MIDWESTERN STATE UNIVERSITY

26 05 19

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1: GENERAL

1.01 Scope of Standard

A. This standard provides general guidance concerning the specific preferences of Midwestern State University for Low-Voltage Electrical Power Conductors and Cables.

B. Midwestern State University recognizes that project conditions and requirements vary, thus precluding the absolute adherence to the items identified herein in all cases. However, unless there is adequate written justification, it is expected that these guidelines will govern the design and specifications for Midwestern State University projects.

1.02 Scope of Work

A. This section includes building wire and cable rated 600V and less.
B. This is a design standard and is not intended to be used as a guideline or construction specification.

PART 2: PRODUCTS

A. All conductors, plus stranded, shall be soft drawn annealed copper, ninety-eight (98%) conductivity, continuous, from outlet to outlet.

B. Minimum size of wire shall be #12 AWG. (Exception: Control wire may be #14 AWG.)

C. All wire insulation for 600V conductors shall be type XHHW, THHN, or THWN.

D. Non-metallic sheathed cable or type BX cable is strictly prohibited.

PART 3: EXECUTION

3.01 Design/Drawing Requirements

A. All branch circuit home runs shall contain no more than two multi-wire branch circuits. Multi-wire branch circuits shall not be used where the load generates harmonics, i.e. personnel computers.

B. Home runs shall be clearly indicated on the floor plans.

C. Pump Motor Requirements:

1. Wiring Requirements:

2. Connect all pump motors with sealed, flexible conduit no longer than 3 feet.

3. Duplex sump pumps and condensate return pumps should be wired so that each pump is on a separate dedicated circuit. A mechanical alternator is to be provided to alternate operation of the pumps. There should be three floats in the sump; the lowest to energize the first pump, the next highest to energize both pumps, and the highest to operate a N.O. set of contacts for alarm purposes.

4. Some pumps may require emergency power. Coordinate with Midwestern State University representative for special requirements.

D. Plumbing Pump Motor Requirements:

1. Wiring Requirements 120 volts

2. All pumps 1 hp or less may be connected with an outlet plug and cord.

E. Only copper wire shall be used on this campus.

F. Minimum wire size on campus is # 12. Circuit wire size on all runs over 100’ shall be sized no smaller than # 10.

G. All wiring, including luminaries and motor leads, and motor control, shall be stranded.

H. All wire insulation for 600V conductors shall be type XHHW, THHN, or THWN.

I. All conductors shall be soft drawn annealed copper, ninety-eight (98%) conductivity, continuous, from outlet to outlet.

J. Crimp connectors and splices shall only be used in J-boxes, gutters, and cabinets.

1. A compression connector installation tool such as Panduit CT-720 or a compound-action crimping tool such as a VACO T1710 that provides a crimp that meets or exceeds MIL-SPEC pull-out tests shall be used for all such connections.

2. Crimps shall be made on each wire end of the connector for as much of the length of the barrel as possible.

3. The longest barrel/sleeve possible shall be used.

4. Compression or stab in quick connectors that rely solely on connector for a solid connection are prohibited.

K. Crimp connectors shall not be used on items that may need to be changed out periodically, i.e.: ballast's, motor's, etc.

L. Connectors shall be copper or tinned copper.

END OF SECTION 26 05 19