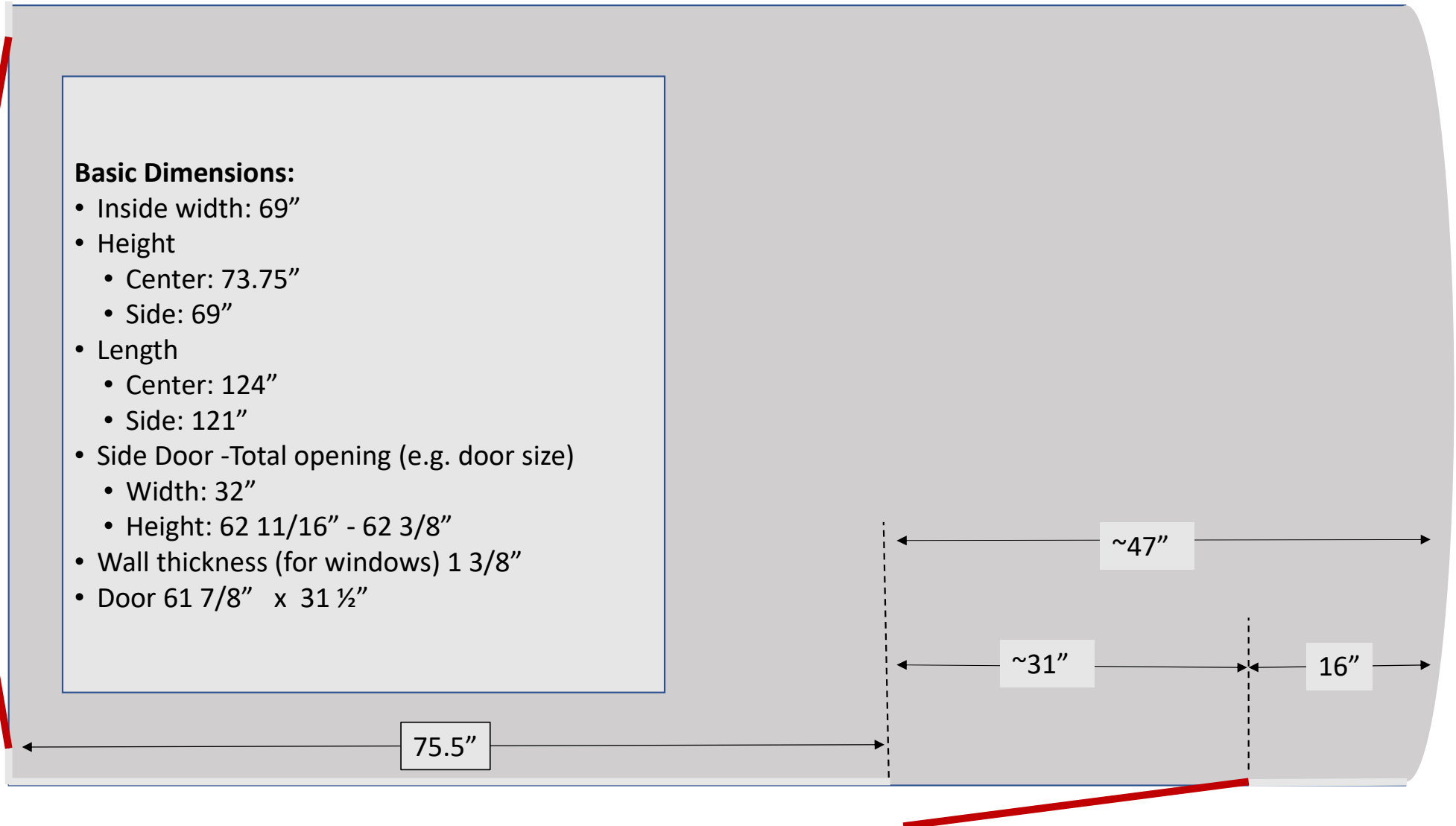
