

- SECTION 16 0500 - COMMON WORK RESULTS FOR ELECTRICAL
- 1.1 SUMMARY
- A. Section Includes:
- Common electrical installation requirements.
- 1.2 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION
- A. Comply with NECA 1.
- B. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.
- C. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.
- D. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.
- E. Right of Way: Give to piping systems installed at a required slope.
- F. Contractor shall provide rough-in for and connect to the following equipment furnished by others. Equipment will be provided by other contractors or owner. Secure rough-in information, connection requirements, and templates from equipment supplier. Verify all equipment voltage and power requirements:
- Plumbing and HVAC equipment.
  - Electric motors.
- 1.3 FIRE-STOPPING
- A. Apply fire-stopping to penetrations of fire-rated floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly. Fire-stopping materials and installation requirements are specified in Division 07 Section "Penetration Fire-stopping."
- 1.4 SEISMIC REQUIREMENTS
- C. Provide bracing and supports to meet code required seismic ratings.

- SECTION 16 0519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
- 1.1 SUMMARY
- A. This Section includes the following:
- Building wires and cables rated 600 V and less.
  - Connectors, splices, and terminations rated 600 V and less.
- 1.2 QUALITY ASSURANCE
- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.
- 1.3 CONDUCTORS AND CABLES
- A. Copper and Aluminum Conductors: Comply with NEMA WC 70.
- B. Conductor Insulation: Comply with NEMA WC 70 for Types THHN-THWN and XHHW.
- C. Multi-conductor Cable: Comply with NEMA WC 70 for metal-clad cable, Type MC with ground wire.
- 1.4 CONDUCTOR MATERIAL APPLICATIONS
- A. Feeders: Copper for feeders smaller than No. 3 AWG; copper or aluminum for feeders No. 4 AWG and larger. Solid for No. 12 AWG and smaller; stranded for No. 10 AWG and larger.
- B. Branch Circuits: Copper. Solid for No. 12 AWG and smaller; stranded for No. 10 AWG and larger.
- 1.5 CONDUCTOR INSULATION AND MULTI-CONDUCTOR CABLE APPLICATIONS AND WRING METHODS
- A. Service Entrances: Type THHN-THWN, single conductors in raceway or type XHHW, single conductors in raceway.
- B. Exposed Feeders: Type THHN-THWN, single conductors in raceway.
- C. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspace: Type THHN-THWN, single conductors in raceway.
- D. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-THWN, single conductors in raceway.
- E. Exposed Branch Circuits, Including in Crawlspace: Type THHN-THWN, single conductors in raceway.
- F. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway or Metal-clad cable, Type MC.
- G. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-THWN, single conductors in raceway.
- 1.6 INSTALLATION OF CONDUCTORS AND CABLES
- A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.
- B. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

- SECTION 16 0526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
- 1.1 SUMMARY
- A. This Section includes methods and materials for grounding systems and equipment.
- 1.2 QUALITY ASSURANCE
- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with UL 467 for grounding and bonding materials and equipment.
- 1.3 APPLICATIONS
- A. Conductors: Install solid conductor for No. 12 AWG and smaller, and stranded conductors for No. 10 AWG and larger, unless otherwise indicated.
- 1.4 EQUIPMENT GROUNDING
- A. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:
- Feeders and branch circuits.
  - Lighting circuits.
  - Receptacle circuits.
  - Single-phase motor and appliance branch circuits.
  - Three-phase motor and appliance branch circuits.

- SECTION 16 0529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS
- 1.1 SUMMARY
- A. Section includes:
- Hangers and supports for electrical equipment and systems.
  - Construction requirements for concrete chases.
- 1.2 PERFORMANCE REQUIREMENTS
- A. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.
- B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
- 1.3 QUALITY ASSURANCE
- A. Comply with NFPA 70.

