Specific Information:** Reviewed to verify that the information represented in this exhibit is in agreement with the drawings; that any State or Federal regulations affecting Historic Places, Coastal Zone, Flood Plain wetlands or Waterfront Revitalization planning has been incorporated into the design solution; that all existing utility connections are indicated on both the drawings and this exhibit; that the most efficient heating source for the building has been selected; and that there are no unusual conditions that would be costly to mitigate.
- D. **Building Information:** Reviewed to verify that the information provided in this exhibit is consistent with the drawings submitted; that the unit mix is identical to the plans; and that the square foot figures are accurate.
- E. **Preliminary Design Documents:** The preliminary design documents are required to be submitted by the project applicant and architect as part of the application submission for project funding for HCR's review and approval. Architects are reminded that if they are designing a project for an applicant who is requesting HOME funds, project-based Section 8 Housing Choice Vouchers subject to 24 CFR 983, or other applicable Federal funding; the project must comply with Section 504 of the Rehabilitation Act of 1973.

The following documents are to be submitted in Adobe PDF format with the on-line application and prepared by an architect or engineer licensed to practice in New York State. Additional drawing types, such as full building sections may be submitted if required to convey the proposed design. All drawings are to be of sufficient scale, resolution and clarity to be easily read on a standard computer screen. Illegible drawings will be rejected and will result in a termination of the review. Drawing files are to be saved in a format to print on a maximum drawing sheet size of 24 by 36 inches.

1. **Site and Neighborhood Plan:** Reviewed to verify that housing is a compatible neighborhood use; that the neighborhood includes appropriate services and amenities; that there are no properties that may pose a potential negative influence on the project; that the site can accommodate the size and scale of the proposed project; that the site is level or can accommodate minor changes in contours without costly cut and fill procedures; that there is adequate space on the site to accommodate all parking requirements; that any zoning regulations, setbacks, existing rights-of-way do not interfere with the location of the building or other permanent structures; and, for New York City projects involving new construction, that the proposed building footprint is in compliance with the zoning regulations.

For non-urban projects where a septic system or well is required, the review verifies that the proposed site has adequate space and distance separation for locating on-site utilities.

Submission Requirements:

a. **Neighborhood Plan:**

1. Provide a neighborhood plan(s) to identify the location of the subject site(s) in the greater neighborhood.
2. Use a north arrow.
3. Identify all sites and buildings with the same designations used on the other plans.
4. The neighborhood plan shall include a large enough area to sufficiently show all of the properties and land uses that have an impact on the subject site(s).
5. For multi-site projects, separate neighborhood plans may only be used where the subject sites are located in separate geographical areas.
6. Identify the uses of surrounding properties.
7. Identify abandoned buildings and vacant properties.
8. Identify by name, major buildings and land uses.
9. Indicate parks, schools, recreational areas, and commercial districts.
10. Indicate major roads, highways, railroads, waterways, etc.
11. Indicate the approximate boundaries of wetlands, floodplains and floodways.

b. **Site Plan:**

1. Draw a site plan and floor plans in the same orientation.
2. Use a North arrow.
3. Show existing locations of building(s); roadway(s), parking area(s), utilities, plantings, etc.
4. Show existing site restrictions including set-backs; rights-of-way, boundary lines, etc.
5. Show all proposed changes to building(s), roadway(s), parking, utilities, plantings, etc.
6. Show zoning classification.
7. New York City projects must include zoning calculations.
8. Show notations of all new and existing materials.
9. Show existing and proposed site slopes and approximate grade elevations.
10. Show boundaries of any unusual site features, i.e.: 100-year flood plain, wetlands, bedrock outcroppings, etc.
11. Indicate Accessible Routes in accordance with applicable accessibility requirements.

2. **Floor Plans:** Reviewed to verify that the minimum square footage has been achieved; that the building(s) is in compliance with all building code and zoning requirements; that the project meets all handicapped accessibility requirements; that the building(s) meet all design requirements in Section 4.00 of the Design Handbook; and, if the

building has any non-residential space, that the HVAC and electrical systems are separate and independent from the systems of the residential space.

Submission Requirements:

a. **Floor Plan(s)**

1. Draw floor plans and site plan in the same orientation.
2. Use a North arrow.
3. Show all proposed changes to building components identifying removals and new Construction.
4. Show room/space designation and typical furniture layout (for preliminary document submission only).
5. Provide a building code analysis indicating:
 - Occupancy classification
 - Construction type
 - Required set-backs
 - Fire area requirements
 - Tenant and other fire rated separation requirements
 - Exiting requirements
 - Fire Protection systems
6. Show building construction classification.
7. Show fire area allowances.
8. New York City projects must indicate which code and chapter the project is designed under.
9. Show gross building square footage and gross dwelling unit square footage.
10. Show general notes identifying all new and existing materials.
11. Show any deviations that were allowed by an official code variance.
12. In large buildings, include overall building plans at a smaller scale and individual apartment plans at a larger scale.
13. Indicate fire rated assemblies.

b. **Appendix E, Area Calculations**

- Attach the area calculation spreadsheet to the set of drawings.
- The area calculation spreadsheet is located on the HCR website with the Design Handbook and is available for downloading.

3. **Elevations and Wall Sections:** Reviewed to verify that the scale, materials and fenestration proposed are in keeping with the existing fabric of the adjacent structures and/or any new construction occurring in the surrounding communities; that the design professional has determined that the height and/or massing of the building is in compliance with all building and zoning codes and regulations; that the construction type is appropriate for the intended occupancy and use; and that the building will comply with energy construction codes and meet applicable energy efficiency strategies.

Submission Requirements:

a. **Elevations**

1. Show existing elevations of buildings (if applicable).
2. Show all new conditions of building exteriors.
3. Show general notes identifying all existing and new materials.
4. Show overall building height dimensions.
5. Show finished floor height dimensions.

b. **Exterior Wall Section**

1. Show construction system(s).
2. Show ceiling heights.
3. Show window heights (and floor to sill heights).
4. Indicate insulation R value.
5. Show HVAC components located at exterior walls.

- F. **Outline Specifications:** Reviewed to check that the notes on the drawings and the materials of the outline specifications are consistent with each other and are in compliance with the Design Handbook; that the materials and methods specified are reflected in the detailed cost estimate provided and are reflective of the approximate amounts of materials indicated; and that applicable hazardous material sections (such as lead based paint, asbestos and radon) are included.

Submission Requirements:

- a. **Provide written specifications** using the outline specification form attachment or the Construction Specification Institute's (CSI) format division of work items. List and describe all work to be performed and type of materials to be provided.

- G. **Detailed Cost Estimate:** Reviewed to verify that the items correspond to the work detailed on the drawings and indicated in the specifications; that the labor and materials costs are reasonable for the amount of work shown and the location of the project; that the amount for general requirements, overhead and profit comply with program requirements; that the TCC costs per square foot and per unit are reasonable for the construction type and location of the proposed project. If the project is subject to a subsidy layering review, the general requirements, overhead and profit amounts may be further limited. If the building is impacted by State Historic Preservation Office (SHPO) requirements, costs for repairing the historic fabric must be incorporated into the estimate and if the project requires remediation of hazardous materials those costs are also to be incorporated into the cost estimate.

Submission Requirements:

- a. **Provide a construction cost estimate** prepared by a builder or construction estimator utilizing the cost estimate attachment forms by major trade items, including estimated costs of general requirements, builder's overhead and profit.

Please Note: All proposals must have a cost estimate prepared by a builder or construction estimator. HCR reserves the right to use an independent consultant to review and evaluate the reasonableness of the proposed construction costs. Consultant cost estimates that are more than five percent greater or less than those presented by a project applicant will be used in the final evaluation and may result in a change of rank due to adjustments in reevaluating scoring and feasibility.

- H. **Development Budget:** Reviewed to verify that the architect's fee is within the range of reasonableness for the scope of work proposed; that the total construction cost matches the cost shown on the detailed cost estimate; that all construction line items such as overhead, general requirements, profit, bond premium, site work, testing asbestos/ LBP/ soils, etc. are broken out and match the amounts represented in the detailed cost estimate; and if the project has a non-residential component, to ascertain that the construction cost shown is representative of the amount of non-residential work to be constructed.
- I. **Development Timetable:** The proposed time frames are reviewed for reasonableness based upon experience with previous similar projects; any required governmental approvals needed; and, the project applicant's and the architect's capacity, if known.
- J. **Zoning Compliance:** Reviewed to ensure that the project architect has complied with the existing zoning regulations and/or has filed for a variance if compliance cannot be achieved.
- K. **Site Photographs:** Reviewed to ensure that the height, size and character of the project are in keeping with the surrounding structures.

In addition to the above, HCR architects may conduct a site visit to ensure that all existing conditions noted in the application are, in fact, actual; that no hazardous materials are apparent on or adjacent to the site; that there are no visible adverse environmental conditions; that the site is of appropriate size and has adequate road access; that utilities are adjacent to the site and are available from a public access; that the topography of the site requires a minimum amount of cut and fill to achieve the design objective; that, if a rehabilitation project, the building has not deteriorated beyond repair; that any replacements scheduled for building systems are reasonable; and that the scope of work proposed can be accomplished within the confines of the site and/or building restraints.

3.02 Post Award Submission Requirements

3.02.01 Drawing and Project Manual

Submission of 100% complete construction document drawings and project manuals are to be full size paper copies, limit drawing sheet size to a maximum of 24 inches by 36 inches whenever possible. Submit full size paper copies of the construction documents outlined in

Sections 3.01 E and F and 3.02.05 (if applicable). The construction document submission is to include, at a minimum, but not limited to, the following:

A. Site Plan(s)

1. Draw site plans and floor plans in the same orientation.
2. Show all elevation changes; all drainage structures; and utilities. If public utilities are not available for a project and a well and/or leach field are proposed, provide a test well report showing: GPM, potability, local authority review report; and soils percolation test report.
3. Show handicapped accessible parking, curb cuts, parking area striping, etc.
4. Show details of all new construction including sidewalks, paving, retaining walls, landscaping and plantings, utilities, fences, etc.

B. Floor Plan(s)

1. Draw floor plans and site plans in the same orientation.
2. Show exterior and interior dimensions of all new construction work including section, detail, elevation, window, door and room markers referencing work shown elsewhere; and, material and symbol key, abbreviation list, etc.
3. Indicate all approach and maneuvering clearances in accordance with applicable accessibility requirements.

C. Roof Plan(s) and Details

1. Draw roof plans, floor plans and site plans in the same orientation.
2. Show overall dimensions and dimensions for all roof structures (e.g., roof drains, hatches, smoke vents, parapets, vent pipes, ventilators, intake/exhaust shafts, chimneys, skylights, etc.).
3. Show all roof structures and note their material, type and fire-rating; show roof pitch and/or slope; all section and detail markers referencing work shown elsewhere.
4. Detail roof construction including all roof structures, flashing details, copings, etc.

D. Exterior Elevations

Show all new grade lines and elevation markers; all building section markers; window operation (if operable); foundation walls and footings below grade; and, all light fixtures, service connections, HVAC louvers or fan units and hydrants.

E. Building Sections/Wall Sections

1. Show all wall, floor, ceiling, foundation and roof components including structural members, fire rated assemblies, plumbing and heating piping and/or ductwork and specialty equipment (e.g.: elevators).
2. Indicate all dimensional heights indicating floor heights, ceiling heights, window and door openings, wall component dimensions, etc.
3. Show all detail markers referencing work shown elsewhere including notations indicating all materials and assembly instructions.
4. Indicate the R values of all insulation materials and methods of air sealing.

F. Stair Plan(s), Sections and Details

1. Provide a detailed section through the stair shaft showing all wall assemblies, floor assemblies and roof assembly.
2. Show details of stair landings, risers, treads, handrails, etc.; dimensions of overall floor to floor heights, stair landings, risers, treads, handrails, etc.; notations of all materials and fire ratings of all assemblies and smoke vent(s).

G. Elevator Plans, Sections and Details

1. Detail foundation and conditions at each floor level and at roof.
2. Show all fire stopping, fire rated construction and flashing.
3. Detail sump pit and provide notations for all materials and components.

H. Interior Elevations

Indicate all complex major components (i.e., kitchen cabinetry); show all cabinets, heights, soffits, sinks, appliances, countertops, lighting and any special features; show dimensions for all critical heights; indicate special details such as handicapped accessibility requirements; and provide notations for all materials.

