

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 00 10 – General Instructions.
- .2 Section 26 05 00 - Common Work Results for Electrical.
- .3 Section 26 24 16.01 - Panelboards Breaker Type.

1.2 SUBMITTALS

- .1 Submit shop drawings in accordance with Section 01 00 10 – General Instructions.

1.3 REFERENCES

- .1 Canadian Standards Association (CSA International).
 - .1 CSA-C22.2 No.5-09, Moulded-Case Circuit Breakers, Moulded-Case Switches and Circuit-Breaker Enclosures (Tri-national standard with UL 489 and NMX-J-266-ANCE-2010).

1.4 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 00 10 – General Instructions.
- .2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal all 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 as approved by Departmental Representative.

Part 2 Products

2.1 BREAKERS GENERAL

- .1 Provide moulded-case circuit breakers to CSA 22.2 No. 5.
- .2 Provide automatic moulded-case circuit breakers in panelboards as indicated on the drawings and herein specified. Breaker sizes and trips as scheduled, or indicated on the one-line diagram.
- .3 Use bolt-on moulded-case circuit breakers, quick-make, quick-break type for manual and automatic operation with temperature compensation for 40°C ambient.
- .4 Breakers shall be common trips with single handle for multi-pole application.

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- .5 In panelboards, moulded-case circuit breakers to operate automatically by means of thermal and magnetic-tripping devices to provide inverse time current tripping under overload conditions and instantaneous magnetic tripping for short circuit protection.
 - .6 Magnetic instantaneous trip elements to operate only when the value of the current reaches 10 to 12 times the breaker trip setting.
 - .7 Breaker minimum interrupting rating (symmetrical RMS values) shall not be less than indicated in Section 26 24 16.01 – Panelboards Breaker Type.
 - .8 All breakers used for switching lighting circuits to be CSA approved for the application.

2.2 **SOLID STATE TRIP BREAKERS**

- .1 Moulded case circuit breaker to operate by means of solid state trip unit with associated current monitors and self-powered shunt trip to provide inverse time current trip under overload condition, long time, short time and instantaneous tripping for phase and ground fault short circuit protection.
- .2 Long time pick-up setting is adjustable from $0.5 - 1.0 \times I_n = I_r$ in increments of 0.01.
- .3 Long time delay setting is adjustable from 2 – 24 seconds in 0.1 second increments.
- .4 Short time pick-up setting is adjustable from $1.5 - 10 \times I_r$ in increments of 0.1.
- .5 Short time delay setting is adjustable from 0.1 – 0.5 seconds in 0.01 second increments.
- .6 Instantaneous pick-up setting is adjustable from $2 - 8 \times I_r$ in increments of 0.1.

Part 3 **Execution**

3.1 **INSTALLATION**

- .1 Install circuit breakers as indicated.

3.2 **TESTING AND COMMISSIONING**

- .1 Using the manufacturers proprietary test set check breakers and test to confirm operation within published tolerances and set each breaker in accordance with the co-ordination study.

END OF SECTION