

**VIRGINIA HOUSING**

**2021 GUIDELINES FOR THE DEVELOPMENT OF**

**UNIVERSALLY DESIGNED UNITS**

**New Construction & Rehabilitation**

Virginia Housing recognizes the need to create housing that is usable by all people while maintaining aesthetics and affordability. Universal Design has emerged as a set of design features that enhance the usability and marketability of such units. Virginia Housing provides specific incentives for developers wishing to use these features to create spaces that serve the needs of all people regardless of ability and an aging population while providing an environment that is easy to market and easy to use.

Virginia Housing views Universal Design not as a building code or accessibility standard but rather as a set of features that should integrate seamlessly into the design of a dwelling unit, providing market appeal and the possibility for residents to age-in-place. Whether applied to standard units or units designed under an accessibility code, the challenge of Universal Design is to produce as normal and appealing an outcome as possible.

Questions or comments about these guidelines can be emailed to:  
[UniversalDesign@VirginiaHousing.com](mailto:UniversalDesign@VirginiaHousing.com).

**ESSENTIAL ELEMENTS**

**1. Route . . . . . 3**  
 1.1 Accessible Route  
 1.2 Accessible Parking  
 1.3 Garbage Collection  
 1.4 Common Spaces  
 1.5 Curb Cuts  
 1.6 Ramps

**2. Movement . . . . . 5**  
 2.1 Exterior Walkways  
 2.2 Interior Passageways  
 2.3 Level Space at Entryways  
 2.4 Clear Space on Pull Side of All Doors  
 2.5 Interior Passage Doorways  
 2.6 Exterior Doorways and Unit Entry

**3. Approach . . . . . 6**  
 3.1 Clear Floor Space  
 3.2 Reach Range  
 3.3 Operation  
 3.4 Door Hardware  
 3.5 Plumbing Fixtures

**4. Kitchens . . . . . 7**  
 4.1 Clear Floor Space  
 4.2 Range  
 4.3 Refrigerator  
 4.4 Sink  
 4.5 Multiple Height Work Surfaces  
 4.6 Cabinet Hardware

**5. Bathrooms . . . . . 8**  
 5.1 Bathroom Type  
 5.2 Bathing Areas  
 5.3 Shower Fixtures

**6. Laundry . . . . . 9**  
 6.1 Side by Side, Front Loading  
 Equipment

**7. Technology . . . . . 9**  
 7.1 Thermostats

**OPTIONAL ELEMENTS**

**1. Route . . . . . 10**  
 1.1 Weather Sheltered Entryways  
 1.2 Signage

**2. Movement . . . . . 10**  
 2.1 Access to All Common Areas  
 2.2 Enhanced Site Lighting

**3. Approach . . . . . 10**  
 3.1 Accessible Windows

**4. Kitchens . . . . . 10**  
 4.1 Extra Floor Space  
 4.2 Roll-Under Range  
 4.3 Full Extension Drawers and Shelves  
 4.4 Task Lighting  
 4.5 Full Length Pantry Style Cabinet

**5. Bathrooms . . . . . 11**  
 5.1 Extra Floor Space  
 5.2 Roll-Under Vanity or Sink  
 5.3 Tilt Mirror  
 5.4 Non-Glare Lighting  
 5.5 Solid In-Wall Blocking  
 5.6 Handheld Showerheads

**6. Bedrooms . . . . . 12**  
 6.1 Closets

**7. Audio/Visual . . . . . 12**  
 7.1 Audio/Visual Doorbell  
 7.2 Visual Alarm

**8. Technology . . . . . 12**  
 8.1 Keyless Entry

**9. Innovation . . . . . 12**  
 9.1 Innovation

## Essential Elements

**Each qualifying Universally Designed Unit in the LIHTC program must contain all of the essential elements listed below and comply with Virginia Housing’s Minimum Design and Construction Requirements, and Minimum Cabinet Requirements. Universal Design is not a safe harbor for other required accessibility standards such as ANSI A117.1, UFAS or the Fair Housing Act. It should be used as a supplement to required accessibility standards and building codes.**

### 1. Route

1.1 Accessible Route - An accessible route shall consist of a minimum 36” wide continuous, stable, firm and slip-resistant surface, free of obstructions and changes in level greater than a ¼” vertical. Running slopes shall not exceed 1:20 and cross slopes shall not exceed 1:50. A minimum 60”x60” passing space must be provided at reasonable intervals not to exceed 200’. Routes requiring 180° turns must have a clear width of 60” during the turn. Cross walks must be striped and may not travel directly behind parking spaces. Vertical means of transportation, other than fully handicap accessible elevators, must be presented to and approved by Virginia Housing prior to submission of the tax credit reservation application.