I. Door Schedule, Type and Details

1. Indicate door height, width, thickness, material, door type, louvers or glazing, if any, frame type, frame material, and fire rating, if any. Hardware schedule may be included on door schedule or in specifications.
2. Show door types, dimensioning all locations of louvers and/or glass panels.
3. Detail all door type conditions at head, jamb and sill.
4. Provide notations and dimensions for all materials and components.

J. Window Schedule, Types and Details

1. Schedule should show window type, height and width for unit dimensions and height and width for rough opening or masonry opening.
2. Detail all window type conditions at head, jamb, and sill.
3. Provide notations and dimensions for materials and components.

K. Finish Schedule

Show room name, and number, base material; floor material and finish; wall material, finish, and orientation (North, South, East and West); ceiling material, finish and height.

L. Miscellaneous Details

Furnish, as required, clarification for all construction components.

M. Structural Plans and Details

1. For multiple dwellings requiring new foundation work, provide a soils test report.
2. Show notation of materials, dimensions and section and detail markers.

3. For structural details, show all connections with wall assemblies, floor and roof assemblies, notations of materials and dimensions.

N. Heating, Ventilating and Air Conditional (HVAC)

For floor plans show location of all HVAC equipment including exhaust fans, grilles, registers, furnace/boilers, fin tube radiation, ducts, supply and return piping, fire-dampers, valves, tanks, service connections, etc.; notation of all materials, sizes of all components; schedule of HVAC equipment; and heating riser diagrams for piped heating systems and symbol legend.

O. Plumbing

1. For floor plans, show locations of all plumbing equipment including plumbing fixtures, supply and return piping, valves, gates, tanks, heaters, connection to main service, etc.; notation of all materials and sizes of all components.
2. Provide riser diagram(s) as necessary to show all piping connections, vent pipes, water and sewer connections, fixture connections, traps, valves, etc.; notations of all materials; plumbing fixture schedule and symbol legend.

P. Electrical

1. For floor plans, show locations of lighting, power, wiring connections, panel boxes, telephone connections, transformers, etc.; notations of all materials; and sizes of all light fixtures, panel boxes, equipment.
2. For site plan, show locations of all lighting, outside outlets, pad mounted or buried transformers, pull boxes, wiring, and connections to existing utilities.
3. Provide a lighting Schedule and symbol legend.

Q. Project Manuals

In addition to the construction drawings, the Project Architect must prepare a manual containing the following information:

1. All pertinent information regarding the construction of a project must be bound together into a Project Manual. At a minimum, the Project Manual must contain the following *front end* documents: all required bidding information including, if applicable, the Federal Labor Standards regulatory requirements' (Davis-Bacon Related Acts) labor standards clause for the program and proposed wage rate; proposed AIA Owner/Contractor Agreement including the provisions outlined in Appendix D; HTFC's Contractor's Assurances Agreement (See HTFC Legal Documents Manual) and the written specifications.
2. All projects must provide an NYS HCR Project Sign as indicated on the HCR website. This information should be incorporated into Part I – General Requirements of the construction documents, unless other arrangements for its procurement have been made by the applicant.
3. Written specifications must contain descriptive detailed account of all product and work to be performed as indicated elsewhere in the construction documents.

Organize all information using the Construction Specification Institute (CSI) Section Format as established by the three basic specification section parts:

- Part 1, General: Defines the specific administrative and procedural requirements unique to the section.
- Part 2, Products: Describes, in detail, the quality of items that are required for incorporation into the project under the section.
- Part 3, Execution: Describes, in detail, preparatory actions and how the products are to be incorporated in to the project.

Bind all specifications and required *front end* documents into a Project Manual whose title shall include the following information:

- Name of applicant/owner
- Name and location of project site
- HCR/HTFC (SHARS ID) number
- Name of the architectural firm
- Architectural firm's address and telephone number

3.02.02 Cost Estimate

Construction document phase cost estimate, by major trade items, including estimated costs of general requirements, builder's overhead and profit, shall be provided

3.02.03 Government and Environmental Approvals

- Submit documentation from the State Historic Preservation Office, indicating the final determination/conditions for the project, if not previously submitted.
- Submit documentation from the municipality, indicating compliance with the State Environmental Quality Review process, if project is classified as a Type I action.
- Submit and Federal, State or local permits or other approvals required to comply with environmental regulations.
- Submit documentation and written approval from the Code Review Board of any variances from building code requirements.

3.02.04 Owner / Architect Agreement

For projects receiving construction financing from HCR administered programs. After a project has been selected for funding, the project applicant must submit a copy of the executed Owner/Architect Agreement. A&E staff reviews Owner/Architect (O/A) Agreements for cost reasonableness and scope of work. Although no fixed fee scale is used for determining the architect's contract, a general rule of thumb that may be applied is a range of 5% to 15% of the estimated total construction cost, with 15% applying to small scale rehabilitation and/or historic preservation projects and 5% to large scale new construction projects. See the applicable appendix section for Owner/Architect Agreement requirements. All O/A Agreements in excess of \$25,000 must comply with the State's Equal Opportunity and Minority/Women Business Enterprises (M/WBE) requirements. The percentage of fee by design phase will be reviewed for compliance with the following schedule:

- Preliminary phase < 15% fee
- Design Development phase < 20% fee
- Construction Documents < 40% fee
- Bidding/Negotiating < 5% fee
- Construction Monitoring > 20% fee
- Total Fee = 100% fee

It is the project applicant's and architect's responsibility to ensure that the Agreement has the proper dates, names, project address(es), project description and authorized signatures.

3.02.05 Bid Documents

Project applicants using a publicized competitive bidding process to procure a general contractor for the construction work of the project are required to submit bid documents to HCR for review and approval prior to requesting bids from contractors. In addition to the documents described in 3.01 E and F, applicants shall include in their submission all documentation necessary to adequately detail the project for the bidders to evaluate and develop their bid. Bid documents shall also include all documentation outlined in section 3.02.01.

The specific due date for this submission will be established and will be made a condition of the Project's Funding Commitment Letter.

Project applicants applying with a builder as part of their development team have guaranteed to HCR a fixed price contract for the total development cost of the project at the time of application for funding and are not required to submit bid documents for review.

At this stage in the development process, subsurface investigation must be completed to ascertain the subsurface conditions where foundations, utilities and other major excavations will occur. Bid and construction documents shall include the results of this investigation and be modified to account for conditions that differ from that previously anticipated.

3.02.06 Contract Documents

The contract documents which include the construction documents enumerated in 3.03.01 are required to be submitted by the project applicant and the project architect for review and approval prior to a construction loan closing. The specific due date for this submission will be established and will be made a condition of the project's funding commitment. The following contract documents are required:

- A. All projects:
1. Two complete sets of the final construction documents, if not previously submitted.
 2. An enumeration of documents which is to include all drawings, specifications and addenda with the most current revision date.
 3. A copy of the Owner/Contractor agreement, which is to reference the above enumeration of documents accepted by HCR architects.

4. Documentation that the contract meets the Construction Contracting Requirements of the Capital Programs Manual including limits on profit and other builder's fees. Such documentation shall include a payment breakdown indicating the contract amount and identify major subcontractors and suppliers for each major trade as outlined by the specification, or by each subcontractor and supplier.
- B. Projects utilizing HTFC funds for construction financing shall also include:
1. Provisions outlined in Appendix D.
 2. A copy of the Contractor's 100% Payment and Performance Bond.
 3. Proof of all required insurances as indicated in the Capital Program Manual.
- C. Projects without a pre-selected builder shall also include:
1. A bid tabulation showing that a minimum of 3 qualified contractors submitted bids for the proposed project and an indication of which bidder has been selected for contract award. (If the applicant has selected a contractor that is not the *apparent low bidder*, written justification for such a selection must accompany the submission.)
- D. Two copies of the building permit for the project.

3.02.07 Certifications

The project architect, [general contractor, and owner shall](#) certify to the agency that the project complies with local government, state, [and federal accessibility requirements by submitting the "New York State Homes and Community Renewal Affidavit of Project Compliance with Accessibility Requirements" at the time of the construction loan closing.](#)

3.03 Construction Administration

Please refer to the Capital Programs Manual, Section 6.00 which describes the general construction processing procedures and requirements; the roles and responsibilities of the project participants; the procedures for change orders, budget modifications, award increases and escrow accounts; the disbursement process; and the requirements for inspections, cost certification and project closeout.

- A. Final as-built drawings must comply with the following:
1. Final submission of as-built drawings shall be submitted either printed on Mylar Sheets, or on bond paper suitable for permanent storage plus three copies of the documents on CD-ROMs submitted in Adobe PDF format. A preliminary submission of the final drawings printed on bond paper may be submitted for review before producing the final as-built set. Drawing files submitted on CD-ROMs must comply with the following:
 - Include a generic text file that explains the contents of the disk and the format of the drawing files.
 - Saved in folders and with file names that correlate to the printed documents.

- Saved in a format that matches the final version of the printed drawings. Provide only information relevant to each drawing and do not include extraneous information and details which are not included in the final documents.
 - Include the Certificate(s) of Occupancy in a separate file.
2. Label all drawing sheets with an as-built drawing title and final date. Any sheets with no changes are to have a statement added that no changes have been made from the original drawing sheet.
 3. Drawings shall consist of a reproduction of the complete contract drawings updated to reflect changes made during the construction of the project and with added information, as necessary, to explain aspects of the project in further detail than in the contract set.
 - Add details to the contract set of drawings issued during construction by the project architect for change orders and supplementary instructions.
 - Add sheets which include shop drawings, manufacture data, or details from product submissions issued during construction which explains this information in better detail. (Boilers, schematics of controls, & piping are good examples of this).
 - Update the drawing index to denote changes made by adding or deleting drawings from the original contract drawings.
 4. Ensure that special attention is given to explain locations, with dimensions, of buried utilities & structures, utility valves & shut-offs, electrical controls, and other maintenance devices.
 5. Drawings shall be submitted with a cover memo from the project architect stating that he/she has reviewed the set and is satisfied that the set is complete, and that included information is well coordinated without inaccuracies or confusing duplications.
- B. Photographic documentation that provides a full record of the “as-built” conditions may be utilized as an alternative to as-built record drawings, providing that the system utilized meets or exceeds the following criteria:
1. Photographic documentation and related services are provided by an independent third-party service specializing in construction photography of as-built conditions.
 2. Photographs are keyed to the construction documents.
 3. Photographs are taken at a suitable frequency at each location including individual rooms (generally three times each) to record conditions of: buried utilities; foundations; rough-in utilities; framing and superstructure; systems and controls; special features; and finished construction.
 4. The documentation includes product and warranty information of building systems, components and finishes. Sufficient documentation of building products and warranties will satisfy the warranty submission below.
 5. The documentation includes training video sessions of HVAC and other building systems for the use of maintenance staff.
 6. The documentation includes a letter from the firm responsible for the service stating that the final submission includes a complete record of the as-built conditions.

7. The documentation is an Adobe PDF format suitable for archiving purposes and submitted on three CD-ROMs or DVDs.
 8. A full set of the most recent version of the construction documents, including change orders and supplemental drawings issued during construction in Adobe PDF format, is to be included with each CD-ROM or DVD set (or supplemental discs) to accompany the photographic documentation.
- C. Warranties must comply with the following:
1. All components and building systems to have a minimum of one-year materials and labor warranty.
 2. All warranties and guarantees listed in the project specifications that have a warranty period greater than one year must be submitted at the project close out. The following items, although not entirely inclusive, must be submitted: roof; doors; door hardware and accessories; windows; flooring; specialties; mechanical system; electrical systems; and plumbing.
 3. Include a copy of each warranty, properly labeled by warranty section, in a separate warranty folder on the CD-ROM.
- D. Other Submissions:
- In addition to the above, provide copies of the following prior to project closeout at construction completion:
1. Third party clearance reports and testing result summaries for hazardous material mitigation applicable to the project, such as:
 - Closed building radon testing performed prior to occupancy.
 - Asbestos clearance report(s).
 - Lead based paint clearance or abatement report(s).
 - Other mitigated hazardous conditions, such as: mold mitigation, removal of underground petroleum or other hazardous material storage tanks, etc.
 2. Final Certificate(s) of Occupancy.
 3. Project architect's Certificate of Substantial Completion (AIA G704).
 4. Contractor's final application for payment (AIA G702/703) certified by project architect.
 5. Project architect's Certification in accordance with Appendix C.
 6. Contractor's Affidavit of Release of Liens (AIA G706A).
 7. Contractor's Affidavit Payment of Debts and Claims (AIA G706).
 8. Final summary report by the energy consultant.
 9. Certification from the energy efficiency program, if applicable.
 10. Final summary report by the green building consultant, if applicable.
 11. Certification from the green building program, if applicable.
- E. Building Systems
- It is strongly recommended to record and provide videos of training sessions for HVAC and other building systems for the use of building maintenance staff.

