SECTION 26 27 26
WIRING DEVICES
Design Standard

PART 1 GENERAL

1.1 PURPOSE

This design standard has the purpose of creating a consistent application of wiring devices throughout the San Mateo County Community College District, therefore achieving a standard of functionality, maintenance, reliability and quality throughout.

PART 2 PRODUCTS

2.1 Wiring devices are identified as the following but not limited to:

A. Wall Switches:
   1. Toggle type
   2. Pilot light toggle type (handle is on when load is energized)
   3. Lighted handle toggle type (handle is on when load is not energized)
   4. Key switches

B. Receptacles:
   1. Duplex receptacles
   2. Isolated ground receptacles
   3. Ground Fault Circuit Interrupter (GFCI) receptacles
   4. Tamper Resistant receptacles
   5. Special Purpose Receptacles (NEMA type as applicable)
   6. Wall Dimmers

2.2 All wiring devices to meet the following requirements based on Code requirements and industry standard of care:

A. Wall Switches:

1. The design professional shall, during the schematic design phase, ascertain from SMCCCD the lighting design requirements for each space. For example, smart classrooms require switching to allow for room darkening to support video projection while still providing adequate light for emergency egress, general circulation and note taking. Certain classrooms, for example for physics, art history or film require total room darkening capability. Some curriculum may have other specific lighting and switching requirements. All office and instructional spaces require occupancy sensors and possibly daylight sensors, for energy efficiency. Restrooms (single or multiple fixtures) should not have switch-controlled lighting; instead, they require occupancy sensors. Circulation areas, such as lobbies, vestibules, corridors and stairs, should not have switch-controlled lighting; instead, these spaces require lighting controlled by the BMS. Refer to Section 26 50 00 Lighting Design Standard for more information.

2. For Wall Switches:
   a. Characteristics: Toggle type, quiet acting, 20 amp, 120/277 volt, UL listed for motor loads up to 80 percent of rated amperage.
   b. Pilot Light Switches: Lighted handle, toggle type, red unless noted otherwise, neon pilot lamp. Pilot lamp energized when load is energized.

c. Lighted Handle Switches: Lighted handle, quiet acting, 20 amp, 120/277 volt, toggle type, red unless noted otherwise, neon lamp. Lamp energized when load is not energized.
d. Key Switches: 20 amp/120-277 volt, black key guide. Schlage core, per Physical Access Control & Security Management System Design Standard.
e. Finish: As selected by District. Provide District with optional colors for selection prior to specifying. In general, District prefers ivory switches. Smart Classroom front-of-classroom light switch to be of a distinct color, to facilitate teaching faculty's identification of that switch to activate smart classroom lighting.
f. Appearance: Provide lighting switches and receptacles of common manufacturer and appearance.
g. Brushed metal coverplates: stainless steel or bronze, to match other predominant architectural finishes.

B. Receptacles:

1. The design professional shall, during the schematic design phase, ascertain from SMCCCD the convenience receptacle design requirements for each space.
   a. Instructional areas: In new construction, convenience outlets should be installed every 6 feet and no more than 3 feet from any corner, to support users with laptops, chargers and other devices as well as to provide greatest flexibility in room use into the future. The same requirement applies to major renovations. However, this requirement is not reasonable for minor renovation projects.
   b. Circulation spaces: In new construction, convenience outlets should be installed to support custodial activities (plugging in vacuum cleaners, floor scrubbers, etc.) as well as provide greatest convenience and flexibility for facility users into the future.

2. For Receptacles:
   a. Commercial Grade: Riveted. Brass ground contact on steel mounting strap. 20 amp.
   b. Decorative Type: Back and side wired. 20 amp.
   c. Isolated Ground Receptacle: Isolated ground "delta" on receptacle face, same finish as standard duplex receptacles, 20 amp.
   d. Ground Fault Circuit Interrupter (GFCI) Receptacle: Meets or exceeds UL943 (Class A GFCI), UL498. Feed through type, back-and-side wired, 20 amp, 125VAC.
   e. Tamper-Resistant Receptacle: 20 amp, 125VAC, complies with CEC requirements for tamper-resistant outlets in areas where children under 6 years old are cared for.
   f. UL Wet-Listed Covers While-In-Use: NEMA 3R when closed over energized plug. Vertical mount for duplex receptacle. Provide continuous use cover with cover capable of closing over energized cord cap with bottom aperture for cord exit.
3. Brushed metal coverplates: stainless steel or bronze, to match other predominant architectural finishes.
4. For Wall Dimmers, size dimmers to accept connected load. Do not cut fins. Where dimmers are ganged together, provide a single multigang coverplate.
5. Conform to requirements of the CEC, latest adopted version with amendments by local AHJs.
6. Furnish products listed by UL or other testing firm acceptable to AHJ.
7. Federal Specification Compliance: Comply with Federal Specification WS896 and WC596 for switches and receptacles respectively.
8. NEMA Configuration: Comply with NEMA configurations and standards for general and special purpose wiring devices.

9. Orientation:
   a. Wall-Mounted Receptacles: Install with long dimension oriented vertically at centerline height shown on Drawings or specified herein.
   b. Vertical Alignment: When more than one outlet is shown on Drawings in close proximity to each other, but at different elevations, align the outlets on a common vertical center line for best appearance. Verify with Architect.
10. GFCI Outlets: One GFCI receptacle may be used to provide GFCI protection to downstream duplex receptacles on the same branch circuit provided the following conditions are met:
    a. The downstream receptacles are in the same room as the upstream GFCI duplex receptacles, and
    b. The downstream duplex receptacles are labeled as being protected by an upstream GFCI receptacle in the same room.
11. For quality control, provide testing of wiring devices to ensure electrical continuity of grounding connections, and after energizing circuitry, to demonstrate compliance with requirements. Test receptacles for line to neutral, line to ground and neutral to ground faults. Contractor to correct any defective wiring.
12. Provide receptacles controlled by local occupancy sensor for 50% of receptacles in all offices, conference rooms and break rooms. 50% shall be achieved by providing split receptacles with bottom outlet controlled and top outlet not controlled. Controlled receptacle to be clearly identified.

2.3 APPROVED MANUFACTURERS

A. Cooper
B. Hubbell
C. Leviton
D. Pass & Seymour

PART 3 EXECUTION

3.1 SUBSTITUTES ALLOWED?

Yes, if performance and quality equivalency can be evidenced.

3.2 ASSOCIATED DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS

A. 26 50 00 Lighting Design Standard
B. Division 26 Design Standards and Construction Specifications
C. Physical Access Control & Security Management System Design Standard

END OF SECTION