1.2 Accessible Parking\* – Accessible parking spaces shall comply with Figure 1.2. Van accessible spaces required for public accommodation shall not count towards the number of accessible spaces required for qualifying units.

1.2.1 – Developments with off-street parking shall provide at least one accessible parking space on an accessible route for each qualifying UD unit, sufficiently dispersed to serve each qualifying UD unit.

Exception 1:

The total number of accessible parking spaces for UD qualifying units may be reduced to the greater of either:

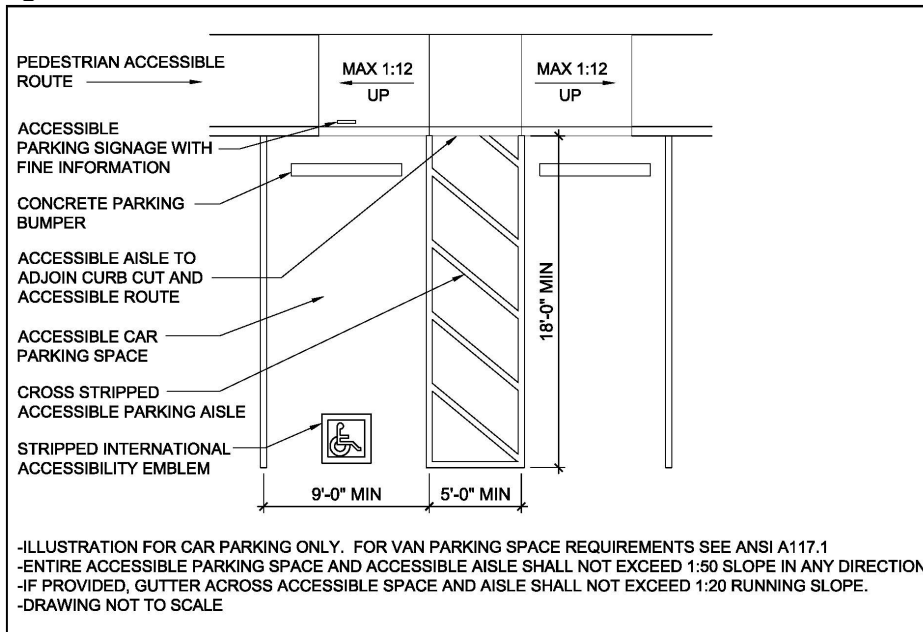
- 1) 5 accessible parking spaces, or
- 2) 5% of the total number of parking spaces.

Exception 2:

Where a development receives a reduction in local zoning parking requirements from the authority having jurisdiction, a minimum 5% of off-street parking must be accessible spaces.

\*Parking must comply with all applicable accessibility standards.

Figure 1.2



**1.3 Garbage Collection** - Each qualifying unit shall be located on an accessible route complying with 1.1 that leads to a resident garbage drop off area. Garbage chutes, dumpster openings, and their operating mechanisms shall be within the reach range complying with 3.2.

**1.4 Common Spaces** - Each qualifying unit shall be located on an accessible route complying with 1.1, which allows pedestrian access to the leasing office, community room, laundry facility, mailboxes and public transportation pick up areas if available to the facility.

**Exception:**

Alternative vehicular connectivity for impractical sites must be presented to and approved by Virginia Housing prior to submission of the tax credit reservation application. Each vehicular connected amenity must include two parking spaces compliant with Figure 1.2 in addition to the total number of spaces required by 1.2.

