Subject: Reach Ranges to Operable Parts

References:
- 2019 California Building Code (CBC)
- 2010 ADA Standards (ADAS)
- Fair Housing Act Design Manual (FHADM)

Purpose: This bulletin provides guidance for the accessible mounting locations of electrical outlets, switches, and controls.

For more information visit the Mayor’s Office on Disability (MOD) website: sfgov.org/mod

CBC Code Section Summary
1136A  Receptacles, controls, and switch heights in Adaptable Units.
1138A.3  Reach ranges in Adaptable Units.
1138A.4  Controls and operating mechanisms.
11B-205  Operable parts.
11B-305  Clear floor space.
11B-306  Knee and toe clearance.
11B-308.1  Measurement of reach ranges for switches and outlets.
11B-308.2  Forward Reach, unobstructed and obstructed.
11B-308.3  Side Reach, unobstructed and obstructed over 34” max high counter.
11B-804.3  Kitchen work surface.
11B-804.6  Appliances.

ADAS Section Summary
ADAS 205  Operable Parts.

FHADM Section Summary
Requirement five, page 5.8  Mounting locations for outlets.

Criteria for Outlets and Controls at Kitchen Counters
1. Adaptable Units: Inaccessible outlets and controls are acceptable provided that comparable accessible ones are provided within the same area.
2. All switches shall be located within accessible reach ranges.
3. Architectural drawings shall show locations of all operable parts, including minimum and maximum heights and distances from obstructions.
4. Position wall devices over countertops horizontally for easier reach (recommended).

Residential Dwelling Unit Terminology
Mobility Unit: Residential dwelling unit per 11B-233.3.1.1 providing mobility features complying with Sections 11B-809.2 through 11B-809.4.
Adaptable Unit: Residential dwelling unit per 11B-233.3.1.2, providing adaptable accessibility features as required by Sections 11B-233.3.1.2.1 through 11B-233.3.1.2.6.
Communication Unit: Residential dwelling unit per 11B-233.3.1.3, providing communication features complying with Section 11B-809.5.

LEGEND
- Accessible Device Box
- Inaccessible Device Box

1. Unobstructed Side Reach
2. Shallow Obstructed Side Reach
3. Deep Obstructed Side Reach
4. Unobstructed Forward Reach
5. Shallow Obstructed Forward Reach
6. Deep Obstructed Forward Reach

Side and Forward Reach Ranges

Device box
Device box
Device box
Device box
Device box
Device box
### Countertop and Backsplash Conditions

#### Mounting Heights for Device Boxes

**A** Inaccessible Devices

- **B** Comparable Device Location
  - Device in cabinet face as a comparable replacement for an inaccessible device.
  - Note that outlets in cabinet faces reduce required storage.

**C** Options for Accessible Side Reach

- **D** Tall Backsplash

Access to devices is limited by the height of the countertop and backsplash. Furring is often needed to bring the device box within side reach range. A taller backsplash allows installation of a vertical or quad device box, which can be a comparable replacement for inaccessible devices.

### Kitchen Toe & Knee Clearances

- **LEGEND**
  - Accessible Device Box
  - Inaccessible Device Box
  - Accessible Reach Range

- **Not to Scale**
- **Issue Date:** 10/9/20
- **Revision Date:** —/—/—
- **Information Bulletin:** MOD-08
- **Full size printing:** 11x17
- **Sheet #:** 08.2
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- **2** Mounting Heights for Device Boxes
  - **A** Unobstructed Side and Forward Reach
  - **B** Side Reach - Obstructed
  - **C** Forward Reach at Sink
  - **D** Forward Reach at Work Space

- **3** Kitchen Toe & Knee Clearances
  - **Not accessible by forward reach from sink space**
  - **Required slope of knee clearance**
  - **Additional depth must provide full knee clearance**

- **Options for Accessible Side Reach**
  - Provide device box extension ring of thickness "X" to move box to within side reach range.
  - Accessible if backsplash is of thickness "X" by furring net or providing a thicker backsplash.

- **Inaccessible Devices**
  - May be inaccessible due to >24" reach if countertop lip is deeper than backsplash thickness.
  - Inaccessible due to >24" reach.

- **Accessibility**
  - Not to Scale
  - Full size printing: 11x17

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Reach Range Kitchen Examples

1. Tight Corner and Separate Work Surface

- Devices in this area accessible by side reach.
- Inaccessible devices (due to projecting appliance).
- An obstructing wall (see below) would prevent side reach to this area.
- Equivalent replacement device.
- Removable cabinet face (Adaptable Units).
- Outline of obstructing wall (if applicable).

2. Open Corner 48" min. Counter Adjacent to Range

- Devices within this area accessible by forward reach.
- Inaccessible devices (due to projecting appliance).
- An obstructing wall (see below) would prevent side reach to this area.
- Clear floor space.

Comparable Device Boxes

- Inaccessible Device Box
- Accessible Device Box
- Accessible Reach Range
- 30" x 48" Clear Floor Space

LEGEND

- "A" accessible by side reach from work surface
- "B" accessible by forward reach from work surface
- "C" inaccessible
- "D" inaccessible
- "E" accessible by side reach
- Accessible range hood control on cabinet face
- Quad outlet provided as comparable replacement for "C" and "D"
- "F" accessible by side reach
- "G" accessible by side reach
- Comparable replacement for "C"

Note:
- Every inaccessible outlet or control, whether required by the NEC or not, must be made up for on a 1:1 basis with a comparable accessible outlet in the same area and performing the same function.