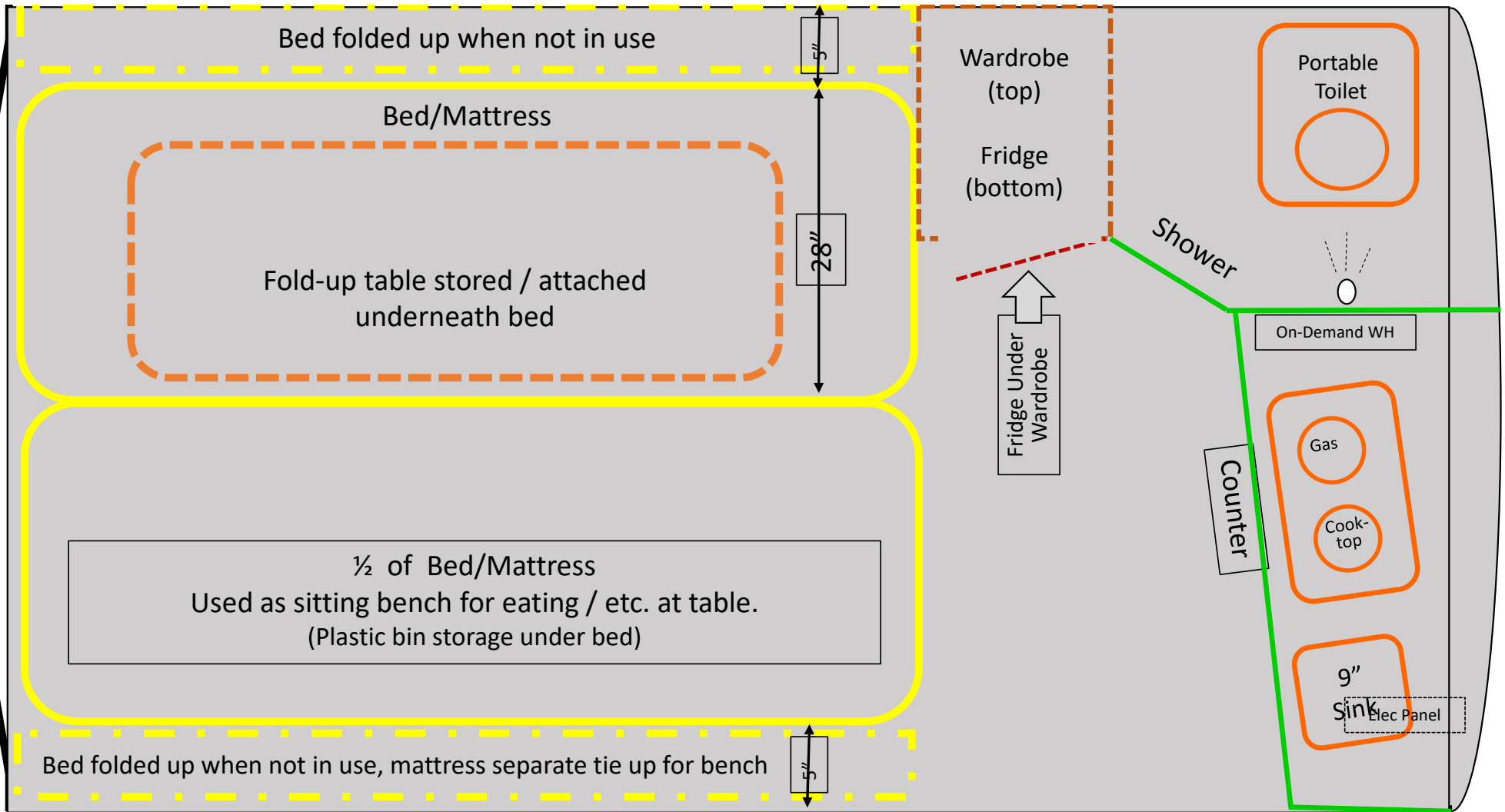