**1.5 Curb Cuts** - Shall comply with Figure 1.5 (a) or 1.5 (b). In 1.5 (a), the minimum width of a curb ramp landing shall be 60" exclusive of the ramp running slopes. In both, ramp running slopes and flared side slopes shall not exceed 1:12, however, when possible, ramp running slopes should not exceed 1:20. If a curb cut similar to that shown in Figure 1.5 (b) is provided, there shall be a minimum 36" wide clear unobstructed walk way immediately behind the curb cut with cross slopes not exceeding 1:50. Built up ramps located on the parking lot side of the curb line are not permitted.

Figure 1.5 (a)

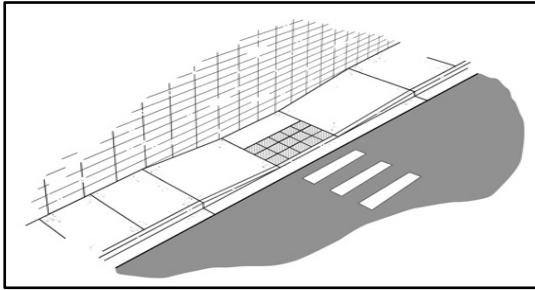
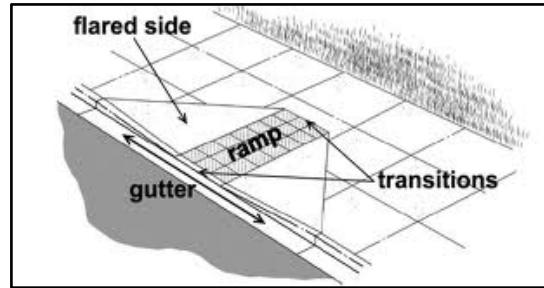


Figure 1.5 (b)



**1.6 Ramps** – In cases where topography and space limitations create the need for a ramp; running slopes shall not exceed 1:12. If a ramp rise is greater than 6” or if the horizontal projection is greater than 72”, handrails must be provided on both sides. Ramps shall be constructed of concrete, brick or similar cementitious/slip-resistant materials.

## 2. Movement -

**2.1 Exterior Walkways** - All existing exterior walkways on an accessible route shall be a minimum of 36” wide. All new exterior walkways shall be a minimum of 48” wide. All walkways perpendicular to parking spaces shall be 72” wide excluding curb, or 48” wide with at least 2 feet between sidewalk and back of curb or pinned concrete parking bumpers. Curb cuts shall be required to allow access to accessible areas. Walkways shall be constructed of concrete or similar cementitious material with a slip-resistant surface free of any obstructions and changes in level, with a cross slope not exceeding 1:50 and a running slope not exceeding 1:20.

**2.2 Interior Passageways** - Interior passageways shall have a minimum 42” clear floor width. A minimum 36” clear floor width between vertical surfaces is acceptable when traveling less than 36”.

**2.3 Level Space at Entryways** - Unit entryways shall have a minimum 60”X60” clear, level floor space at both the interior and exterior side of the door, and shall include the full clear width of the door. A maximum 1:50 slope is permitted at the exterior side of doors to allow water shed.

**2.4 Clear Space on Pull Side of All Doors** - Doors shall have a minimum 36” deep clear, level floor space that extends a minimum 18” past the latch on the pull side of the door.

**2.5 Interior Passage Doorways** - All interior passage doorways between rooms deeper than 24” shall have a minimum clear opening of not less than 32” with a threshold level change not exceeding 1/2” (maximum 1/4” vertical rise + 1/4” 1:2 slope).

**2.6 Exterior Doorways and Unit Entries** - All exterior and unit entry doors shall be no less than 36” wide with a threshold level change not exceeding 1/2” (maximum 1/4” vertical rise + 1/4” 1:2 slope).

### 3. Approach

3.1 Clear Floor Space - Each qualifying unit must have clear, level floor space complying with 3.1 (a) or 3.1 (b) in front of all controls.