- SECTION 16 0533 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS
- 1.1 SUMMARY
- A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.
- 1.2 QUALITY ASSURANCE
- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.
- 1.3 METAL CONDUIT AND TUBING
- A. Rigid Steel Conduit: ANSI C80.1.
- B. IMC: ANSI C80.6.
- C. EMT: ANSI C80.3.
- D. FMC: Zinc-coated steel.
- E. LFMC: Flexible steel conduit with PVC jacket.
- F. Fittings for Conduit (Including all Types and Flexible and Liquidtight), EMT, and Cable: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.
- Fittings for Hazardous (Classified) Locations: Comply with UL 886.
  - Fittings for EMT: Steel, set-screw, or compression type.
- 1.4 NONMETALLIC CONDUIT AND TUBING
- A. ENI: NEMA TC 13.
- B. RNC: NEMA TC 2, Type EPC-40-PVC, unless otherwise indicated.
- C. LFNC: UL 1660.
- D. Fittings for ENI and RNC: NEMA TC 3; match to conduit or tubing type and material.
- E. Fittings for LFNC: UL 514B.
- 1.5 BOXES, ENCLOSURES, AND CABINETS
- A. Sheet Metal Outlet and Device Boxes: NEMA OS 1.
- B. Cast-Metal Outlet and Device Boxes: NEMA FB 1, aluminum, Type FD, with gasketed cover.
- C. Nonmetallic Outlet and Device Boxes: NEMA OS 2.
- 1.6 RACEWAY APPLICATION
- A. Outdoors: Apply raceway products as specified below, unless otherwise indicated:
- Exposed Conduit: Rigid steel conduit or RNC, Type EPC-40-PVC.
  - Concealed Conduit, Aboveground: Rigid steel conduit or RNC, Type EPC-40-PVC.
  - Underground Conduit: RNC, Type EPC-40-PVC, direct buried.
  - Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
- B. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.
- C. Comply with the following indoor applications, unless otherwise indicated:
- Exposed, Not Subject to Physical Damage: EMT.
  - Exposed, Not Subject to Severe Physical Damage: EMT.
  - Exposed and Subject to Severe Physical Damage: Rigid steel conduit.
  - Concealed in Ceilings and Interior Walls and Partitions: EMT.
  - Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
  - Damp or Wet Locations: Rigid steel conduit.
  - Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4, nonmetallic in damp or wet locations.

- SECTION 16 0533 - IDENTIFICATION FOR ELECTRICAL SYSTEMS
- 1.1 SUMMARY
- A. Section Includes:
- Identification for raceways.
  - Identification of power and control cables.
  - Identification for conductors.
  - Equipment identification labels.
  - Miscellaneous identification products.
- 1.2 EQUIPMENT IDENTIFICATION LABELS
- A. 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.
- 1.3 IDENTIFICATION SCHEDULE
- A. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Service, Feeder, and Branch Circuits More Than 30 A, and 120 V to ground: Install labels at 30-foot maximum intervals.
- B. Power-Circuit Conductor Identification, 600 V or Less: For conductors in ducts, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.
1. Color-Coding for Phase Identification, 600 V or Less: Use color-coding for ungrounded conductors.
- a. Color shall be factory applied or field applied to sizes larger than 10 AWG, if authorities having jurisdiction permit.
- b. Colors for 208/120-V Circuits: Colors for 120/277-V Circuits:
- Phase A: Brown
  - Phase B: Red
  - Phase C: Blue
  - Neutral: Gray
- c. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, control master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

- SECTION 16 2416 - PANELBOARDS
- 1.1 SUMMARY
- A. Section includes lighting and appliance branch-circuit panelboards.
- 1.2 QUALITY ASSURANCE
- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- 1.3 GENERAL REQUIREMENTS FOR PANELBOARDS
- A. Enclosures: Flush- and surface-mounted cabinets.
- Rated for environmental conditions at installed location.
  - Indoor Dry and Clean Locations: NEMA 250, Type 1.
  - Outdoor Locations: NEMA 250, Type 3R.
  - Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match