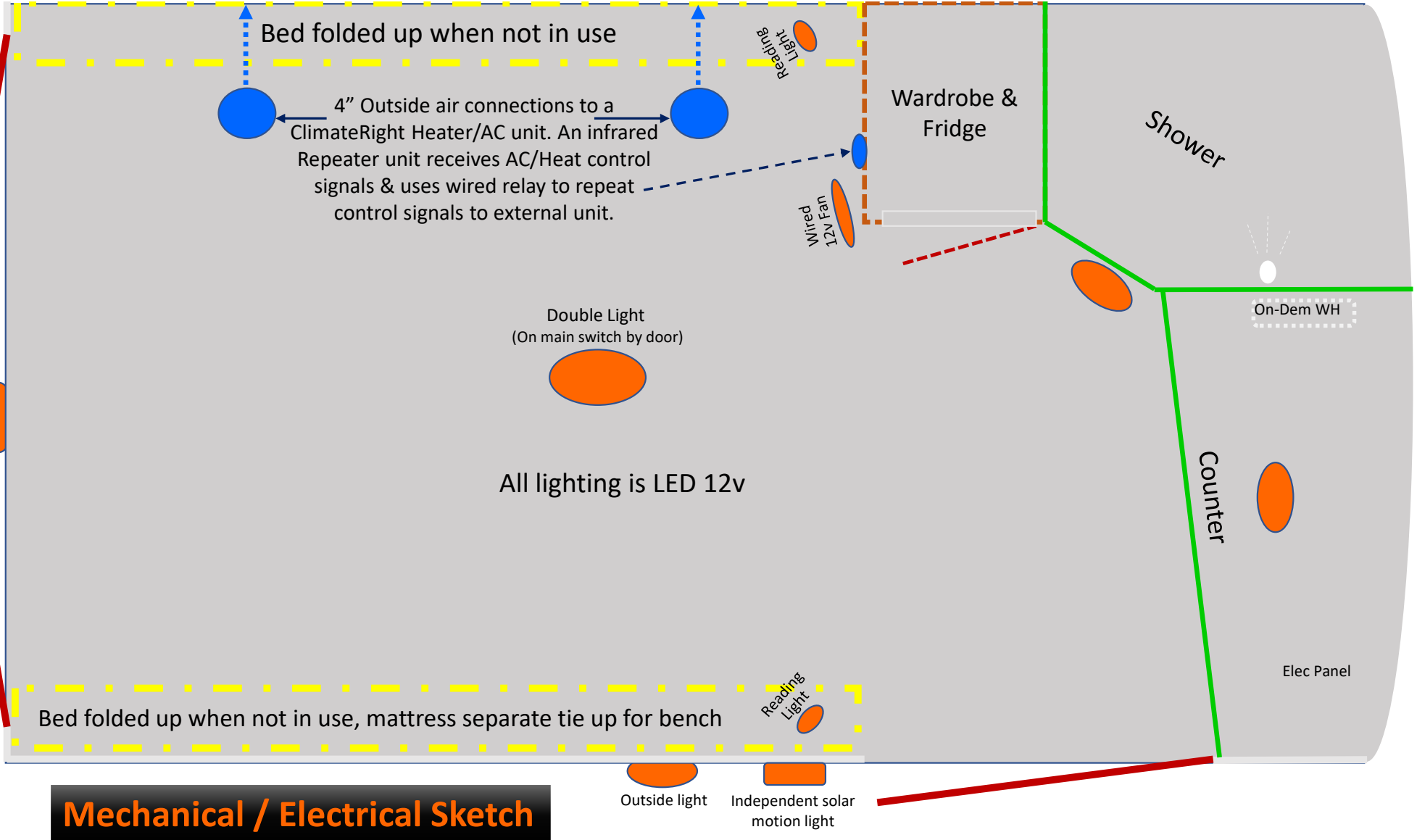
Haulmark Utility Trailer 6' x 10' Camper conversion