Figure 3.1 (a)

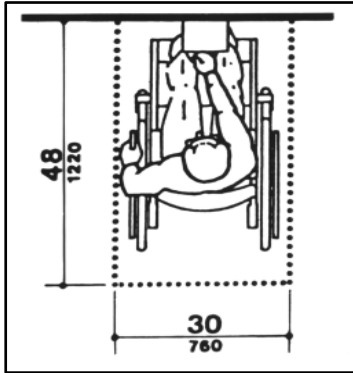
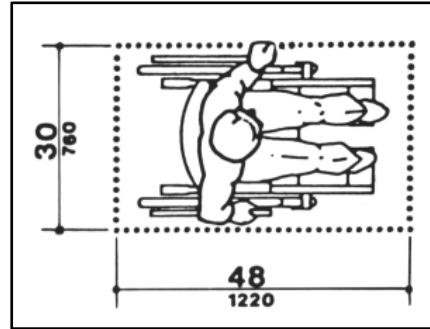
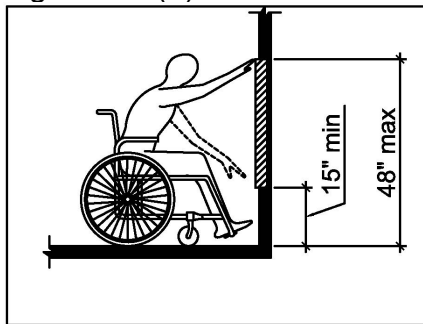


Figure 3.1 (b)



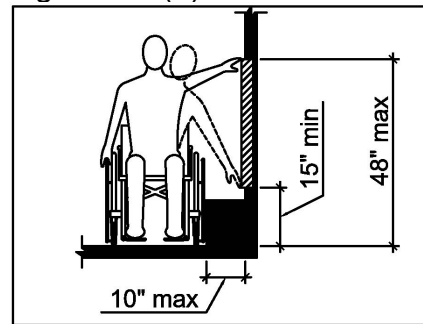
3.2 Reach Range – Operable parts shall be located in the following reach ranges.

Figure 3.2 (a)



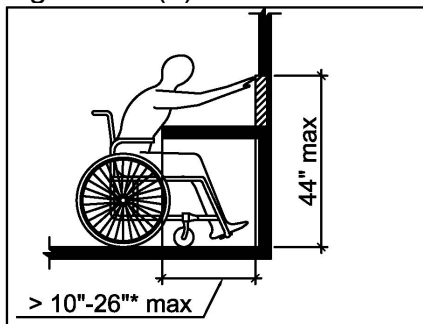
Unobstructed Forward

Figure 3.2 (b)



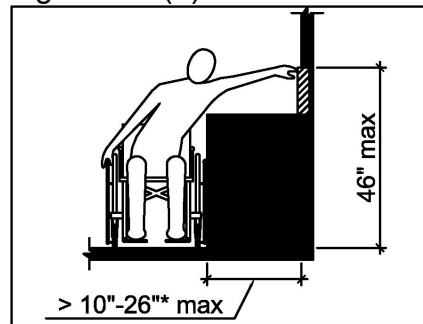
Unobstructed Side

Figure 3.2 (c)



Obstructed Forward

Figure 3.2 (d)



Obstructed Side

Illustrations adapted from the US Access Board

\*Virginia Housing modification for countertops

Exceptions: Windows, shades/blinds, wall cabinets, closet shelving, ceiling fan cords, HVAC diffusers, smoke/CO detectors, bottoms of laundry drums, and plumbing shutoffs. Existing electric panels do not require relocation unless new feeder and/or branch wiring is provided.

**3.3 Operation** – Controls and operating mechanisms shall be operable with one hand and shall not require tight grasping, pinching or twisting of the wrist. The force required to activate controls shall be no greater than 5 lbs.

**3.4 Door hardware** – All doors shall have lever handles. All privacy locksets shall be push-button type. Thumb-turn deadbolts are acceptable.

**3.5 Plumbing Fixtures** – All plumbing fixtures shall be lever type.

## **4. Kitchens**

**4.1 Clear Floor Space** - Each qualifying unit must have a minimum clear floor space complying with 3.1 centered on all appliances. The minimum clear floor space may be positioned for forward or parallel approach.

Exception: Dishwashers may have either a parallel approach offset 24” maximum from appliance centerline or an immediately adjacent, permanently roll-under kitchen sink for forward approach.

