CITY OF FORT WAYNE MASTER UPDATED: 11/16/18

SECTION 26 05 53

IDENTIFICATION FOR ELECTRICAL SYSTEMS

NTS: Coordinate this section with section 10 14 00, Signage.

1. general
   1. DESCRIPTION
      1. Scope:
         1. Contractor shall provide all labor, materials, equipment, and incidentals shown, specified, and required to furnish and install identification for electrical apparatus and electrical Work.
         2. Section Includes:
            1. Identification for raceways.
            2. Identification of power and control cables.
            3. Identification for conductors.
            4. Underground-line warning tape.
            5. Warning labels and signs.
            6. Instruction signs.
            7. Equipment identification labels.
            8. Miscellaneous identification products.
      2. Related Sections:

NTS: List below only sections covering products, construction, and equipment specifically identified in this section and specified in another section and directly referenced in this specification. Do not list Administrative and Procedural Division 01 Sections.

* + - 1. Section 26 05 19, Low Voltage Electrical Power Conductors and Cables.
      2. Section 26 05 13 Medium Voltage Cables
      3. Section 40 61 13, Process Control Systems General Provisions.

NTS: Edit article “1.2” below to suit the Project. DO NOT DELETE (NOT USED) ITEMS.

* 1. SUBMITTALS
     1. Action Submittals: Submit the following:
        1. Product Data
        2. Manufacturer’s literature, cut sheets, specifications, dimensions and technical data for all products proposed under this Section.
        3. Shop Drawings
           1. Complete description and listing of proposed electrical identification and electrical identification devices for associated equipment or systems.
           2. Conduit and wire identification numbering system and equipment signage.
           3. An index of nomenclature of electrical equipment and system components used in identification signs and labels.
        4. Samples
           1. For each type of label and sign to illustrate size, colors, lettering style, mounting provisions, and graphic features of identification products.
     2. Informational Submittals: (NOT USED)
        1. Certificates (NOT USED)
        2. Delegated Design Submittal (NOT USED)
        3. Test and Evaluation Reports (NOT USED)
        4. Manufacturers’ Instructions (NOT USED)
        5. Source Quality Control Submittals (NOT USED)
        6. Field Quality Control Submittals (NOT USED)
        7. Manufacturer Reports (NOT USED)
        8. Sustainable Design Submittals (NOT USED)
        9. Special Procedure Submittals (NOT USED)
        10. Qualifications Statements (NOT USED)
     3. Closeout Submittals. (NOT USED)
        1. Maintenance Contracts (NOT USED)
        2. Operation and Maintenance Data (NOT USED)
        3. Bonds (NOT USED)
        4. Warranty Documentation (NOT USED)
        5. Record Documentation (NOT USED)
        6. Sustainable Design Closeout (NOT USED)
        7. Software (NOT USED)
     4. Maintenance Material Submittals. (NOT USED)
        1. Spare Parts (NOT USED)
        2. Extra Stock Materials (NOT USED)
        3. Tools (NOT USED)
  2. QUALITY ASSURANCE
     1. Regulatory Requirements: Comply with the following:

NTS: Retain applicable laws and regulations and add others as required.

* + - 1. NEC Article 110, Requirements for Electrical Installation.
      2. NEC Article 210, Branch Circuits.
      3. NEC Article 215, Feeders.
      4. NEC Article 504, Intrinsically Safe Systems.
      5. NEC Article 700, Emergency Systems.
      6. NEC Article 701, Legally Required Standby Systems.
      7. NEC Article 702, Optional Standby Systems.
      8. 40 CFR 1910.145 (OSHA) – Specification for Accident Prevention Signs and Tags.
      9. ANSI A13.1and IEEE C2.
      10. NFPA 70.
      11. NFPA 79.
      12. 29 CFR 1910.144 and 29 CFR 1910.145.
      13. ANSI Z535.4 for safety signs and labels.
      14. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.
  1. FIELD CONDITIONS
     1. Coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual; and with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.
     2. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.
     3. Coordinate installation of identifying devices with location of access panels and doors.
     4. Install identifying devices before installing acoustical ceilings and similar concealment.

NTS: Edit “Part 2” to suit the project. Delete inapplicable items.

