

### Requirements for All Developments

The following minimum requirements were created to address issues related to the design, construction, maintenance, marketing, life cycle costs and aesthetic concerns for developments utilizing low-income housing tax credits (LIHTC) and/or developments financed by the Virginia Housing Development Authority (Virginia Housing). Virginia Housing may require an expansion of the proposed scope of work for a project beyond those items specifically listed within the Minimum Design and Construction Requirements (MDCR) if it determines, in its sole discretion, that such expansion of scope is necessary after review of submitted plans and specifications for the project or examination of the existing conditions at the property. Any such required additions to the proposed scope of work shall be communicated to the developer by Virginia Housing in writing and shall be automatically incorporated into the MDCR herein by reference as it pertains to that specific project. For developments utilizing LIHTC, Virginia Housing will alert applicants to the additional required scope of work prior to allocating credits to the respective development. Architectural and Engineering (A&E) submission requirements for Virginia Housing loan and 4% LIHTC applications can be found at the end of the MDCR. Additional submission requirements for the LIHTC program can be found in the Virginia Housing Federal Housing Credit Manual. All developments utilizing LIHTC are subject to REAC Inspections utilizing the NSPIRE standard. The following MDCR do not account for all NSPIRE requirements. Developers are responsible for ensuring compliance with NSPIRE.

Drawings, specifications, scope of work, and installations must comply with the latest applicable issue of the *Virginia Uniform Statewide Building Code (USBC)*<sup>2</sup>, *International Building Code (IBC)*<sup>3</sup>, other applicable Virginia and national codes and standards, requirements of localities, prevailing design and construction practices and the *Minimum Design and Construction Requirements* of Virginia Housing. There may be only a single architect of record, and all work performed at the property must be managed and completed by a single prime Virginia-licensed Class A general contractor (GC) contracted by the developer. In no event may work be self-directed or self-performed by the developer unless the developer’s construction arm is the contracted prime GC and Virginia Housing has approved, in writing, the developer’s construction arm as the prime GC. Installation of materials, equipment, products, and building systems in both New Construction and Rehabilitation shall adhere to all manufacturers’ requirements, specifications, and recommendations. All developments shall comply with applicable accessibility codes and standards, including but not limited to the USBC, the Fair Housing Act Design Requirements, and all accessibility commitments made through the LIHTC application process.

All additions and adaptive reuse shall comply with the Virginia Housing Minimum Design and Construction Requirements (MDCR) for New Construction. Adaptive reuse may also be required to comply with the MDCR for Rehabilitation where Virginia Housing deems applicable.

Waiver requests for individual MDCR may be submitted to [waiver@virginiahousing.com](mailto:waiver@virginiahousing.com). Requests must document substantial infeasibility and propose alternate solutions to achieve the intent of the specific MDCR. See Virginia Housing Webpage for Waiver Request form and instructions.

<sup>1</sup> The 2025 Virginia Housing Minimum Design and Construction Requirements apply to Virginia Housing loans with a 2025 application date, as well as developments receiving Federal Low-Income Housing Tax Credit allocations for year 2025.

<sup>2</sup> (USBC 2021) *Virginia Uniform Statewide Building Code* (Latest applicable edition as referenced by the USBC).

<sup>3</sup> (IBC 2021) *International Building Code* (Latest applicable edition as referenced by the IBC).

## Requirements for New Construction

### **SITE WORK**

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1. Finished floor elevations of buildings shall be a minimum of 8 inches higher than the adjoining finished grade. When achieving an 8-inch height separation is not feasible, due to accessibility requirements or other conditions, provide an alternate solution acceptable to Virginia Housing.
2. Grade around buildings to achieve a minimum 5% slope away from foundation walls for a minimum distance of 10 feet, per IBC. Install yard drains, storm inlets, or drainage pipes under concrete walks to drain properly if the space between foundation walls and concrete walks is less than 10 feet. Drainage systems shall be designed to avoid water flowing over sidewalks. Provide an alternate drainage solution acceptable to Virginia Housing:
  - a. When buildings are closer than 10 feet to concrete walks.
  - b. When a minimum 5% slope is not feasible.
  - c. At entrances and accessible routes, when applicable.
3. Install seamless gutters, downspouts, and splash blocks, or an internal drainage system for all buildings. When discharging on grades steeper than 20%, or less than 1%, water from gutters and downspouts shall be piped underground to a storm sewer system, or to daylight at grades that will avoid soil erosion. Avoid water drainage over sidewalks.
4. Paving designs shall be based upon the geotechnical report, California Bearing Ratio (CBR) of the soil, traffic count, and loading. All drive lanes of parking lots shall be designed for dumpster trucks. Parking bays may have lighter paving than the drive lanes of parking lots.
5. Extend concrete dumpster pads at least 12 feet into the asphalt so that the load bearing wheels of trucks rest on concrete while servicing the dumpsters.
  - a. Thickness of concrete shall be a minimum of 6 inches with reinforcement.
  - b. Dumpsters and/or compactors accessed via an accessible route shall meet accessibility requirements.
  - c. Install a privacy screen on at least three sides of all dumpster and/or compactor pads.
  - d. Install concrete filled steel bollards behind dumpster locations to protect enclosure.
6. Minimum width of sidewalks shall be 3 feet. Sidewalks that are located perpendicular to parking spaces shall be a minimum of 5 feet wide excluding curb or 3 feet wide with 2 feet of space between the sidewalks and curbs. Provide gravel and sand base under walks when required by the geotechnical report. Provide control and expansion joints.
7. All crosswalks and accessible routes within parking areas and across drive lanes shall be striped.
8. Provide foundation plantings in the front of all buildings and at building entrances. All plantings must be shown on landscape drawings illustrating size at full maturity. Show dimension of tree locations from trunks/calipers to buildings. Portions of tree branches when fully mature shall not overhang roofs, contact building faces, or obstruct site lighting. Field verify planting locations match initial design.
9. Grade to avoid standing water. Provide a smoothly graded transition from disturbed to undisturbed areas. Finish grade with clean topsoil. Seed and straw, and/or landscape all bare and disturbed areas. Provide ground cover materials or sod for slopes steeper than 20%. Clean site and dispose of all construction debris. Grass shall be established prior to project closeout.

## ARCHITECTURAL

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1. Roofing
  - a. Roof sheathing thickness shall be a minimum of 15/32 inch-thick plywood or 15/32 inch OSB. Install sheathing with clips. ZIP System roof sheathing or similar products are not accepted.
  - b. Install drip edge on all sides of the roof.
  - c. Install ice barrier extending from eave's edge to a point 24 inches beyond the exterior wall cladding.
  - d. Roof shingles shall be a minimum 25-year, anti-fungal product, and shall be nailed (not stapled).
  - e. Flat roofs shall have a minimum 20-year manufacturer's warranty for the entire roof system.
  - f. Provide minimum 24-inch-wide walk pads from roof access point to serviceable side of all rooftop equipment.
2. Provide permanent access to all flat roofs. Access shall be located in an interior common area. Utilize direct walk out access from stairwell when feasible, otherwise provide a minimum 30-inch-wide premanufactured roof hatch with hold open device and permanent ladder.

EXCEPTION: Secondary roof levels within one story of the primary roof access may utilize fixed ladders from the primary roof.
3. Provide roofs/overhangs over exterior entrance doors to all units and buildings that are accessed by residents or visitors. Provide a minimum 30 inches of overhang along the front and 12 inches along each side of the door; or the door may be setback a minimum of 24 inches from the face of the exterior wall.
4. Stairs to apartment units where stair halls are not enclosed shall be protected from weather by design features, such as, setting back stairs a minimum 5 feet from the exterior wall and/or installing a roof overhang at the second floor level, projecting a minimum of 5 feet beyond the first riser.
5. Crawl spaces to be free of debris and water. Provide a minimum 6 mil vapor barrier at floor with seams overlapped 12 inches. Edges and seams to be taped.
6. Provide passive or active radon mitigation system for buildings in EPA Radon Zone 1 or 2. See ANSI/AARST multifamily mitigation standard for guidance.
7. Install waterproofing on exterior walls up to finished grade where finished floors are below adjoining finished grades. Provide a 10-year material/manufacturer's warranty.
8. Install weep holes in brick veneer at foundation walls, over lintels, and relief angles.
  - a. Weep holes at foundation walls shall be a minimum 6 inches above finished grade or 2 inches above hardscape.
  - b. Provide mortar mesh to prevent blockage of weep holes.
  - c. Provide continuous flashing at all weep holes and end dams at flashing terminations.
9. At masonry and precast window sills, and caps for masonry veneer walls that do not terminate directly under roofs, provide a positive slope resulting in a minimum 3/4 inch differential over the length of the sill/cap.
10. All wood framing in contact with concrete or masonry shall be of treated wood.
11. Provide sill sealer for sill plates at all exterior walls.

