**SECTION 26 05 53**

**IDENTIFICATION FOR ELECTRICAL SYSTEMS**

**BASED ON DFD MASTER ELECTRICAL SPEC DATED 03/01/23**

This section has been written to cover most (but not all) situations that you will encounter. Depending on the requirements of your specific project, you may have to add material, delete items, or modify what is currently written. The Division of Facilities Development expects changes and comments from you.

***The consultant is to review the requirements of the project and include all aspects of identification necessary. This is to include a determination of the appropriate items as they apply to the project.***

**PART 1 - GENERAL**

**SCOPE**

The work under this section includes the requirements relating to the furnishing and installation of Identification for Electrical Systems. Included are the following topics:

PART 1 - GENERAL

 Scope

 Related Work

 Submittals

PART 2 - PRODUCTS

 Materials

PART 3 - EXECUTION

 General

 Box Identification

 Communication Conduit Labeling

 Power, Control and Signal Wire Identification

 Wiring Device Identification

 Support Wire Identification

 Nameplate Engraving for Electrical Equipment

 Panelboard Directories

**RELATED WORK**

Applicable provisions of Division 1 shall govern work under this section.

Section 26 05 19 – Low-Voltage Electrical Power Conductors and Cables

Section 26 05 23 – Control-Voltage Electrical Power Cables

Section 01 91 01 or 01 91 02 – Commissioning Process

**SUBMITTALS**

Include schedule for nameplates.

Prior to installation, the contractor shall provide samples of all label types planned for the project. These samples shall include examples of the lettering to be used. Samples shall be mounted on 8 1/2” x 11” sheets, explaining their purposed use.

**PART 2 - PRODUCTS**

**MATERIALS**

Labels: All labels shall be permanent, and machine generated. NO HANDWRITTEN OR NON-PERMANENT LABELS ARE ALLOWED.

Wire Labels: All wiring labels shall be white/transparent nylon or vinyl, self-laminating, wraparound type. Flag type labels are not allowed. The labels shall be of adequate size to accommodate the circumference of the cable being labeled and properly self-laminate over the full extent of the printed area of the label.

Tape (wiring phase identification only): Scotch #35 tape in appropriate colors for system voltage and phase. Embossed tape shall not be permitted for any application.

Nameplates: Engraved multi‑layer laminated plastic. See Electrical Equipment Identification in the Execution section for nameplate color and size requirements.

See Box Identification and Wiring Device Identification sections for allowed usage of permanent marker.

**PART 3 - EXECUTION**

**GENERAL**

Clean all surfaces before attaching labels with the label manufacturer’s recommended cleaning agent. Install all labels firmly as recommended by the label manufacturer. Labels shall be installed plumb and neatly on all equipment.

Install nameplates parallel to equipment lines. Secure nameplates to equipment fronts using screws, rivets or manufacturer approved adhesive or cement.

Provide all warning labels to electrical equipment as required per NEC 110.16 and 110.21. Provide available fault current labeling to service equipment as required per NEC 110.24.

Provide a sign at the service-entrance equipment indicating type and location of on-site emergency power sources and on-site legally required standby power sources, per NEC 700.7 and NEC 701.7.

Fire pump disconnecting means shall be identified as “Fire Pump Disconnecting Means”, per NEC 695.4(B)(3)(c).

Provide a sign at each service disconnect indicating “Service Disconnect”, per NEC 230.70(B).

Emergency circuits shall be permanently marked so they will be readily identified as a component of an emergency system per NEC 700.10(A)(2). Identification shall be made by the following methods:

1. All boxes and enclosures shall be permanently identified by box color(s) or nameplate(s) as indicated under the headings Box Identification or Electrical Equipment Identification below.
2. Where boxes or enclosures are not encountered, exposed cable or raceway shall be labeled as described under the heading Wire Labels above. Wire Labels shall be color coded as defined under the heading Box Identification below. Labels shall be applied at intervals not to exceed 7.6 m (25 ft).

