Container Wars - Power

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Project Description

Students are working to convert a shipping container into a living space for medical professionals in a remote area of Uganda. This team focuses on providing the container with electrical power, or reliable electricity. The students specifically will be providing power to interior lights and wall outlets within the living space.

Workers in Uganda currently are living in tents and have no way to charge their mobile communication devices, giving them very little opportunity to contact their family. By creating this housing solution the team provides workers a better living area and helps them stay in contact with the people they hold dear through use of electronic devices.

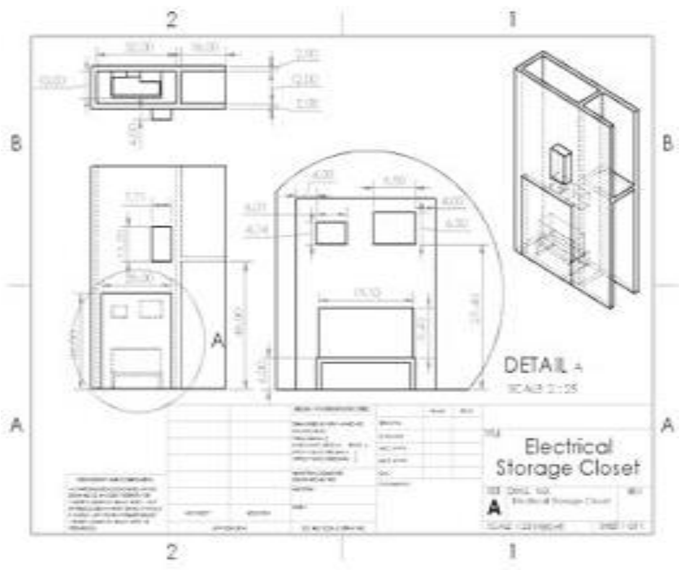
Current Living Area

Partners

PIPELINE WORLDWIDE

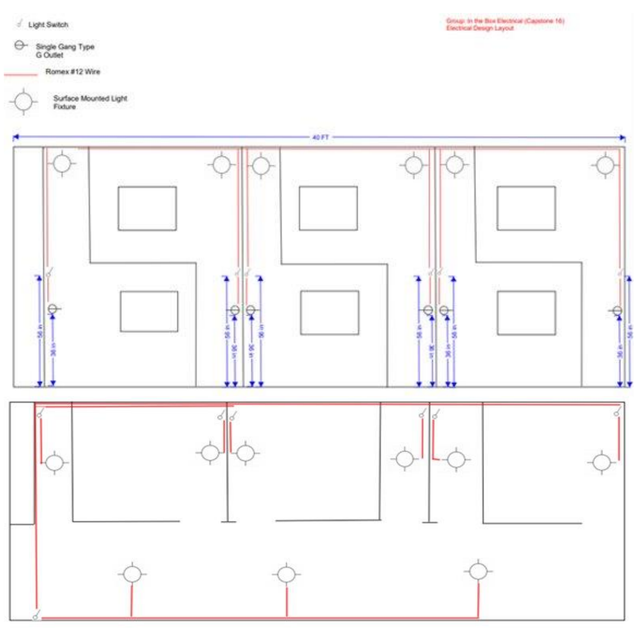
CORGAN

McCARTHY



Design Requirements

- Power source is solar energy to accommodate for the lack of power grid in the area.
- Solar power is fed into a battery to provide reliable power in all weather conditions.
- The battery stores power when it is not being used.
- A wall outlet is provided in each room and is supplied with power from an inverter to charge a personal electronic device such as a phone or computer.
- One light is provided in each bedroom, and three lights are provided in the common area.
- All wires are properly sheathed with insulation to mitigate the risk of an electrical fire.



Design Process

- Group collaboration of the overall design.
- CAD drawing of the container layout produced by Corgan.
- Ventilation and cooling designed by another GCU Capstone team.
- System designed to accommodate the needs of the inhabitants, including lights and wall outlets.
- Electrical closet designed to contain all key solar system components.
- Wiring diagram created to better show the placement of all outlets/switches/lights/wires.

System Testing Results

The solar testing was the only physical testing completed prior to early project termination. Testing for the battery, outlets, lights and the other solar components was scheduled, but had not taken place prior to project termination.

Time	Voltage Panel A (V)	Voltage Panel B (V)	Temperature (°F)
11:34 Am	39.45	38.95	72
11:44 Am	36.74	36.83	73
11:54 Am	36.03	36.07	75
12:04 Pm	35.73	35.34	75
12:14 Pm	35.60	35.68	75
12:24 Pm	35.56	35.62	77