12. All brick veneer or sidings, such as vinyl, aluminum, wood and fiber cement board, shall have a solid backing of plywood, OSB, gypsum, or similar material. Siding and brick shall be installed over an independent drainage plane, such as Tyvek® or equal. Fasten siding to framing with nails penetrating a minimum 3/4 of an inch into studs. Install pre-manufactured mounting blocks for all penetrations in siding such as electrical, plumbing, HVAC, etc.  
EXCEPTION: Exterior wall sheathing systems with integrated drainage planes may be used when observation reports are provided by the manufacturer and the following conditions are met:
  - 1) Pre-installation
    - a. General Contractor to hold pre-installation meeting with architect and manufacturer prior to installation. Manufacturer's observation reports to include documentation of meeting.
    - b. Manufacturers' flashing details including windows, doors, joints and penetrations shall be maintained on site.
    - c. Store materials to meet manufacturer's requirements.
  - 2) Installation
    - a. The integral drainage plane must be preserved. Use manufacturer's approved products including tape, tape gun and roller.
    - b. When weather conditions warrant, follow manufacturer's requirements for inclement weather installation and storage of materials.
    - c. Manufacturer's representative to review the final installation to confirm all requirements are met prior to installation of exterior cladding. Manufacturer's observation reports documenting installation acceptance is required and must be maintained on site.
13. All panel type siding to be installed over vertical or corrugated furring to allow adequate drainage and ventilation, or provide siding product with integrated vented rain screen.
14. Building wall assemblies shall be vapor permeable with a minimum ASTM E96 perm rating >0.1. Foil faced building products, closed cell foam, and sheet plastic are examples of prohibited wall materials.
15. The bottom of all siding and window sills shall be a minimum of 6 inches above the finished grade or mulch beds.
16. Exterior wooden trim, brickmolding, sills, fascia, rake boards, and columns, shall be clad with vinyl, vinyl coated aluminum, or similar materials. Use materials designed for cladding with a minimum thickness of 0.019 inch and provide a stiffening crimp for trim and fascia boards are more than 8 inches wide. Virginia Housing recommends the use of fiber cement, PVC, or similar low maintenance materials instead of wood for exterior use.
17. Powder coat or galvanize all steel products exposed to the weather, or provide an exterior steel paint that can achieve a minimum 10-year material warranty. Prepare surfaces per warranty requirements. Prime and paint steel prior to placement in concrete.
18. Use vinyl, aluminum, or steel for exterior railings, handrails, guardrails, posts and pickets instead of wood products.
19. Balcony and stair railings at buildings shall be stable and secured to the wall structure with mounting block or equivalent.
20. Windows and sliding glass doors:
  - a. Provide minimum 1/2 inch insulated glass.
  - b. Provide minimum 10-year warranties for material and breakage of seal.
  - c. Provide thermal break for aluminum frames.
  - d. Install and flash per manufacturer's specifications.

- e. Provide back dam flashing at sill, and extend sill flashing at least 6 inches up jambs.
  - f. Before installing windows; perform initial installation with the Construction Control Officer.
  - g. Provide removable metal pins or 'Charlie bar' at exterior sliding glass doors.
21. All exterior doors, except sliding glass doors, shall be either insulated fiberglass or insulated metal. Exterior wooden door jambs and molding require integral composite material, such as FrameSaver® or equal, for at least 3 inches from their lowest points.
22. Install hard surface flooring at the interior of all unit entrance doors, except for doors entered through carpeted interior hallways. Hard surface area shall be approximately 3 foot by 4 foot using flooring materials such as VCT, sheet vinyl, hardwood, or tile.
23. Resilient flooring such as, but not limited to, sheet vinyl and VCT shall be installed over minimum nominal 1/4 inch underlayment grade plywood, or similar underlayment material. Ceramic tile or similar flooring shall be installed over minimum nominal 1/4 inch cementitious board or similar underlayment material. Flooring may be installed over concrete provided concrete is finished smooth and uniform. When installed over Gypcrete, or a similar material, apply manufacturer approved sealer.
24. Carpets shall have the minimum number of seams. Seams are not to be located in heavily trafficked areas. T-seams are not acceptable except in closets.
25. All interior doors shall be side hinged. Bifold, pocket, or sliding doors are not acceptable. Door bottoms shall have a minimum of 3/4 inch clearance when closed to provide improved ventilation, and shall not drag on finish floors through door swing. Paint bottom, top, and all other sides of doors. All doors shall be factory assembled. Field cutting vents in doors is prohibited. Instead, pre-manufactured louvered doors must be installed.  
EXCEPTION: High/low or offset transfer grille in lieu of 3/4 inch clearance requirement.
26. All unit interior spaces shall have finished floor and solid wood base/molding. Base and base moldings shall match in design and finish.  
EXCEPTION 1: Ceramic or stone baseboard is acceptable at matching adjacent flooring.  
EXCEPTION 2: Mechanical closets may use an alternate base material such as vinyl.
27. All common area interior spaces shall have finished floor and base.  
EXCEPTION: Utility/service rooms may have sealed concrete floor.
28. All windows and doors with glazing shall have blinds, shutters, or similar operable products for shading and privacy. Horizontal blinds are prohibited at doors.  
EXCEPTION: Horizontal blinds at doors that are integrated with glazing.
29. Provide a minimum of one full-height closet that is at least 2 feet deep, measured between front and rear wall faces inside the closet, with at least 6 square feet for general storage, in a location other than a bedroom.  
EXCEPTION: Studio and one-bedroom units may utilize a single closet. Provide at least 8 linear feet of shelf/rod storage with at least 5 feet room depth from shelf/rod wall. Designs with opposing shelf/rods shall have at least 5 feet between the shelf/rods.
30. Provide a minimum of 1-1/2 bathrooms (one full bathroom and one half bathroom) in all two bedroom units and a minimum of 2 full bathrooms in all three or more bedroom units.

31. Concealed solid dimensional wood blocking (minimum 2x6 material) shall be provided for all handrails, grab bars and wall mounted cabinets and accessories.  
EXCEPTION: Minimum 6-inch-wide 16 gauge metal strapping may be used with metal studs.
32. The top of all handrails shall be installed at 34 inches above finished floor and stair tread nosings.
33. Seal around all penetrations. Use code compliant sealant at all penetrations in fire rated separations and assemblies.
34. Ceramic tile or similar material tub and shower surrounds shall be installed over minimum 1/2 inch cementitious board with applied waterproofing, or, moisture-resistant, fiberglass mat faced gypsum tile backerboard. All installations shall include flush head, non-corrosive fasteners, caulked corners, and fiberglass tape, per manufacturer specification.
35. Depress entire bathroom floor and build up as needed to account for accessibility and drainage requirements when designing for roll-in showers. Bathrooms which include a roll-in shower, shall have ceramic or similar tile flooring, with a minimum of 3 feet directly outside the shower sloped towards the shower drain at 1%-2%. Roll-in showers shall have a zero height transition between the bathroom floor and the shower floor and be either:
  - a. Ceramic or similar tile floor with water proofing membrane extending a minimum 8 inches up walls, **OR**
  - b. Pre-manufactured with a trench drain located immediately adjacent to, and the full length of, the shower.
36. Vanities may not have a side exposed within 12 inches of the tub or shower.
37. Where wall-hung lavatories, roll-under sinks, or pedestal sinks are installed, provide an alternate storage solution, minimum 6 inches interior depth, permanent with doors or drawers, complying with code required reach ranges and other accessibility requirements, which may apply to the unit.
38. Provide a pass-through opening with counter space when kitchen and dining/living areas are separated by a wall.
39. Kitchen cabinets and bathroom vanities shall comply with *Virginia Housing's Minimum Cabinet Requirements* in addition to the following:
  - a. All cabinets shall be factory/manufacturer assembled.
  - b. All exposed portions of cabinetry shall have factory applied finish.
  - c. Kitchen cabinets and bathroom vanities shall abut the side walls or provide a minimum spacing of 10 inches between wall and cabinets. Wall cabinets shall abut the ceiling/ soffits or provide minimum of 10 inches between cabinet and ceiling/soffits.
  - d. Kitchen wall cabinets shall be fastened to blocking with a minimum of four washer head cabinet screws; two in each upper and lower nailing strip for each wall cabinet.
  - e. Plastic laminate countertops shall be post formed, or have back splashes that are factory attached to the countertop and sealed.
  - f. A side splash shall be installed where countertops abut walls.
  - g. Holes in cabinet backs for plumbing shall be drilled and completely covered by escutcheon plates.
  - h. Provide at least one kitchen base cabinet with drawer, minimum 15-inch-wide.
40. Install a cleanable surface, such as plastic laminate, metal, or ceramic tile on the sidewall next to the cooking range when it is located directly adjacent to a wall. Materials such as plastic laminate or metal shall be installed with adhesive.

