

## **PART 1 - GENERAL**

### **1.1 RELATED REQUIREMENTS**

- .1 Section 26 28 16.02 - Moulded Case Circuit Breakers.

### **1.2 REFERENCES**

- .1 CSA International
  - .1 CSA C22.2 No.29-11, Panelboards and Enclosed Panelboards.

### **1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for panelboards and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
  - .1 Include on drawings:
    - .1 Electrical detail of panel, branch breaker type, quantity, ampacity and enclosure dimension.

### **1.4 CLOSEOUT SUBMITTALS**

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for panelboards for incorporation into manual.

### **1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials off ground indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect panelboards from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.

- .4 Packaging Waste Management: remove for reuse and return packaging materials as specified in Construction Waste Management Plan Waste Reduction Workplan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

## **1.6 MEASUREMENT FOR PAYMENT**

- .1 No separate measurement for payment shall be made for items under this section. Include costs incidental in the Lump Sum Amount of work on the Combined Price Form.

## **PART 2 - PRODUCTS**

### **2.1 PANELBOARDS**

- .1 Panelboards: to CSA C22.2 No.29 and product of one manufacturer.
    - .1 Install circuit breakers in panelboards before shipment.
    - .2 In addition to CSA requirements manufacturer's nameplate must show fault current that panel including breakers has been built to withstand.
  - .2 250 panelboards: bus and breakers rated for 10,000 A (symmetrical) interrupting capacity unless indicated otherwise on drawings.
  - .3 Sequence phase bussing with odd numbered breakers on left and even on right, with each breaker identified by permanent number identification as to circuit number and phase.
  - .4 Panelboards: mains, number of circuits, and number and size of branch circuit breakers as indicated.
  - .5 Minimum of two (2) flush locks for each panel board.
  - .6 Two (2) keys for each panelboard and key panelboards alike.
  - .7 Copper bus with neutral of same ampere rating of mains.
  - .8 Mains: suitable for bolt-on breakers.
  - .9 Trim with concealed front bolts and hinges.
  - .10 Trim and door finish: baked enamel as per colour schedule.
  - .11 Enclosure to provide a degree of environmental protection equal to or higher than CSA Type 1.
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## **2.2 BREAKERS**

- .1 Breakers: to Section 26 28 16.02 - Moulded Case Circuit Breakers.
- .2 Breakers with thermal and magnetic tripping in panelboards except as indicated otherwise.
- .3 Main breaker: separately mounted on top or bottom of panel to suit cable entry. When mounted vertically, down position should open breaker.
- .4 Lock-on devices for 10% of 15 to 30 A breakers installed as indicated. Turn over unused lock-on devices to Departmental Representative.

## **2.3 EQUIPMENT IDENTIFICATION**

- .1 Provide equipment identification in accordance with Section 26 05 00 - Common Work Results for Electrical.
- .2 Nameplate for each panelboard size 4 engraved as indicated.
- .3 Nameplate for each circuit in distribution panelboards size 2 engraved as indicated.
- .4 Complete circuit directory with typewritten legend showing location and load of each circuit, mounted in plastic envelope at inside of panel door.

## **2.4 WARNING SIGNS**

- .1 Provide potential electric shock and arc flash hazard warning sign in accordance with Section 26 05 00 - Common Work Results for Electrical.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- .1 Locate panelboards as indicated and mount securely, plumb, true and square, to adjoining surfaces.
  - .2 Mount panelboards to height specified in Section 26 05 00 - Common Work Results for Electrical or as indicated.
  - .3 Connect loads to circuits.
  - .4 Connect neutral conductors to common neutral bus with respective neutral identified.
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### **3.2 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

### **3.3 PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by panelboards installation.