- box dimensions; for flush-mounted fronts, overlap box.
- Directory Card: Inside panelboard door, mounted in transparent card holder.
- Phase, Neutral, and Ground Buses: Tin-plated aluminum.
- Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals.
- 1.4 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS
- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- Eaton Electrical Inc.; Cutler-Hammer Business Unit.
  - General Electric Company; GE Consumer & Industrial - Electrical Distribution.
  - Siemens Energy & Automation, Inc.
  - Square D; a brand of Schneider Electric.
- B. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.
- C. Mains: Circuit breaker.
- D. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units. Where multi-wire branch circuits are utilized provide multi-pole circuit breakers or manufacturer provided handle ties.
- E. Doors: Concealed hinges; secured with flush latch with tumblers lock; keyed alike.
- F. Service entrance rated.
- 1.5 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES
- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- Eaton Electrical Inc.; Cutler-Hammer Business Unit.
  - General Electric Company; GE Consumer & Industrial - Electrical Distribution.
  - Siemens Energy & Automation, Inc.
  - Square D; a brand of Schneider Electric.
- B. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.
- Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
  - GFCI Circuit Breakers: Single- and two-pole configurations with Class A ground-fault protection (6-mA trip).
  - Ground-Fault Equipment Protection (GFEF) Circuit Breakers: Class B ground-fault protection (30-mA trip).
- 1.6 INSTALLATION
- A. Install filler plates in unused spaces.
- B. Comply with NECA 1.
- 1.7 IDENTIFICATION
- A. Create a directory to indicate installed circuit loads and incorporating Owner's final room designations. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.
- B. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

- SECTION 16 2726 - WIRING DEVICES
- 1.1 SUMMARY
- A. This Section includes the following:
- Receptacles, receptacles with integral GFCI, and associated device plates.
  - Snap switches and wall-box dimmers.
  - Wall-switch occupancy sensors.
- 1.2 MANUFACTURERS
- A. Manufacturers' Names: Shortened version (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:
- Copper Wiring Devices; a division of Cooper Industries, Inc. (Cooper)
  - Hubbell Incorporated; Wiring Devices (Hubbell)
  - Leviton Mfg. Company (Leviton)
  - Pass & Seymour/Legrand; Wiring Devices & Accessories (Pass & Seymour)
  - Lutron Electronics.
- 1.3 STRAIGHT-BLADE RECEPTACLES
- A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 configurations 5-267 and UL 498.
- 1.4 GFCI RECEPTACLES
- A. General Description: Straight blade, feed-through type. Comply with NEMA WD 1, NEMA WD 11, UL 98, and UL 943, Class A, and include indicator light that is lighted when device is tripped.
- B. Snap GFCI Convenience Receptacles, 125 V, 20 A:
- SNAP SWITCHES
- A. Comply with NEMA WD 1 and UL 20.
- B. Switches, 120/277 V, 20 A:
- 1.7 OCCUPANCY SENSORS
- A. Wall-Switch Sensors:
- Available Products: Subject to compliance with requirements, products that may be incorporated into the work include, but are not limited to, the following:
    - Sensor Switch WSD-PDT-V.
    - Hubbell LH1ST
    - Watt Stopper DW-100
    - Leviton OSSM-FD
    - Equus
  - Description: Dual-technology type (PIR and Ultrasonic/Phonic), 120/277 V, adjustable time delay up to 20 minutes, 180-degree field of view, with a minimum coverage area of 400 sq. ft.
- 1.8 WALL PLATES
- A. Single and combination types to match corresponding wiring devices.
- Plate-Securing Screws: Metal with head color to match plate finish.
  - Material for Finished Spaces: Smooth, high-impact thermoplastic.
  - Material for Unfinished Spaces: Galvanized steel.
  - Material for Damp Locations: Cast aluminum with spring-loaded lift cover, and listed and labeled for use in "wet locations." Paintable.
- B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with Type 3R weather-resistant, die-cast aluminum with lockable cover. Paintable.
- 1.9 FINISHES
- A. Color: Wiring device catalog numbers in Section Text do not designate device color.
- Wiring Devices and covers: As directed by the Architect, unless otherwise indicated or required by NFPA 70 or device listing. Architect reserves the right to request multiple device finishes.
- 1.10 INSTALLATION
- A. Comply with NECA 1, including the mounting heights listed in that standard, unless otherwise noted. See drawings.
- B. Conductors:

- The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtail.
- Existing Conductors:
  - Out back and pigtail, or replace all damaged conductors.
  - Pigtail existing conductors is permitted provided the outlet box is large enough.
- Receptacle Orientation:
  - Install ground pin of vertically mounted receptacles down, and on horizontally mounted receptacles to the right.
- Receptacles Connections:
  - Provide pigtail in each receptacle box. Do not use feed through lugs on receptacles.

