

DIVISION 26 – ELECTRICAL

SECTION 26 24 13 - SWITCHBOARDS

PART 1: GENERAL

1.01 Scope of Standard

- A. This standard provides general guidance concerning the specific preferences of Texas State University for Switchboards.
- B. Texas 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 Texas State University projects.

1.02 Scope of Work

- A. This section includes enclosed dead-front enclosed switchboards for application at 600 volts and less.
- B. This is a design standard and is not intended to be used as a construction specification.

PART 2: PRODUCTS

- A. Switchboard shall be deadfront construction, rated 600V and shall operate on a 480/277 or 208/120 volt, three-phase, solidly grounded wye, 60 Hz system. The switchboard shall be designed in accordance with the latest NEMA, ANSI, and IEEE standards applicable to this equipment. These standards shall be referenced in the project specifications.
- B. The electrical engineer shall use discretion in application of fuses or circuit breakers in the switchboard. Coordinate location of metering requirements with Texas State University staff. If metering at the distribution switchboard is required, the design shall adhere to the following:
 - 1. Metering circuits shall be designed such that they may be tested and calibrated without applying test currents and voltages to any other devices. Position KWH meters such that the display registers are eye-level. Must be approved Electro Industries Shark meter, with appropriate MODBUS to BACnet gateway. Refer to section 25 51 00 Integrated Automation Facility Controls for list of approved meters.
- C. Busing
 - 1. The bus shall be insulated copper with a current density of 1000A/ in 2. The insulation shall be class B (130 degree C) rated material. Bus connections (including the tie bus) shall be accessible from the rear of the switchboard. All busing shall be braced for the maximum available fault current.
 - 2. Provide a ground bus through the length of each section of the switchboard.

- D. Designer shall require the manufacturer to provide a mimic bus. Show bussing, connections and devices in single line form using black laminated plastic strips securely attached on the front panels of the switchboard.
- E. Main and Tie section devices shall be individually mounted and compartmented.
- F. Distribution section devices shall be individually mounted and compartmented.
- G. Auxiliary section devices shall be individually mounted and compartmented.
- H. Mount switchboard on 4" housekeeping pad
- I. Future provisions: Switchboard shall be designed with future spaces (15% minimum) equipped with breakers and such that the future additions may be readily made in the field.

PART 3: EXECUTION

3.01 Design/Drawing Requirements

- A. Electrical Engineer shall show equipment room layout, drawn to scale, indicating location of equipment and busway routing for interconnection.
- B. Engineer shall label the switchboard consistently on the single-line diagram and the room layout indicative of Texas State University-San Marcos' labeling scheme.
- C. Single-line diagram shall indicate board size and required short circuit rating.
- D. Engineer shall furnish a detailed specification indicating detailed control wiring, meter requirements and special construction requirements not outlined in the design standard.
- E. Acceptable breaker element manufacturers:
 - 1. Square D
 - 2. Siemens Energy
 - 3. Cutler Hammer or Eaton
 - 4. General Electric
- F. The insulation shall be class B (130 degree C) rated material. Bus connections (including the tie bus) shall be accessible from the rear of the switchboard. All bussing shall be braced for the maximum available fault current.
- G. Neutral bars shall be full capacity rated.
 - 1. Provide a ground bus through the length of each section of the switchboard.
- H. Designer shall require the manufacturer to provide a mimic bus. Show bussing, connections and devices in single line form using black laminated plastic strips securely attached on the front panels of the switchboard.
- I. Main and Tie section devices shall be individually mounted and compartmented.

- J. Distribution section devices shall be individually mounted and compartmented.
- K. Auxiliary section devices shall be individually mounted and compartmented.
- L. Mount switchboard on 4" housekeeping pad with suitable angle iron embedded in concrete to allow for proper alignment and anchoring as recommended by the manufacturer.
- M. Future provisions: Switchboard shall be designed with future spaces (15% minimum) equipped with breakers and such that the future additions may be readily made in the field.
- N. Electrical Engineer shall show equipment room layout, drawn to scale, indicating location of equipment and bus way routing for interconnection.
- O. Engineer shall label the switchboard consistently on the single-line diagram and the room layout indicative of Texas State University-San Marcos' labeling scheme.
- P. Single-line diagram shall indicate board size and required short circuit rating.
- Q. Engineer shall furnish a detailed specification indicating detailed control wiring, meter requirements and special construction requirements not outlined in the design standard.

END OF SECTION 26 24 13