**4.2 Range** – Range controls must comply with reach range requirements in 3.2. The location of controls for ranges and cook-tops shall not require reaching over burners. Ranges shall be self-cleaning or steam-cleaning type. Range hood fan and light controls must be switched separately and comply with reach range requirements in 3.2.

**4.3 Refrigerator** – The water, ice, and temperature controls must comply with reach range requirements in 3.2, or within 54” A.F.F. given a parallel approach. Refrigerators shall be side-by-side type.

Exception: Top freezer type refrigerators may be installed in studio and efficiency apartments for new construction, adaptive reuse and renovated developments. Top freezer type refrigerators may be installed in one bedroom apartments for renovations only. Mid-height of freezer compartment shall be no more than 54” above the finished floor, and control placement for both the refrigerator and freezer shall comply with reach range requirements in 3.2.

**4.4 Sink** - Each qualifying unit shall have a rear drain sink with drain pipes concealed behind a removable 30” wide concealment panel or removable sink base. Concealment panel shall comply with UFAS for knee and toe clearances. If a sink base is provided, it shall be a minimum of 30” wide and easily removable using only a screwdriver. The kitchen floor finish must extend under the removable cabinet, the wall behind the cabinet must be finished, and a baseboard matching that installed in other areas of the dwelling unit shall be permanently installed behind the cabinet.

**4.5 Multiple Height Work Surfaces** - All qualifying units shall have multiple height work surfaces including at least one 29”–31” above the finished floor such that a person in a sitting position can work comfortably. The surface must be a minimum of 24” wide x 20” deep, and cannot be portable. Pull-out type boards are acceptable, but must carry a minimum 50 lb. load, and comply with cabinet hardware requirements in 4.6.

4.6 Cabinet Hardware – All cabinetry in a qualifying unit shall have hardware that complies with 3.3, or have touch latches, such that a person with limited dexterity may operate the cabinetry easily.

## **5. Bathrooms**

5.1 Bathroom Type - Each qualifying unit shall have at least one bathroom complying with ANSI A117.1–2009 Type B - Option A.

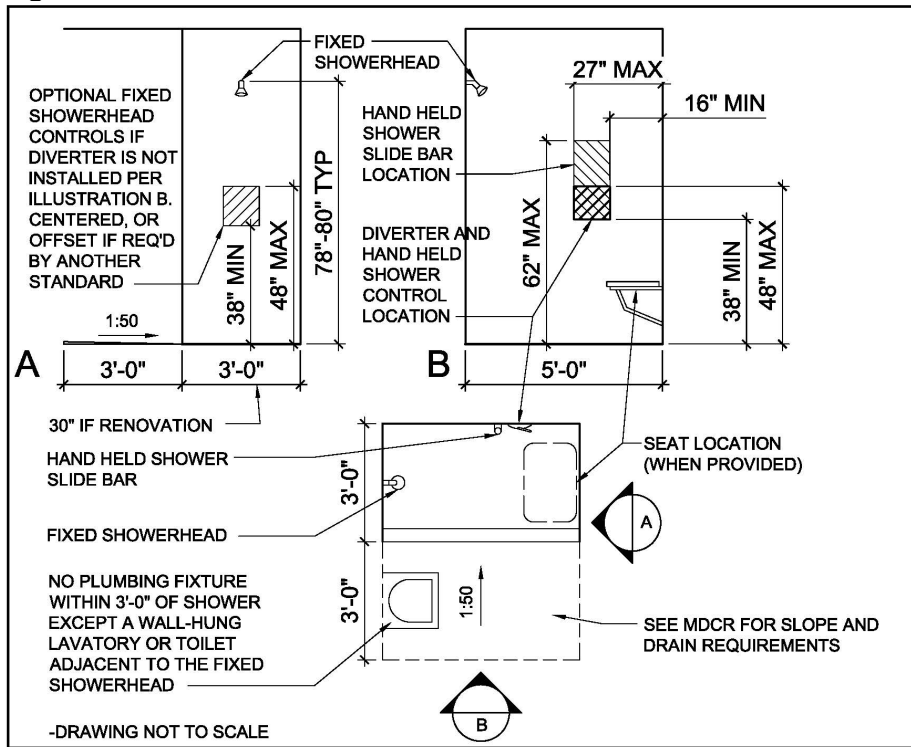
5.2 Bathing Areas - Each qualifying unit having two or more full bathrooms shall have one roll-in shower with a level change no greater than  $\frac{1}{2}$ " - (maximum  $\frac{1}{4}$ " vertical rise +  $\frac{1}{4}$ " 1:2 slope). Roll-in showers for new construction shall have clear inside dimensions of 60" minimum in width and 36" minimum in depth. Roll-in showers for renovations shall have clear inside dimensions of 60" minimum in width and 30" minimum in depth.

