

PANELBOARDS - BREAKER TYPE

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 26 05 01 - Common Work Results - Electrical.
- .2 Section 26 28 16.02 - Moulded Case Circuit Breakers.
- .3 Section 26 28 20 – Ground Fault Circuit Interrupters – Class A.
- .4 Section 26 99 99 – Commissioning.

1.2 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA C22.2No.29-M1989(R2000), Panelboards and enclosed Panelboards.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit shop drawings in accordance with Section 26 05 01 Common Work Results - Electrical.
- .2 Drawings to include electrical detail of panel, branch breaker type, quantity, ampacity and enclosure dimension.

1.4 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 – Construction Demolition Waste Management.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.
- .4 Divert unused metal and wiring materials from landfill to metal recycling facility approved by Engineer.

Part 2 Products

2.1 PANELBOARDS AND LOAD CENTRES

- .1 Panelboards and load centres: to CSA C22.2No.29 and product of one manufacturer.
 - .1 Install circuit breakers in panelboards and load centres before shipment.
 - .2 In addition to CSA requirements manufacturer's nameplate must show fault current that panel including breakers has been built to withstand.

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- .2 Interrupting capacity shall be as indicated.
- .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 and load centres: mains, number of circuits, and number and size of branch circuit breakers as indicated.
- .5 Two keys for each panelboard and key all panelboards alike.
- .6 One key for each load centre and key all load centres alike.
- .7 Copper bus with neutral of same ampere rating as mains or with 200% rated neutral. Refer to Section 26 24 16.02.
- .8 Mains: suitable for bolt-on breakers.
- .9 Panelboards and load centres are to be c/w factory installed bonding terminal strips. Where more than one bonding terminal strip is present in any one panel, both shall be hard-wired together using identical size bonding conductor as one accompanying the panel feeder conductors.
- .10 Branch circuit panelboard enclosures shall be not less than 660 mm wide and 146 mm deep.
- .11 Branch circuit load centre enclosures shall be 311 mm wide, 88.9 mm deep and 359 mm in height.
- .12 Panelboard enclosure shall be C.S.A. Type 1 and surface mount. (Panelboard in Washroom Building No. 20 electrical closet shall be C.S.A. Type 3R and surface mount.)
- .13 Load centre enclosure shall be C.S.A. Type 1 and flush mount in oTENTIKs wood cabinet as shown on the drawings.
- .14 Trim with concealed front bolts and hinges.
- .15 Trim and door finish: baked grey enamel.

2.2 DISTRIBUTION PANELS

- .1 Distribution panels: to CSA C22.2No.29 and product of one manufacturer.
 - .1 In addition to CSA requirements manufacturer's nameplate must show fault current that panel including breakers has been built to withstand.
- .2 Interrupting capacity shall be as indicated.
- .3 Service entrance rated.
- .4 Integral digital meter.

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- .5 Integral surge protection device.
- .6 Bottom entry.
- .7 All distribution panels shall have busses and breakers rated for 25,000 amperes (symmetrical).
- .8 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.
- .9 Panelboards: mains, number of circuits, and number and size of branch circuit breakers as indicated.
- .10 Copper bus with neutral of same ampere rating as mains.
- .11 Mains: suitable for bolt-on breakers.
- .12 All distribution panel tubs and trims shall be baked grey enamel. All enclosures shall be .S.A. Type 1, suitable for surface mounting.
- .13 All distribution panels shall be a minimum of 965 mm wide x 287 mm deep.
- .14 Copper ground buss.

2.3 BREAKERS

- .1 Breakers: to Section 26 28 16.02 - Moulded Case Circuit Breakers.
- .2 Breakers with thermal and magnetic tripping.
- .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 breakers installed as indicated. Provide locking devices for 10% of breakers, based on the quantity of single pole breakers that the panel can accommodate. Turn un-used devices over to the Departmental Representative.

2.4 EQUIPMENT IDENTIFICATION

- .1 Provide equipment identification in accordance with Section 26 05 01 - Common Work Results - Electrical.
- .2 Nameplate for each panelboard size 4 engraved.
- .3 Complete circuit directory with typewritten legend showing location and load of each circuit.

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Part 3 Execution

3.1 INSTALLATION

- .1 Install load centre flush mounted in oTENTIKs wood cabinet.
- .2 Locate panels as indicated and mount securely, plumb, true, and square, to walls and/or channel supports. Panels shall be raised off the floor and have their bottom entry raceways connected to the bottom of the enclosure with suitable steel connectors.
- .3 Mount panelboards to height specified in Section 26 05 01 - Common Work Results - Electrical or as indicated.
- .4 Mount load centres at height specified on drawings.
- .5 Connect loads to circuits.
- .6 Respective feeder and/or circuit conductors and their neutral conductors shall be tie wrapped together at the point where they enter/exit the panelboard.
- .7 Feeders and circuits which do not have neutral conductors shall have their respective phase conductors tie wrapped together.
- .8 Connect neutral conductors to common neutral bus with respective neutral identified.
- .9 Install surface mounted panelboards on plywood backboards. Where practical, group panelboards on common backboard.
- .10 Emergency, exit, fire alarm, sprinkler excess pressure pump and bells, and night lighting, circuit breakers shall have locking devices on the handles to prevent unauthorized operation.
- .11 Wiring in panelboards shall extend beyond the respective breakers, forming a 150 mm loop before returning to connect to the breaker terminals, so there will be flexibility for reconnecting within the panel. Wiring shall be secured with Ty-wraps or equivalent means to present a neat workmanlike appearance.

END OF SECTION