1. **General:**
   A. This guideline covers the selection of installation of low voltage and medium voltage electrical conductors and cables.
   B. Campus primary distribution is a 12.47 kV, solidly grounded medium voltage system.
   C. Substation feeders are fused by 400 amp, standard speed fuses, S & C fuses.

2. **Medium Voltage Cables:**
   A. Primary power distribution cable shall be single conductor stranded copper with ethylene propylene rubber (EPR) insulation rated 15kV, 105 degrees C, 133 percent insulation level. Cable shall have a 5 mil thick, minimum 12-1/2 percent overlap tape shield and a polyvinyl chloride (PVC) jacket.
   B. The campus loop feeder cables shall consist of 500 kcmil phase conductors and a 600 volt, No. 4/0 AWG stranded copper common neutral grounded at all enclosures.
   C. Service cables to transformers shall be No. 2/0 AWG phase conductors with a 600 volt, No. 2/0 AWG stranded copper grounding conductor fed from a fused pad-mounted switch.
   
   D. Approved MV Cable Manufacturers:
      1) Okonite
      2) Kerite
      3) Southwire
      4) General Cable
      6) Prysmian

3. **Low Voltage Conductors (600 Volts And Below):**
   A. Power distribution conductors shall be a minimum size of No. 12 AWG copper.
   B. Control wiring shall be a minimum size of No. 14 AWG copper.
   C. Instrumentation and special systems wiring shall be in accordance with the manufacturer's recommendations and shall not be less than No. 18 AWG copper.
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4. **Installation:**

   A. All medium voltage and low voltage power conductors and cables shall be installed in raceways. Raceways include conduits, ducts, trays, surface raceways and wireways. The only exceptions include:

   1) NEC Type MI cable.

   2) Type MC cables serving as lighting fixture whips.

   3) Type MC cables chased in existing hollow wall space with prior approval of UA Construction Administration.

   4) Manufacturer prepared wiring systems which include corrugated metal covers.

      a. Wiring of different voltage levels shall be in segregated raceways. Exceptions include wiring to rooftop receptacles, rooftop motor controls and motor disconnect early-break auxiliary contracts may share raceways with motor power wiring.

      b. New feeder circuits shall not be spliced. Reworked existing 600 volt feeder circuits which must be spliced shall be spliced with solderless compression butt-splices or ring lugs and shall be terminated with solderless compression lugs. No splices shall be pulled into conduits.

      c. All circuits shall be analyzed for voltage drop.

      d. Branch circuit wiring, including power, lighting, controls and instrumentation may be spliced with wing-nut connectors. Wing-nuts without threaded metal inserts are not acceptable.

      e. Home runs of 20 amp branch circuits that exceed 150 feet shall be No. 10 AWG conductors.

      f. Neutrals on home runs of multi-wire branch circuits shall be upsized one wire size to allow for the increase in neutral current due to non-linear loads.

      g. Shield drain wires on controls and instrumentation cables shall be grounded on one end only. The shield and drain wires on the other end shall be cut back and taped to be isolated from ground.