#### 41. Appliances

- a. All kitchen appliances in an apartment unit shall match in color.
- b. Provide a 30-inch-wide range in all units.  
EXCEPTION: Studio/efficiency apartments and one bedroom elderly apartments may utilize a minimum 20-inch-wide range.
- c. Provide a 30-inch range hood or combination range hood-microwave over all cooking ranges, or a maximum 24-inch-wide range hood for all 20-inch-wide ranges.
- d. Provide a 24-inch-wide dishwasher in all units.  
EXCEPTION: Studio/efficiency apartments and one bedroom elderly apartments may utilize 18-inch-wide dishwashers.
- e. All refrigerators shall be frost free. Minimum rated sizes of refrigerators shall be 12 cubic feet for studio/efficiency apartments, 14 cubic feet for 1 and 2 bedroom apartments, and 16 cubic feet for 3 and 4 bedroom apartments. Side-by-side models must open fully or have at least 12 inches of cabinetry between an adjacent sidewall.
- f. Provide laundry equipment connections in all units. In-unit washer and dryer connections shall be in a closet with doors, and shall be accessible directly from the unit common area. Laundry closets must accommodate separate, full-size side-by-side or full-size stackable type laundry equipment.  
EXCEPTION: Studio and one bedroom apartments may utilize a closet in a bedroom for laundry equipment provided the equipment does not restrict access to storage. When connections are located within a closet intended to store garments provide a jumper duct to communicate with the return air location. See "Plumbing" section for washing machine pan requirements.
- g. When provided in units, all laundry equipment shall be separate, full-size side-by-side or full-size stackable type. Ventless dryers, all-in-one combination washer/dryers, and laundry centers are prohibited. See age restricted housing requirement below for additional information.  
EXCEPTION: In-unit laundry centers are acceptable in studio and one bedroom apartments, and age restricted housing. Equipment shall comply with code required reach ranges and other accessibility requirements, which may apply to the unit.

#### 42. Age restricted housing serving residents 55 years or older:

- a. Provide a handrail on at least one side of common corridors.
- b. Provide an accessible elevator for buildings with two or more stories.
- c. Provide indoor resident garbage drop-off area and access.
- d. Provide in-unit laundry equipment, or, both connections for in-unit laundry equipment and onsite common laundry facilities with a minimum ratio of one washer and dryer per 20 units.
- e. Provide controlled access, automatic door opener, and call box at primary building entrance. Call box shall allow resident ability to communicate with visitor and unlock primary building entrance remotely with phone.

#### 43. Provide space for a future dehumidifier in a stud cavity within the apartment living space. Utilize concealed power and plumbing drain (e.g. mechanical closet). Identify location in drawings and coordinate with plumbing and electrical.

EXCEPTION 1: Not required where a permanent in-unit dehumidifier, or a balanced, whole-building DOAS dehumidification system is provided for all units.

EXCEPTION 2: In lieu of stud cavity location, future in-line dehumidification at the air handler may be accepted when appropriate space and duct connections are demonstrated and provided.

## MECHANICAL

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1. Provide ducted Heating, Ventilation, and Air Conditioning (HVAC) equipment in all dwelling units and interior corridors except as noted in #3 below. PTACs are prohibited. Size of HVAC equipment, ducts, and diffusers shall be designed per heat gain/loss calculations. Refrigerant and condensate lines shall be concealed within walls with all penetrations sealed. All condensate to discharge onto splash blocks at grade or to locality approved hub drain.
2. For all ducted HVAC systems including ducted mini-splits and self-contained VTAC systems (similar to Magic-Pak or First Co):
  - a. Air supply diffusers shall be located near windows in living rooms, dens and bedrooms.  
EXCEPTION: The mechanical engineer may locate supply diffusers at alternate locations with Virginia Housing's prior approval based on supporting calculations.
  - b. Provide HVAC diffusers for kitchens and all full baths.
  - c. Provide premanufactured air filters.
  - d. Seal air duct penetrations in unheated spaces.
  - e. Provide ducted return air to mechanical unit. Provide a separate ducted return for each floor of townhouse units.  
EXCEPTION: Mechanical closets may be utilized as return air plenums provided walls and ceiling receive finished or unfinished moisture-resistant, fiberglass mat faced gypsum and fiberglass tape. Closets shall comply with code plenum requirements for combustible materials. Provide a keyed deadbolt lock with door latch guard. Multi-level units require a ducted return pathway to mechanical closet from other floors.
  - f. Heat pump to include auxiliary heat.
  - g. Main supply trunk line from air handler to branch duct shall be sheet metal. Flex duct may be used only between main trunk line and supply diffuser. Fiberglass ductboard is prohibited.
  - h. All ductwork shall be concealed behind permanent construction unless otherwise approved by Virginia Housing.
  - i. Air handlers and ductwork may not decrease ceiling heights in any room below 7 feet 6 inches.
  - j. Dedicated Outdoor Air Systems (DOAS) shall include dehumidification and reheat functionality.
  - k. Provide certification for testing and balancing as required by mechanical code regardless of AHJ enforcement.
3. Ductless Heat Pumps (mini-splits) may be used in corridors, efficiencies, 1 bedroom units or elderly housing developments.
  - a. Provide separate mini-split wall mounted unit for each bedroom, den or living room.
  - b. Provide separate wired wall mounted thermostat for each mini-split wall mounted unit.
  - c. Provide a heater with a thermostat or timer controlled heat lamp for all full baths.
4. All exhaust ducts shall discharge to the exterior of the building, and terminate into vent caps. Vent caps to be of a quality that will minimize repair and replacement.
5. Do not install condenser units in front of windows.
6. Electric baseboard heating and electric forced air heating shall not be used as the primary heating method.



## PLUMBING

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1. Install an overflow pan with a drain connected to the sewer system per applicable plumbing code where washing machine connections are provided.  
EXCEPTION: Common laundry facilities may utilize a floor drain without overflow pans.
2. The bottoms of bathtubs shall have slip resistant/textured finish.
3. All tubs/showers and shower diverters shall have internal shut-off-valves or external shut-off- valves with access panels.
4. Provide a maximum of two showerheads in all roll-in showers.
5. Wall-hung lavatories may only be installed in common areas or dwelling units recognized as UFAS, ANSI Type A, or fully accessible. When installing wall-hung sinks, provide concealed arm type carriers.
6. All pipes to be concealed behind permanent construction. All wet plumbing pipe to be solid wall construction. Cellular core pipe not permitted.
7. All floor drains and indirect waste receptors to receive trap primer or code approved drain trap seal device.
8. When installing individual apartment water heaters provide the following minimum rated sizes:
  - a. Studio/1BR units 30 gallon.
  - b. 2BR units 40 gallon.
  - c. 3BR units 50 gallon.
9. Water heater temperature and pressure relief valve shall discharge through CPVC, PEX or Copper pipes and terminate between 2 inches and 6 inches from the pan.
10. Provide hub drain in mechanical closet to accept overflow pan and condensate lines.
11. Where a permanent in-unit dehumidifier, or a balanced, whole-building DOAS dehumidification system is not provided for all units, provide a hub drain for a future dehumidifier. Identify hub drain location in drawings and coordinate with architectural. Locate hub drain such that when dehumidifier is installed, hub drain will not be visible from a habitable space.  
EXCEPTION: The mechanical closet hub drain may be utilized when the designated future dehumidifier location is on an adjacent wall or in-line at the air handler.

## ELECTRICAL

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1. Provide fluorescent light fixtures or LED light fixtures in all public common areas such as offices, multipurpose rooms, laundry rooms, hallways, and stairs.
2. Kitchens shall have a minimum of one light fixture 4 feet long with either LED or two 32 watt fluorescent bulbs, or lighting fixture(s) that provide a minimum illumination of 30 foot-candles distributed across the leading edge of all countertops.
3. Provide both an overhead light fixture, and a light fixture above each bathroom sink.  
EXCEPTION: Half bathrooms may omit the overhead light fixture.
4. Pre-wire cable TV and data port/jack for all bedrooms, living rooms, and dens. All units shall provide working infrastructure with an internet service provider. Provide interface for incoming service at one central location per building. All wiring for the interior and exterior of the building shall be concealed within the walls, floors, or ceiling.  
EXCEPTION 1: Incoming power and telecommunication wiring run vertically in conduit from grade to the meter(s) and interface without horizontal runs.  
EXCEPTION 2: Wiring in metal conduit on exposed masonry or concrete structure inside building stairways and breezeways, parking garages, and spaces with no resident access. Conduit must be painted to match adjacent surface, run orthogonally and tight to corners of walls, floors, or ceilings.
5. Provide exterior LED or fluorescent lighting to illuminate all parking areas, dumpster pads, building entrances and mailboxes with a minimum of one foot-candle of illumination. Provide illumination so that building numbers and apartment numbers are legible at night.
6. Provide tenant controlled light fixture at all patios and balconies.
7. Where a permanent in-unit dehumidifier, or a balanced, whole-building DOAS dehumidification system is not provided for all units, provide an outlet for a future dehumidifier. Identify outlet location in drawings and coordinate with architectural. Locate outlet such that when dehumidifier is installed, power cord will not be visible from a habitable space.
8. Provide a CO detector immediately adjacent to bedrooms on each floor when the unit is serviced by gas fired equipment or has an attached garage. Combo smoke/CO detectors are acceptable.