BOX IDENTIFICATION

All junction and pull boxes shall be identified by color, based on the following color scheme:

***The consultant shall edit the following lists per specific project and occupancy.***

Power Systems Color(s)

Secondary Power – 480Y/277V Brown

Secondary Power – 208Y/120V, 240/120V White

Emergency (NEC 700) – 480Y/277V Brown/Red

Emergency (NEC 700) – 208Y/120V White/Red

Legally Required Standby (NEC 701) – 480Y/277V Brown/Blue

Legally Required Standby (NEC 701) – 208Y/120V White/Blue

Optional Standby (NEC 702) – 480Y/277V Brown/Yellow

Optional Standby (NEC 702) – 208Y/120V Black/Yellow

***If project falls under an Institutional I-2 Healthcare occupancy, utilize NEC 517 Essential Electrical System designations.***

Power Systems Color(s)

Secondary Power – 480Y/277V Brown

Secondary Power – 208Y/120V, 240/120V White

Life Safety (NEC 517) – 480Y/277V Brown/Red

Life Safety (NEC 517) – 208Y/120V White/Red

Critical (NEC 517) – 480Y/277V Brown/Orange

Critical (NEC 517) – 208Y/120V White/Orange

Equipment (NEC 517) – 480Y/277V Brown/Blue

Equipment (NEC 517) – 208Y/120V White/Blue

Optional Equipment (NEC 517) – 480Y/277V Brown/Yellow

Optional Equipment (NEC 517) – 208Y/120V Black/Yellow

Other Systems Color(s)

Fire Alarm Red

Temperature Control Green

Door Access Control Orange

Sound and Intercom Systems Gray

Video Surveillance System Yellow

Communications Blue

Lighting Control 0-10VDC Purple

Other Systems not identified above, boxes shall be left in natural finish and be further identified as shown on drawings or approved shop drawings.

The means of junction and pull box identification shall be as follows:

1. Boxes 8” Square or Smaller – Concealed (Above Accessible Ceilings).
* Color identified utilizing fully painted covers. If box contains power wiring, the box shall be further identified with circuit numbers and source panel designation, using machine-generated adhesive label or neatly hand-written permanent marker.
1. Boxes 8” Square or Smaller – Exposed.
* Color identified utilizing fully painted covers. If box contains power wiring, the box shall be further identified with circuit numbers and source panel designation, using machine-generated adhesive label or engraved nameplate.
1. Boxes Larger than 8” Square – Concealed (Above Accessible Ceilings).
* Color identified utilizing 4” x 4” minimum-sized painted patch, or color-correct machine-generated adhesive label. If box contains power wiring, the box shall be further identified with circuit numbers and source panel designation using machine-generated adhesive label or neatly hand-written permanent marker. Letter height shall be ½” minimum.
1. Boxes Larger than 8” Square – Exposed.
* Color identified utilizing 4” x 4” minimum-sized painted patch, or color-correct engraved nameplate. If box contains power wiring, the box shall be further identified with circuit numbers and source panel designation using engraved nameplate. Letter height shall be ½” minimum.

All fire alarm boxes (covers and outer sides) shall be painted red and labeled “Fire Alarm” or “FA”. When red conduit is used for the alarm system installation, there is no need to paint the box sides, - paint the covers only. Non-factory device boxes shall also be painted red.

# COMMUNICATIONS CONDUIT LABELING

Provide label on all conduits installed between Telecommunication Equipment Rooms. Both ends of the conduits shall be labeled. All labels shall be mechanical, no hand-written labels.

The label shall indicate the location of the far end of the conduit run and a unique conduit number. (i.e. TR-1A-01 or Room #216 – 01). Refer to agency standards where applicable.

**POWER, CONTROL AND SIGNALING WIRE IDENTIFICATION**

Provide wire labels on each conductor in panelboard gutters, all boxes, and at load connection. Identify with branch circuit or feeder number for power and lighting circuits, and with wire number as indicated on schematic and interconnection diagrams or equipment manufacturer's shop drawings for control and signaling wires.

