SECTION 16140

SWITCHES AND RECEPTACLES

# GENERAL

## DESCRIPTION

### This section describes materials and installation of light switches and receptacles.

## RELATED WORK SPECIFIED ELSEWHERE

### General Electrical Requirements: 16010.

## SUBMITTALS

### Submit shop drawings in accordance with the General Conditions.

### Submit material list for each type of switch, receptacle, and cover plate. Indicate type, ratings, material, color, and manufacturer.

## REFERENCES

### NEMA WD 1, General Purpose Wiring Devices.

### NEMA WD 6, Wiring Device Configurations.

## MEASUREMENT AND PAYMENT

### Payment for the work in this section shall be included as part of the lump-sum bid amount stated in the Proposal.

# MATERIALS

## GENERAL

### Provide switches and receptacles that are listed by Underwriters' Laboratories, Inc.

## RECEPTACLES

### **Duplex Receptacles:** Provide NEMA WD 1, molded composition, brown, specification grade receptacles. Duplex receptacles for 120-volt, single-phase, 3‑wire circuit to be rated 20 amperes, 125 volts, NEMA Type 5-20R.

### **Ground Fault Interrupter Duplex Receptacles:** Receptacles shall be rated 20 amperes and comply with UL-943, Class A. Provide Leviton 6398-HGI, 3M GFI‑2701, or equal.

### **Corrosion-Resistant Receptacles:** Provide corrosion-resistant receptacles for areas identified as "Corrosive Area" or wet areas in the drawings. Provide gray melamine, duplex receptacle, Hubbell 53CM62GY or equal.

### **Explosion-Proof Receptacles:** Provide explosion-proof receptacles for areas identified as "Hazardous Area" in the drawings or where receptacle is labeled "explosion proof." Provide explosion-proof outlet of the cast malleable iron type with sealing chamber to house receptacle. Unit shall be of dead front design with spring-loaded cover utilizing receptacle outlet as indicated. Provide watertight self-adjusting matching plug capable of securely locking to outlet with no danger of being accidentally withdrawn. Receptacle outlet shall be activated only after plug is inserted and rotated manually. Receptacle shall comply with NEC Class I, Division I, Groups B, C, and D. Provide Appleton "U-Line" series, Crouse-Hinds ENR series, or equal.

### Each outlet shall be labeled with the circuit breaker feeding the outlet. Permanently affix label to wall above outlet not the cover plate. Submit label type sample to EVMWD for review and approval.

### Outlets located outdoors shall be GFI type in NEMA 3R enclosure.

## PORTABLE GENERATOR DOCKING STATION

### Provide a Trystar portable generator docking station. Refer to the drawings for manufacturer and features.

## SWITCHES

### Switches shall be NEMA WD 1, molded composition, brown, specification grade, single pole, three way and four way as shown in the drawings.

### **120- or 277-Volt Lighting:** Provide switches rated 20 amperes, 120/277-volt a-c. Provide quiet operation, toggle-type switches.

### **Switches With Pilot Lights:** Provide switches with 125-volt, neon light with red jewel which is lighted when the switch is ON.

### **Explosion-Proof Switches:** Provide explosion-proof switches for areas identified as "Hazardous Area" in the drawings. Provide factory-sealed tumbler switches, 20 amperes, 120/277-volt a-c. Comply with NEC Class I, Division I, Groups C and D and Class II, Division I, Groups E, F, and G. Provide Appleton EDS series, Crouse-Hinds EDS series, or equal.

### Outdoor light switches shall be weatherproof.

### For lighting system to be interfaced with SCADA light switches shall be momentary ON/OFF with spring return to center position.

## COVER PLATES

### Provide engraved or etched cover plates to indicate equipment or area served for pilot switches, control circuit switches, three-gang or larger gang switches, and switches from which the equipment controlled cannot be readily seen. Lettering shall be 1/8 inch high with filler of black color. Provide a separate nameplate mounted above receptacle for receptacles without cover plates or where engraving or etching is impractical. Nameplate shall be as described in Section 16010 except with 1/8-inch-high lettering.

### In wet areas, areas subject to hosing down, areas identified as "Corrosive Area”, or where indicated, use individually gasketed weatherproof cover plates.

#### Switch plates shall be Carlon toggle switch cover part #E98TSCN-CAR or approved equal.

#### Receptacle plates shall be polycarbonate and NEMA 3R rated while in use. Ideal, Tay Mac Corporation, or equal.

### Provide satin stainless 430 plates in all remaining locations.

# EXECUTION

## MOUNTING

### Wall switches 48 inches to center, set vertically.

### Receptacles 18 inches to center, set vertically.

## GROUNDING

### Provide a bonding jumper between the grounded outlet box and the receptacle ground terminal.

## TESTING

### Operate each switch and verify that the load is turned on and off.

### Test each receptacle with a circuit tester that checks voltage, polarity, and grounded conditions. Repair or replace defective receptacles and repeat the test.

### GFI receptacles shall be tested with the circuits energized. Devices shall be tested with a portable GFI receptacle tester capable of circulating 7.5 ma of current, when plugged in, between the "hot" line and "ground" to produce tripping of the receptacle. Resetting and tripping shall be checked at least twice at each GFI receptacle. Contractor can perform testing with the proper test equipment.

### Portable Generator Receptacle:

#### Provide DISTRICT seven days’ advance notice for receptacle testing. DISTRICT will transport their portable generator to the site and make connections to the receptacle.

#### Verify correct voltage on all three motor control center phases while powered from the generator.

#### Bump motors to verify correct phase rotation. Reconnect terminations within the motor control center if rotation is not correct.

**END OF SECTION**