PART 1   GENERAL (NOT USED)

PART 2   PRODUCTS

2.01   Use copper conductors throughout the entire installation.

2.02   Branch circuit conductors:
   A. 600 volt insulated
   B. Minimum size: #12 AWG
   C. Indoor - THHN, THWN, XHHW, or XHHW-2.
   D. Outdoor, underground, or exposed to temperatures 32ºF or lower: XHHW, XHHW-2.
   E. #12 and #10 AWG: stranded or solid.

2.03   Other than branch circuits:
   A. Feeder Conductors under 600 volts: XHHW, XHHW-2.
   B. Where subject to temperatures below 32ºF: XHHW, XHHW-2.

PART 3   EXECUTION

3.01   Interlocked armored cable: When installing, attach pulling devices to the cable conductors, not the armor. Attach the armor to the conductors to prevent armor slippage during pulling.

3.02   Use screw terminals for termination of solid conductors #10 AWG and smaller. Use compression or clamp type terminals for stranded wire.

3.03   Conductors supplying vibrating or moveable equipment shall be stranded.

3.04   Branch circuit conductors:
   A. Factory color coded by integral pigmentation, with a separate color for each phase and neutral.
   B. Service and feeder conductors: Color coded by prominent markings of colored plastic tape applied to the conductor ends in all enclosures. Color coding as follows:

<table>
<thead>
<tr>
<th>Conductor</th>
<th>208/120V</th>
<th>480/277V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase A</td>
<td>Black</td>
<td>Brown</td>
</tr>
<tr>
<td>Phase</td>
<td>Color</td>
<td>Color</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Phase B</td>
<td>Red</td>
<td>Orange</td>
</tr>
<tr>
<td>Phase C</td>
<td>Blue</td>
<td>Yellow</td>
</tr>
<tr>
<td>Neutral</td>
<td>White (with phase stripe)</td>
<td>Gray (with phase stripe)</td>
</tr>
<tr>
<td>Ground</td>
<td>Green</td>
<td>Green</td>
</tr>
</tbody>
</table>

C. Neutral conductors shall have color stripe matching corresponding phase conductor, where neutrals are not shared.

3.05 Installation:

A. Secure all conductor terminations, taps and splices with solder-less, pressure-type connectors. Where appropriate, such as in outdoor installations, use a conductive corrosion inhibitor between the connector and surface.

B. Do not use split-bolt connectors.

C. Provide insulated equipment grounding conductor in all raceway systems.

3.06 Damaged Conductors: Where conductors have been damaged, at the discretion of FS/DDC:

A. Conductor(s) will be repaired in a manner acceptable to FS/DDC at no cost to FS/DDC.

B. Conductor(s) will be replaced at no cost to FS/DDC.

3.07 Terminations for service conductors, feeder conductors, and branch circuits 60 A and larger:

A. Megger all conductors prior to termination

B. Torque conductor connections and terminations to manufacturer’s recommended values using calibrated torque wrench and witnessed by FS/DDC. Torque wrench is to have been calibrated within one year of use.

C. Contractor to provide a report, including, but not limited to:

1. Megger readings of conductors, including minimum acceptable and actual values.

2. Manufacturer’s required torque values.

3. Actual torque values attained.
4. Personnel involved in terminations and witnesses.

5. Equipment involved (manufacturer, model, serial number, etc.)

6. Date work performed.

3.08 Acceptable means of meeting requirements for acceptable voltage drop:

A. Adjust transformer taps.

B. Oversize conductors to reduce voltage drop.

3.09 Where conductors are oversized for voltage drop, or derating are too large to fit on devices, reducing size of conductor in immediate area of termination is acceptable if overcurrent protection requirements are met.

3.10 Nonmetallic (NM) sheath cable clamps, aka “Romex clamps”, are not acceptable means of strain relief for cords or low voltage cables.

END OF SECTION