Basic Dimensions:

- Inside width: 69"
- Height
 - Center: 73.75"
 - Side: 69"
- Length
 - Center: 124"
 - Side: 121"
- Side Door -Total opening (e.g. door size)
 - Width: 32"
 - Height: 62 11/16" - 62 3/8"
- Wall thickness (for windows) 1 3/8"
- Door 61 7/8" x 31 1/2"

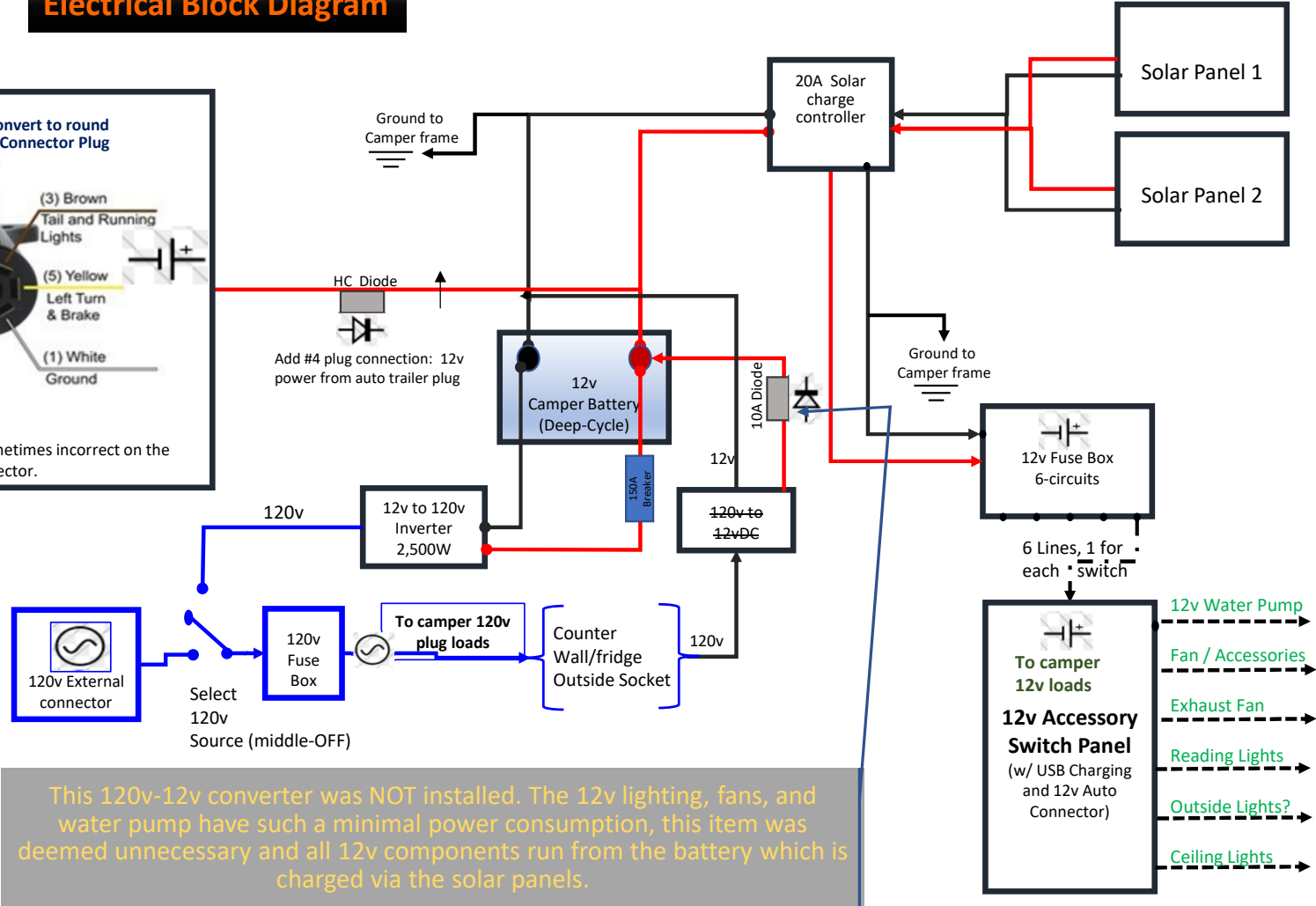
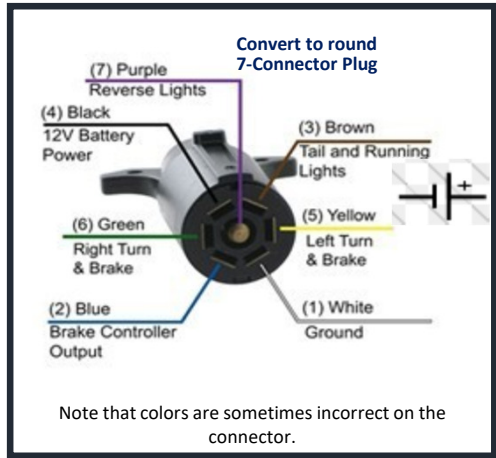






Mechanical / Electrical Sketch

Electrical Block Diagram



This 120v-12v converter was NOT installed. The 12v lighting, fans, and water pump have such a minimal power consumption, this item was deemed unnecessary and all 12v components run from the battery which is charged via the solar panels.

