

UNIVERSAL DESIGN CRITERIA FOR MULTI-FAMILY HOUSING UNITS

Version 4.5

DEVELOPED BY RL MACE UNIVERSAL DESIGN INSTITUTE

Universal Design is “The design of products and environments to be usable by all people, to the greatest extent possible, without the need for specialized design.”

INTRODUCTION

The design guidance provided in this document is intended to help multifamily developers better meet the needs of our growing population of older adults in the US, who are not well served by either the Type A or B units¹ that are found in most multifamily projects. This guidance creates a new class of units, comprising as many as 20% – 25% of the total units in an elevator-served project, and would be in addition to Type A units and probably drawn from units that would otherwise be Type B (Fair Housing) units. In non-elevator served buildings, these age-friendly units would be among the ground level units, in addition to Type A units, that would likely otherwise be Type B units.

These age-friendly (AF) units have floorplans similar to Type A units, providing improved maneuvering room, especially in kitchens and bathrooms, but would not require the lowered counters (or knee space) that Type A units require. The added space within units accounts for users who might be large, use mobility devices, or require an assistant or caregiver. Other features address a wide range of user characteristics including vision, hearing, grasp, reach, smaller size, strength, and balance. ***An important element of the AF units is that they have the typical appearance of a “standard unit”*** but have numerous high function features that will allow older persons to age in place more safely, more independently, and for longer.

Some of the features are typically prescriptive, like most building codes (e.g., wall receptacles mounted 18-inches to 24-inches above finished floor). Other elements are offered as a performance goal (e.g., easy to see and operate thermostats). Guidance for these performance-based elements will be provided separately.

DEFINITIONS

CLEAR FLOOR SPACE: An unobstructed space 30" wide by 52" deep.

COMFORTABLE REACH RANGE: Between 12"–54" above the finished floor.

EASILY OPERABLE: That which does not require pinching or grasping. (ex: clamshell cabinet hardware, lever handles, rocker switches)

TURNING SPACE: A space with a 60" turning diameter or T-Turn

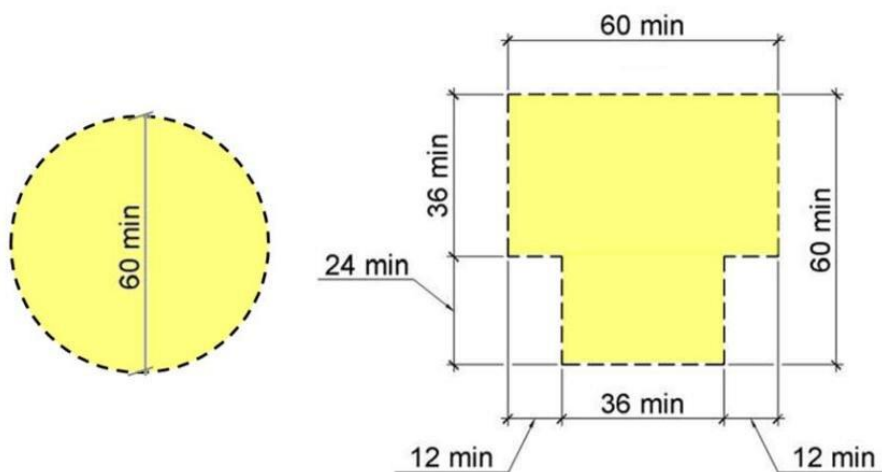


Fig. 1
(left) 60" Turning Radius; (right) T-Turn

✓ Good. + Better ★ Best

* Indicates additional guidance is provided in the appendix

ENTRANCES, DOORS AND TRANSITIONS

- ✓ The primary entrance shall be on an accessible route from public and common areas.