Section 4.....

Design and Specification Requirements

Office of Finance and Development has developed design and specification requirements to ensure minimum standards of quality for function and durability. HCR architects will review all submissions for compliance with the requirements contained herein. Any proposal not meeting these minimum standards will not be recommended by HCR architects for further processing.

Minor deviations from these requirements will be allowed if they are necessary to avoid costly structural changes in rehabilitation projects or if they result in a superior design solution. These requests will be reviewed on a case-by-case basis, by the Assistant Commissioner of the Office of Finance and Development, who may consider waiving a requirement based upon the project applicant's ability to demonstrate one of the following:

- Cost-effectiveness of the alternate solution
- Functional appropriateness of the alternate solution
- Durability and operating appropriateness of the alternate solution
- Impacts on operating costs/efficiency which will also be reviewed by the Underwriting Unit

All waiver requests must be in writing and must be presented to Office of Finance and Development 30 days prior to each required submission.

Once a design is approved, there will be no substitutions. A waiver process will be available if the waiver request is submitted at least 30 days prior to submission of contract documents.

4.01 Applicable Programs and Housing Activities

The design and specification requirements contained herein apply to all projects applying for funding administered by HCR or HTFC except as noted below:

- Housing Development Fund (HDF)
- Low-Income Housing Credit Program (LIHC) (See special requirements in CPM)
- Rural Rental Assistance Program (RRAP)
- Home Program: Local Program Administrator awards
- RARP, UI

In addition, all HOME-funded projects must comply with the U.S. Department of Housing and Urban Development's (HUD) Section 8 Housing Quality Standards (HQS). Copies of HQS can be obtained from the U.S. Department of Housing and Urban Development, Jacob K. Javits Federal Building, Room 3200, 26 Federal Plaza, New York, New York, 10278-0068, Telephone (212)264-0777, Extension 3701.

Projects with NYC HPD Involvement:

All projects located within New York City that involve the City of New York Department of Housing Preservation and Development (HPD) funding, site control and approval must also comply with HPD's applicable **Design Guidelines for Housing**. Copies may be obtained by contacting: NYC Department of Housing Preservation, Division of Architecture and Engineering, 100 Gold Street, New York, New York, 10038, telephone (212) 978-6326.

4.02 Applicable Codes, Regulations and Laws

The purpose of this section is to establish minimum requirements for the development of low-income housing projects funded under the Housing Trust Fund Corporation or the Division of Housing and Community Renewal. These requirements are not intended to supersede the requirements of any other laws, rules or regulations of any other agency having jurisdiction.

In addition, where applicable, all projects must comply with:

1. NYS Uniform Fire Prevention and Building Code, or in New York City: the New York City Building Code
2. Energy Conservation Construction Code of New York State, or in New York City: the Energy Conservation Code of New York City
3. Multiple Dwelling Law
4. New York State Labor Law, Industrial Code Rule 56
5. Federal Fair Housing Act
6. Section 504 of the Rehabilitation Act of 1973 (applies to projects receiving federal funds - refer to Appendix G)
7. Federal Labor Standards regulatory requirements (Davis-Bacon Related Acts)

4.02.01 Accessibility

The New York State Homes and Community Renewal and The Housing Trust Fund Corporation have adopted the following definitions relating to accessibility, adaptability, and visitability. HTFC/HCR encourages developers of affordable housing to initially adapt as many units as possible.

- A. ACCESSIBLE** when used with respect to the design, construction, or alteration of an individual dwelling unit, means that the unit is located on an accessible route and when designed, constructed, altered or adapted can be approached, entered and used by individuals with physical disabilities. A unit that is on an accessible route and is adaptable and otherwise in compliance with the applicable standards set forth in the Building Code of New York State, New York City Building Code, Section 504 of the Rehabilitation Act of 1973, the Federal Fair Housing Act and their respective regulations and guidelines is accessible within the meaning of this paragraph. Provisions that allow for a reduced number as Accessible units (including Type A and Type B units, as defined by the Building Code) are not permitted for any housing designed specifically for the occupancy of seniors, special need occupants with mobility impairments, or veterans.

- B. **ACCESSIBLE ROUTE** means a continuous unobstructed path connecting accessible elements and spaces in a building or facility that complies with the space and reach requirements of applicable standards prescribed by the Building Code of New York State, New York City Building Code, Section 504 of the Rehabilitation Act of 1973, and the Federal Fair Housing Act and their respective regulations and guidelines.
- C. **ADAPTABLE** means the ability of certain elements of a dwelling unit, such as, but not limited to, kitchen counters, sinks, and grab bars, to be added to, raised, lowered, or otherwise altered, to accommodate the needs of persons with or without disabilities, or to accommodate the needs of persons with different types or degrees of disability. The adaptation of an element shall require no special knowledge or tools and shall be accomplished with no structural change. For example, in a unit adaptable for a hearing-impaired person, the wiring for visible emergency alarms shall be installed but the alarms need not be installed until such time as the unit is made ready for occupancy by a hearing-impaired person.
- D. **VISITABILITY** – shall mean that a residential unit includes the provision of at least one accessible, grade level entry on an accessible route (no stepped entry and no elevated ramps), a 36 inch or greater clear circulation path through the first floor of the unit, including all interior doorways, and at least, a half-bath on the first floor with a 30 inch by 48 inch clear floor area to accommodate a person in a wheelchair and allow that person to close the door.

Notwithstanding the foregoing, a dwelling unit that contains all necessary components and clearances required by the applicable building code for an accessible dwelling unit on an accessible route shall be considered to meet the visitability circulation requirement.

Visitability standards shall apply to all first-floor residential units in all new construction projects without an elevator, all residential units in new construction with an elevator, and as many units as feasible in an adaptive reuse or rehabilitation project.

4.02.02 Variances

Any proposed variances from code requirements or local zoning ordinances must be submitted concurrently to OFD and the applicable governmental review agency. Submit written governmental approval of any variances prior to the Construction Document submission.

4.02.03 Environmental Review

In accordance with requirements of 6NYCRR Part 617, the State Environmental Quality Review Act (SEQRA), HTFC must conduct an environmental review of all funded capital projects. In addition, any projects that receive federal funding through HTFC, for example, the U.S. Department of Housing and Urban Development (HUD), must also be reviewed under the requirements of 24 CFR Part 58, the National Environmental Policy Act (NEPA). The HCR

Environmental Analysis Unit (EAU) is responsible for conducting environmental reviews for HTFC.

All project awardees will be required to submit a Phase I Environmental Assessment (ESA) report which must meet, at a minimum, the American Society for Testing and Materials standard for site assessment (ASTM E 1527-13). The Phase I ESA will not be accepted if it was not completed within one year of the date of the application for funding. An update to an older Phase I report will be accepted. The scope of the investigation must include visual examination of suspected asbestos-containing materials, lead-based paint and mold contamination.

The applicant will be responsible for submitting additional studies, documentation and further investigations as requested. HTFC will require any significant environmental impacts identified in their review to be mitigated as a condition for proceeding with project construction. Awardees are hereby advised that the project, including site acquisition and any site disturbance beyond investigation or testing activities, cannot commence prior to the completion of the environmental review.

Depending on the project, applicants may be asked to submit documentation that demonstrates that the project complies with the other state and federal entities that may have jurisdiction over the project. Although not exhaustive, a list of these entities might include:

1. NYS Smart Growth Public Infrastructure Policy Act
2. NYS Office of Parks, Recreation and Historic Preservation (OPRHP)
3. NYS Department of Environmental Conservation (DEC)
4. NYS Department of State (Waterfront Revitalization and Coastal Resources Act)
5. NYS Department of Labor (DOL)
6. NYS Natural Heritage Program (Endangered Species)
7. NYS Department of Health (DOH)
8. New York City Environmental Review Board (CEQR)
9. NYS Department of Agriculture and Markets (Agricultural Districts)
10. Adirondack Park Agency (APA)
11. U.S. Fish and Wildlife Service (Endangered Species)
12. U.S. Department of Housing and Urban Development
13. U.S. Environmental Protection Agency (EPA)
14. U.S. Army Corps of Engineers (Wetlands)
15. U.S. Occupational Safety and Health Administration (OSHA)

4.02.04 Lead Hazards

Projects involving the rehabilitation of buildings constructed prior to 1978 must comply with HUD rules and guidance for testing and abatement of lead-based paint. Refer to Guidelines for the Evaluation and Control of Lead-Based-Paint Hazards in Housing (Second Edition, July, 2012, HUD Lead Safe Housing Rule 24 CFR Part 35) and the EPA renovation, repair and painting rule (40 CFR Part 745). Provide certified third-party clearance examination reports for: each work area to demonstrate that the hazard reduction activities are complete; and, at the completion

of the project, prior to occupancy, to demonstrate that no soil-lead hazards or settled dust-lead hazards exist.

Existing domestic water supply and distribution systems to remain in proposed projects must test negative for lead content in accordance with applicable drinking water regulations and guidelines. Where tests result in lead content above applicable drinking water regulations and guidelines, domestic water supply piping and fixtures shall be removed and replaced with lead-free plumbing.

4.02.05 Mold

Where pervasive mold conditions are identified prior to, or during the construction or rehabilitation of any project, such conditions shall be remediated in accordance with applicable protocols established by the New York State Department of Labor Mold Program.

Mold occurring in isolated locations as a result of the construction activities shall be fully abated/removed by removal of the affected material whenever possible and the contributing condition(s) shall be corrected.

When mold conditions occurred during the construction of a project, project closeout shall be conditioned upon certification from a certified mold assessor that mold and the conditions contributing to mold growth were eliminated. Final certification from other professionals recognized by the Department of Labor Mold Program is acceptable for fully abated isolated conditions where the conditions contributing to mold growth were a temporary condition due to construction activities.

Other guidance that may be useful tools include: the New York City "Guidelines on Assessment and Remediation of Fungi in Indoor Environments," as published by the New York City Department of Health and Mental Hygiene, US Environmental Protection Agency Mold Prevention in Schools and Commercial Buildings.

4.02.06 Radon

For projects located in EPA Zone 1 and 2:

New construction and substantial rehabilitation; install a passive radon-resistant system with features below the slab along with a vertical vent pipe through the roof. Vertical vent pipes shall run at the interior of buildings. The passive radon-reduction system shall be activated should tests confirm the presence of radon gas in the building exceeding the EPA action level. Include electrical junction box(es) for system activation.

Moderate rehabilitation projects; install active radon-reduction measures should testing at the completion of the rehabilitation confirm the presence of radon gas in the building exceeding the EPA action level.

Radon testing shall be conducted at construction completion, prior to occupancy, meeting US-EPA short-term, closed –building testing protocols. Tests prior to rehabilitation work are only valid if such tests are conducted in an environment which is representative of the conditions which will be present in the completed building.

See ASTM E1465 and E2121 (latest editions) for guidance.

4.03 Design Requirements

4.03.01 Exterior Design Requirements

1. Building design, material selection and details must promote the following:
 - a. Compatibility with and enhancement of the neighborhood context and natural environment.
 - b. Maximization of energy efficiency, and minimization of negative environmental impacts.
 - c. Material and details shall be selected for maximum durability and the minimization of ongoing maintenance.
2. Building facades that face the street, or have a prominent exposure to other public areas, must include design measures that increase the building's aesthetic appeal and enhance and reinforce existing design qualities found in the neighborhood. Examples of such measures include:
 - a. Articulation of the building façade using forms such as porches, terraces, bay windows, dormers, pilasters or other building setbacks.
 - b. Architectural details such as brackets, banding, railings, chimneys, entry columns or shutters which must be designed to be compatible with the quality architectural aesthetic of the predominant buildings in the neighborhood.
 - c. Roof shapes for sloped roofs, such as hips, gables, or cupolas that are visually appealing and compatible with the better buildings in the neighborhood context. For buildings with flat roofs, provide a parapet with coping and cornice.
3. Buildings with lengthy corridors should be avoided, especially in non-urban settings. Wherever possible configure family housing as low-rise buildings utilizing individual exterior dwelling unit entries or buildings with clustered/central core dwelling unit entries.
4. The primary exterior envelope for buildings located in densely populated urban areas shall be masonry, however, durable alternatives, such as high-performance panels, may be considered. Criteria include:
 - a. Where the immediate neighborhood context is masonry, provide masonry for the full building height at all elevations exposed to public view or subject to abuse.
 - b. At all other urban areas, provide masonry at all grade level stories, except for projects of three stories or less.
5. Provide landscaping that enhances the building, including indigenous shrubs, berms, decorative fencing, special lighting and signage. For senior projects shade trees must be provided.

