

PART 1 - GENERAL

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| <u>1.1 REFERENCES</u> | .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. |
| <u>1.2 ACTION AND INFORMATIONAL SUBMITTALS</u> | .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. |
| <u>1.3 CLOSEOUT SUBMITTALS</u> | .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. |

<u>1.3 CLOSEOUT SUBMITTALS (Cont'd)</u>	.5	Parts lists with catalogue numbers and names and addresses of suppliers.
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<u>1.4 DELIVERY, STORAGE AND HANDLING</u>	.1	Deliver, store and handle materials in accordance with manufacturer's written instructions and to Section 26 05 00.
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PART 2 - PRODUCTS

<u>2.1 PERFORMANCE REQUIREMENTS</u>	.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.

<u>2.2 CHARGER CHARACTERISTICS</u>	.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 %.

<u>2.3 ACCESSORIES</u>	.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.