## Requirements for Rehabilitation

All **additions** and **adaptive** reuse shall comply with the Virginia Housing Minimum Design and Construction Requirements (MDCR) for New Construction. **Adaptive reuse** may also be required to comply with the MDCR for Rehabilitation where Virginia Housing deems applicable.

All rental offices, public areas, and associated parking and routes shall meet the latest USBC accessibility requirements for new construction. Developments that have accessible units, or are required to have accessible units due to applicable building codes, federal requirements, or as the result of commitments made in the LIHTC application, shall provide accessible routes through the site from those units to accessible parking and other accessible common areas.

Identify any hazardous materials/conditions such as asbestos, lead paint, radon, recalled drywall, mold on site and/or in buildings and contaminated soils. Address or abate all hazardous materials per applicable regulations. Submit abatement certification to Virginia Housing if requested.

### **SITE WORK**

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1. Identify areas that require grading to drain water away from buildings and areas where adjoining grades are higher than finished floor of buildings:
  - a. Provide a minimum 6 inches between finished grade or mulch beds, and the bottom of siding and window sills. Remove mulch covering masonry weeps.
  - b. Provide a minimum of 5% slope away from foundation walls, for a minimum distance of 10 feet.  
EXCEPTION: Provide alternate solutions acceptable to Virginia Housing when required grades, slopes, or other site conditions make the above requirements infeasible.
2. Provide seamless gutters, downspouts, and splash blocks for all buildings, or an internal drainage system. When discharging on grades steeper than 20%, or less than 1%, water from gutters and downspouts shall be piped underground to a storm sewer system, or to daylight at grades that will avoid soil erosion. Avoid water drainage over sidewalks.
3. Extend concrete dumpster pads at least 12 feet into the asphalt so that the load bearing wheels of trucks rest on concrete while servicing the dumpsters.
  - a. Thickness of concrete shall be a minimum of 6 inches with reinforcement.
  - b. Dumpsters and/or compactors accessed via an accessible route shall meet accessibility requirements.
  - c. Install a privacy screen on at least three sides of all dumpster and/or compactor pads.
  - d. Install concrete filled steel bollards behind dumpster locations to protect enclosure.
4. Concrete that is cracked, crumbling, spalling, heaving, settling, offset greater than 1/2 inches, or may be a safety issue shall be repaired or replaced. Provide a solution acceptable to Virginia Housing if any of these conditions exist. Sidewalks at new locations shall comply with new construction guidelines.
5. The top of all new handrails shall be installed at 34 inches above stair tread nosings. Secure existing handrails and comply with applicable accessibility codes. Handrails shall be continuous from level to level, and graspable. Provide at least one handrail at all stairs with four or more risers.
6. Provide guardrails according to new construction building code requirements.  
EXCEPTION: Existing guardrail height shall be minimum 36 inches above finished floor. Exception does not apply when modifying existing guardrails.

7. All crosswalks and accessible routes within parking areas and across drive lanes shall be striped.
8. Asphalt that has cracking, alligating, or a deteriorating sub-base shall be repaired or replaced. Provide a solution acceptable to Virginia Housing if any of these conditions exist. Paving at new locations to comply with new construction guidelines.
9. Remove all dead bushes, trees, tree-stumps, and their above-ground roots. Remove all portions of tree branches that overhang roofs, contact building faces, or obstruct site lighting. Remove trees with root structures that may compromise building foundations.
10. Provide foundation plantings in the front of all buildings and at building entrances. New plantings shall comply with new construction requirements.
11. Grade to avoid standing water. Provide a smoothly graded transition from disturbed to undisturbed areas. All areas which have dead grass shall be tilled. Seed and straw, and/or landscape all bare and disturbed areas. Finish grade with clean topsoil. Provide ground cover materials or sod for slopes steeper than 20%. Clean site and dispose of all construction debris. Grass shall be established prior to project closeout.

## ARCHITECTURAL

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1. Provide water intrusion report where evidence of water, moisture, or mildew is present at below grade spaces. As identified in the report, install waterproofing up to finished grades for all perimeter walls of finished and unfinished spaces. Waterproofing may be installed on the exterior or interior sides of the wall. The waterproofing system shall have a minimum 10-year manufacturer's warranty.
2. All debris and wood shall be removed from crawl spaces.
  - a. Install sump pump or drain tile discharging to daylight for any area accumulating water.
  - b. Install a minimum 6 mil vapor barrier at floor with seams overlapped 12 inches. Edges and seams to be taped. Provide adequate crawl space ventilation.
3. Remove all abandoned and non-operable equipment, devices and accessories. Virginia Housing may approve abandoned material that is secured, sealed and concealed.
4. Structural deficiencies shall be identified and corrected. If requested by Virginia Housing, corrective measures to be designed, inspected, and certified by a structural engineer.
5. Install insulation in crawlspaces and attics to meet Virginia Energy Code's minimum requirements for new construction.
6. When replacing drywall at an exterior wall or replacing exterior sheathing, provide new wall insulation where missing or damaged at affected areas. New insulation R-value shall match or exceed adjacent existing value. When adjacent insulation is not present, provide batt or rigid board insulation to the greatest R-value feasible.
7. Roof inspection reports are required for all roofs more than 5 years old. Report to include age and remaining life of roofs and areas that need repairs. Replace all roofs with a remaining life of less than 5 years. Repair or replace all roofs with damage or leaks.

8. When replacing pitched roofs:
  - a. Repair or replace all damaged sheathing, rafters, and/or trusses.
  - b. Replace all 3/8 inch sheathing with a minimum of 15/32 inch plywood or 15/32 inch OSB. Install sheathing with clips. ZIP System roof sheathing or similar products are not accepted.
  - c. Replace all existing attic vents and pipe collars. Replace rusted or damaged flashing. Replace all existing sealant.
  - d. Roof shingles shall be a minimum 25-year, anti-fungal product, and shall be nailed (not stapled). Do not install new shingles over existing shingles. Replace existing ridge vents.
  - e. Install drip edge on all sides of the roof.
  - f. Install ice barrier extending from eave's edge to a point 24 inches beyond the exterior wall cladding.
  - g. Provide roof ventilation per the latest USBC for new construction.
  
9. When replacing flat roofs:
  - a. Remove and dispose of existing roofing and above deck insulation, damaged vents and other items not in good condition.
  - b. Install continuous roof deck insulation or attic space insulation to meet Virginia Energy Code's minimum requirements for new construction.
  - c. New roofing shall have a minimum 20-year manufacturer's warranty for the entire roof system.
  - d. Provide roof ventilation per the latest USBC for new construction.
  - e. Provide minimum 24-inch-wide walk pads from roof access point to serviceable side of all rooftop equipment.
  
10. If equipment is installed on a roof, provide easily reachable access from an interior common area. Provide alternate solution acceptable to Virginia Housing when conditions make the above requirement infeasible.
  
11. Stairs to apartment units where stair halls are not enclosed shall be protected from weather by design features. Install an awning, a roof overhang at the second floor level, or a roof at the stair hall entrance. Provide a minimum overhang of 5 feet from first riser. All buildings in a development shall have similar design features. Historic buildings may be exempt.
  
12. Exterior wooden trim, brickmold, sills, fascia, rake boards, and columns shall be clad with vinyl, vinyl coated aluminum, or similar materials. Use materials designed for cladding with a minimum thickness of 0.019 inch and provide a stiffening crimp for trim and fascia boards are more than 8 inches wide. Replace all damaged wood prior to cladding. Virginia Housing recommends the use of fiber cement, PVC, or similar materials instead of wood for exterior use. Exceptions may be considered for historic buildings.
  
13. When repainting existing or installing new steel products that are exposed to the weather; powder coat, galvanize or provide an exterior steel paint that can achieve a minimum 10-year material warranty. Prepare surfaces per warranty requirements. Prime and paint steel prior to placement in concrete.
  