All wiring shall be labeled within 2 to 4 inches of terminations. Each end of a wire or cable shall be labeled as soon as it is terminated, including wiring used for temporary purposes.

**WIRING DEVICE IDENTIFICATION**

Wall switches, receptacles, occupancy sensors, photocells, poke-through fittings, access floor boxes, and time clocks shall be identified with circuit numbers and panelboard source (ex. Panel ABC-3). In exposed areas, identifications should be made inside of device covers, unless directed otherwise. Use machine-generated adhesive labels, or neatly hand-written permanent marker.

**SUPPORT WIRE IDENTIFICATION**

Support wires that are installed in addition to the ceiling grid support wires to provide secure support for raceways, cables assemblies, boxes, cabinets, and fittings shall be distinguishable from the ceiling grid support wires per NEC 300.11(A). This identification shall be either approximately 6 inches of fluorescent orange paint, or orange tape flags 3/4 inches high-by-2 inches wide (minimum) within 12 inches of the bottom of the support wires.

**ELECTRICAL EQUIPMENT IDENTIFICATION**

Nameplates for all panelboards, circuit breakers, disconnect switches, and transformers shall be based on the following color scheme:

***A specific schedule may be included on the Contract Drawings, or specific schedules may be included in equipment sections to which they apply: Panelboards, for example.***

Power Systems Color(s)

Secondary Power – 480Y/277V White letters on Brown background

Secondary Power – 208Y/120V, 240/120V Black letters on White background

Emergency (NEC 700) – 480Y/277V Brown letters on Red background

Emergency (NEC 700) – 208Y/120V White letters on Red background

Legally Required Standby (NEC 701) – 480Y/277V Brown letters on Blue background

Legally Required Standby (NEC 701) – 208Y/120V White letters on Blue background

Optional Standby (NEC 702) – 480Y/277V Brown letters on Yellow background

Optional Standby (NEC 702) – 208Y/120V Black letters on Yellow background

***If project falls under an Institutional I-2 Healthcare occupancy, utilize NEC 517 Essential Electrical System designations:***

Power Systems Color(s)

Secondary Power – 480Y/277V Brown letters on White background

Secondary Power – 208Y/120V, 240/120V Black letters on White background

Life Safety (NEC 517) – 480Y/277V Brown letters on Red background

Life Safety (NEC 517) – 208Y/120V White letters on Red background

Critical (NEC 517) – 480Y/277V Brown letters on Orange background

Critical (NEC 517) – 208Y/120V White letters on Orange background

Equipment (NEC 517) – 480Y/277V Brown letters on Blue background

Equipment (NEC 517) – 208Y/120V White letters on Blue background

Optional Equipment (NEC 517) – 480Y/277V Brown letters on Yellow background

Optional Equipment (NEC 517) – 208Y/120V Black letters on Yellow background

Provide nameplates of minimum letter height as scheduled below:

All Panelboards (Distribution, Branch, Sub-feed, and Feed-Through), Switchboards and Motor Control Centers: 1 inch (25 mm); identify equipment designation (same designation used by the main distribution center). 1/2 inch (13 mm); identify voltage rating, source and room location of the source.

Panelboards serving NEC 700, 701 or 702 loads shall identify which branch they serve.

Both panels in a double tub application shall be labeled.

Circuit Breakers, Switches, and Motor Starters in Distribution Panelboards, Switchboards and Motor Control Centers: 1/2 inch (13 mm); identify circuit number and load served, including location.

Individual Disconnect Switches, Enclosed Circuit Breakers, and Motor Starters: ½ inch (13 mm); identify voltage, source and load served.

Transformers: 1 inch (25 mm); identify equipment designation. 1/2 inch (13 mm); identify primary and secondary voltages, primary source and location, and secondary load and location.

**PANELBOARD DIRECTORIES**

Typed directories for panelboards shall be covered with clear plastic and shall have a metal frame. Room number on directories shall be Owner's numbers, not Plan numbers unless Owner so specifies.

END OF SECTION