Exception: A maximum of 50% of the qualifying units with two or more full bathrooms may have one step-in shower with a curb height between 2"-4" in lieu of the roll-in shower. For example, a development with 20 qualifying units, all with two full bathrooms, must have one roll-in shower in a minimum 10 of the 20 units. The design team may choose to install either a step-in shower or a roll-in shower in each of the remaining 10 units.

5.3 Shower Fixtures – All step-in and roll-in showers shall contain both a handheld shower and a fixed shower head per Figure 5.3. Handheld showers controls and diverter shall be located on the rear wall between 38" and 48" from the floor, and 27" maximum from the end wall. Handheld showers shall have a minimum 60" hose, a slide bar attachment and a locking mechanism operable with a closed fist, and should be located no more than 27" from the end wall. The fixed shower head shall be installed at the standard height and standard location. The designer has the option to either install a diverter within the hand held shower control area that directs the flow of water to either the handheld shower or the fixed shower head, or provide separate controls for both the handheld shower and the fixed shower head.



Figure 5.3



## 6. Laundry

**6.1 Side by Side, Front Loading Equipment** – Laundry equipment in qualifying units, other than tenant supplied equipment, shall be side by side, front loading type. Where hookups only are provided, laundry closets shall be sized to accommodate side by side equipment. Control placement must comply with reach range requirements in 3.2.

## 7. Technology

**7.1 Thermostats** - Each qualifying unit shall have a 'smart', programmable thermostat with voice activation capability. Voice activated control may be either integrated, or through a separate tenant-supplied mobile device or smart home hub wirelessly connected to the thermostat.

# Optional Elements

New construction developments qualifying as Universally Designed in the LIHTC program must contain a minimum of ten of the optional elements listed below. Developments being renovated must contain a minimum of five of the optional elements listed below. Adaptive reuse developments must meet new construction requirements.

## 1. Route

1.1 Weather Sheltered Entryways – Provide covered entrances to reduce or eliminate water infiltration and provide protection for user while leaving or entering the qualifying unit.

1.2 Signage – Characters and symbols on all signage shall contrast with their background - either light characters on a dark background or dark characters on a light background. Provide Braille character translations on all interior signage. Use standard Braille conventions for location on signage. Sizing and spacing per standard Braille publications is acceptable.

## 2. Movement

2.1 Access to All Common Areas - From the qualifying unit via an accessible pedestrian route.

2.2 Enhanced Site Lighting - Provide one foot-candle of illumination at all exterior pedestrian routes and amenities.

## 3. Approach

3.1 Accessible Windows - Must comply with all four elements below. Minimum of one compliant window in each bedroom and living room.

3.1.1 Maximum sill height of 36" above finish floor.

3.1.2 Clear floor space complying with Essential 3.1.

3.1.3 Locks within reach range specified in Essential 3.2, and easily operable with one hand. Altered or additive hardware is not accepted.

3.1.4 Controls for shades/blinds within reach range specified in Essential 3.2.

## 4. Kitchens

4.1 Extra Floor Space - Provide a full 60", unencumbered turning diameter within the kitchen boundary of each qualifying unit.