6. Provide screening for all exterior mechanical equipment, meters, dumpsters and etc.
7. Commercial signage, installed by either the project owner or non-residential tenants, must be compatible with the building design and consistent in size, lettering, shape and color.

4.03.02 Shared Common Space

Residential space is defined as space provided for the exclusive rights of the tenant or homeowner including shared common space in multiple dwelling buildings (i.e., hallways, stairways, lobby, mailroom, trash room, manager's office, laundry room, community room, etc.).

Non-residential space is defined as any space that is not for the exclusive use of the residents such as civic space, commercial space, public day-care centers, organizational offices, training rooms, counseling offices, etc.

1. All Projects:

- a. Developments that include non-residential space as defined above must comply with the following provisions:
 - i. Utility costs for residential and non-residential spaces must be separated; examples include separate HVAC systems and separate boilers/AC equipment, separate electrical systems, separate domestic hot water systems, etc., with separate utility meters or other measuring equipment to determine usage attributable to non-residential spaces. Exceptions will be allowed for: water service metering where the local utility limits the water service and metering to the building; and where a method of sub-metering is accepted by the agency.
 - ii. The general public must be able to access the non-residential space directly from the exterior without passing through the residential portion of the project.
 - iii. Uncontrolled access between the residential and non-residential space is not allowable.
 - iv. The construction costs for non-residential space must be funded by non-residential funding sources and must include prorated portions of the shared systems such as the foundation, the roof, structure, utilities, etc.
- b. Residential shared common space must be less than 25% of the total residential space. Residential common space is defined as all spaces in a multi-unit building that are for the exclusive use of the tenants or in any way support the residential use of the building. This includes, but not limited to: community rooms, lobbies, mailrooms, laundries, stairways, hallways, elevators, manager's offices, mechanical rooms, mechanical chases, etc.
 - i. Adaptive re-use projects with buildings designated as historic by local, state or federal authorities, may include residential common space up to 35% of the total residential space when necessary to comply with historic preservation requirements. In each case, the design architect must work with the

- Architecture and Engineering Bureau to obtain the most efficient plan possible for the project.
- ii. Projects with the residential common space exceeding the above limits are subject to the waiver process in accordance with Section 4. Waiver requests for increases above the maximum allowable percentage of shared common space shall show proof of sufficient funding for development of the excess space. In addition, the waiver must document that the project operations can support the excess common space within an acceptable rent and building operation plan. HCR will evaluate the impact of the excess common space on the long-term operations of the project and may impose additional requirements for maintaining the space, including the provision of an operational guarantee or additional design requirements to mitigate the impact of the excess space on the affordable residential project.
 - c. The lobby area must have clear sight lines to the elevators/stairways, manager's office and mailboxes.
 - d. Public corridors must have clear sight lines to stairways/elevators.
 - e. Floors in new construction and those reconstructed in rehabilitation projects shall generally comply with a maximum tolerance from true level of 1:128 for hard surface flooring, or 1:64 for carpeted areas. Floors to remain in existing buildings undergoing a substantial rehabilitation shall be leveled to nominally meet this criteria when existing slopes generally exceed a tolerance of 1:48 for hard surface floors and 1:32 for carpeted areas. Continuous slopes in all areas (new or existing) shall be limited to a differential of 2 inches in height in any room or combined room within a dwelling unit and 6 inches in common area spaces, including corridors. In no case shall maximum slopes exceed that allowable for maneuverable areas and clear floor space requirements established by Accessibility standards in all spaces served by or on an Accessible Route.
 - f. Laundry Requirements
 - i. Centrally located laundry rooms are required in all rental projects. Laundry facilities shall be available for extended hours. When located in detached facilities an exterior covered entry with 24-hour keyed access for tenants is preferred. All laundry facilities shall be located on an accessible route and include a fixed counter, meeting accessibility standards, for folding clothes.
 - ii. Provide a common laundry room with one commercial washer and one commercial dryer for every twenty bedrooms. In no case will the project be required to provide more than 1 washer/dryer for every 10 dwelling units. This ratio may be reduced by one half if washer and dryer hook-ups for side-by-side appliances are provided in all dwelling units of a project. For multi-site one and two-family units, washer and dryer hookups in each dwelling unit may be provided instead of a central laundry room.
 - g. Elderly housing projects, for persons 55 years of age or older, having two or more floors, must have an elevator.

- h. Individual garages and carports attached to dwelling units are not allowed in HTFC projects, except those located in unused basement space available due to the existing topography of the site.
- i. Detached common use garages and carports are not fundable by programs administered by the HTFC.
- j. Fireplaces are not fundable by programs administered by HTFC funding.

2. Projects having 20 or More Dwelling Units:

- a. Provide a community room based upon 15 square feet per dwelling unit. Projects with more than 50 units shall not be required to provide a community room larger than 750 sf. Community rooms exceeding this requirement are acceptable provided that the total maximum allowable residential shared common space area ratio is not exceeded. Each community room is to have additional accessible space for a kitchenette with cabinets, counter top, refrigerator, a sink and an optional residential style kitchen range. All community room facilities shall provide reasonable hours of access to all residents, which include suitable night and weekend hours in addition to standard business hours. The applicant shall indicate the proposed hours of operation in the application.

Community room facilities shall be optional at developments with less than 20 dwelling units on contiguous sites. If a subsequent phase(s) is developed that results in 20 or more dwelling units on contiguous sites in all phases, the subsequent phase shall include a community room facility to serve all phases.

- b. Provide a janitor's maintenance closet with slop sink on every floor of buildings with corridors serving more than 8 dwelling units.
- c. Provide a trash collection room or trash compaction system on every floor of buildings with corridors serving more than 8 dwelling units.
- d. Provide recycling collection rooms configured to accommodate local collection services.
- e. Provide adequate bicycle storage facilities that are secure, visible, and conveniently accessible. Although outdoor bicycle racks are acceptable, indoor or sheltered facilities are preferred; these should be easily accessible from the outdoors to minimize the movement of bicycles through the building's lobby and elevators.

4.03.03 Dwelling Unit Space

A **dwelling unit** is defined as the private space provided for the exclusive rights of a tenant or homeowner consisting of a bathroom, kitchen, and bedroom/living/dining room area. Dwelling units are to comply with floor level tolerances indicated in 4.03.02. All substantial rehabilitation and newly constructed dwelling units must meet the minimum gross square footage enumerated below and cannot be larger than the maximum square footages:

Dwelling Unit Type	Minimum Area	Maximum* Area
0 bedroom/Studio-	450 sq. ft.	550 sq. ft.
1-Bedroom-	600 sq. ft.	725 sq. ft.
2-Bedrooms-	750 sq. ft.	950 sq. ft.
3-Bedrooms-w/additional one-half bath	900 sq. ft.	1,150 sq. ft.
4-Bedrooms-w/ additional full bath	1,050 sq. ft.	1,300 sq. ft.
5-Bedrooms-w/ additional full bath	1,200 sq. ft.	1,450 sq. ft.

*Refer also to notes below

See Section 4.01 for additional requirements for projects involving NYC HPD.

1. Gross square footage is defined as the area contained within exterior wall surfaces and/or centerline of common wall(s) separating adjacent common space and/or dwelling unit(s).
2. Unit sizes may be increased by 50 square feet in non-accessible, multi-level, dwelling units to accommodate visitability.
3. For dwelling units located on more than one level, up to 60 square feet per floor may be added to account for stairs.
4. Dwelling unit sizes may be increased to account for bulk storage, as noted with the bulk storage requirements in section 4.03.03.F.4.
5. All habitable rooms in new buildings shall have maximum ceiling heights of 9 ft.-0 in.
6. Unit occupancy is based upon two persons per bedroom.
7. All habitable rooms must have natural light (minimum of 8% of floor area) and natural ventilation (minimum of 4% of floor area).
8. Porches, balconies and patios associated with Accessible and VISIBLE dwelling units must be on an Accessible Route, and must be in compliance with applicable Accessibility standards and meet HCR Visitability standards.

A. Living Room

Provide adequate wall area in living room to allow for the placement of furniture based upon the maximum allowable number of unit occupants.

B. Dining Room

Provide adequate floor area to accommodate a table and chairs to seat the maximum allowable number of occupants.

C. Kitchen/ Kitchenette

1. Each kitchen shall be separated from other areas with a 12-inch dropped header, except where this would result in a soffit less than 6'-8" above the finished floor; in such cases, provide a dropped header as deep as possible without encroaching on the minimum clear height required. Kitchens shall be equipped with a range/oven, vented exhaust fan, refrigerator, sink, base and wall cabinets. The following minimum lineal foot of countertop space and shelving shall be provided:

Dwelling Unit Type	Minimum Counter Top	Minimum Shelving
0 bedroom/Studio	4.5 lineal ft.	25 lineal ft.
1-Bedroom	5.0 lineal ft.	30 lineal ft.
2-Bedrooms	6.0 lineal ft.	35 lineal ft.
3-Bedrooms	7.0 lineal ft.	40 lineal ft.
4-Bedrooms	8.0 lineal ft.	50 lineal ft.
5-Bedrooms	8.0 lineal ft.	50 lineal ft.

2. Each kitchen shall have a minimum of three cabinet drawers. A minimum of 18 inches of counter space shall be adjacent to both sides of the sink and at least one side of the refrigerator and range. Place ranges within counter runs; do not place ranges against sidewalls, unless non-combustible surface is provided, and applicable accessibility standards are maintained. Do not leave sides of ranges exposed.
3. The minimum aisle width between cabinets shall be 42 inches.
4. Where possible, kitchens and bathrooms should share common supply, waste, and vent stack piping.

D. Bedrooms

1. The primary bedroom must have a minimum dimension of at least 10 feet by 10 feet; secondary bedrooms must be a minimum of 80 square feet.
2. Every bedroom must have a closet with a shelf, closet rod and a door.
3. Every bedroom must be of sufficient size to accommodate a bed, storage chest, night table, chair, and circulation space.
4. All bedrooms must have a 2-8 inch or larger door unit with a privacy lock set.

E. Bathrooms

1. Every unit must have a bathroom containing a nominal 30"x60" bathtub unit with shower head, a sink, a wall 30" tall mirrored medicine cabinet and a toilet. A nominal 33"x63" shower unit may be provided in lieu of a bathtub unit to meet the needs of mobility impaired residents. Every three-bedroom unit must have an additional bathroom containing a sink, mirror and a toilet. Every unit having four or more bedrooms must have a second full bathroom containing a bathtub or shower unit as noted above. Bathrooms and showers shall have a slip resistant finish.
2. Provide wall reinforcement/blocking for mounting future grab bars at all accessible, adaptable and visitable locations.
3. All bathrooms must have a 2-6 inch or larger door unit with a privacy lock set.
4. All bathrooms must be mechanically ventilated.
5. Windows must not be located within the tub/shower surround.
6. Bathrooms must be accessed from within the dwelling unit and without traveling through the kitchen, living room, or dining room.
7. Whirlpool baths or spas and residential washers and dryers are not fundable by programs administered by HTFC.

F. Storage Areas

1. Each dwelling unit entry area must have a storage closet for outerwear with the following minimum square foot floor area:

Dwelling Unit Type	Entry Area Storage Closet, Min.
0 bedroom/Studio	6 Sq. Ft.
1 and 2 Bedroom	8 Sq. Ft.
3-Bedroom	10 Sq. Ft.
4-Bedroom	12 Sq. Ft.
5-Bedroom and larger	14 Sq. Ft.

2. Every bedroom must have a clothes closet with the minimum dimensions of 2 feet, 0 inches by 4 feet, 0 inches wide.
3. Every dwelling unit must contain a storage closet for linens with 6 linear feet of shelving with minimum dimensions of 1 foot, 6 inches deep and 2 feet, 0 inches wide.
4. Additional bulk storage must be provided for each dwelling unit as follows:

Dwelling Unit Type	Bulk Storage Minimum
0 bedroom/Studio	10 Sq. Ft.
1 and 2 Bedroom	20 Sq. Ft.
3-Bedrooms and larger	25 Sq. Ft.

Bulk storage located in basements or other areas subjected to high ambient moisture or humidity shall be waterproofed, ventilated and dehumidified to prevent damage to stored items.

In areas where basements cannot be provided due to high water tables, poor soil conditions, or rock that cannot be cost effectively excavated, and are governed by a zoning ordinance floor area ratio or other local zoning restrictions, that would result in the loss of dwelling units as a result of complying with this storage requirement, the HTFC will consider requests for waivers.

