

SECTION 260500 - COMMON WORK RESULTS FOR ELECTRICAL
PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings: E0.1 and E1.1

1.2 SUMMARY

A. This section includes the following
1. Electrical equipment coordination and installation.
2. Common electrical installation requirements.

1.3 COORDINATION

A. Coordinate arrangement, mounting, and support of electrical equipment:
1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
B. All wiring required for controls and instrumentation not indicated on the drawings shall be furnished and installed by Division 23.
C. The sequence of control for all equipment shall be as indicated on the Division 23 Drawings and specified in Section 23, HVAC Control System.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by standard electrical supply manufacturers.

2.2 INSPECTIONS

A. Contractor shall contact the Mecklenburg County Inspections to schedule electrical inspections and to schedule a final inspection.

PART 3 - EXECUTION

3.1 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

A. Comply with NECA 1.
B. Comply with NEC
C. Comply with North Carolina Electrical Building Code
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. EMT to be used only in dry indoor locations with steel compression fittings and connectors.

END SECTION 260500

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings: E0.1 and E1.1

1.2 SUMMARY

A. This section includes the following
1. Requirements for building wire and cable

1.3 COORDINATION

A. Coordinate electrical testing of electrical items, so equipment and systems that are functionally interdependent are tested to demonstrate successful interoperability.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by standard electrical supply manufacturers.
B. All building wire and cables should be listed by a North Carolina "approved" third party testing agency

2.2 INSPECTIONS

A. Contractor shall contact the Mecklenburg County Inspections to schedule electrical inspections and to schedule a final inspection.

PART 3 - EXECUTION

3.1 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

A. Comply with NECA 1.
B. Comply with NEC
C. Comply with North Carolina Electrical Building Code

3.2 WORK REQUIREMENTS FOR ELECTRICAL INSTALLATION

A. Provide and install an individual neutral wire for each branch circuit.
B. Conductors for power and lighting that are sized #10 AWG and smaller shall be solid copper conductors. All power conductors that are #8 AWG and larger shall be class B stranded copper conductors.
C. The minimum size for power branch circuit wiring is #12 AWG.
D. Fire alarm and control wiring may be equipped with stranded conductors that are sized #10 AWG.
E. Branch circuit conductors should be sized to prevent a voltage drop exceeding 3% and the maximum voltage drop on both feeders and branch circuits should not exceed 5%.
F. Provide and install a full size individual neutral wire for each circuit.
G. The insulation type for interior wiring shall be dual-rated THHN/THWN or XHHW.
H. Where the conductor length from the panel to the first outlet on a 277 volt circuit exceeds 125 feet, the branch circuit conductors from the panel to the first outlet shall not be smaller than #10 AWG.
I. Where the conductor length from the panel to the first outlet on a 120 volt circuit exceeds 50 feet, the branch circuit conductors from the panel to the first outlet shall not be smaller than #10 AWG.
J. Joints in solid conductors shall be spliced using a real "wisemutts" Company "Scotchlock" or T&B connectors in junction boxes, outlet boxes and lighting fixtures.
K. "Sta-kon" or other permanent crimp connectors shall not be used for branch circuit connections.
L. Joints in stranded conductors shall be spliced by approved mechanical connectors and gum rubber tape connection. Solderless mechanical connectors for splices and taps, provided with UL approved insulation covers, may be used instead of mechanical connectors plus tape.
M. Conductors in all cases shall be continuous from outlet to outlet and no splicing shall be permitted in outlet or junction boxes, troughs and gutters.
N. Feeder, branch circuits shall be color coded.

END SECTION 260519

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings: E0.1 and E1.1

1.2 SUMMARY

B. This section includes the following
2. Grounding and bonding for raceways

1.3 COORDINATION

A. Coordinate electrical testing of electrical items, so equipment and systems that are functionally interdependent are tested to demonstrate successful interoperability.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by standard electrical supply manufacturers.
B. All building wire and cables should be listed by a North Carolina "approved" third party testing agency

2.2 INSPECTIONS

A. Contractor shall contact the Mecklenburg County Inspections to schedule electrical inspections and to schedule a final inspection.

PART 3 - EXECUTION

3.1 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

A. Comply with NECA 1.
B. Comply with NEC
C. Comply with North Carolina Electrical Building Code

3.2 WORK REQUIREMENTS FOR ELECTRICAL INSTALLATION

A. The raceway system shall be not be relied on for ground continuity. A green grounding conductor, properly sized per NEC Table 250-122, shall be run in all power raceways.
B. Provide and install a green grounding conductor in all power
C. Test grounding and bonding system with a ground resistance tester demonstrating the resistance to ground is less than 25 ohms. Where the resistance is more than 25 ohms additional grounding will be required.
D. Grounding conductors, where insulated, shall be colored solid green. Conductors intended as neutral shall be colored solid white on 120/208 volt circuits and natural gray on 277/480 volt circuits.