1. products
   1. MANUFACTURED UNITS
      1. Engraved Identification Devices (Nameplates and Legend Plates):
         1. Lettering size and line weight shall be the same for all legend plates on the same panel or enclosure.
         2. Nameplates:
            1. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch (10 mm).
            2. Engraved, Laminated Acrylic or Melamine Label: Punched or drilled for screw mounting. White letters on a dark-gray background. Minimum letter height shall be 3/8 inch (10 mm).
            3. Nameplates one-inch or less in height shall have one mounting hole at each end. Nameplates greater than one-inch in height shall have mounting holes in the four corners.
            4. Nameplates one-inch or less in height shall have one mounting hole at each end. Nameplates greater than one-inch in height shall have mounting holes in the four corners.
         3. Legend Plates:
            1. Legend plates for pushbuttons, pilot lights, selector switches, and other panel-mounted devices shall be large size with dimensions of approximately 2-7/16 inches wide by 2-13/32 inches tall (Allen Bradley large automotive size), plastic, custom engraved with black letters on white background.

Provide standard-size legend plates where devices are mounted on motor control centers and spacing of devices precludes using automotive-size legend plates.

* + 1. Safety Signs and Voltage Markers:
       1. Provide high voltage signs for equipment operating over 600 volts.
       2. High-Voltage Safety Signs for Outdoor Applications:
          1. Unless otherwise shown or indicated, high voltage safety signs shall be not less than 10 inches high by 14 inches wide, of fiberglass reinforced plastic, and shall comply with 40 CFR 1910.145. Signs shall resist fading from exposure to temperature extremes, ultraviolet light, abrasive, and corrosive environments, and shall read, “DANGER – HIGH VOLTAGE – KEEP OUT”
          2. Mounting hardware shall be Type 316 stainless steel. Nylon cable ties shall be permitted for applications that do not allow stainless steel hardware.
       3. High-Voltage Safety Signs for Indoor Applications:
          1. High voltage safety signs for installation on indoor equipment shall be either pressure-sensitive acrylic or vinyl, and shall be not less than 10 inches high by 14 inches wide, shall comply with 40 CFR 1910.145, and shall read, “DANGER – HIGH VOLTAGE – KEEP OUT”.
       4. Cable Tray Safety Signs:
          1. Cable tray safety signs shall be pressure-sensitive vinyl conforming to 40 CFR 1910.145, 5 inches by 3.5 inches in size, and shall read, “DANGER – HIGH VOLTAGE”
       5. Low-Voltage Safety Signs:
          1. Low voltage safety signs shall be pressure-sensitive vinyl complying with 40 CFR 1910.145, five inches by 3.5 inches in size, and shall read, “DANGER – 480 VOLTS”.
       6. Low-Voltage Markers:
          1. Low voltage markers shall be either pressure-sensitive vinyl or vinyl cloth with black lettering on orange background and shall read, “120 VOLTS”, “208 VOLTS”, “120/208 VOLTS”, or “240 VOLTS” as required.

NTS: Coordinate sign requirements with section 26 05 73, Electrical Power Distribution System Studies, and edit paragraph “C”, below, when necessary to suit the arc-flash labeling required for the project.

* + 1. Arc-flash Safety Signs:
       1. Warning signs shall be adhesive-backed polyester.
       2. Warning signs shall read, “Warning – Arc Flash and Shock Hazard. Appropriate PPE Required.” Arc flash warning signs shall indicate the flash protection boundary, incident energy in calories per square centimeter, hazard level, description of required protective clothing, shock hazard, limited approach boundary, restricted approach boundary, prohibited approach boundary, and equipment name.

NTS: Coordinate paragraph “D”, below, with buried warning tape specified in section 33 05 05, buried piping installation.