Dwelling unit sizes may be increased up to the areas listed in the bulk storage table above, to accommodate bulk storage space located within the dwelling unit.

For dwelling units with enclosed, remote bulk storage space that is dedicated to the dwelling unit, the total overall area of the dwelling unit may be listed as: the dwelling unit space plus the enclosed, remote bulk storage space to the limits in the bulk storage table above. Other space comprising the remote bulk storage area, such as excess bulk storage space and circulation space shall be listed as residential common area, not dwelling area.

All bulk storage closets outside of dwelling units must have doors with locking hardware.

4.04 Specification Requirements

4.04.01 General Requirements

The definition for **general requirements** is all project specific expenses that are borne by the builder. The following general requirement items, at a minimum, are to be included in the project: supervision (including project scheduling, project meetings, and processing submittals); field engineering; field office expenses; temporary facilities; temporary utilities (including heat, electric, sanitary and water); jobsite safety and security; jobsite cleaning; construction waste management, recycling and disposal; project sign; provisions for other weather related conditions in addition to the temporary heat mentioned above such as snow removal and other expenses necessary to complete the work. **(These items are not an exclusive list.)** For general requirements cost allowances, refer to the Capital Programs Manual.

Note: Builder's overhead is a separate line item from general requirements and includes the administrative office expenses of the contractor as they relate to the general management of the project. These may include, but are not limited to: payroll and accounts; general office telephone charges; rental or mortgage cost of operating a construction office; utilities of the main office; administrative staff salaries; MBE/WBE processing; and Davis-Bacon wage compliance.

4.04.02 Sitework

- A. Provide a minimum 4-inch base of compacted, sound, granular, durable material, free from organic materials, beneath all exterior driving or walking surfaces.
- B. Asphalt paving must be a minimum of 2" in thickness and compacted with a 10-ton roller. Provide positive drainage of all driveways, parking areas, ramps and walkways to prevent standing water.
- C. When a parking area abuts an accessible sidewalk, wheel-stops or a curb must be provided to prevent the vehicle from overhanging the sidewalk and obstructing the accessible route.
- D. Provide benches at multifamily projects. Provide benches with backs at senior projects. Exterior seating must be of durable, low maintenance materials. Assemblies of concrete, wood and/or metal are acceptable if manufactured for the intended purpose. Exterior seating, and other amenities must be permanently anchored in place.
- E. Projects with accessible dwelling units or other accessible uses must include at least one paved accessible wheelchair area with benches.
- F. Provide playgrounds in accordance with Section 1.02.01.C.6.
- G. All plantings shall comply with New York State Departments of Environmental Conservation and Agriculture and Markets regulations concerning invasive species.

- H. Plant material must be indigenous or non-invasive to the climate and area, non-poisonous, and be selected to minimize water usage and maximize energy efficiency.
- I. Trees at streetscape must be at least 2-½ inch caliper. Trees sited for building landscaping must be at least 1-½ inch in caliper.
- J. Provide lawns with at least 3" of well screened topsoil. Lawns are to be maintained no less than weekly, until 98% established.
- K. All primary walkways, sidewalks from parking areas, and sidewalks to secondary entrances must be concrete.
- L. Ornamental fences are to have horizontal top bars with no pickets projecting above the bar. Wood picket fences are to have flattened tops or a horizontal cap above the pickets.

4.04.03 Concrete

- A. Provide a chemical hardener and sealer to all troweled finished interior floors which are to be left exposed.
- B. Provide a non-skid finish to all concrete walkways and pitch to avoid ponding.
- C. All concrete exposed to weather must have a minimum ultimate design strength of 4000 psi and contain an air entrainment admixture. Concrete walkways must be reinforced and have a non-skid finish.
- D. All interior concrete must have a minimum ultimate design strength of 3,000 psi.

4.04.04 Masonry

- A. Provide brick masonry units of SW grade meeting ASTM-C-216 standards.
- B. Provide adjustable unit type wall ties of a non-corrosive material.
- C. For all masonry cavity walls provide weep holes above the base flashing at the bottom of wall cavities and above all other flashing locations. Flashing material and location, and spacing of weep holes shall be in accordance with Brick Institute of America requirements.
- D. Provide control joints in all masonry walls no less often than every 50 feet. Locate all control joints at points of natural weakness in the masonry work.
- E. **Thin brick veneer systems shall not be used on exterior surfaces.**

4.04.05 Metal

All steel work must conform to the following standards:

- Code of Standard Practice for Steel Buildings and Bridges by the American Institute of Steel Construction (AISC Code), latest edition.
- Structural Welding Code – Steel, AWS D1.1 by the American Welding Society (AWS Code).
- Comply with the appropriate specifications, SSPC SP-X by the Steel Structures Painting Council.

4.04.06 Wood

- A. All wood siding applications must be free and clear of knots, checks and other defects.
- B. All wood exposed to the weather and wood blocking used in roofing must be pressure treated.

- C. Roof and floor sheathing shall have an exposure 1 classification constructed of structural veneer plywood or non-plywood, high performance structural panels. Roof sheathing shall have a minimum nominal thickness of 5/8 inch for buildings utilizing wood roof trusses spaced a maximum of 24 inches on center. H clips must be used for square edge profiles with unsupported edges. Floor sheathing must be tongue and groove panels with a minimum nominal thickness of 3/4 inch. Non-plywood, high performance structural roof or floor sheathing panels shall comply with the following:
- Carry a limited lifetime warranty.
 - Include a 500-day no-sanding guarantee, that covers delamination, and excessive swelling.
 - The entire panel, including edges, shall maintain moisture resistance when cut into smaller panels.

Non-plywood, high performance structural roof sheathing panels, with an integrated moisture barrier that eliminates the need for roofing felt, will be acceptable if provided with a manufacturer's 30-year system warranty.

- D. Underlayment must be in conformance with the floor finish manufacturer's acceptable standards.

4.04.07 Thermal and Moisture Protection

- A. For all construction/rehabilitation projects, provide R and U values that comply with the Energy Conservation Construction Code of New York State or Energy Conservation Code of New York City, latest edition, as applicable. Submit thermal rating documentation for the walls, roofs, windows, doors, perimeter slabs, basements, HVAC, lighting, etc.
- B. New roofing systems are required on all projects.
- C. Non-urban units, and low-rise multi-dwelling buildings (2-3 stories i.e., row houses, garden apartments) must have pitched roofs with a minimum roof pitch of 5/12, or greater to or match those of existing surrounding residential structures.
- D. For low slope roofs, provide modified bitumen or single ply EPDM, PVC, CSPE (i.e. Hypalon) roofing systems.
- E. Provide pressure treated wood nailers and curbing.
- F. All low slope roofing systems must provide a 15-year, full systems manufacturer's warranty for labor and materials with no dollar limit. In addition, the roofing contractor is to provide a minimum two-year, labor warranty for all roofing and sheet-metal work.
- G. For all shingle roofing, provide a minimum manufacturer's warranty of 30 years and a two-year roofing contractor's labor warranty for all roofing and sheet-metal work.
- H. For all metal roofing, provide a minimum 30-year finish warranty, a minimum 25-year material warranty, and a 2-year roofing contractor's labor warranty for all work. The finish warranty shall state, at a minimum that the finish will not fade, chalk, crack, check, or peel. The material warranty shall state, at a minimum, that the material will not rupture, fail structurally or perforate under normal atmospheric conditions.

- I. All flashing material must be of non-corrosive weather-resistant materials and consist of a minimum of .019 inches aluminum or membrane flashing in compliance with the roofing system requirements.
- J. Solid vinyl siding shall not have fillers and shall be a minimum of .044 inch in thickness. Provide backing as recommended by the manufacturer. Wood clapboard siding is permissible when required by the State Historic Preservation Office (SHPO) and for existing buildings where the siding is in good repair. Fiber cement board siding shall be prefinished with a manufacturer's finish warranty of 15 years.
- K. [Spray foam insulation shall be applied by applicators certified by the manufacturer, the American Chemistry Council, or other recognized industry standard. Application of spray foam shall be in accordance with such certification to limit harmful off-gassing after the curing period. Scheduling of spray foam applications shall be done in a manner that allows sufficient ventilation to occur to dissipate any residual off-gassing from the building prior to the spray foam insulation becoming enclosed by other materials.](#)

4.04.08 Doors and Windows

A. Doors

1. For multiple dwelling unit projects provide storefront style doors with insulating glazing, or insulated entry doors with insulating vision panels at common entries. Exterior steel doors and frames shall be galvanized/shop primed.
2. Interior apartment entrance door units are to be made of reinforced hollow metal conforming to Steel Door Institute Standards, or solid core wood.
3. Provide a security peep hole on all dwelling unit entry doors.
4. Interior room doors are to be at a minimum molded hardboard construction.
5. Provide vision panels in all doors located in path of egress and in common use areas such as laundry and community rooms.
6. Doors located on patios and balconies shall be capable of providing security in closed and vented positions; include hardware and thresholds that meet accessible standards or capable of being adapted to provide reasonable accommodations, fabricated from solid wood with aluminum or vinyl cladding, fiberglass or insulated steel and comply with one of the following options:
 - a. Swing door with a grade 2 deadbolt and small venting sidelights.
 - b. Swing door with a grade 2 deadbolt, locking heavy duty door screen panel and an adjacent window that locks in the vented position.
 - c. Sliding patio door with a heavy-duty door lock comparable to a grade 2 deadbolt such as a floor level heavy duty deadbolt that securely locks in the closed and vented positions, and heavy-duty screen panel frame.
 - d. Sliding patio door with a heavy-duty door lock comparable to a grade 2 deadbolt, such as an attached hinged telescoping rod with heavy duty bolts for fixing the door securely in the closed and vented positions, and heavy-duty screen panel frame.

B. Windows

1. Window units are to meet the American Architectural Manufacturer's Association /Wood Door Manufacturer's Association Standard/Canadian Standard AAMA/NWWDA/CSA101/I.S.2/A440-08 or AAMA/NWWDA 101/S.2-97. The minimum acceptable performance classification for vinyl and aluminum windows is CW50 or C50; with the exception that LC50 windows are allowable for buildings of three stories or less. Wood and fiberglass windows are required to have a minimum design pressure rating of 40 PSF.

The performance grade shall be increased if required for structural performance, as required by the applicable building code. In such cases, the consultant may be asked to justify the grade specified with structural calculations based upon the building code reference standard, Minimum Design Loads for Buildings and Other Structures, ASCE 7- (latest edition). All windows in a building shall meet the minimum performance grade required for structural considerations or that are required by the standards referenced above.

Wood windows must have exterior cladding except as may be required in historic preservation projects. All operable windows are to be hung (vertical sliding) or projecting hinged type (awning, casement, etc.) All windows are to be provided with full mesh screens except that hung windows may be provided with ½ screens if the upper sash is fixed or provided with an anti-drift mechanism.

2. For rehabilitation projects where original primary windows are remaining, provide exterior mounted aluminum triple track storm/screen window and permanently affixed (mechanically fastened) weather-stripping at all edges of operable sashes including interlocking weather-stripping at meeting rails.
3. All windows must have a locking device as well as locks that are tamperproof from the exterior.
4. Provide child guards (i.e. fall protection), or limit stops, in accordance with the NYS Building Code, NYS Residential Code and NYC Housing Maintenance Code, as applicable.

C. Hardware (This section was reconfigured.) Provide the following at a minimum, for all applicable locations indicated:

1. Doors:
 - a. In multi-family buildings and similar uses: all common-use exterior doors (main and secondary), and all high-use, common and maintenance doors, (including exterior laundry, trash, and activity room doors):
 - i. Grade 1 mortise locksets with a one-inch throw deadbolt, or heavy duty/grade 1 electronic hardware;
 - ii. Lever handles on doors not receiving panic hardware;
 - iii. Master keyed or programmable electronic locking device;
 - iv. Closer at all exterior doors, and where appropriate elsewhere;
 - v. Door stop/bumper, as appropriate.