14. When replacing exterior railings, handrails, guard rails, posts and pickets use vinyl, aluminum, or steel.
  
15. Balcony and stair railings at buildings shall be stable and secured to the wall structure with mounting block or equivalent.

16. When replacing siding:
- a. New siding shall have solid backing of plywood, OSB, gypsum, or similar material. Siding shall be installed over an independent drainage plane, such as Tyvek® or equal.  
EXCEPTION: Exterior wall sheathing systems with integrated drainage planes may be used when observation reports are provided by the manufacturer and the following conditions are met:
    - 1) Pre-installation
      - a. General Contractor to hold pre-installation meeting with architect and manufacturer prior to installation. Manufacturer's observation reports to include documentation of meeting.
      - b. Manufacturers' flashing details including windows, doors, joints and penetrations must be maintained on site.
      - c. Store materials to meet manufacturer's requirements.
    - 2) Installation
      - a. The integral drainage plane must be preserved. Use manufacturer's approved products including tape, tape gun and roller.
      - b. When weather conditions warrant, follow manufacturer's requirements for inclement weather installation and storage of materials.
      - c. Manufacturer's representative to review the final installation to confirm all requirements are met prior to installation of exterior cladding. Manufacturer's observation reports documenting installation acceptance is required and must be maintained on site.
  - b. Do not install new siding over materials such as vinyl siding, Thermo-ply®, or other flexible materials.
  - c. Material such as T1-11, wood siding, or hardboard lap-siding may be used as backing for new siding, provided it is in good condition.
  - d. Repair, replace, and re-nail all sections of damaged siding or sheathing to provide a uniform and flat surface.
  - e. Fasten siding to framing with nails penetrating a minimum 3/4 of an inch into studs.
  - f. Install mounting blocks for all penetrations in siding such as electrical, plumbing, HVAC, and ductwork etc.
17. All new panel type siding to be installed over vertical or corrugated furring to allow adequate drainage and ventilation, or provide siding product with integrated vented rain screen.
18. New building wall assembly components shall be vapor permeable with a minimum ASTM E96 perm rating >0.1. When existing vapor impermeable sheathing, and air and weather barriers are uncovered they shall be replaced to meet the new assembly standard. Foil faced building products, closed cell foam, and sheet plastic are examples of prohibited wall materials.
19. Repair masonry walls having cracks and/or settlement. Replace damaged brick and point-up deteriorated mortar to match existing. Replace rowlocks for window sills that do not have a slope to drain water away from building. Prime and paint all metal lintels which are corroded, or not already painted. Remove abandoned items from brick and power wash/clean exterior of buildings.
20. Replace all damaged and single glazed windows with insulated glass.  
EXCEPTION: When window replacement is not permitted in historic buildings, repair existing windows and install triple track operable storm sashes, with screens, over existing single glazed windows. When conditions make storm sashes not feasible, provide an alternative solution acceptable to Virginia Housing.

21. When replacing windows and/or sliding glass doors:
  - a. Provide minimum 1/2 inch thick insulated glass.
  - b. Provide minimum 10-year warranties for material and breakage of seal.
  - c. Provide thermal break for aluminum frames.
  - d. Provide new construction windows when replacing siding.
  - e. Provide back dam flashing at sill, and extend sill flashing at least 6 inches up jambs.
  - f. Install and flash per manufacturer's specifications. Perform initial replacement with Construction Control Officer.
  - g. Provide removable metal pins or 'Charlie bar' at exterior sliding glass doors.
22. All windows and doors with glazing shall have blinds, shutters, or similar operable products for shading and privacy. Horizontal blinds are prohibited at doors. Replace all blinds and shades that are damaged and/or do not match in color.

EXCEPTION: Horizontal blinds at doors that are integrated with glazing.
23. Repair or replace all damaged or dented doors, jambs and hardware.
  - a. When replacing exterior doors, except sliding glass doors, replacement doors shall be insulated fiberglass or insulated metal. Wooden door jambs and molding require integral composite material, such as FrameSaver® or equal, for at least 3 inches at their lowest points.
  - b. Solid core wood doors may be used where entrances are located in interior conditioned corridors.
24. All entry doors to apartment units, except entry doors located in conditioned corridors, shall have weather stripping and threshold to provide a tight seal around the door and to minimize heat loss/gain due to air infiltration.
25. Provide roofs/overhangs over entrance doors to all units and buildings that are accessed directly by residents or visitors. Provide a minimum 30 inches of overhang along the front and 12 inches along each side of the door; or the door may be setback a minimum of 24 inches from the face of the exterior wall.
26. Replace all damaged Gypcrete, or similar material, floor sheathing and floor joists.
27. Install an area approximately 3 feet by 4 feet using materials such as VCT, sheet vinyl, hardwood flooring, or tile at the interior of all unit entrance doors, except for doors entered through carpeted interior hallways.
28. Replace all damaged, stained, or mismatched flooring. On a room by room basis, all flooring shall match in color and design. All rooms shall have finished floor and base.
29. When installing new finish flooring, remove all existing layers to underlayment or substrate. Upon inspection, replace or seal damaged or stained underlayment, or underlayment which gives off odors. New resilient flooring such as, but not limited to, sheet vinyl and VCT, shall be installed over minimum nominal 1/4 inch underlayment grade plywood, or similar underlayment material. Ceramic tile or similar flooring shall be installed over minimum nominal 1/4 inch cementitious board or similar underlayment material. Flooring may be installed over concrete provided concrete is finished smooth and uniform. When installed over Gypcrete, or a similar material, apply manufacturer approved sealer.
30. Carpets shall have the minimum number of seams. Seams are not to be located in heavy traffic areas. T-seams are not acceptable except in closets. Remove and replace shoe molding/quarter-round molding and tack strip before installing carpet.

31. Provide a pass-through opening with counter space when kitchen and dining/living areas are separated by a wall.
32. Interior finishes: doors, moldings, paint, and drywall.
  - a. Replace all interior bifold, pocket, or sliding doors with side hinged doors.
  - b. Repair or replace all damaged doors and trim. Doors previously cut to allow for modifications, such as adding vents, shall be replaced with factory assembled louvered doors.
  - c. All doors, door trim, and door hardware in a unit shall match in design and finish.
  - d. Door bottoms shall have a minimum of 3/4 inch clearance when closed to provide improved ventilation, and shall not drag on finish floors through door swing.  
EXCEPTION: High/low or offset transfer grille in lieu of 3/4 inch clearance requirement.
  - e. Paint bottoms, tops, and all other sides of new doors.
  - f. All new doors shall be factory assembled.
  - g. All base and base moldings in a unit shall be solid wood and shall match in design and finish.  
EXCEPTION 1: Ceramic or stone baseboard is acceptable at matching flooring.  
EXCEPTION 2: Mechanical closets may use an alternative base material such as vinyl.
  - h. Provide consistent drywall/plaster and paint finish across each entire wall or ceiling surface. All new and previous repairs shall match the adjacent surface and the unit's intended finish.
    - 1) The unit condition survey must establish both repair and replacement quantities for each unit; exclude areas that will receive drywall due to other scope. Typical paint preparation specifications must include removing fasteners and tape/stickers, filling nail holes, cleaning surfaces, and must be separate from the unit condition survey repair quantities. Unit condition survey quantities should include:
      - a. For repairs: flaws such as, but not limited to, holes (other than nails), failing tape joints and corner bead, cracks, and nail pops. Re-screw nail pops and settling drywall to framing. Architectural drawings and/or specifications must establish criteria for repair quantities.
      - b. For replacement: all sections that have mold, mildew, signs of moisture, or otherwise extreme conditions. Match adjacent type and thickness
    - i. Exposed or painted concrete masonry units are prohibited in apartments.
33. When each unit is made available to the general contractor for rehab work, the general contractor, owner and architect shall walk each unit, verify the original unit condition survey scope, and inspect for plumbing leaks, nonfunctioning devices, and structural deficiencies among other notable needs. The architect must document any scope revisions and update the unit condition survey quantities prior to unit completion.
34. Repair damaged or compromised draft stopping and/or fire stopping.
35. Seal around all new penetrations, and all existing penetrations that are accessible. Use code compliant sealant at all penetrations in fire rated separations and assemblies.
36. Concealed solid dimensional wood blocking (minimum 2x6 material) shall be provided for all new handrails, grab bars and wall mounted cabinets and accessories.  
EXCEPTION 1: Minimum 6-inch-wide 16 gauge metal strapping may be used with metal studs.  
EXCEPTION 2: Toggle bolts may be used at wall mounted accessories.
37. The top of all new handrails shall be installed at 34 inches above finished floor and stair tread nosings. Modify existing handrails to be securely fastened to structure and comply with applicable accessibility codes. Handrails shall be continuous from level to level, and graspable. Provide at least one handrail at all stairs with four or more risers.



