

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 International
.1 CAN/CSA C22.2 No.107.2, Battery Chargers.
- 1.2 ACTION AND INFORMATIONAL SUBMITTALS .1 Product Data:
.1 Submit manufacturer's instructions, printed product literature and data sheets for battery chargers and include product characteristics, performance criteria, physical size, finish and limitations.
.2 Charger data: type and capacity, battery charging sequence, current-time data for Silicon Controlled Rectifier (SCR) protective devices, estimated noise level, metering, alarms, controls and efficiency.
- .2 Shop Drawings:
.1 Include outline schematic diagrams with dimensions showing arrangement of cubicle, components, meters and controls.
- 1.3 CLOSEOUT SUBMITTALS .1 Operation and Maintenance Data: submit operation and maintenance data for battery chargers for incorporation into manual.
- .2 Operation and maintenance instructions covering design elements, construction features, component functions and maintenance requirements to permit effective operation, maintenance and repair.
- .3 Copy of approved shop drawings.
- .4 Technical description of components.
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1.3 CLOSEOUT SUBMITTALS (Cont'd) .5 Parts lists with catalogue numbers and names and addresses of suppliers.

1.4 DELIVERY, STORAGE AND HANDLING .1 Deliver, store and handle materials in accordance with manufacturer's written instructions and to Section 26 05 00.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS .1 Automatically maintain battery in fully charged state while mains power available. Maintain DC float voltage within plus or minus 1% of setting.

.2 Charging rate such that after battery has provided full power output for specified duration, charger returns battery to 95% of fully charged state in 8 hours.

2.2 CHARGER CHARACTERISTICS .1 Battery charger: to CAN/CSA C22.2.

.2 Input: 120 Vac, 1 phase, 2 wire, grounded neutral, 60Hz.

.3 Output: 10 A, DC at 12/24 V, DC, ripple voltage less than 2 %.

2.3 ACCESSORIES .1 DC voltmeter: accuracy plus or minus 2 % of full scale, to measure rectifier output voltage.

.2 DC ammeter: accuracy plus or minus 2 % of full scale, to measure rectifier output current.

.3 Red LED's for ac power failure with time delay to prevent alarm during short power outages.

- 2.3 ACCESSORIES
(Cont'd)
- .4 Red LED's to indicate over discharge and emergency time available.
 - .5 Red LED's for high DC voltage.
 - .6 Red LED's for ground detector.
 - .7 LEDs mounted on front to indicate: failure AC power, low DC voltage, high DC voltage, no rectifier output.
 - .8 Alarms: audible alarm when any LED indicates trouble. Silence pushbutton not to extinguish trouble light.
 - .9 Common LED test switch and one common Form C alarm contact.

- 2.4 ENCLOSURE
- .1 Dead front sheet steel, 2.5 mm thick minimum CSA Enclosure Type 1.
 - .2 Access from front.
 - .3 Convection ventilated.
 - .4 Meters, indicating lamps and controls group mounted on front panel.

PART 3 - EXECUTION

- 3.1 INSTALLATION
- .1 Connect input terminals to AC mains.
 - .2 Connect output terminals to battery.

- 3.2 TESTS
- .1 Energize battery charger and operate until battery shows full charge.
 - .2 Discharge battery to full discharge condition.
 - .3 Recharge battery, recording DC voltage and current once per hour for 8 hours. Test

3.2 TESTS
(Cont'd)

- .3 (Cont'd)
battery to ensure it has reached at least 95% full charge.
- .4 Continue charging to ensure charger changes from bulk rate to float charge rate.
- .5 Demonstrate that automatic timer controls charging and correctly transfers from equalize to float charge after selected period.
- .6 Simulate faults to demonstrate that alarm lights and audible alarms are performing as designed.
- .7 At end of tests, with battery in fully charged condition, operate charger on "float" for minimum period of 24 hours to ensure stable condition is reached and held.