- SECTION 16 2816 - ENCLOSED SWITCHES
- 1.1 SUMMARY
- A. Section Includes:
- Fusible switches.
  - Non-fusible switches.
  - Enclosures.
- 1.2 QUALITY ASSURANCE
- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- 1.3 MANUFACTURERS
- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- Eaton Electrical Inc.; Cutler-Hammer Business Unit.
  - General Electric Company; GE Consumer & Industrial - Electrical Distribution.
  - Siemens Energy & Automation, Inc.
  - Square D; a brand of Schneider Electric.
- 1.4 FUSIBLE SWITCHES
- A. Type G0, General Duty, Single Throw, 240-V ac, 800 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, with cartridge fuse interiors to accommodate indicated fuses, lockable handle with capability to accept two padlocks, and interlocked with cover in closed position.
- 1.5 NON-FUSIBLE SWITCHES
- A. Type G0, General Duty, Single Throw, 600 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept two padlocks and interlocked with cover in closed position.
- 1.6 ENCLOSURES
- A. Enclosed Switches: NEMA AB 1, NEMA KS 1, NEMA 250, and UL 508, comply with environmental conditions at installed location.
- Indoor, Dry and Clean Locations: NEMA 250, Type 1.
  - Outdoor Locations: NEMA 250, Type 3R.
- 1.7 IDENTIFICATION
- A. Label each enclosure with engraved steel or laminated plastic nameplate.

- SECTION 16 3100 - LIGHTING
- 1.1 SUMMARY
- A. Section Includes:
- Interior lighting fixtures, ballasts, and ballasts.
  - Emergency lighting units.
  - Lighting fixture supports.
- 1.2 QUALITY ASSURANCE
- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- 1.3 EXTRA MATERIAL
- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents:
- Lamps: 1 for every 10 of each type and rating installed unless noted otherwise. Furnish at least one of each type. Provide 1 for every 1 of each 12V lamp.
  - Plastic Diffusers and Lenses: 1 for every 100 of each type and rating installed. Furnish at least one of each type.
  - Ballasts: 1 for every 30 of each type and rating installed. Furnish at least one of each type.
  - Globes and Guards: 1 for every 20 of each type and rating installed. Furnish at least one of each type.
- 1.4 MANUFACTURERS
- A. Products: Subject to compliance with requirements, provide one of the products indicated on Drawings.
- 1.5 GENERAL REQUIREMENTS FOR LIGHTING FIXTURES AND COMPONENTS
- A. Recessed Fixtures: Comply with NEMA LE 4 for ceiling compatibility for recessed fixtures.
- B. Incandescent Fixtures: Comply with UL 1598.
- C. Fluorescent Fixtures: Comply with UL 1598.
- D. HID Fixtures: Comply with UL 1598. Metal Parts: Free of burrs and sharp corners and edges.
- E. Sheet Metal Components: Steel unless otherwise indicated. Form and support to prevent warping and sagging.
- F. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.
- G. Diffusers and Globes:
- Acrylic Lighting Diffusers: 100 percent virgin acrylic plastic. High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
  - Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.
  - UV stabilized.
  - Glass: Annealed crystal glass unless otherwise indicated.
- 1.6 BALLASTS FOR LINEAR FLUORESCENT LAMPS
- A. General Requirements for Electronic Ballasts:
- Comply with UL 935 and with ANSI C82.11.
  - Designed for type and quantity of lamps served.
  - Ballasts shall be designed for full light output unless another BF, dimmer, or bi-level control is indicated.
  - Sound Rating: Class A.
  - Total Harmonic Distortion Rating: Less than 20 percent.
  - Transient Voltage Protection: IEEE C62.41.1 and IEEE C62.41.2, Category A or better.
  - Operating Frequency: 42 kHz or higher.
  - Lamp Current Crest Factor: 1.7 or less.
  - BF: 0.88 or higher unless otherwise indicated.
  - Power Factor: 0.95 or higher.
- B. Ballasts for Low-Temperature Environments:
- Temperatures 0 Deg F and Higher: Electronic type rated for 0 deg F starting and operating temperature with indicated lamp types.
- 1.7 BALLASTS FOR HID LAMPS IF USED
- A. Electronic Ballast for Metal-Halide Lamps: Include the following features unless otherwise indicated:

- Minimum Starting Temperature: Minus 20 deg F for single-lamp ballasts.
  - Rated Ambient Operating Temperature: 130 deg F.
  - Lamp end-of-life detection and shutdown circuit.
  - Sound Rating: Class A.
  - Total Harmonic Distortion Rating: Less than 20 percent.
  - Transient Voltage Protection: IEEE C62.41.1 and IEEE C62.41.2, Category A or better.
  - Lamp Current Crest Factor: 1.5 or less.
  - Power Factor: 0.90 or higher.
  - Interference: Comply with 47 CFR 18, Ch. 1, Subpart C, for limitations on electromagnetic and radio-frequency interference for non-consumer equipment.
  - Protection: Class P thermal cutoff.
- 1.8 EXIT SIGNS
- A. General Requirements for Exit Signs: Comply with UL 924; for sign colors, visibility, luminance, and lettering size, comply with authorities having jurisdiction.
- B. Internally Lighted Signs:
- Lamps for AC Operation: LEDs, 50,000 hours minimum rated lamp life.
  - Self-Powered Exit Signs (Battery Type): Integral automatic charger in a self-contained power pack.
    - Battery: Sealed, maintenance-free, nickel-cadmium type.
    - Charger: Fully automatic, solid-state type with sealed triac relay.
    - Operation: Relay automatically energizes lamp when battery on circuit voltage drops to 80 percent of nominal voltage or below. When normal voltage is restored, relay disconnects lamps from battery, and battery is automatically recharged and floated on charger.
    - Test Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.
    - LED Indicator Light: Indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.
- 1.9 EMERGENCY LIGHTING UNITS
- A. General Requirements for Emergency Lighting Units: Self-contained units complying with UL 924.
- Battery: Sealed, maintenance-free, lead-acid type.
  - Charger: Fully automatic, solid-state type with sealed transfer relay.
  - Operation: Relay automatically turns lamp on when power-supply circuit voltage drops to 80 percent of nominal voltage or below. Lamp automatically disconnects from battery when voltage approaches deep-discharge level. When normal voltage is restored, relay disconnects lamps from battery, and battery is automatically recharged and floated on charger.
  - Test Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.
  - LED Indicator Light: Indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.
  - Wire Guard: Heavy-chrome-plated wire guard protects lamp heads or fixtures.
- 1.10 FLUORESCENT LAMPS
- A. TB rapid-start lamps, 2950 initial lumens (minimum), CRI 85 (minimum), color temperature 3500 K, and average rated life 30,000 hours unless otherwise indicated.
- 1.11 HID LAMPS
- A. Ceramic, Pulse-Start, Metal-Halide Lamps: Minimum CRI 80, and color temperature 4000 K.



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| Rev. No. | Description                  | Date     |
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| ▲        | ISSUED FOR BID AND PERMIT    | 03/29/19 |
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**Salem Gate Market**

**NORTHERN TOOL + EQUIPMENT**

**ANCHOR 2B**  
1454 OLD SALEM ROAD  
CONYERS, GEORGIA

ELECTRICAL SPECIFICATIONS

| Date:        | Drawn: | Sheet No.: |
|--------------|--------|------------|
| 03/29/19     | AK     | E-500      |
| Project No.: | Rev.:  |            |
| 18.112       | AR     |            |