38. Provide guardrails according to new construction building code requirements.  
EXCEPTION: Existing guardrail height shall be minimum 36 inches above finished floor. Exception does not apply when modifying existing guardrails.
39. Replacement or repairs of ceramic tile or similar tub and shower surrounds shall be installed over minimum 1/2 inch cementitious board with applied waterproofing, or, moisture resistant fiberglass mat faced gypsum tile backerboard. All installations shall include flush head, non-corrosive fasteners, caulked corners, and fiberglass tape, per manufacturer specification.
40. Bathrooms which include a **new** roll-in shower shall have ceramic or similar tile flooring. Roll-in showers shall be either:
- Ceramic or similar tile floor with water proofing membrane extending a minimum 8 inches up walls. A minimum of 3 feet of the bathroom floor directly outside the shower shall slope back towards the shower drain at 1%-2%, with a zero height transition between the bathroom floor and the shower floor, **OR**
  - Premanufactured with a secondary floor drain located outside of the shower. The bathroom floor shall have a 1%-2% slope towards the secondary floor drain. Provide silicone joint between bathroom and shower floor.
41. Vanities with a side exposed to a tub or shower shall have plywood sides, back and bottom.  
EXCEPTION: Vanities with an exposed side greater than 12 inches from the tub or shower may solely comply with Virginia Housing Minimum Cabinet Requirements.
42. Where wall-hung lavatories, roll-under sinks or pedestal sinks exist in dwelling units, provide an alternate storage solution, minimum 6 inches interior depth, permanent with doors or drawers, complying with code required reach ranges and other accessibility requirements, which may apply to the unit.
43. When replacing kitchen cabinets and/or bathroom vanities all new cabinets shall comply with *Virginia Housing's Minimum Cabinet Requirements* in addition to the following:
- Cabinets and/or vanities that are not being replaced require pre-approval by Virginia Housing.
  - All cabinets shall be factory/manufacturer assembled.
  - All exposed portions of cabinetry shall have factory applied finish.
  - Kitchen cabinets and bathroom vanities shall abut the side walls or provide a minimum spacing of 10 inches between wall and cabinets. Wall cabinets shall abut the ceiling/ soffits or provide minimum of 10 inches between cabinet and ceiling/soffits.
  - Kitchen wall cabinets shall be fastened to blocking with a minimum of four washer head cabinet screws; two in each upper and lower nailing strip for each wall cabinet.
  - Plastic laminate countertops shall be post formed, or have back splashes that are factory attached to the countertop and sealed.
  - A side splash shall be installed where countertops abut walls.
  - Install a cleanable surface, such as plastic laminate, metal, or ceramic tile to the side wall next to the cooking range when it is located directly adjacent to a wall.
  - Remove and replace all drywall that has mold. Repair or replace all damaged drywall.
  - Holes in cabinet backs for plumbing shall be drilled, and completely covered by escutcheon plates.
  - Provide at least one kitchen base cabinet with drawer, minimum 15-inch-wide.

#### 44. Appliances

- a. Replace all damaged and or dented appliances. All kitchen appliances in an apartment unit shall match in color.
- b. Provide a 30-inch-wide range in all units.
- c. Provide a 30-inch-wide range hood or combination range hood-microwave over all cooking ranges, or a maximum 24-inch-wide range hood for all 20-inch-wide ranges.
- d. Provide a 24-inch-wide dishwasher in all units.

EXCEPTION: Studio/ efficiency apartments and one bedroom elderly apartments may utilize 18-inch-wide dishwashers.

- e. All refrigerators shall be frost free. Minimum rated sizes of refrigerators shall be 12 cubic feet for studio/efficiency apartments, 14 cubic feet for 1 and 2 bedroom apartments, and 16 cubic feet for 3 and 4 bedroom apartments. Side-by-side models must open fully or have at least 12 inches of cabinetry between an adjacent sidewall.
- f. Provide laundry equipment connections in all units. When provided in units, washers and dryers shall be separate, full-size side-by-side or full-size stackable type, shall be installed in a closet with doors, and shall be accessible directly from the unit common area. Ventless dryers, all-in-one combination washer/dryers, and laundry centers are prohibited.

EXCEPTION 1: Existing laundry closet locations may remain. When closet is intended to also store garments provide a jumper duct to communicate with return air location. See "Plumbing" section for washing machine pan requirements.

EXCEPTION 2: Studio and one bedroom apartments may utilize a closet in a bedroom for laundry equipment provided the equipment does not restrict access to storage. When connections are located within a closet intended to store garments provide a jumper duct to communicate with return air location. See "Plumbing" section for washing machine pan requirements.

EXCEPTION 3: In-unit laundry centers are acceptable in studio and one bedroom apartments, and age restricted housing. Equipment shall comply with code required reach ranges and other accessibility requirements, which may apply to the unit.

EXCEPTION 4: Onsite common area laundry facilities may be provided in lieu of in-unit laundry connections, with the following minimum ratio of washers and dryers. See "Plumbing" section for washing machine pan requirements.

- 1) 1 pair per 12 units for non-age restricted housing.
- 2) 1 pair per 20 units for age restricted housing.

#### 45. Age restricted housing serving residents 55 years or older:

- a. Provide a handrail on at least one side of common corridors.
- b. Provide controlled access, automatic door opener, and call box at primary building entrance. Call box shall allow resident ability to communicate with visitor and unlock primary building entrance remotely with phone.

46. Replace any item with an assessed original install date or equipment ID plate that places the item **at or older than:**

Item	Years*	Item	Years*
<b>EXTERIOR**</b>			
Exterior Doors	25	Windows	30
Asphalt shingle Roofing	20	Flat Roofing	15
Stairs - Wood	20	Stairs – Metal, Metal Pan Filled	25
Timber Retaining Wall	25	Fence - Wood	15
Playground Equipment	10	Gutter and Downspouts	20

Item	Years*	Item	Years*
<b>INTERIOR**</b>			
Kitchen/Vanity cabinets	15	Fire/Smoke/CO detectors	10
Kitchen/Vanity countertop	15	Air Handlers and Heat Pumps	15
Carpet	5	Water Heaters	10
Resilient Flooring	10	Plumbing Fixtures	20
Laundry Equipment	10	Elevator Equipment, Hoist and Rails	30
Kitchen Appliances	10	Bath Exhaust Fans	10
Interior Doors	20	Sump Pumps	7
Fiberglass Bath/surrounds	20	Window Coverings	5
Bath Accessories	10	Electrical Wiring	60
		Plumbing Supply, Waste, and Vent Piping	60

\* At application date

\*\* Due to poor existing conditions, some items may need replacement prior to the ages listed above. Evaluate the property fully and create a property/unit condition survey to identify items or other components that are in poor condition, and add their replacement to the scope of work. Through scope review and the construction inspection process, Virginia Housing may add items to the replacement scope based on evaluation.

## MECHANICAL

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1. All units shall have a Heating, Ventilation, and Air Conditioning (HVAC) system. Sizes of HVAC equipment, ducts and diffusers shall be designed per heat gain/loss calculations. All apartments shall have ducted HVAC systems except as noted in #3 below. PTACs are prohibited in apartments and corridors. All ductwork shall be concealed behind permanent construction unless otherwise approved by Virginia Housing. Refrigerant and condensate lines shall be concealed within walls and all penetrations sealed. All condensate to discharge onto splash blocks at grade or to locality approved hub drain.

EXCEPTION: When concealing refrigerant lines within walls is not feasible due to new refrigerant code requirements, line sets may be run on building exteriors. Provide a new enclosure with matching siding and trim complementary to the main building façade, with design approved by Virginia Housing prior to the preconstruction meeting.
2. When installing a new HVAC system including, but not limited to, traditional split systems, ducted mini-split or self-contained VTAC systems (similar to Magic-Pak and First Co):
  - a. Replace both air-handlers and condensers at the same time.
  - b. Code compliant refrigerant is required in all new HVAC equipment.
  - c. Verify if refrigerant lines are appropriate for new HVAC unit size and type. Lines not being replaced shall comply with all of the requirements of the manufacturer for using existing lines. Submit a letter from the manufacturer that states the use of existing lines will not reduce performance and/or warranty of the heat pumps or other air conditioning systems.
  - d. Seal air duct penetrations in unheated spaces.
  - e. When adding and/or replacing ductwork:
    - 1) Air supply diffusers shall be located near windows in living rooms, dens, and bedrooms.