- b. All dwelling unit entries (main and secondary) including townhouses and single-family buildings:
 - i. Grade 2 lockset and one-inch throw deadbolt.
 - ii. For Senior and Accessible/Adaptable units, provide lever handles.
 - iii. For Visitable or Accessible/Adaptable units, provide an accessible threshold at exterior doors.
 - iv. Master keyed or programmable electronic locking device;
 - v. For interior dwelling unit entry doors, provide a mechanical doorbell or a decorative door knocker which includes a permanent apartment identity label.
 - vi. For dwelling unit entries that open onto interior common space/ corridor, provide a self-closing device.
 - vii. Door stop/bumper, as appropriate.
 - c. All doors within an individual dwelling unit:
 - i. For Senior and Accessible/Adaptable units, provide lever handles provided with locksets that meet or exceed Grade 2 standards.
 - ii. Bedroom and Bathroom: Provide a privacy lockset (note-privacy locksets may be omitted at the bedrooms if the management company or owner agrees to inform the tenant that they will provide privacy locksets for no additional charge upon the tenant's request.)
 - iii. Door stop/bumper, as appropriate.
2. Windows
- a. Operable hung units- Provide hardware pulls or integral recessed pulls for ease of operation.
 - b. In historic renovation projects which must utilize existing large windows or have new large windows meeting historic configurations, provide window hardware which eases window operation for elderly tenants and tenants with physical disabilities.
 - c. Decorative security grilles: For multiple dwelling unit projects located in areas with security concerns: provide decorative security grilles at basement, first floor and all other windows, air conditioner sleeves and at doors with glass lights accessible from the exterior. Security grilles must be constructed of expanded metal or wrought iron and secured in place with hardware that is not removable from the exterior. Security grilles must be operable when required for emergency egress.
3. For senior units and dwelling units adapted for tenants with physical disabilities, provide loop or D shape handles on cabinet doors and drawers.

4.04.09 Finishes

- A. In all dwelling units provide either a minimum of 26 oz., level-loop, commercial grade carpet or minimum 26 oz. residential cut-loop carpet, or ¾" tongue and groove hardwood flooring, resilient vinyl flooring with minimum thickness of .080", vinyl composition tile with a minimum thickness of 1/8" [or other superior grade resilient flooring products such as luxury vinyl tile](#), water resistant laminate flooring or 5/8" solid bamboo flooring.

- B. Provide waterproof assemblies for floor systems of laundry rooms, bathrooms or similar spaces. Extend waterproofing four inches or more above the floor. [Waterproofing may be accomplished with the finish flooring by utilizing sheet vinyl flooring and a fully caulked vinyl base to ensure a watertight installation.](#)
- C. Provide one coat of primer and one coat of flat paint to all interior walls and ceilings except in bathroom, kitchen, shared common space walls and all trim, where one coat of primer and two coats of semi-gloss or scrubbable eggshell-gloss paint must be provided.
- D. For all dwelling units, interior wall finishes must be smooth finished gypsum board equivalent to a level four finish in compliance with Gypsum Association standards or an existing smooth plaster finish. Dwelling Unit ceiling finishes must be smooth finished, rolled, sprayed or uniformly textured paint. Acoustical ceiling tiles and wall paneling are not acceptable.
- E. Provide moisture resistant gypsum wallboard on all bathroom walls.
- F. For ceramic tile applications, provide thin-set mortar over cementitious backer board. Ceramic tile bathtub and shower surrounds shall receive solid wood blocking for the installation of grab bars.
- G. The maximum vertical rise in any change in flooring material must be no greater than ¼ inch.
- H. In family multiple dwelling unit rental projects, public corridors and stairways shall have vinyl composition flooring, other heavy duty hard-surface flooring, [or heavy duty, commercial grade carpet tile.](#)
- I. Provide high contrast, non-slip nosings at public stairways.
- J. Provide finished ceilings in all spaces that may be accessed by tenants.
- K. Provide a base finish at all exposed walls and cabinetry base locations.
- L. Provide vibration and sound absorbing bases or support for equipment subject to motion which could transmit vibration or noise to the structure.
- M. Provide ceramic tile or seamless resilient sheet flooring in bathrooms.
- N. Slip resistant ceramic or quarry tile applications may be provided at entrances, lobbies or vestibules where durability or water protection is a concern.
- O. Building materials that have the potential to negatively affect indoor air quality, such as: paints, applied finishes, adhesives, and sealants shall, at a minimum, meet Green Seal, or an equivalent, low-VOC standard.

4.04.10 Specialties

- A. All [bathtubs/shower units](#) must be provided with a safety grab bar (to grab onto in the event of a fall) and soap dish in tub/shower unit; a shower curtain rod, permanently anchored to the wall; toilet paper holder; two towel bars; robe hook(s), and a minimum height of 30 inches, top lighted, mirrored medicine cabinet. Medicine cabinets may require larger mirrors in accessible/adaptable dwelling units.
- B. In buildings designed specifically for the occupancy of seniors and/or special need occupants with mobility impairments, at least one code compliant grab bar shall be installed in every tub and/or shower unit.
- C. Provide mailboxes in accordance with USPS standards. Utilize labels with a contrasting color and large characters that can be easily read.

- D. Provide mini blinds at all dwelling unit windows and doors with lights.
- E. All projects are to incorporate integrated pest management during construction that includes sealing all openings, cracks and joints to prevent the infestation of insect and animal pests from entering the building or migrating from one apartment or common area to another.

4.04.11 Equipment

- A. Provide ENERGY STAR labeled equipment and appliances.
- B. For zero, one and two-bedroom units, provide a minimum of a 14-cubic foot, two-door, frost free refrigerator with freezer compartment, a 30 inch, self-cleaning, range/oven with integral backsplash, lighted range hood and a 24-inch-wide single-bowl, stainless steel sink. Stoves in senior dwelling units must have front control knobs.
- C. For family units of 3 bedrooms or larger, provide a minimum of an 18-cubic foot, two door, frost free refrigerator with freezer compartment; a 30-inch self-cleaning range/oven with integral backsplash; lighted range hood. Provide larger sinks as necessary to meet the needs of the dwelling unit size.
- D. Kitchen ranges at accessible locations shall be provided with front controls. Provide control knobs that have set points that can be sensed by the visually impaired.
- E. Kitchen and bathroom cabinets shall be ANSI/KCMA A161.1 certified. Additionally, all cabinet doors, drawer panels, and face frames shall be of natural wood or with a high-pressure decorative laminate (HPDL) finish constructed of combination core plywood (MDF and veneer plywood core only).
- F. Range hoods in accessible/adaptable units must be provided with two wall switches located within accessible reach ranges. One switch to control the range hood light and one switch to control the range hood fan.
- G. When range hoods are ducted through the overhead wall cabinet, the duct must be “boxed in” with wood finished to match the cabinets. The remainder of the wall cabinets must be usable. Range hood ductwork located above the wall cabinets must be concealed, such as in a soffit.
- H. Provide kitchen cabinet hinges which are inter-locking and self-adjusting.
- I. Countertops and backsplashes must be exterior grade plywood or other equally water-resistant panels and with a high-pressure decorative laminate (HPDL) finish in all family dwelling units. Standard particle board countertops and backsplashes are permitted in elderly dwelling units.
- J. Avoid dark color countertops, cabinets and appliances in dwelling units for elderly, or other special needs residents who may have vision or depth perception deficiencies.
- K. At a minimum, finger pulls must be provided on all base and wall cabinets.

4.04.12 Conveying Systems (Projects with elevators)

- A. **General Requirements**
 1. Elevator must be in compliance with ASME/ANSI A17.1 safety code for elevator, latest edition, the National Electrical Code or applicable local electrical codes, NYS Building Code, applicable local building code and HUD property standards.

2. All elevators must comply with ANSI A 117.1, latest edition, for handicapped accessibility requirements.

B. Number of Elevators

1. In multi-dwelling, family projects, elevator(s) must be provided to serve approximately six to seven percent of the population in a five-minute demand. Acceptable waiting time shall be 50-90 seconds. Calculate the anticipated population as two occupants per bedroom unless a higher population is known.
2. In multi-dwelling, elderly projects, provide an elevator to serve five to six percent of the population in a five-minute demand period. Population statistics must be calculated, at a minimum of 1.25 to 1.5 occupants per bedroom.
3. For determining the number of elevators, allow for an area of three square feet per person to accommodate heavy clothing and packaging.

C. Size Requirement

Provide a car with a minimum 2500# rating. Inside clear dimensions must be a minimum of 80 inches wide by 51 inches deep. Increase clear dimensions of elevator cars in accordance with the applicable building code to accommodate required ambulance stretcher size.

D. Finishes

1. Flooring, at a minimum, must be heavy-duty, wear-resistant, vinyl tile.
2. Wall and ceiling panels must be plastic laminate.
3. Handrails must be stainless steel.
4. Lighting must be, at a minimum, fluorescent.

E. Car Controls

Provide, at a minimum, the following car controls and accessories:

1. Lighted call button at each landing.
2. Position indicator in the car.
3. Prominent direction arrows in the car and, at each landing.
4. Shatterproof mirror mounted on one upper corner of the car to allow over-view of the car before entrance.
5. Floor designation mounted on both jambs of every door.
6. Car position indicator in main lobby.
7. Audible signals which sound at each floor, sounding once in the up direction and sounding twice in the down direction.
8. Emergency call phone connected to the manager's office.
9. An in-car alarm button.

F. Guarantee

1. Provide a written guarantee from the manufacturer to cover parts and components for a period of one year after the date of final acceptance.

2. Repairs or replacements made under the guarantee must be guaranteed for an additional one-year period.

G. Service Contract

1. Elevator contractor must provide a service contract to cover maintenance and callback service for a period of one year after the date of final acceptance by owner. Coverage must include regular and systematic examination, adjustment, lubrication and repair and/or replacement of equipment whenever required by the wear and tear of normal elevator usage. A service contract must be in continual enforcement for the entire length of the regulatory period.
2. Owners are required to provide an Annual Service Contract for continual coverage for the entire length of the regulatory period. Service Contracts are to provide the same level of coverage as outlined above.

4.04.13 Mechanical/Plumbing

A. Plumbing

1. All water supply and heating piping must be of type K soft temper copper for below grade exterior lines, and either type L hard temper copper for interior domestic water lines, type M for hydronic heating lines, or cross-linked polyethylene (PEX) piping. Copper piping must be installed with soldered joints using lead free solder or with mechanical press connections and fittings meeting the standards below:
 - a. Mechanical Press Fittings: Bronze or copper shall conform to ASME B16.51, IAPMO PS 117 and NSF 61/NSF 372 – (Zero Lead Compliance). Fittings ½ inch through 4-inch for use with ASTM B88 copper tube type K, L, or M and ½ -inch through 1-1/4-inch annealed copper tube. Fittings shall have an O-ring sealing element and a feature that guarantees identification of an un-pressed fitting during testing. System must be installed in conformance to manufacturer’s instructions/specifications for approved applications.
2. PEX piping is allowable for hydronic heating and domestic water lines in installations meeting the following requirements:
 - a. All systems shall be installed meeting all requirements of the pipe and connector manufacturer.
 - b. Installations shall be pressure tested to 100 psi for a minimum of 4 hours.
 - c. PEX piping shall not be used for supplies to, or piping at, mechanical equipment (boilers, hot water heaters, etc.)
 - d. Systems shall comply only with one of the two options outlined below.

Systems utilizing PEX-b, or PEX-c piping:

- 1) PEX piping system runs are contained within individual dwelling units. PEX shall not be used for main lines to and from the dwelling units or other areas. Main supply and return piping shall be copper piping complying with the above section.
- 2) All plumbing fixtures and heating units are piped directly to fixtures from a central copper or brass manifold that is; supplied by copper piping, is

located within the dwelling unit and includes individual brass shut-off valves on each branch line or a common shut-off located on the copper supply branch line to the manifold. Shut-off valves and manifolds are to be accessible within the apartment or immediately outside the apartment in a common corridor; use locked access doors in non-mechanical room locations. All pipe, fittings and crimp rings must be part of one manufacturer's system. Manifolds shall be copper or be part of the manufacturer's system meeting ASTM F877.

- 3) There are no connectors, union, or splices, etc., located between the central manifold and the termination stub-out at each fixture. Each fixture stub-out shall be copper pipe secured to the building framing with compatible, heavy-duty, support plates that fastens the support stub-out securely in place.
- 4) Heating units may be piped as a continuous loop from heating unit to heating unit provided that there are no intervening connections, unions, or splices, etc.
- 5) All piping shall carry a 25-year manufacturer's warranty.
- 6) The connectors shall carry a 2-year manufacturer's warranty.
- 7) Connectors shall be brass or bronze with full circle; brass, copper or stainless-steel crimp ring connectors that utilize crimping tools meeting the manufacturer's specifications. Slip, push-fit, adjustable and cinch type connectors are not allowable.
- 8) The installing contractor shall provide an installation warranty of 2 years.

