  
**ZOMEWORKS CORPORATION**  
 Passive Energy Products

*Environmentally and Financially Sustainable; do not rely on Hydrocarbons or Tax Credits*

**MINI COOL CELL<sup>®</sup> WATT BOX**  
**Model CCWB-211830-2C**

**Increases System Reliability • Lowers Maintenance Costs • Extends Battery Life • Uses No Electricity • Convective Hydrogen Vent Included**

The Mini Cool Cell Watt Box is a pole-mounted, two-compartment enclosure for 2 group-27 batteries and related charging equipment. The battery area is passively cooled using Cool Cell\* technology. A second ventilated electronic compartment is located beneath the batteries for other equipment and is accessed through a drop-down panel.

**Applications**

- Any Remote Site Where Power is needed for small battery operated equipment
- Cellular Telephony
- Electric Utilities
- Microwave Relay
- Oil and Gas Industries
- SCADA RTU's
- Street/Sign Lighting
- Traffic/Railroad Signals
- Wireless Data Gathering

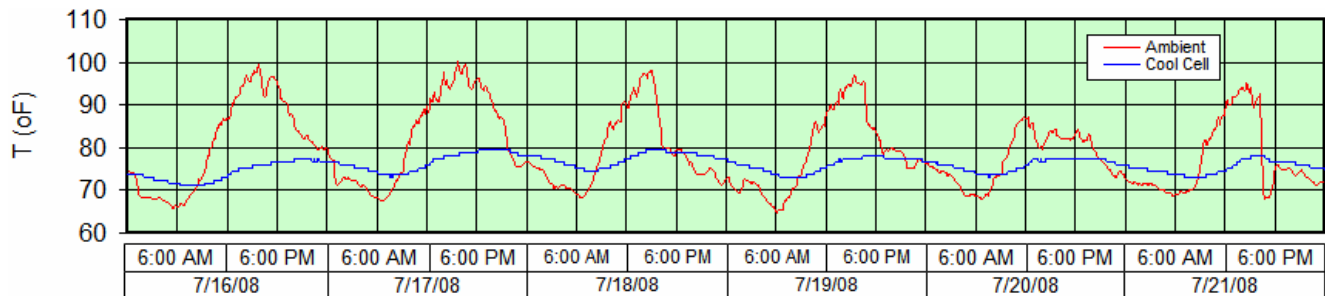


**Operation**

The top 8" of the enclosure is the passive cooling system. An insulated membrane-lined tank with a metal floor is filled with water. The un-insulated floor of the tank is the ceiling of the battery compartment. The lid of the enclosure, which is in direct contact with the water, is a radiator which dissipates heat to the cold night sky and cools the water. The cooled water falls to the bottom of the tank as warmer water convects up to the lid to be cooled. An insulating float separates the lid from the tank. This natural cycle continues throughout the night, stopping as the lid warms above water temperature. The cool metal floor above the batteries absorbs heat from the batteries, which keeps them cool. The cycle repeats every 24 hours.

**Performance**

Cool Cells perform best in hot, dry, climates but work well even in tropical Florida. As a rule of thumb, the average battery Cool Cell temperature will be close to the lower ¼ point of the daily high and low. If the high is 90°F and the overnight low is 70°F, the Cool Cell will average 75°. Cool Cells guard against sub freezing temperatures in winter. As internal temperatures approach 39°F, water in the cooling system expands which stops convection and further cooling. As water in the reservoir freezes, the heat of fusion adds warmth to the enclosure. Cool Cells will maintain temperatures close to 32°F until all the water is frozen. Heaters are recommended for cold climates if grid power is available.



This data was collected from ongoing testing and monitoring of the Cool Cell Watt Box on a solar powered light pole in Zomeworks yard in Albuquerque, NM.

\*US Patents 5609200, 55613696, 5316872 & 6357512 B1. Additional Patents applied for.