EXCEPTION: The mechanical engineer may locate supply diffusers at alternate locations with Virginia Housing's prior approval based on supporting calculations.
    - 2) Provide ducted return air to mechanical unit. Provide a separate ducted return for each floor of townhouse units.

EXCEPTION: Mechanical closets may be utilized as return air plenums provided walls and ceiling receive finished or unfinished moisture-resistant, fiberglass mat faced gypsum and fiberglass tape. Closets shall comply with code plenum requirements for combustible materials. Provide a keyed deadbolt lock with door latch guard. Multi-level units require a ducted return pathway to mechanical closet from other floors.
    - 3) Fiberglass ductboard is prohibited
  - f. Provide pre-manufactured air filters.
  - g. Replace all diffusers and thermostats.
  - h. Air supply diffusers shall be located in living rooms, dens, bedrooms, kitchens, and full baths.
  - i. Replace condenser pads that are damaged. Pads shall be concrete, solid vinyl, or similar materials. Level all condenser units.
  - j. Heat pumps to include auxiliary heat.
  - k. Main supply trunk line from air handler to branch duct shall be sheet metal. Flex duct may be used only between main trunk line and supply diffuser.
  - l. Provide certification for testing and balancing as required by mechanical code regardless of AHJ enforcement.
3. Ductless Heat Pumps (mini-splits) may be used in efficiencies, 1 bedrooms or elderly housing development.
  - a. Provide separate mini-split wall mounted unit for each bedroom, den or living room.
  - b. Provide separate wired wall mounted thermostat for each mini-split wall mounted unit.
  - c. Provide a heater with a thermostat or timer controlled heat lamp for all full baths.

4. All exhaust ducts shall discharge to the exterior of the building, and terminate into vent caps. Vent caps to be of a quality that will minimize repair and replacement.
5. Clean existing HVAC ducts and plenums. Verify duct sizes and air flows (cubic feet per minute at supply diffusers) are appropriate for HVAC system. Replace all supply and return vent covers and diffusers. Seal all duct penetrations in unheated spaces. All existing ductwork located in crawl spaces, attics, or any unconditioned space, shall be properly insulated. Clean, service, and repair all HVAC units not being replaced.
6. All bathroom fans shall be in good working condition, cleaned, and ducted out to the exterior. Install fans in all bathrooms, including those with windows.
7. Electric baseboard heating and electric forced air heating shall not be used as the primary heating method.

## PLUMBING

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1. Identify all water supply material types. Water supply shall have adequate pressure.
  - a. Replace all interior, exterior, and underground PB (Polybutylene) pipes such as “Quest” and “Big Blue” with current code accepted materials.
  - b. Replace all galvanized pipes with CPVC, copper, plastic or other approved materials.
2. Video and jet all sanitary and storm sewer lines connecting buildings with the public sewer or stormwater management system. Provide report of video findings to Virginia Housing. Identify pipe material types and repair or replace all corroded, damaged, or settled underground sewer lines.  
EXCEPTION: Developments first occupied less than 20 years from loan application date may forgo video and report. Virginia Housing reserves the option to require this report regardless of development age if property presents a history of sewer issues.
3. Identify all sanitary pipe material types and replace all galvanized lines and traps with PVC.
4. All wet plumbing pipe to be solid wall construction. Cellular core pipe not permitted.
5. All floor drains and indirect waste receptors to receive trap primer or code approved drain trap seal device.
6. When replacing water heaters, installations shall comply with latest adopted edition of the *International Plumbing Code for New Construction*. Refer to Code for pan and drain specifications.
7. Install an overflow pan with a drain connected to the sewer system per applicable plumbing code where washing machine connections are provided.  
EXCEPTION 1: IntelliFlow A2C-WB automatic washing machine water shutoff valve with leak sensor, or approved equal, in lieu of connecting the overflow pan to the sewer system.  
EXCEPTION 2: Common laundry facilities may utilize a floor drain without overflow pans or leak sensor devices.
8. When installing new wall-hung sinks, provide concealed arm type carrier.
9. All new tubs/showers and shower diverters shall have internal shut-off-valves or external shut-off-valves with access panels.

10. Bathtubs, showers, and surrounds which will not be replaced, shall be refinished or repaired. Remove mold and stains, clean, and re-caulk all tubs, showers, and surrounds. The bottoms of all new bathtubs and showers shall have slip resistant/textured finish.
11. Provide a maximum of two showerheads in all roll-in showers.
12. When replacing plumbing fixtures, also replace shut off valves and supply lines from valves to fixture.
13. When replacing individual apartment water heaters provide the following minimum rated sizes:
  - a. Studio/1BR units 30 gallon.
  - b. 2BR units 40 gallon.
  - c. 3BR units 50 gallon.
14. Water heater temperature and pressure relief valve shall discharge through CPVC, PEX or Copper pipes and terminate between 2 inches and 6 inches from the pan.
15. All new pipe shall be concealed behind permanent construction.

## **ELECTRICAL**

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1. Size electric panels and service per load calculations.
2. Electrical panels with fuses shall be replaced with circuit breakers.
3. Use appropriate connectors for connecting aluminum wiring to electrical outlet and switches.
4. All electrical devices shall be operational. All switches, outlets and cover plates that are painted, damaged or worn shall be replaced.
5. On a room by room basis, all electrical devices and cover plates shall match in color and design.
6. Provide ground fault outlets within 6ft. of a water source.
  - EXCEPTION 1: Outlets designated for a major appliance.
  - EXCEPTION 2: Outlets located below the countertop and enclosed in a cabinet.
  - EXCEPTION 3: Outlet and water source in separate rooms.
7. All wiring for the interior and exterior of the building shall be concealed within the walls, ceiling or floor systems.
  - EXCEPTION 1: Cable TV, internet and/or telephone wiring exposed within individual apartment units may be accepted when fastened to the edges of baseboards and/or door casings and not crossing any portion of floors, doorways or openings.
  - EXCEPTION 2: Incoming power and telecommunication wiring run vertically in conduit from grade to the meter(s) and interface without horizontal runs.
  - EXCEPTION 3: Overhead electrical service to the building in metal conduit, run vertically to the meter without horizontal runs, and painted to match adjacent surface.
  - EXCEPTION 4: Wiring in metal conduit in lengths 18 inches or less, outside of apartments, painted to match adjacent surface.
  - EXCEPTION 5: Wiring in metal conduit on exposed masonry or concrete structure inside building stairways and breezeways, parking garages, and spaces with no resident access. Conduit must be painted to match adjacent surface, run orthogonally and tight to corners of walls, floors, or ceilings.

8. When replacing kitchen cabinets and counter tops, electrical outlets for countertop, ranges, refrigerators, dishwashers, and other appliances shall comply with the latest applicable requirements of the *National Electric Code for New Construction*.
9. Provide fluorescent light fixtures or LED light fixtures in all public common areas such as offices, multipurpose rooms, laundry rooms, hallways, and stairs.
10. Kitchens shall have a minimum of one light fixture 4 feet long with either LED or two 32 watt fluorescent bulbs, or lighting fixture(s) that provide a minimum illumination of 30 foot-candles distributed across the leading edge of all countertops.
11. Provide a minimum of one permanent light fixture in each bathroom.
12. Provide a working smoke detector in each bedroom and an additional smoke detector in a common space in each unit. Provide at least one smoke detector in a common area on each level of multistory units. Smoke detectors at the lowest level of a unit shall be installed on the ceiling directly outside the stair. Ceiling mounted smoke detectors shall be more than 4 inches from a wall. Wall mounted smoke detectors shall be mounted between 4 inches and 12 inches from ceiling. Smoke detectors shall be installed more than 3 feet from windows, doors, and vents. Smoke detectors must be hardwired or have a sealed, tamper-resistant, 10-year battery.
13. Provide a working CO detector immediately adjacent to bedrooms on each floor when the unit is serviced by gas fired equipment or has an attached garage. Combo smoke/CO detectors are acceptable.
14. Provide exterior lighting to illuminate all parking areas, dumpster pads, building entrances and mailboxes with a minimum of one foot-candle of illumination. Provide illumination so that building numbers and apartment numbers are legible at night. New and replacement exterior fixtures shall be LED or fluorescent. Exterior fixture type and color temperature shall match throughout site.  
EXCEPTION: Tenant controlled exterior lighting.

