SECTION 16075 - ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Identification of electrical materials, equipment, and installations. It includes requirements for electrical identification components including, but not limited to, the following:
   1. Buried electrical line warnings.
   2. Identification labeling for cables and conductors.
   3. Operational instruction signs.
   4. Warning and caution signs.
   5. Equipment labels and signs.

1.02 SUBMITTALS

A. Shop Drawings: Submit in accordance with Section 01300, Shop Drawings covering the items included under this Section. Shop Drawing submittals shall include:
   1. Summary Sheet: Submit sheet that lists in tabular or matrix style the manufacturer, model and applicable part number for each piece of equipment. List shall include ratings and selected options.
   2. Product Data: Submit manufacturer's data (cut sheet) on labelling products and associated accessories. Only submit sheets that contain the equipment submitting. If a sheet contains other information, the spurious information shall be crossed out.

PART 2 - PRODUCTS

2.01 ELECTRICAL IDENTIFICATION PRODUCTS

A. Colored Adhesive Marking Tape for Wires and Cables: Self-adhesive, vinyl tape not less than 3 mils thick by 1 inch to 2 inches in width.
   1. 3M Manufacturer tape, no Or Equal.

B. Underground Line Marking Tape: Permanent, red colored, continuous printed, plastic tape compounded for direct-burial service not less than 6 inches wide by 4 mils thick. Printed legend indicative of general type of underground line below.

C. Wire/Cable Designation Tape Markers: Nylon-cloth, self-adhesive, wraparound, cable/conductor markers with pre-printed numbers and letter.

D. Non-conductive Material, Wraparound Cable Marker Bands: Bands cut from 0.014-inch-thick material, fitted with slots or ears for securing permanently around wire or cable jacket or around groups of conductors. Provide for legend application with etched letters or numbers.

E. Engraved, Plastic Laminated Labels, Signs, and Instruction Plates: Engraving stock melamine plastic laminate, 1/16 inch minimum thick for signs up to 20 square inches or 8 inches in length; 1/8-inch thick for larger sizes. Engraved legend in white letters on black face and punched for mechanical fasteners.

F. Baked Enamel Warning and Caution Signs for Interior Use: Pre-printed aluminum signs, punched for fasteners, with colors, legend, and size appropriate to the location.

G. Exterior Metal-Backed Butyrate Warning and Caution Signs: Weather-resistant, nonfading, pre-printed cellulose acetate butyrate signs with 20-gauge galvanized steel backing, with colors, legend, and size appropriate to location. Provide 1/4-inch grommets in corners for mounting.

H. Fasteners for Plastic Laminated and Metal Signs: Self-tapping stainless-steel screws or Number 10/32 stainless steel machine screws with nuts and flat and lock washers. Grind off excess screw length as required.

I. Cable Ties: UV-resistant, fungus-inert, self-extinguishing, one-piece, self-locking nylon cable ties, 0.18-inch minimum width, 50-pound minimum tensile strength, and suitable for a temperature range from minus 50 to 350 degrees F. Provide ties in the color black.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Lettering and Graphics: Coordinate names, abbreviations, colors, and other designations used in electrical identification Work with corresponding designations specified or indicated in the contract documents. Install numbers, lettering, and colors as approved in submittals and as required by Code.

B. Underground Electrical Line Identification: During trench backfilling for exterior nonconcrete encased underground power, signal, and communications lines, install continuous underground plastic line marker located directly above line at 6 to 8 inches below finished grade. Where multiple lines installed in a common trench, do not exceed an overall width of 16 inches; install a single line marker.

C. Install line marker for underground wiring in raceways.

D. Power Conductor Color Coding: Provide color coding for secondary service, feeder, and branch circuit conductors throughout the Project secondary electrical system following OWNER's method of phase identification or as follows:

Phase	480/277 Volts
A	Yellow
B	Brown
C	Orange
Neutral	Grey
Ground	Green

Phase	208/120 Volts
A	Blue
B	Black
C	Red
Neutral	White
Ground	Green

Phase	240/120 Volts
A	Black
B	Red
Neutral	White
Ground	Green

E. Non Power Wiring Standards:
   1. Motor Leads, Control Cabinet/MCC:
      a. Black — Numbered L1-T1, etc.
   2. Control Wiring:
      a. Red — Control circuit wiring locally sourced.
      b. Yellow — Control circuit wiring externally sourced.
      c. Blue — 24 VDC.
      d. Green — Equipment ground.
      e. Purple — Intrinsically safe wiring
      f. Green/Yellow stripe — Chassis ground
      g. Blue/White stripe — DC common

F. Use conductors with color factory applied entire length of conductors except as follows:
   1. The following field applied color-coding methods may be used in lieu of factory-coded wire for sizes larger than No. 10 AWG.
      a. Apply colored, pressure-sensitive plastic tape in half-lapped turns for a distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last 2 laps of tape with no tension to prevent possible unwinding. Use 1-inch-wide tape in colors as specified. Do not obliterate cable identification markings by taping. Tape locations may be adjusted slightly to prevent such obliteration.

G. Power Circuit Identification: Securely fasten identifying tags of non-conductive wraparound marker bands to cables, feeders, and power circuits in vaults, pull boxes, junction boxes, manholes, and switchboard rooms with 1/4-inch letter and number etchings with legend to correspond with designations on Drawings. If tags are provided, attach them with approximately 55-pound test monofilament line or one-piece self-locking nylon cable ties.

H. Install wire/cable designation tape markers at termination points, splices, or junctions in each circuit. Circuit designations shall be as indicated on Drawings.
   1. Wire indicator tag shall be ¾-inch to 1 ½-inches from the stripped conductor edge.
   2. Wiring between two devices shall be dual labelled at each end. Each end will have the local wire designation and the remote wire designation. The local wire designation shall be located closest to the stripped end.

END OF SECTION