Systems utilizing PEX-a piping:

- 1) All piping shall be PEX-a piping from one manufacturer meeting ASTM F876 and F877 certification standards.
- 2) All fittings shall meet ASTM F1960 standards.
- 3) Main building supply and return lines may be PEX-a if the installation meets building code requirements including requirements for penetrations into fire rated assemblies.
- 4) Main building supply and return lines are to utilize metallic fittings.
- 5) Dwelling units are to be supplied by single branch mains piped from the main supply lines.
- 6) Within dwelling units, fixtures are to be piped directly from supply manifolds, or multiple line branch tees, meeting the pipe system manufacturer's requirements. Manifolds with shut-off valves are to be properly supported as necessary for valve operation. Manifolds without shut-offs are to have main branch line shut-offs on supply lines to the manifolds.
- 7) Multiple line branch tees may be provided if located in an accessible location.
- 8) Shut-off valves for each apartment branch line are to be accessible within the apartment, or immediately outside the apartment in a common

corridor. Manifolds and branch tees are to be accessible within the apartment. Use locked access doors in non-mechanical room locations.

- 9) There are no connectors, union, or splices, etc., located between the central manifold, or multiple line branch tee, and the termination stub-out at each fixture. Each fixture stub-out shall be copper pipe secured to the building framing with compatible, heavy-duty, support plates that fastens the stub-outs securely in place.
 - 10) The entire system shall carry a manufacturer's 25-year warranty and be installed by plumbers trained in accordance with the manufacturer's requirements.
 - 11) The installing contractor shall provide an installation warranty of 2 years.
3. Provide drain pans for all hot water tanks, washing machines, etc.
 4. All pre-manufactured tubs/shower units are to be at a minimum made of a seamless one-piece molded construction. Pre-manufactured bathtub and shower units in adaptable dwelling units shall be factory reinforced to accept grab bars meeting applicable accessibility requirements. Pre-manufactured bathtub and shower units in adapted locations shall be factory equipped with all required grab bars.
 5. Tub/shower fixture handles must be the *paddle handle* type, single-mixing valve with a scald-proof feature.
 6. All tub and shower units are to be provided with a slip resistant finish.
 7. For elderly units, provide lever faucet controls for the kitchen sink and bathroom lavatory.
 8. For elderly units, provide a hand-held shower head with at least 5 feet of hose on an adjustable bracket.
 9. Provide water conserving fixtures as follows: toilets – 1.6 gpf; showerheads – 2.0 gpm; kitchen faucets – 2.2 gpm; bathroom lavatory faucets and all other fixtures in dwelling units and common areas (excluding service sinks) – 1.5 gpm. In addition, projects are encouraged to include EPA WaterSense labeled products.
 10. All fixtures shall be connected to vent stacks which extend to above the roof surface.
 11. All sprinkler piping shall run in concealed spaces. At top floors, piping shall be protected from freezing by utilizing side wall sprinkler heads at interior partitions or by running piping in dropped soffits that are completely enclosed on all four sides below the thermal envelope.

B. HVAC

1. Provide ENERGY STAR labeled heating and cooling equipment, or equivalent.
2. Electric heating systems and electric domestic hot water systems may be permissible when systems meet high energy efficiency criteria noted elsewhere in this handbook, or for limited use in common areas when equipment is compatible with a recognized energy efficiency program in which the project is enrolled.
3. Provide mechanical ventilation for all bathrooms and kitchens. Vent all to exterior with vent hoods. Filtered vents are not acceptable. See additional Range Hood requirements in Section 4.04.11 F&G.

4. In through-the-wall air conditioning unit sleeves are provided, they must be constructed of non-corrosive materials and be air sealed and insulated to a minimum R value of the surrounding wall cavities.
5. Provide central heat to all habitable rooms, and kitchens and bathrooms unless suitable supplemental heat is provided.
6. Provide adequate ventilation in attic to reduce heating/cooling loads on top floors of buildings.
7. HVAC ducts shall not run in exterior walls, unheated attics or unheated crawl spaces.
8. All forced air heating and cooling systems shall run within the thermal envelope as required by the energy code or energy efficient strategy utilized for the project. Ductwork shall be rigid metal with a smooth interior surface and shall be sealed air tight. Insulated ductwork shall have insulation jackets or covers placed over the exterior surface of the duct surround. Non-metallic flexible duct shall not be used.
9. All apartments shall be treated as individual heating zones controlled by a wall mounted thermostat in each apartment. For dwelling unit heating systems, provide a programmable thermostat capable of maintaining different temperature set points at different times of the day. In buildings with common heating systems, provide either programmable thermostats in each apartment, or building system set-back controls, as allowable by the applicable building codes.
10. Packaged Terminal Air Conditioning (PTAC) units will be accepted when part of a central heating system, provided documentation is submitted that demonstrates the PTAC units meet ENERGY STAR standards or the equivalent, and are superior in air leakage resistance and noise transmission.
11. Variable Refrigerant Flow (VRF-HR) HVAC Systems – The installation of a VRF-HR system in lieu of standard HVAC systems may be considered under the following conditions:
 - a. The system must be a Variable Refrigerant Flow system with heat recovery and the system design must consider the building orientation and exposure.
 - b. The fan coil/evaporator unit within the dwelling unit must be ducted to each habitable space within the dwelling unit.
 - c. The VRF Multi-Split Air Conditioner and Heat Pump equipment must have the Air Conditioning, Heating and Refrigeration Institute (AHRI) certification with the AHRI label affixed to the equipment.
 - d. The VRF system must be efficiently designed such that low temperature operation will not rely on electric backup heat above 0°s F.
 - e. The project design professional must provide a narrative explaining in detail: how the system will work; provide the schematic design of the proposed system; and energy modeling to demonstrate monthly energy usage and utility costs on a per unit type basis. The modeling must make a comparison of energy usage and utility costs between the proposed VRF-HR system and a high efficiency fuel-based system utilizing the most energy efficient fuel available at the site.
12. As energy efficiency increases, projects are advised to include a balanced ventilation system by utilizing Energy Recovery Ventilation (ERV) or Heat Recovery Ventilation (HRV) equipment. If a balanced ventilation system is utilized, it must be integrated

into the HVAC system.

13. Equipment installed at grade (i.e.: interior slabs on grade, exterior locations) shall be supported on a level concrete slab extending not less than 3 inches above adjoining grade. Such equipment shall be permanently anchored to the concrete slab.

4.04.14 Electrical

- A. Electric heating systems and electric domestic hot water systems are not permitted except as noted in the HVAC section above.
- B. For projects in areas with security concerns, provide a security alarm for all exterior door units.
- C. Provide a doorbell system for all exterior dwelling main entry doors.
- D. Provide a minimum of one pre-wired telephone jack in the living area of each dwelling unit. The entire telephone system is to be prewired. Cables are to be concealed within walls, ceilings, floors, chases, etc.
- E. Non-traditional telephone service, such as internet telephone service, may be provided when all of the following are met: the building fire, smoke, emergency call, and security alarm systems are compatible with the non-traditional system; the non-traditional system is compatible with the area's 911 emergency system, if available; service features are, at a minimum, equivalent to the traditional basic service; the base service is more economical for the residents than the traditional basic service.
- F. Provide a minimum of one pre-wired cable TV outlet in the living area of each dwelling unit. The entire cable TV system is to be pre-wired. Cables are to be concealed within walls, ceilings, floors, chases, etc.
- G. All lighting shall be ENERGY STAR labeled or provide the equivalent in energy savings and quality. Interior lighting and exterior building lighting shall incorporate ENERGY STAR fixtures, or high efficacy lamps. Exterior site lighting shall utilize high efficiency lighting. All exterior building and site lighting shall include either daylight sensors or timers to minimize electrical usage.
- H. Interior lighting shall be either wall sconces or ceiling fixtures controlled by a wall switch and provided in each room and corridor of all dwelling units, and in all public residential spaces and utility spaces. Separate fixtures shall be provided in living and dining areas of all dwelling units. Ceiling fixtures shall be a pendant type fixture with lamp exposed on the bottom, have a glass enclosure that completely surrounds the lamp, or shall be designed in such a manner as to not trap foreign matter. Ceiling fixtures which have a glass plate suspended below the lamp are not acceptable. Do not use recessed light fixtures at insulated ceiling areas. Increase lighting levels in senior projects to account for age related decreases in vision.
- I. Provide an intercom system for multiple dwelling projects where unit entry doors are not accessible directly to the outside.
- J. Branch circuit wiring must be 12-gauge or larger.
- K. Provide lighting levels meeting Illuminating Engineering Society recommendations. Locate lighting to thoroughly illuminate pedestrian walkways from parking spaces and

public sidewalks to building entrances. Distribute lighting to ensure safety and minimize security concerns.

- L. All dwelling units are to be directly metered to the electric utility company; sub-metering is not allowed.
- M. Circuit breakers and electrical panel door latches shall be located within an Accessible height reach range in Accessible and Adaptable dwelling units.
- N. In senior units provide an emergency call system in each dwelling unit's bedroom and bathroom that is connected to a central station. Provide an annunciator panel in lobby or vestibule. Provide a toggle switch activated in a downward direction and pull cord dropping to within 4 inches above the floor. Provide indicator lights over each dwelling unit entry door. Exception: Wireless systems are acceptable if the pull stations are manufactured to be permanent built-in fixtures and the system activates a central station. Emergency call systems shall be provided at no charge to the tenant.
- O. In senior projects, a central fire alarm system is required for all buildings with twelve or more units and for projects two or more stories in height.
- P. For dwelling units that are designed for those with hearing or vision impairments, provide at a minimum, the following audible/visual (A/V) features:
 - a. Hardwired unit entry doorbell with A/V features. Locate the doorbell w/A/V features in the living room and bedrooms.
 - b. Where intercoms are provided, include a system with A/V features.
 - c. Smoke detectors with A/V feature.
 - d. Carbon Monoxide detectors with an A/V alarm.
 - e. Building fire alarm with A/V alarm in the living room.
 - f. Building fire alarm with a strobe in the bathroom and bedrooms.
- Q. In senior projects, locate switches and other operable devices no more than 48 inches above finished floor height, and mount electrical outlets between 18-24 inches above finished floor.

Appendix A.....

Architecture & Engineering Bureau Construction & Environmental Services

Architecture & Engineering Bureau, Downtown Unit

25 Beaver Street
New York, NY 10004
(212) 480-7254
Ralf Torke, Director

Architecture & Engineering Bureau, Upstate Unit

38-40 State Street
Albany, NY 12207
(518) 473-7259
Michael DeBonis, Assistant Director

Construction & Environmental Services

641 Lexington Avenue
New York, NY 10022
(212) 688-4000 x 465
Clifford Archer, Vice President, Construction

Appendix B.....

Owner/Architect Contract Provisions

For projects following the construction Loan process, if the AIA Document *B101™ – 2007 Standard Form of Agreement Between Owner and Architect* is used, the following information shall be included in the sections as referenced below. If any other Owner-Architect agreement documents are used, include equivalent provisions in the appropriate sections. Any agreement document other than an AIA B Series document must be approved by HCR prior to its implementation.

1. The Architect shall use his/her best efforts to assure the Contractor's compliance with the Contract Documents.
2. Section 3.1 – Architect to provide the following services listed in Section 4.1 as part of Basic Services Compensation 11.1:
 - a. 4.1.8 Landscape design
 - b. 4.1.11 Detailed cost estimating – Note that the construction cost estimate submitted with Funding Application must be prepared by the contractor or independent cost estimator.
 - c. 4.1.13 Conformed construction documents
 - d. 4.1.15 As-constructed record drawings – Provide one set of drawings printed on bond paper and three sets of .pdf files on CD-ROMs of the record drawings showing changes in the work made during construction based on marked-up drawings and other data furnished by the contractor to the Architect.
3. Section 3.6.1.3 – The Architect's contract terminates at the correction and completion of punch list items by the contractor, and compensation for services should reflect this requirement.
4. Section 3.6.2.1 – The Architect shall keep the Owner informed of the progress and quality of the Work by performing site visits at a minimum interval of once every two weeks.
5. Section 3.6.5.1 – All proposed changes in the work must be accepted by HCR/HTFC to ensure they meet the design requirements of HCR/HTFC.
6. Section 7.3 – If this agreement is terminated before the completion of the Architect's services, the owner may use the drawings, specifications, and other documents prepared by the Architect, and retain another licensed architect who may utilize any or all of these documents, and who would assume professional liability.
7. Section 11.1 – Compensation for Architect's services shall be a stipulated sum or fixed fee amount. All expenses of the Architect are to be included in the Basic Compensation.
8. Section 11.4 – Compensation for Additional Services of the Architect's consultants shall be computed as a multiple of 1.10.
9. Section 11.8.2 – Reimbursable expenses shall be computed as a multiple of 1.00 and shall be identified as a stipulated amount or a not to exceed dollar amount.
10. Section 11.10.2 – Payments are due and payable to the Architect within 30 days from date of Architect's invoice.