- ✓ Zero-step entry or threshold maximum of a half inch beveled with a slope not greater than 1:2.
- ✓ 32-inch net clear width door openings (this requires a 34" min. door)
- ✓ 18"–24" clear floor space beside door on pull side at latch jamb
- ✓ Lever handle type lockset hardware rather than knob
- ✚ Entry door sidelight, accessible peephole viewer or smart doorbell camera
- ★ Exterior space to place packages near door when possible (i.e., chair, table, shelf)

ROUTES: ACCESS AND CIRCULATION

At least one accessible route shall connect all spaces and elements that are a part of the unit. Accessible routes shall coincide with or be in the same area as a general circulation path.

- ✓ Zero-step transitions and clear pathways throughout
- ✓ Hallways, 42-inches wide, minimum.
- ✓ At least 1 bedroom and 1 full bath served by an accessible route shall provide a 60-inch diameter turning space or T-Turn.
- ✓ All other rooms served by an accessible route shall provide a 60-inch diameter turning space or T-Turn.*
- ★ Well-lit during both day and night*
- ★ Low-maintenance, smooth, non-glare, slip-resistant surfaces. If carpeted, use low (less than a half inch) pile, with firm pad*

ELECTRICAL/ENVIRONMENTAL CONTROLS

- ✓ Receptacles 18-inches to 24-inches above finished floor
- ✓ Light switches, thermostats, and other environmental controls placed in locations no higher than 48 inches from floor; Rocker or touchless (occupancy activated) light switches
- ✓ Clear floor access space to switches and controls
- ✓ Audible and visual strobe light system to indicate when smoke/carbon monoxide detectors have been activated

- + Easy-to-see and read wall mounted controls*
- + Easy to access hardware*
- + Operable parts must be easily operable. For example:
 - Easy to grasp faucets*
 - Easy to grasp shower valve*
 - Shower controls offset from center and located in an unobstructed location
 - Cooktop with controls at front or side of heating elements
- ★ 3-way light switches at each end of the hallway
- ★ Motion detector light switches in garages, utility spaces, entrances and basements

LAUNDRY/STORAGE

- ✓ Drawer base cabinets; Pull out pantry storage when possible.
- ✓ Wall cabinetry at comfortable reach height*
- ✓ Washer & dryer controls placed within comfortable reach: front of side-by side units and center of stacked units (</= 54" aff)
- + Contrasting colors for countertop to cabinets*
- ★ Provide minimum 36-inch-wide surface for folding clothes, if possible
- ★ Placement of task lighting in appropriate work areas; Extra illumination in closets*
- ★ Adjustable closet rods and shelves.
- ★ Storage systems for ease of access and organization – (Maximized storage in 18"–54" reach zone)

BATH

At least one toilet and bathing space shall comply with this section.

- ✓ The A/F toilet and bathing fixtures shall be in a single toilet/bathing area.
- ✓ Wall reinforcement for future installation of grab bars is required in the A/F full bath. *
- ✓ The A/F bathing fixture shall be a curbless/low threshold shower compartment

- ✓ Non-skid low-maintenance shower flooring; Non-skid low-maintenance bathroom flooring*
- ✓ Bathing controls unobstructed by other fixtures and cabinetry*
- ✓ Doors shall not swing into the clear floor space or clearance for any fixture.
- ✓ Clear floor space in front of and to one side of toilets; in front of sinks; and to one side of showers*
- ✓ Toilet locations: In a corner, along a wall with a CFS along back and sides.
- + Shower compartment at least 36" x 48"
- + Damp rated integrated LED light above shower stall; Sufficient illumination throughout to perform tasks
- + Cabinetry shall be permitted under the lavatory
- ★ Handheld showerheads with hose and pause control
- ★ Make cabinetry removable with finished floor beneath

KITCHEN

- ✓ 42-inch clearance between cabinet faces, appliances, and wall.
- ✓ In kitchens with counters, appliances, or cabinets on three contiguous sides, clearance between all opposing base cabinets, countertops, appliances, or walls within kitchen work areas shall be 60 inches minimum. *
- ✓ The work surface shall be 36 inches maximum above the floor.
- ✓ Allow for microwave placement that is NOT above a stovetop. (Instead, wall mounted, countertop, or undercounter models)
- ✓ Wall oven at comfortable height. Top of operable controls no higher than 54 inches. Highest rack no more than 48 inches high.
- ✓ The location of stovetop/range controls shall not require reaching across burners
- ✓ In the case of wall ovens:
 - Side hinged door ovens shall have a countertop positioned adjacent to the latch side of the oven door.
- ✓ Bottom-hinged door wall ovens shall have a countertop positioned adjacent to one side of the door.