* + 1. Detectable Underground Warning Tape:
       1. Construction: Aluminum core encased with polyethylene
       2. Width: Six inches.
       3. Color Finish: Red
       4. Detectable Underground Warning Tape: “CAUTION: BURIED ELECTRICAL LINE BELOW”
       5. Detectable Underground Warning Tape: “CAUTION: BURIED FIBER OPTIC LINE BELOW”
       6. Detectable Underground Warning Tape: “CAUTION: BURIED CATV LINE BELOW”
       7. Detectable Underground Warning Tape: “CAUTION: BURIED TELEPHONE LINE BELOW”
    2. Thermal Printing System:
       1. Utilize thermal transfer printing system to provide non-smearing labels and markers.
  1. POWER RACEWAY IDENTIFICATION MATERIALS
     1. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway size.
     2. Colors for Raceways Carrying Circuits at 600 V or Less:
        1. Black letter on an Orange field
        2. Legend: Indicate voltage
     3. Colors for Raceways Carrying Circuits at More Than 600 V:
        1. Black letters on a red field.
        2. Legend: "DANGER CONCEALED HIGH VOLTAGE WIRING" with 3-inch- (75-mm-) high letters on 20-inch (500-mm) centers.
     4. Self-Adhesive Vinyl Labels for Raceways Carrying Circuits at 600 V or Less: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.
     5. Snap-Around Labels for Raceways Carrying Circuits at 600 V or Less: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.
  2. ARMORED AND METAL-CLAD CABLE IDENTIFICATION MATERIALS
     1. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.
     2. Colors for Raceways Carrying Circuits at 600 V and Less:
        1. Black letters on an orange field
        2. Legend: Indicate voltage
     3. Colors for Raceways Carrying Circuits at More Than 600 V:
        1. Black letters on a red field.
        2. Legend: "DANGER CONCEALED HIGH VOLTAGE WIRING" with 3-inch- (75-mm-) high letters on 20-inch (500-mm) centers.
     4. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.
     5. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; 2 inches (50 mm) wide; compounded for outdoor use.
  3. POWER AND CONTROL CABLE IDENTIFICATION MATERIALS
     1. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.
     2. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.
     3. Snap-Around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.
     4. Colors: Text shall be black letters on a white field
  4. CONDUCTOR IDENTIFICATION MATERIALS
     1. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils (0.08 mm) thick by 1 to 2 inches (25 to 50 mm) wide.
     2. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.
  5. INSTRUCTION SIGNS
     1. Engraved, laminated acrylic or melamine plastic, minimum 1/16 inch (1.6 mm) thick for signs up to 20 sq. inches (129 sq. cm) and 1/8 inch (3.2 mm) thick for larger sizes.
        1. Engraved legend with black letters on white face.
        2. Punched or drilled for mechanical fasteners.
        3. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.
     2. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch (10 mm). Overlay shall provide a weatherproof and UV-resistant seal for label.
  6. CABLE TIES
     1. General-Purpose Cable Ties: Fungus inert, self-extinguishing, one piece, self-locking, Type 6/6 nylon.
        1. Minimum Width: 3/16 inch (5 mm).
        2. Tensile Strength at 73 deg F (23 deg C), According to ASTM D 638: 12,000 psi (82.7 MPa).
        3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
        4. Color: Black.
     2. UV-Stabilized Cable Ties: Fungus inert, designed for continuous exposure to exterior sunlight, self-extinguishing, one piece, self-locking, Type 6/6 nylon.
        1. Minimum Width: 3/16 inch (5 mm).
        2. Tensile Strength at 73 deg F (23 deg C), According to ASTM D 638: 12,000 psi (82.7 MPa).
        3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
        4. Color: Black.
     3. Plenum-Rated Cable Ties: Self extinguishing, UV stabilized, one piece, self locking.
        1. Minimum Width: 3/16 inch (5 mm).
        2. Tensile Strength at 73 deg F (23 deg C), According to ASTM D 638: 7000 psi (48.2 MPa).
        3. UL 94 Flame Rating: 94V-0.
        4. Temperature Range: Minus 50 to plus 284 deg F (Minus 46 to plus 140 deg C).
        5. Color: Black.
  7. MISCELLANEOUS IDENTIFICATION PRODUCTS

NTS: Add applicable paint requirements, if Division 09 is not included.

* + 1. Paint: Comply with requirements in Division 09 painting Sections for paint materials and application requirements. Select paint system applicable for surface material and location (exterior or interior).
    2. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.
  1. FABRICATION
     1. Engraved Identification Devices (Nameplates and Legend Plates):
        1. Nameplate and legend plate text is preliminary and subject to change pending final review and approval of nomenclature by Engineer after start-up and testing.