## Virginia Housing Loan Application A&E Submission Requirements:

- The submission requirements listed below are for developments applying for Virginia Housing financing.
- If the development is receiving both Virginia Housing financing and LIHTC, the scope of work must include enhancement items selected in the Tax Credit Application.
- Submit digital drawings, specifications and reports in PDF form for review through the Procorem Plan Review Work Center. Separate each design discipline into a separate PDF file for review, and include one PDF file for the specification book.
- See Virginia Housing Webpage for Review Process and Process Flow Charts

### New Construction Requirements

1. Civil drawings \*\*
2. Architectural drawings \*
3. Structural drawings \*\*
4. Mechanical drawings \*\*
5. Plumbing drawings (including identification of NFPA fire suppression standard in code analysis sheet)\*\*
6. Electrical drawings (including Fire Alarm as applicable) \*\*
7. Three-part specification book encompassing all work \*
8. Site lighting and photometric drawings \*\*
9. Landscape drawings
10. Geotechnical Report \*\*\*
11. Phase I Environmental Site Assessment \*\*\*
12. Phase II Environmental Reports as recommended by Phase I, or required by Virginia Housing \*\*\*
13. Narrative scope of work with itemized cost estimate

### Rehabilitation Requirements

1. Civil drawings \*\*
2. Architectural drawings \*
3. Structural drawings \*\*
4. Mechanical drawings \*\*
5. Plumbing drawings (including identification of NFPA fire suppression standard in code analysis sheet)\*\*
6. Electrical drawings (including Fire Alarm as applicable) \*\*
7. Three-part specification book, or outline specification, encompassing all work \*
8. Site lighting and photometric drawings \*\*
9. Landscape drawings
10. 100% unit condition survey not older than 6 months prior to submission (provided by architect or 3rd Party)
11. Termite report \*\*\*
12. Water intrusion report (provided by architect or 3rd Party ) See Architectural Rehabilitation section for more information.
13. Sanitary and storm sewer video report. See Plumbing Rehabilitation section for more information \*\*\*
14. Roof Condition reports. See Architectural Rehabilitation section for more information \*\*\*
15. Elevator equipment inspection report \*\*\*\*
16. Phase I Environmental Site Assessment \*\*\*
17. Phase II Environmental Reports as recommended by Phase I, or required by Virginia Housing \*\*\*



18. Narrative scope of work with itemized cost estimate
19. Structural reports, when applicable. See Architectural Rehabilitation section for more information \*\*\*

- \* 85% complete Construction Documents prepared by a Virginia licensed architect.
- \*\* 85% complete Construction Documents prepared by a Virginia licensed Professional Engineer.
- \*\*\* Provided by a third-party, licensed professional, at time of loan application.

## **4% LIHTC Application A&E Submission Requirements:**

- The submission requirements listed below are for developments applying only for a 4% LIHTC allocation from Virginia Housing.
- The scope of work must include enhancement items selected in the Tax Credit Application.
- Submit digital drawings, specifications and reports in PDF form for review through the Procurement Plan Review Work Center. Separate each design discipline into a separate PDF file for review, and include one PDF file for the specification book.
- See Virginia Housing Webpage for Review Process and Process Flow Charts
- For 9% LIHTC submission requirements see the Virginia Housing Federal Housing Credit Manual.

### **New Construction Requirements**

1. Civil drawings \*\*
2. Architectural drawings \*
3. Structural drawings \*\*
4. Mechanical drawings \*\*
5. Plumbing drawings (including identification of NFPA fire suppression standard in code analysis sheet)\*\*
6. Electrical drawings (including Fire Alarm as applicable) \*\*
7. Three-part specification book encompassing all work \*
8. Site lighting and photometric drawings \*\*
9. Landscape drawings \*\*\*\*
10. Phase I Environmental Site Assessment \*\*\*
11. Phase II Environmental Reports as recommended by Phase I, or required by Virginia Housing \*\*\*\*

### **Rehabilitation Requirements**

1. Civil drawings \*\*
2. Architectural drawings \*
3. Structural drawings\*\*
4. Mechanical drawings \*\*
5. Plumbing drawings (including identification of NFPA fire suppression standard in code analysis sheet)\*\*
6. Electrical drawings (including Fire Alarm as applicable) \*\*
7. Three-part specification book, or outline specification, encompassing all work \*
8. Site lighting and photometric drawings \*\*
9. Landscape drawings \*\*\*\*
10. 100% unit condition survey not older than 6 months prior to submission (provided by architect or 3rd Party)
11. Termite report \*\*\*\*
12. Water intrusion report (provided by architect or 3rd Party). See Architectural Rehabilitation section for more information
13. Sanitary and storm sewer video report. See Plumbing Rehabilitation section for more information \*\*\*
14. Roof condition report. See Architectural Rehabilitation section for more information \*\*\*
15. Elevator equipment inspection report \*\*\*\*
16. Phase I Environmental Site Assessment \*\*\*
17. Phase II Environmental Reports as recommended by Phase I, or required by Virginia Housing \*\*\*\*
18. Structural reports, when applicable. See Architectural Rehabilitation section for more information \*\*\*

- \* Complete through Design Development phase and prepared by a Virginia licensed architect.
- \*\* Complete through Design Development phase and prepared by a Virginia licensed Professional Engineer.
- \*\*\* Provided by a third-party, licensed professional, at time of LIHTC application.
- \*\*\*\* Provided by a third-party, licensed professional, prior to Virginia Housing preconstruction conference.

## Virginia Housing Architectural and Engineering Review Process

### **Prior to issuing 42(m) letter, or Loan Commitment**

The architect of record must upload the A&E submission documents to the Procurement Plan Review work center at the time of loan or LIHTC application. Virginia Housing will review the submission and provide comments. A renovation deal will require a site visit to ensure the scope of work considers the existing condition of the property. A&E review comments will be captured in a memo that will be shared with the developer and their architect through the Procurement Plan Review work center. The developer's architect and engineers will amend the memo with their responses. An item will remain "open" until a satisfactory response and corresponding revision to the plans or specifications has been received. Resubmissions will be uploaded to Procurement by the architect of record, and must include both a fully responded to memo, and revised plans and specifications. All revisions must be "clouded and tagged", and the revision ID number and date must be added to the affected sheet's title block. **With each resubmission, provide an updated Title Sheet and Index of Drawings.** Show each sheet's revision dates in the index such that the Index of Drawings establishes a running record of revisions for each sheet. Sheet issuance dates may also be tracked in the index, but a sheet issuance shall not contain revisions unless each revision is identified as described above. **Finally, the review process must be completed (no "open" items) before a 42(m) letter or loan commitment will be issued.**

**Further, developments seeking 4% LIHTC without financing from Virginia Housing must upload to the Procurement Plan Review work center the closed-out A&E memo, signed by the developer and architect of record, acknowledging that all MDCR, tax credit enhancements, and any comments generated from the A&E review will be incorporated into the development's final scope of work.**

### **Prior to Bond Inclusion Date (Developments Financed by Virginia Housing Only)**

**A Contract Set of plans and specifications is required at least 7 days prior to Bond Inclusion date. If revisions occur after Virginia Housing closes the A&E review, they must be approved by Virginia Housing before the Contract Set submission. Submit a narrative describing and locating the revisions along with only the affected sheets.**

Once all open items from the A&E review have been closed **and new revisions approved**, the developer may upload the Contract Set of plans and specifications which include all revisions and addenda made during the Virginia Housing A&E review process to the Procurement Plan Review work center. Past revision clouds and tags must be removed except for any revisions that were included in the narrative described above. The Contract Set shall include an Index of Drawings identifying all sheets in the set by sheet number and sheet title. **In addition, the index must identify all revision dates for each sheet.** Each sheet's revision dates must be identified on its title block **and match the Index of Drawings.** Add the Virginia Housing Signature Block (found on the Virginia Housing website) to the Contract Set's Title Sheet, the Index Sheet, and the seal section of the specification book. The signature block must be digitally signed (through Adobe or BlueBeam) by an **authorized officer** from the developer, architect of record, and general contractor's company. The developer is responsible for providing a copy of the signed Contract Set of plans and specifications to all parties of the Virginia Housing construction contract. Each sheet of the Contract Set must include the architect of record's seal and signature, except drawings completed by consulting engineers which must be signed and sealed by the applicable engineer. Digital seals and signatures are acceptable. **The signed Contract Set of plans and specifications must be reviewed and approved by Virginia Housing before the Bond Inclusion date, or the deal will not be included in the bond pricing. Virginia Housing reserves 7 days to review the set. Furthermore, the deal will not be included in the bond pricing if Locality final site plan approval has not been obtained prior to Bond Inclusion date.**

## Submittals Required after Completion of Construction

Architect to review and approve the general contractor's as-built drawings and create an as-built package to include all revisions and changes to drawings and specifications. Architect to submit the as-built package in PDF format through the **Procorem** Plan Review work center at the completion of construction and before the loan may convert to permanent financing.

Solid vertical lines in margins identify technical changes and additions to Virginia Housing's 2024 Minimum Design and Construction Requirements. Format changes such as reorganization, number changes, and phrasing are not identified.