Appendix C.....
~~Architect's Certification Statement~~

SECTION REMOVED

NOTE: Appendix C has been replaced with The [New York State Homes and Community Affidavit of Project Compliance with Accessibility Requirements](#) located on the agency website.

Appendix D.....

Owner/Contractor Contract Provisions

For projects following the Construction Loan process the following information shall be included in the standard Form of Agreement between Owner and Contractor:

1. Provided an Application for Payment is received by the Architect no later than 10 days prior to the scheduled requisition day of a month, the Owner shall make payment to the contractor no later than 30 days after the Architect issues the Certificate for Payment. If an Application for Payment is received by the Architect after the application date fixed above, payment shall be made by the Owner no later than ten days after the Architect receives the Application for Payment and issues the Certificate for Payment.
2. Upon substantial completion of the construction contract, the retainage released by HCR/HTFC will be calculated based upon whichever of the following results in a greater remaining retainage:
 - a. A reduction in retainage from 10% to 5%, or
 - b. The value of incomplete work, as determined by the Architect and HCR/HTFC, multiplied by 2.5.
3. The construction contract is contingent upon execution of all contracts from all construction financing sources.
4. Payments are contingent upon HCR/HTFC review and approval.

Appendix E.....

Area Calculations

Instructions:

1. This form is to be used for all buildings in the project to identify the interior gross area that excludes exterior walls, and the total building gross area that includes exterior walls.
2. Attach the applicable tables in this form to the drawing set.
3. Fill-in the building identification on the top of Table One under the "Total Residential Area" tab. The building identification will auto-populate onto all of the other tables under the other tabs. The building identification shall match that on the plans.
4. Fill-in the tables on each tab as necessary to identify the areas of all spaces in the project. The identification of all spaces shall match that on the plans.
5. Include one file for each building, or building type in the project.
6. One file may be used for multiple identical building types. Indicate the number of identical buildings and fill-in the total number of identical room types in the tables.
7. For projects with multiple buildings, provide your own file that includes a table to summarize the residential and non-residential spaces in a manner that is consistent with the tables on this form. This file shall indicate: the total interior gross areas; and the total gross areas that includes exterior walls as an aggregate total for all buildings in the project.
8. If there are different sizes for the same dwelling unit type (i.e.: two different one-bedroom types), repeat the dwelling type in the extra rows provided; do not indicate the averages of these dwelling unit types.
9. For new construction projects with basements, the entire basement area shall be included. Basement space(s) may be excluded in existing buildings where the space(s) are not being renovated and are only occupied by incidental uses that are off limits to the residents, such as mechanical & trash areas.
10. Use the blank spaces provided in the tables for adding alternate or additional room types.
11. If the project is more complex than allowed for in these tables, provide an equivalent substitution.
12. Interior gross area is defined as the area measured from the interior finish of exterior walls to the centerline of common wall(s) separating adjacent common space or dwelling unit(s). The total interior gross area is all of the area measured from the interior surfaces of exterior walls.
13. Total gross area including exterior walls includes the interior gross area plus the full area of the exterior walls.
14. The format of this file is MS Excel 2010, version 14.0.
15. A copy of this form is available on the HCR website where the Design Handbook is located.

Appendix E.....Area Calculations

Table One: Dwelling Unit Space					
Building Identification (building 1 of _)					
Dwelling Unit Space	Number of Each Space	Interior Gross Area Each Spa	Total Interior Gross Area	Gross Area Including Exterior Walls Each Spa	Total Gross Area Including Exterior Wall
SRO			0		0
0 Bedroom			0		0
1 Bedroom			0		0
2 Bedroom			0		0
3 Bedroom			0		0
4 Bedroom			0		0
5 Bedroom			0		0
			0		0
			0		0
			0		0
			0		0
			0		0
			0		0
			0		0
Totals	0		0		0

Table Two: Residential Common Space					
Building Identification (building 1 of _)					
Residential Common Space	Number of Each Space	Interior Gross Area Each Spa	Total Interior Gross Area	Gross Area Including Exterior Walls Each Spa	Total Gross Area Including Exterior Wall
Lobby & Vestibules			0		0
Corridors & Stairs			0		0
Laundry(ies)			0		0
Mechanical Room(s)			0		0
Office Space(s)			0		0
Community Room(s)			0		0
Community Kitchen (if separate room)			0		0
			0		0
			0		0
			0		0
			0		0
			0		0
Totals	0		0		0

Appendix E.....Area Calculations

Table Three: Total Residential Interior Gross Area Percentages		
Building Identification (building 1 of _)		
Total Residential Space	Total Interior Gross Area	Percent of Total Interior Residential Gross Area
Dwelling Unit Space	0	#DIV/0!
Residential Common Space	0	#DIV/0!
Totals	0	#DIV/0!

Table Four: Total Building Gross Area		
Building Identification (building 1 of _)		
Building Totals	Total Interior Gross Area	Total Gross Area Including Exterior Walls
Residential Dwelling Unit Space	0	0
Residential Common Area	0	0
Non-Residential Space	0	0
Grand Totals	0	0

Appendix F.....

HTFC Preservation Standards

For Moderate Rehabilitation Projects applying to HTFC to renovate occupied buildings meeting the HTFC definition for a preservation project, the following standards shall apply:

1. The applicant shall have the HTFC Physical Needs Assessment Form completed by an architect or engineer licensed in the State of New York, [or a firm specializing in physical need assessments](#). All components and systems identified in this form that are contained in the project shall be evaluated. Add additional lines and information as necessary to evaluate components and systems which are not listed on the form.
2. All new work shall meet the requirements of the current HCR/HTFC Design Handbook.
3. As part of the HTFC required project replacement reserve budgets, the applicant must document that there are sufficient funds budgeted to address systems and components which are not being replaced, repaired, or will not last through fifteen years from the date of the last HTFC payment.
4. Life expectancy evaluations shall be based upon nationally recognized sources and account for local conditions which may reduce life expectancies due to unique situations and project specific conditions.
5. The work scope shall include replacing and upgrading systems and components as outlined below. These items shall be included in the HTFC Physical Needs Assessment Form.
 - For projects constructed prior to 1978, provide a lead assessment survey and develop a lead-based paint work plan in accordance with the current HUD Guidelines. (Refer to *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*, HUD-1539-LBP, Second Edition, July 2012); and the EPA Renovation, Repair and Painting Rule (40 CFR Part 745).
 - For projects which have not undergone an asbestos removal plan, do not have a current asbestos survey, or otherwise are suspected to contain asbestos containing materials which were not previously addressed, conduct an asbestos survey and corresponding asbestos removal plan.
 - Provide a survey to determine if hazardous mold exists in the building. Where mold is identified, it must be addressed in accordance with New York City “Guidelines on Assessment and Remediation of Fungi in Indoor Environments.”
 - For buildings located in EPA zones 1 and 2, provide an independent third-party test to determine if radon gasses exceeding the EPA action level exist in the building. Mitigate in accordance with EPA Guidelines if radon gasses exceeding the EPA action level are found in the building. See ASTM E 1465 and E2121 (latest editions) for guidance.
 - Include an assessment of other readily observable hazardous materials such as leaking oil tanks, stored hazardous materials, and fluorescent light ballasts containing PCBs.
 - Re-grade as necessary to provide positive drainage away from buildings.

- Correct deficiencies of the exterior accessible route to the extent possible within existing grades. Include work such as: re-paving sidewalks along the exterior accessible routes, adding or repairs to curb cuts, re-stripping of parking lots and adding signage at accessible parking aisles.
- Relocate laundry facilities for Accessibility, if feasible.
- Include handrails that are easily grasped on each side of corridors in elderly housing projects.
- Test all elevators and include all necessary repairs in the proposed work scope.
- Add wall indicators at the entry level elevator lobby.
- Upgrade elevator controls and alarms to current Accessibility standards.
- All windows must have locks that are tamperproof from the exterior.
- Provide new window treatment at all dwelling unit windows meeting current Design Handbook requirements.
- For multiple dwelling unit buildings located in areas with safety concerns, provide decorative security grilles at all windows accessible from the exterior. Where possible, locate security grilles at the exterior. Provide at least one security grille in each habitable room which can be opened in an emergency from within the apartment.
- Repaint all dwelling units and interior public spaces, unless recently re-painted, and remain in a freshly painted condition after the renovations are completed.
- Replace all existing carpeting with new, unless recently replaced and in like-new condition after the renovations are completed.
- Provide a non-combustible wall surface where existing kitchen ranges abut sidewalls.
- Provide a safety grab bar at all bathtubs and shower units if none currently exist.
- Provide safety guards or decorative heavy-duty wire mesh as necessary to prevent a 4" sphere from passing through balcony and stair railings.
- Within the areas undergoing the renovation work, incorporate integrated pest management during the rehabilitation that includes sealing openings, cracks and joints to limit the infestation of insect and animal pests from entering the building, or migrating from one apartment or common area to another.
- Test all fire alarm systems and sprinkler system alarms. Include all necessary repairs in the work scope.
- Test all emergency and exit lights. Replace fixtures accordingly
- Provide fire alarm systems meeting current Building Code requirements, if none currently exist.
- Provide new hardwired smoke alarms and CO detectors in dwelling units meeting current Building Code requirements for new buildings, if none currently exist.
- Replace all existing smoke alarm, CO alarm and fire alarm detector heads throughout the building.
- Provide fire extinguishers in cabinets as required by the Fire Code.
- Balance all HVAC systems.
- Replace existing electric heating and electric hot water heaters with fuel-based system unless past utility bills clearly indicate that the dwelling units will be affordable in accordance with the proposed rent plans.

- Heat pump units may be allowed to replace existing electric heating systems provided the following conditions are met:
 - Documentation is provided that indicates the proposed system is more affordable to operate than the existing heating units.
 - The proposed system is ENERGY STAR qualified, or equivalent.
 - The proposed system utilizes compressor inverter technology efficiently at temperatures at or above zero degrees Fahrenheit, without reliance on electric resistance heat.
 - Recessed, or cassette type units are preferred. The units may be allowed to be surface mounted if located in an inconspicuous location out of primary sightlines in the dwelling unit.
 - Exterior mounted condensers shall be placed in a suitable inconspicuous location that does not interfere with existing exterior space used by the residents. If the condensers are roof mounted, the installation shall be such that it does not damage the roofing system, and the location does not detract from the exterior view of the building.
- Replace all light bulbs with ENERGY STAR or equivalent, luminaire lamps.

Submit documentation of any existing Building Code violations or other non-compliance conditions. Include the correction of these conditions in the work scope.

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Appendix G - Accessibility Requirements

(for guidance only- verify actual requirements with applicable codes and regulations)

<p>Accessibility Requirements</p>	<p>Building Code of NYS NYC Building Code</p>	<p>Federal Fair Housing Amendments Act Fair Housing Act Design Manual</p>	<p>Section 504 of the 1973 Rehabilitation Act Uniform Federal Accessibility Standards (UFAS) Or 2010 ADA in accordance with US Department of Justice Guidance (see <i>Federal Register</i> 79 FR 29671, 5/23/14, for further HUD Guidance)</p>
<p>New Construction</p>	<p>All dwelling units in residential buildings with four or more units with elevator; All ground floor units in buildings without elevator service. (Multistory dwelling units or townhouses are not included.)</p>	<p>Covered Dwelling Units: all dwelling units in buildings containing four or more dwelling units if such buildings have one or more elevators, and all ground floor dwelling units in other buildings containing four or more units. (Multistory dwelling units or townhouses are not covered dwelling units.)</p>	<p>For federally funded multifamily (five or more units) new construction projects: 5% of the units or at least one unit, be accessible; plus 2% of the units or at least one unit be accessible for persons with vision or hearing impairments, both as per 24CFR 8.22</p>
<p>Rehabilitation</p>	<p>Projects classified as renovations, alterations, and change of occupancy (unless technically infeasible) must meet applicable accessibility requirements.</p>	<p>Not Required</p>	<p>Projects with 15 or more units and the cost of alterations is 75% or more of the replacement cost of the completed facility (unless structurally impracticable) must have 5% of the units or at least one unit be accessible, and an additional 2% of the units for vision or hearing impaired as per 24CFR 8.23(a). Projects with less than 15 units and the cost of alterations is 75% or less of the replacement cost of the completed facility must comply to the maximum extent feasible, as per 24CFR 8.23(b)</p>

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