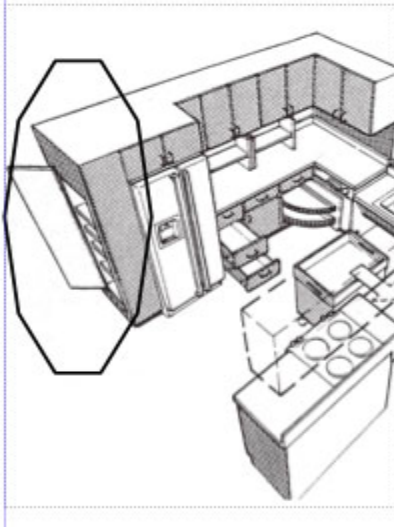
4.2 Roll-Under Range – Provide a drop in range in each qualifying unit affording the user the ability to roll under with unobstructed clear floor space. Knee space shall be insulated or otherwise protected on the exposed contact surfaces to prevent burns, abrasions, or electrical shock.

**4.3 Full Extension Drawers and Pull-out Shelves** – All base cabinetry drawers in a qualifying unit shall be full extension. In addition, a minimum of one base cabinet, 24” wide or greater, shall have high/low pull out shelving; A 24” wide pantry cabinet with at least two pull out shelves below 36” above finish floor is also acceptable.

**4.4 Task Lighting** – In addition to general kitchen lighting, provide task lighting at all counter surfaces. With general kitchen lighting turned off, task lights must provide a minimum of 30 foot-candles uniformly distributed across all counter surfaces.

**4.5 Full Length Pantry Style Cabinet in Each Kitchen** - See Figure 4.5 for one example of this feature; pantry may be part of cabinetry or it may be a conventional closet type and comply with Essentials 2.4, 2.5 and 3.2.

Figure 4.5



## 5. Bathrooms

**5.1 Extra Floor Space** – In each qualifying unit; provide at least one bathroom with a full 60”, unencumbered turning diameter.

**5.2 Roll-Under Vanity or Sink** – In each qualifying unit; provide at least one bathroom with a roll under sink or removable vanity base. If a removable vanity base is provided, it shall be a minimum of 30” wide and easily removable using only a screwdriver. The bathroom floor finish must extend under the removable cabinet, the wall behind the cabinet must be finished, and a baseboard matching that installed in other areas of the dwelling unit shall be permanently installed behind the cabinet.

**5.3 Tilt Mirror** – Provide an adjustable tilt/pivot style mirror in at least the Option A bathroom of each qualifying unit. Mounting height should allow mirror to be easily used in both a standing and seated position.

**5.4 Non-Glare Lighting** – In each qualifying unit, provide a minimum of two separate fixed light fixtures. Light sources shall be indirect and/or have frosted lenses without exposing bulbs directly to the occupant.

**5.5 Solid In-Wall Blocking** – Installed on walls around toilet, tub and shower for new or future grab bars and shower seat. Blocking must be suitable to carry a minimum 250 lbs. load. Molded shower surrounds shall have integral plywood backing, or, reinforcing is required fully between surround and wall blocking at grab bar and seat locations.

**5.6 Handheld Showerheads** – Both a fixed and handheld shower head with a minimum 60” hose shall be installed on the control end wall of all bathtubs in qualifying units.

## **6. Bedrooms**

**6.1 Closets** - In each unit; provide a versatile and adjustable closet organization solution allowing for a more efficient and usable storage area. A single or double adjustable height shelf and rod will not be accepted.

## **7. Audio/Visual**

**7.1 Audio/Visual Doorbell** – Provide an A/V doorbell in all qualifying units. Doorbell control location to comply with reach range requirements in Essential 3.2.

**7.2 Visual Alarm** – Provide electrically powered internally illuminated emergency alarms located in all habitable spaces including bathrooms, that shall flash as a visual emergency notification in conjunction with audible emergency alarms. The flashing frequency of visual alarm devices shall be less than 5 Hz. Connect visual alarms to an emergency power source, similar to audible emergency alarms.

## **8. Technology**

**8.1 Keyless Entry** - Provide a deadbolt with wireless or Bluetooth technology at every qualifying unit entry door.

## **9. Innovation**

**9.1 Innovation** – Virginia Housing is interested in alternative features which increase the usability of spaces for all people. Proposed alternatives must be presented to and approved by Virginia Housing prior to the mandatory pre-construction meeting.

Solid vertical lines in margins show technical changes, additions and deletions to Virginia Housing's 2020 Universal Design Guidelines. Format changes such as reorganization, number changes, and phrasing are not identified.