NTS: Edit “PART 3” to suit the project. Delete inapplicable items.

1. execution
   1. INSTALLATION
      1. Provide electrical identification in accordance with manufacturer recommendations and as required for proper identification of equipment and materials.
      2. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.
      3. Apply identification devices to surfaces that require finish after completing finish work.

NTS: Add applicable paint requirements, if Division 09 is not included.

* + 1. Painted Identification: Comply with requirements in Division 09 painting Sections for surface preparation and paint application.
    2. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.
    3. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
    4. System Identification Color-Coding Bands for Raceways and Cables: Each color-coding band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot (15-m) maximum intervals in straight runs, and at 25-foot (7.6-m) maximum intervals in congested areas.
    5. Aluminum Wraparound Marker Labels and Metal Tags: Secure tight to surface of conductor or cable at a location with high visibility and accessibility.
    6. Cable Ties: For attaching tags. Use general-purpose type, except as listed below:
       1. Outdoors: UV-stabilized nylon.
       2. In Spaces Handling Environmental Air: Plenum rated.
       3. Twist off excess length. Ensure ends are smooth and round.
    7. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape per drawing detail. If no detail exists install directly above line at 6 to 8 inches (150 to 200 mm) below finished grade. Use multiple tapes where width of multiple lines installed in a common trench [**or concrete envelope**] exceeds 16 inches (400 mm) overall.

NTS: Add applicable paint requirements, if Division 09 is not included.

* + 1. Painted Identification: Comply with requirements in Division 09 painting Sections for surface preparation and paint application
    2. Engraved Identification Devices (Nameplates and Legend Plates):

NTS: Add applicable equipment to be labeled and remove equipment that is not applicable.

* + - 1. Equipment to Be Labeled:
         1. Panelboards: Typewritten directory of circuits in the location provided by panelboard manufacturer. Panelboard identification shall be self-adhesive, engraved or engraved, laminated acrylic or melamine label.
         2. Enclosures and electrical cabinets.
         3. Access doors and panels for concealed electrical items.
         4. Switchgear.
         5. Switchboards.
         6. Transformers: Label that includes tag designation shown on Drawings for the transformer, feeder, and panelboards or equipment supplied by the secondary.
         7. Substations.
         8. Emergency system boxes and enclosures.
         9. Motor-control centers.
         10. Enclosed switches.
         11. Enclosed circuit breakers.
         12. Enclosed controllers.
         13. Variable-speed controllers.
         14. Push-button stations.
         15. Power transfer equipment.
         16. Contactors.
         17. Remote-controlled switches, dimmer modules, and control devices.
         18. Battery-inverter units.
         19. Battery racks.
         20. Power-generating units.
         21. Monitoring and control equipment.
         22. UPS equipment.
      2. Unless otherwise indicated in the Contract Documents, attach permanent nameplates with permanent adhesive and with 3/16-inch diameter, round head, stainless steel machine screws into drilled and tapped holes.
      3. Provide nameplate with 1.5-inch high letters to identify each console, cabinet, control station, panel, or enclosure as shown or indicated.
      4. Provide nameplates for field-mounted motor starters, disconnect switches, manual starter switches, pushbutton stations, and similar equipment operating components, which shall describe motor or equipment function and circuit number.
      5. Provide nameplates with 1/2-inch high letters to identify each junction and terminal box shown or indicated.
      6. On control panel enclosures, provide nameplates for each main and feeder circuit including control fuses, and for each indicating light and instrument.
         1. Provide nameplate with 1.5-inch high letters giving switchgear designation, voltage rating, ampere rating, short circuit rating, manufacturer’s name, general order number, and item number.
         2. Identify individual door for each compartment with nameplate giving item designation and circuit number.

NTS: Engineer shall incorporate identification format on Contract Drawings.

