

PART 1 - GENERAL

- 1.1 REFERENCES
- .1 Canada Green Building Council (CaGBC)
    - .1 LEED Canada-NC-2009, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.
  - .2 CSA Group
    - .1 CSA C22.2 No.31-10, Switchgear Assemblies.
- 1.2 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 service entrance board and include product characteristics, performance criteria, physical size, finish and limitations.
  - .3 Shop Drawings:
    - .1 Submit drawings in accordance with Section 01 33 00 - Submittal Procedures.
    - .2 Indicate on drawings:
      - .1 Floor anchoring method and foundation template.
      - .2 Overall length, height and depth.
  - .4 Sustainable Design Submittals:
    - .1 LEED Canada submittals: in accordance with Section 01 35 21 - LEED Requirements.
    - .2 Construction Waste Management:
      - .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.
      - .2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 75 % of construction wastes were recycled or salvaged.
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- 1.3 MAINTENANCE MATERIAL SUBMITTALS .1 Extra Materials:  
.1 Submit maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
- 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 service entrance board for incorporation into manual.  
.3 Submit two (2) copies of operation and maintenance 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 Develop Construction Waste Management Plan related to Work of this Section and in accordance with Section 01 35 21 - LEED Requirements.  
.3 Packaging Waste Management: remove for reuse or return of pallets, crates, padding, banding, and packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements.
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PART 2 - PRODUCTS

2.1 SERVICE  
ENTRANCE BOARD

- .1 Service Entrance Board: to CSA C22.2 No.31.
- .2 Main Breaker Rating: 347/600 V, 3 phase, 4 wire, 400 A, rated a 100% with electronic trip short circuit current 22 kA (rms symmetrical).
- .3 Cubicles: free standing, dead front, size as indicated.
- .4 Barrier metering section from adjoining Sections.
- .5 CTs and PTs for owner metering.
- .6 Provision for installation of power supply authority metering in barriered Section.
- .7 Distribution section.
- .8 Hinged access panels with captive knurled thumb screws.
- .9 Bus bars and main connections: aluminum.
- .10 Bus from load terminals of main breaker via metering section to main lugs of distribution section.
- .11 Identify phases with colour coding.

2.2 GROUNDING

- .1 Copper ground bus extending full width of cubicles and located at bottom.
- .2 Lugs at each end for grounding cable size as indicated.

2.3 POWER SUPPLY  
AUTHORITY METERING

- .1 Separate compartment and metal raceway for exclusive use of power supply authority metering.
  - .2 Mounting accessories and wiring for metering supplied by power supply authority.
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- 2.4 FINISHES .1 Apply finishes in accordance with Section 26 05 00 - Common Work Results for Electrical.  
.1 Service entrance board exterior: gray.
- 2.5 OWNER'S METERING.1 Digital unit with capability to display:  
.1 Phase currents.  
.2 Voltage, L-L, L-N for each phase.  
.3 System and per-phase power including watts, vars and VA.  
.4 System energy including watthours, varhours and VA hours.  
.5 System demand including watt demand, VA demand and var demand.  
.6 Apparent and displacement power factor.  
.7 Frequency.  
.8 Recorded minimums and maximums of most parameters.
- .2 Other features:  
.1 Operator programmed using the face plate keypad or via communications.  
.2 4 line x 20 character back lit LCD display.  
.3 All monitored parameters are available at the faceplate. True rms metering of distorted currents and voltages up to the 31st harmonic.  
.4 CSA listed under CSA C22.2 #1010.1.  
.5 Current and potential transformers as required.
- .3 Install metering units at "eye level" so that elevating devices are not required to read and use the meter.
- .4 Customer meter to have communications output via CAT6 cable and include the communications protocol to match the electrical metering software.
- .5 Service entrance board shall include a 3 Pole 15A circuit breaker or other means to provide voltage connections for the Owner's Metering.
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2.6 EQUIPMENT  
IDENTIFICATION

- .1 Provide equipment identification in accordance with Section 26 05 00 - Common Work Results for Electrical.
- .2 Nameplates:
  - .1 White plate, black letters, size 7.
  - .2 Complete board labelled: 347/600 V."
  - .3 Main disconnect labelled: "Main Breaker".
  - .4 Feeder to transfer switch.

PART 3 - EXECUTION

3.1 INSTALLATION

- .1 Locate service entrance board and fasten to wall.
- .2 Connect main secondary service to line terminals of main breaker.
- .3 Connect feeders to load terminals of distribution breaker's.
- .4 Check factory made connections for mechanical security and electrical continuity.
- .5 Run one grounding conductor 4/0 AWG bare copper in 27 mm conduit from ground bus to building ground.
- .6 Check trip unit settings against co-ordination study to ensure proper working and protection of components.

3.2 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
- .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

3.2 CLEANING  
(Cont'd)

- .3 Waste Management: (Cont'd)  
Waste Management and Disposal and Section  
01 35 21 - LEED Requirements.  
.1 Remove recycling containers and bins  
from site and dispose of materials at  
appropriate facility.