PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The general conditions, Division 26, and Basic Electrical Materials and Methods (Section 260500 are part of this section and the contract for this work and apply to this section as fully as if repeated herein.

B. Reference to other sections: The applicable requirements from other Division 26 sections required for a complete and operational system shall form a part of the electrical work and each section shall be thoroughly reviewed by the Contractor for application to all other sections.

1.2 QUALITY ASSURANCE AND STANDARDS

A. All work, material or equipment shall comply with the codes, ordinances and regulations of the local government having jurisdiction, including the regulations of serving utilities and any participating government agencies having jurisdiction.

B. Testing Agency Qualifications: Member company of NETA or an NRTL.
   1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in CEC, by a qualified testing agency, and marked for intended location and application.

D. Comply with CEC.

E. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

F. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 078413 "Penetration Firestopping."

1.3 SUMMARY

A. Section Includes:
   1. Building wires and cables rated 600 V and less.
   2. Connectors, splices, and terminations rated 600 V and less.

B. Related Requirements:
   1. Section 260513 "Medium-Voltage Cables" for single-conductor and multiconductor cables, cable splices, and terminations for electrical distribution systems with 2001 to 35,000 V.
   2. Section 260523 "Control-Voltage Electrical Power Cables" for control systems communications cables and Classes 1, 2 and 3 control cables.

1.4 SUBMITTALS

A. Submit shop drawings per Section 260500 for review including the following:
1. Conductor materials and stranding
2. Connector and termination materials
3. Installation materials and methods
4. Termination materials and methods

PART 2 - PRODUCTS

2.1 CONDUCTORS, CABLES, CONNECTORS, AND SPLICES

A. Conductors shall be copper; conductors size #12AWG shall be solid, conductors size #10AWG and larger shall be stranded. Conductors shall be minimum size #12AWG for power and lighting circuits; control circuits shall use a minimum conductor size of #14AWG.

B. Insulation shall be type THW or THHN/THWN for all branch circuits

C. All conductors routed underground shall feature ~~XHHW~~ THHN/THWN insulation for 100 amp circuits and above

D. Jackets shall be nylon or PVC material.

E. All cables shall be UL listed for the application.

F. Conduit requirements shall be as follows:
1. Above ground: Rigid conduit, IMC, and EMT. MC and/or flexible conduit are permitted for final connections to light fixtures and final drops in walls to electrical devices.
Homeruns shall not be permitted to be MC and/or flexible conduit.
2. Outdoor locations: Rigid conduit.
3. Exposed to physical damage: Rigid conduit.
4. Underground: Schedule 40 PVC.
5. Rigid non-metallic conduit and electrical non-metallic tubing are are unacceptable.

G. Multi-conductor flexible cords shall be types SO, SJO, STO, or SJTO.

H. Electrical connectors shall be UL listed and suitable for the conductor material being connected and rated appropriately. Connectors shall be solderless helical metal spring pressure type for conductors #10AWG and smaller. Connectors shall be compression type for conductors #8AWG and larger.

PART 3 - EXECUTION

3.1 INSTALLATION OF CONDUCTORS AND CABLES

A. All wiring methods shall comply with the latest enforced edition of the National Electrical Code and the authority having jurisdiction.

B. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.

C. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

D. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways for Electrical Systems" and Section 260534 "Boxes for Electrical Systems" prior to pulling conductors and cables.

E. Conductors shall be installed in clean raceways using nylon cord, polypropylene cord, hemp rope, or other material which will not damage the conductors or conduit. Use a listed cable pulling lubricant when necessary for pulling. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

F. Conductors shall be pulled into conduit simultaneously so as to not damage conductors during pulling.

G. Support cables according to Section 260529 "Supports and Hangers for Electrical Systems."

H. Conductors installed at outlets and switches shall have a minimum of 6" pigtail left in the box for future connections. All conductors not connected to devices shall be terminated with splice caps and tape.

I. Conductors shall be terminated such that no copper material is exposed. Conductors shall be trained and labeled at terminations in a neat and workmanlike manner.

J. All terminations shall be mechanically sound, featuring helical twisting of the terminating conductors prior to the application of an electrical connector. The electrical connector shall not be used for the mechanical connection of the conductors.

K. All terminations shall comply with the manufacturer’s installation and torquing requirements. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

L. All terminations on stranded wire shall utilize twisted electrical connectors.

M. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

N. Splices on conductors #8AWG and smaller shall be made with splice caps twisted onto the conductors and Wago spring pressure termination connectors on #10 and smaller.

O. Splices on conductors #6AWG and larger shall be made with pressure connectors and terminal lugs. Where exposed to water, damp air, or moisture splices shall be watertight.

P. Splices shall be not be made in feeders; splices to branch circuits shall not be made within panelboards or similar enclosures.

Q. When combining homeruns, the Contractor shall derate all conductors per CEC requirements including reducing the conductor ampacity and using high temperature insulation where necessary. Conduit sizes shall be adjusted by the Contractor, per CEC requirements, for any conductor revisions.

R. The Contractor shall provide a code-sized insulated grounding conductor, in addition to the feeder conductors indicated on the drawings, for all feeder circuits.

S. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."

T. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.2 FIELD QUALITY CONTROL

A. Perform tests and inspections as stipulated in Section 260400 “Acceptance Testing”.

END OF SECTION