## Convective (H<sub>2</sub>) Hydrogen Vent

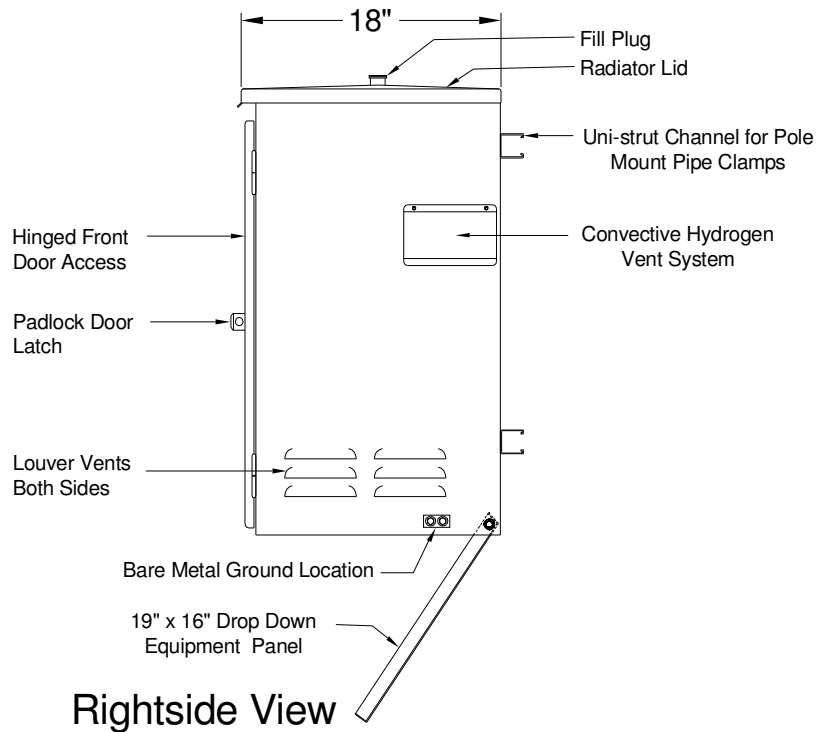
Batteries generate hydrogen gas when charged, so battery enclosures must be ventilated. High-low venting isn't always reliable and can induce unwanted convective air exchange which can overheat or chill a battery box. All Cool Cell battery enclosures are fitted with the Convective H<sub>2</sub>Vent\*\*. Passive operation of the H<sub>2</sub>Vent guarantees reliability. It is a unique arrangement of tubes at the same level that allows airflow and exhaust **only** when hydrogen is present, stifling thermal convection and maintaining cool enclosure temperature. The airflow is proportional to the concentration of hydrogen. The more hydrogen generated, the more ventilation occurs regardless of air temperature. For more information, visit [zomeworks.com](http://zomeworks.com) Research and Development / Hydrogen Venting.

### Enclosure Specifications:

- Enclosure Dimensions: 21" w x 18" d x 30" h
- Battery Compartment: 16½" w x 14¾" d x 13 h
- Electronic Compartment: 19" w x 16" d x 5½" h (w/ mounting plate)
- Battery Access: Hinged front door with a latch for a padlock
- Conduit Access: ¾" and 1" Knock-outs provided
- Pole Mount: Uni-strut channels (optional clamps available)
- Water Capacity: 6 gallons (50 lbs.)
- Construction: Welded 14 ga. galvanized steel
- Finish: Epoxy primer with a white urethane finish
- Insulation: 2" Styrofoam (R-10)
- Hydrogen Vent: 1" convective H<sub>2</sub> Vent
- Nema 3R Classification
- Weight: 100 lb (without water or batteries)



Interior showing Insulated Tank, Battery Compartment and Electronic Compartment with Drop-down Panel.



Retail Price: \$972.00

Shipping: Common Carrier FOB Albuquerque, New Mexico USA

Please contact Zomeworks for more information.

\*\* US Patent 5603656

### ZOMEWORKS CORPORATION

Established 1969

Post Office Box 25805 (1011 Sawmill Rd. NW) Albuquerque, New Mexico 87125

Website: [www.zomeworks.com](http://www.zomeworks.com) email: [zomework@zomeworks.com](mailto:zomework@zomeworks.com)

[800] 279-6342 [505] 242-5354 phone [505] 243-5187 fax