* + - 1. Electrical Distribution Panel Identification
         1. Panel designator shall consist of the following designator and format: Four digit Building number followed by a colon followed by a one digit floor number, followed by Voltage Designation (H/L) and one digit panel number.
         2. Voltage Designation shall be “H” for 277/480 V and “L” for 120/208 V.
         3. Format: BBBB:FVP

Example: 1000:1H1

Building Number:1000

Floor Number:1

Voltage: 480 V

Panel Number:1

* + - 1. Switchgear:
         1. Provide nameplate with 1.5-inch letters with switchgear designation.
         2. Provide nameplates for each main and feeder circuit.
         3. Identify individual door for each unit compartment with nameplate identifying controlled equipment.
      2. Motor Control Centers:
         1. Provide nameplate with 1.5-inch letters with motor control center designation.
         2. Identify individual door for each unit compartment with nameplate identifying controlled equipment.
      3. Except conduit, all electrical appurtenances including lighting panels, convenience outlets, fixtures, and lighting switches, shall be provided with nameplates indicating appropriate circuit breaker number(s).
      4. Push Buttons:
         1. Provide legend plates for identification of functions.
         2. Provide nameplates for identification of controlled equipment.
         3. Name plates shall use the control panel reference designator and shall comply with NFPA 79.
      5. Pilot Lights:
         1. Provide legend plates for identification of functions.
         2. Provide nameplates for identification of controlled equipment.
         3. Name plates shall use the control panel reference designator and shall comply with NFPA 79.
      6. Selector Switches:
         1. Provide legend plates for identification of functions.
         2. Provide nameplates for identification of controlled equipment.
         3. Name plates shall use the control panel reference designator and shall comply with NFPA 79.
      7. Panel Mounted Instruments:
         1. Provide nameplates for identification of function.
         2. Name plates shall use the control panel reference designator and shall comply with NFPA 79.
      8. Interiors of Cabinets, Consoles, Panels, Terminal Boxes, and Other Enclosures:
         1. Provide nameplates for identification.
         2. Name plates shall use the control panel reference designator and shall comply with NFPA 79.
         3. Provide each item inside cabinet, console, panel, terminal box, or enclosure with laminated plastic nameplate as shown on approved Shop Drawings and Contractor’s other submittals. Install nameplates with adhesive.
         4. Interior items require nameplates and shall use the reference designators as indicated on the bill of materials and electrical schematics. Items include, but not limited to:

Terminal blocks and strips.

Bus bars.

Relays.

Rear of face-mounted items.

Rear of door-mounted items.

Interior mounted items that require identification when mounted externally.

PLC

UPS

Radio

Surge Protective Devices

* + - * 1. Circuit Breaker Directory:

1) Provide engraved laminated plastic directory listing function and load controlled for each circuit breaker within panel used for power distribution.

* + - 1. Re-label existing equipment whose designation have changed.
    1. Safety Signs and Voltage Markers:
       1. Provide safety signs and voltage markers on and around electrical equipment as shown or indicated.
          1. Install rigid safety signs using stainless steel fasteners.
          2. Clean surfaces before applying pressure-sensitive signs and markers.
       2. Install high voltage safety signs on all equipment doors providing access to uninsulated conductors, including terminal devices, greater than 600 volts.
       3. Provide cable tray safety signs on both sides of cable trays at maximum intervals of 20 feet. Install signs on side rails of tray as acceptable to Engineer.
          1. Label cable trays that contain conductors greater than 600 volts with cable tray safety signs.
          2. Cable trays that contain conductors greater than 208 volts and less than 600 volts shall be labeled with low voltage safety signs.
          3. Cable trays that contain conductors of 120/208 volts shall be labeled with low voltage markers.
          4. Label cable trays that contain intrinsically safe wiring or cables in accordance with NEC Article 504.
       4. Install low voltage safety signs on equipment doors that provide access to uninsulated 480-volt conductors, including terminal devices.
       5. Install low voltage markers on each terminal box, safety disconnect switch, and panelboard installed, modified, or relocated as part of the Work and containing 120/208 volt conductors.