- ✓ A clear floor space, positioned adjacent to the dishwasher door, shall be provided. The dishwasher door in the open position shall not obstruct the clear floor space for the dishwasher or an adjacent sink.
- ✦ Sufficient illumination throughout to perform tasks; Place task lighting in appropriate work areas*
- ★ Dishwasher at comfortable height. *
- ★ Side-by-side or drawer type refrigerator/freezer
- ★ One lowered, 32" H, work surface with knee space (could be eat-in kitchen table)

WINDOWS

- ★ Easy to access and operate hardware (also mentioned in Controls section of this doc.) *
- ★ Avoid double and single-hung windows when possible.

APPENDIX A

Controls and Operability

Easy to access and operate hardware (also mentioned in Controls section of this doc.) Consistency in location and types of hardware allow for predictability. Predictability can foster a sense of safety. Location of controls, including switches, outlets, thermostats, should be consistent throughout and located with the centerline no higher than X and no lower than Y. Where applicable, they should be easy to see and read, and wall mounted. Controls should be easy to use, requiring minimal force and only a single hand. Controls should not require pinching or grasping to operate. Examples of easy to operate parts include: Easy to grasp faucets, easy to grasp shower valve, lever door handles, push out casement windows, rocker switches, sliding dimmer switches for overhead lighting, loop or clamshell cabinet hardware.

Controls on appliances and bathing fixtures should be unobstructed by other fixtures and cabinetry. Appliance controls are most easily used when located toward the front of the appliance. Dishwashers and laundry machines can be elevated to minimize bending down. Locate wall cabinetry so that at least one shelf is at comfortable reach height (XY)

Visibility

Sufficient illumination throughout to perform tasks; Place task lighting in appropriate work areas. Select dimmable, higher lumen lighting; 1200 and 1600 lumen bulbs are recommended. LED bulbs last longer and require less frequent changing than other alternatives.

Layered Lighting refers to a combination of general and task lighting: This may include under cabinet lighting, uplighting over cabinets, pendant lighting, recessed cans, surface mounted ceiling light fixtures, lighting within cabinets and drawers, lighting over sinks and work surfaces. In kitchens, under cabinet lighting located at front edge of bottom of wall cabinet, pointing down is recommended.

Motion, or occupant detecting lighting can be particularly helpful at night, especially along exterior paths, entrances, interior hallways, stairways, and in bedrooms and bathrooms.

Place task lighting in appropriate work areas; Extra illumination is recommended in closets, pantries, and laundry rooms.

Wi-Fi/remote controls for selected lights/ smart fixtures and outlets.

Contrasting surfaces help the user distinguish between surfaces. This is particularly important for countertop/floor, and stair tread/floor recognition.

Maneuverability

In kitchens with counters, appliances, or cabinets on three contiguous sides, clearance between all opposing base cabinets, countertops, appliances, or walls within kitchen work areas shall be 60 inches minimum.

Wall reinforcement for future installation of grab bars is required in the A/F full bath.

The A/F bathing fixture shall be a curbless/low threshold shower compartment

Clear floor space in front of and to one side of toilets; in front of sinks; and to one side of showers

All other rooms served by an accessible route shall provide a 60-inch diameter turning space or T-Turn.

Well-lit routes during both day and night

Low-maintenance, smooth, non-glare, slip-resistant surfaces. If carpeted, use low (less than a half inch) pile, with firm pad

Non-skid low-maintenance shower flooring; Non-skid low-maintenance bathroom flooring