END SECTION 260526

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings: E0.1 and E1.1

1.2 SUMMARY

A. This section includes the following
1. Identification and labeling electrical systems

1.3 COORDINATION

A. Electrician will properly label all electrical equipment with labels.

PART 3 - EXECUTION

3.1 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

A. Comply with NECA 1.
B. Comply with NEC
C. Comply with North Carolina Electrical Building Code

3.2 WORK REQUIREMENTS FOR ELECTRICAL INSTALLATION

A. Furnish and install engraved laminated phenolic nameplates for all safety switches, panelboards, transformers, switchboards, motor control centers and other electrical equipment supplied for the project for identification. Nameplates shall be securely attached to equipment with self-tapping stainless steel screws; if the screw sharp edge is protected, otherwise Rivets shall be used. Letters shall be approximately 1/2 inch high minimum. Embossed, self-adhesive plastic tape is not acceptable for marking equipment. Nameplate material colors shall be:
1. Blue surface with white core for 120/208 volt equipment.
2. Black surface with white core for 277/480 volt equipment.
3. Bright red surface with white core for all equipment related to fire alarm system.
4. Dark red (burgundy) surface with white core for all equipment related to security.
5. Green surface with white core for all equipment related to "emergency" systems.
6. Orange surface with white core for all equipment related to telephone systems.
7. Brown surface with white core for all equipment related to data systems.
8. White surface with white core for all equipment related to paging systems.
9. Purple surface with white core for all equipment related to TV systems.
B. All empty conditions and conduit with connectors for future use shall be identified for use and shall indicate why they are to be. Identification shall be by tags with string or wire attached to end of cable.
C. All outlet boxes, junction boxes and pull boxes shall have their covers and exterior visible surfaces painted with color that match the surface color scheme outlined above. This includes ceiling boxes, light-out and other type accessible ceilings.

END SECTION 260553

SECTION 262726 - WIRING DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings: E0.1 and E1.1

1.2 SUMMARY

A. This section includes the following
1. Specifications for the installations of wiring devices

1.3 COORDINATION

A. Coordinate electrical testing of electrical items, so equipment and systems that are functionally interdependent are tested to demonstrate successful interoperability.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by standard electrical supply manufacturers.
B. Device shall be third party tested as noted per sub-section 3.2 part B.

2.2 INSPECTIONS

A. Contractor shall contact the Mecklenburg County Inspections to schedule electrical inspections and to schedule a final inspection.

A. Contractor shall contact the Mecklenburg County Inspections to schedule electrical inspections and to schedule a final inspection.

PART 3 - EXECUTION

3.1 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

A. Comply with NECA 1.
B. Comply with NEC
C. Comply with North Carolina Electrical Building Code

3.2 WORK REQUIREMENTS FOR ELECTRICAL INSTALLATION

A. Toggle switches shall be single pole, three-way, or four-way as indicated on the drawings. Switches shall be of the grounding type, with hex-head grounding screw, rated 20A, 120/277 volt, A.C only. Lighted handle switches shall have neon lights of the correct voltage rating where indicated on the drawings. All switches shall have quiet operating mechanisms without the use of mercury switches. All switches shall be listed by an "approved" third-party agency, approved for the voltage and amperage indicated.
B. Cover plates for flush mounted wiring devices and for telephone outlets shall be Type "302" stainless steel or nylon type, standard size, single or ganged as shown on the drawings. Cover plate mounting screws shall be slotted head oval screws and shall match the finish and material of the plate, and shall be furnished with the plate by the plate manufacturer. Quantity of 2% spare cover plates of each type shall be provided to the owner.
C. Switch and receptacle cover plates on exposed work shall be galvanized cast ferrous metal, standard size, and shall be single or ganged as indicated on the drawings.
D. Exterior mounted switch and receptacle plates, and those noted to be weatherproof, shall be weatherproof PVC cover plates, standard size, single or ganged as indicated on the drawings, and shall be "approved" third party listed as "rain-tight while in use."

END SECTION 262726

SECTION 262816 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings: E0.1 and E1.1

1.2 SUMMARY

A. This section includes the following
1. Specifications for the installations of safety switches

1.3 COORDINATION

A. Coordinate electrical testing of electrical items, so equipment and systems that are functionally interdependent are tested to demonstrate successful interoperability.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by standard electrical supply manufacturers.
B. Device shall be third party listed.

2.2 INSPECTIONS

A. Contractor shall contact the Mecklenburg County Inspections to schedule electrical inspections and to schedule a final inspection.

PART 3 - EXECUTION

3.1 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

A. Comply with NECA 1.
B. Comply with NEC
C. Comply with North Carolina Electrical Building Code

3.2 WORK REQUIREMENTS FOR ELECTRICAL INSTALLATION

A. Safety switches shall be "heavy duty" type. General duty switches are not acceptable.
B. Switches shall have padlock door interlocks that prevent the door from opening when the operating handle is in the "on" position.
C. Switches shall have handles whose positions are easily recognizable in the "on" or "off" position. For safety reasons, padlock shall be provided for switches located in the public areas.
D. Switches shall have non-teasible, positive, quick make-quick break mechanisms.
E. Switches shall be properly labeled.

END SECTION 262816

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City of Charlotte
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Electrical Specifications
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