NTS: Regarding paragraph “N”, below, refer to NEC 2005 210.5(c) [branch] and NEC 215.12(c) [feeders]

* + 1. Voltage System Identification Directories
       1. Provide voltage system identification directories as required by NEC Article 210 and NEC Article 215.
       2. Provide in each electrical room voltage system identification directory mounted on wall or door at each entrance to room.
       3. For panelboards, switchboards, motor control centers, and other branch circuit or feeder distribution equipment that are not located in electrical rooms, provide voltage system identification directory mounted on equipment.
          1. Directories shall be affixed using epoxy glue. Screws or bolts shall not penetrate equipment enclosures.
          2. Directories shall be readily visible and not obscure labels and other markings on equipment.
    2. Arc-flash Safety Signs:
       1. Provide arc-flash safety signs as required by NFPA 70..
       2. Provide signs for switchboards, panelboards, motor control centers, and industrial control panels. Provide signs for control panels that contain 480 volt equipment. Provide arc flash warning signs on other equipment where the incident energy is greater than 1.2 calories per square centimeter.
    3. Conduit Labels:
       1. Provide conduits with conduit labels unless otherwise shown or indicated.
       2. Do not label flexible conduit.
       3. Do not label exposed single conduit runs of less than 25 feet between local disconnect switches and their associated equipment.

NTS: Edit label requirements below when necessary to suit the labeling required for the project.

* + - 1. Conduit labels shall indicate the following information:
         1. Voltage
      2. Conduits that contain intrinsically safe wiring shall have an additional conduit marker provided that has blue letters on white background and reads, “INTRINSICALLY SAFE WIRING”.
         1. Install intrinsically safe pipe markers in accordance with NEC Article 504 along entire installation. Spacing between labels shall not exceed 25 feet.
      3. Provide conduit labels at the following locations:
         1. Where each conduit enters and exits walls, ceilings, floors, or slabs.
         2. Where conduit enters or exits boxes, cabinets, consoles, panels, or enclosures, except pull boxes and conduit bodies used for pull boxes.
         3. At maximum intervals of 50 feet along length of conduit.
      4. Orient conduit labels to be readable. Text shall be left to right on horizontal conduits and down to up on vertical conduits.
    1. Wire and Cable Identification:
       1. Color-coding of insulated conductors shall comply with Section 26 05 19 Low Voltage Electrical Power Conductors and Cables, and also comply with Section 26 05 13 Medium Voltage Cable
       2. Text shall be left to right on horizontal conduits and down to up on vertical conduits.
       3. Use wrap-around labels where wire or cable is to be labeled but is not terminated. Wire and cable shall be uniquely individually labeled. (i.e. Spare 1, Spare 2,….)
       4. Do not provide labels for the following:
          1. Bare (uninsulated) conductors, unless otherwise shown or indicated as labeled.
       5. Provide wire and cable labels for the following:
          1. New, rerouted, or revised wire or cable.
          2. Insulated conductors.
          3. Wire and cable terminations:

Wire labels shall be applied outside of the wireway between the wireway and the terminal.

Apply cable labels between 1/2-inch and one inch of cable breakout into individual conductors.

Label individual conductors in a cable after breakout as specified for wires.

* + - * 1. Wire or cable exiting cabinets, consoles, panels, terminal boxes, and enclosures.

Label wires or cables within two inches of entrance to conduit.

* + - * 1. Wire or cable in junction boxes and pull boxes

Label wires or cables within two inches of entrance to conduit.

* + - * 1. Wire and cable installed in cable tray.

Wire and cable shall have labels at maximum intervals of 20 feet.

* + - * 1. Wire and cable installed without termination in electrical manholes.

Wire and cable shall have wrap-around labels applied within one foot of exiting manhole.

* + - 1. Modified Cabinets, Consoles, Panels, and Enclosures:

NTS: Where existing equipment naming differs from format listed above Engineer shall coordinate with Owner.

* + - * 1. New or rerouted wire or cable in existing cabinets, consoles, panels, and enclosures shall be labeled using the same format and designation as shown above where possible. Where existing equipment naming differs from format listed above coordinate with Owner.
    1. Terminal Strip Labeling:
       1. Label panel side of terminal to match panel wire number.
       2. Label field side of terminal to match field wire number.
    2. Generator System Warning Signs:
       1. Provide warning signs for generator systems as required by NEC.
       2. Install generator location warning sign on or immediately adjacent to service equipment, or to “normal” source disconnecting means when generator is located out of sight of service equipment or disconnecting means.
       3. Install generator grounding warning sign on enclosure or immediately adjacent to point where generator neutral is connected to grounding electrode system if connection is made remote from generator.

+ + END OF SECTION + +