Electrical Notes:

Operational States:

- Unplugged - running from battery / solar and on-board water. Inverter powers fridge at 120v
- Plugged into vehicle - Camper 12v from camper battery being charged by vehicle.
- Plugged into external 120v (disconnected from vehicle) Lighting, fans, pump operate at 12v

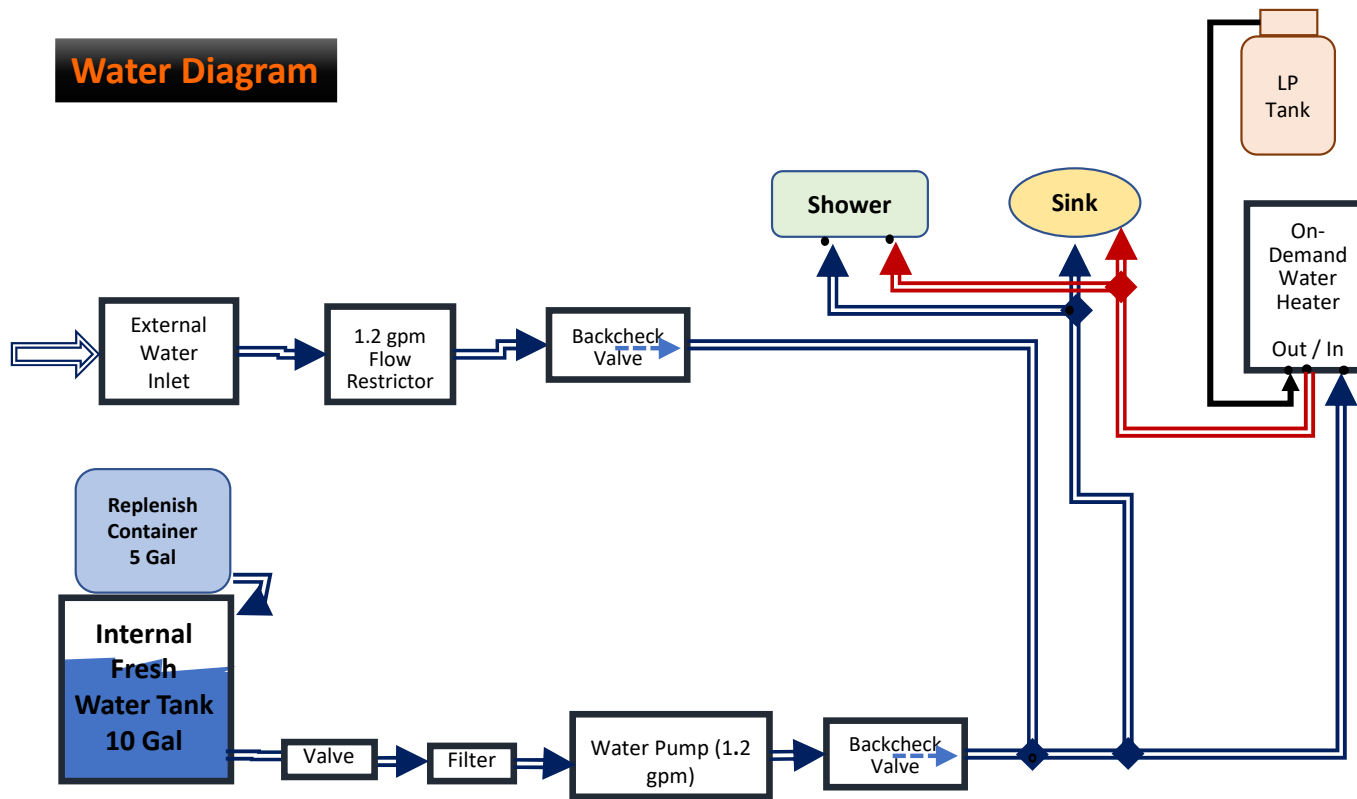
Requirements:

- External 120v option / connector with camper fuse box
- Solar power panels (200 watts) charging --> battery
- Battery will charge from any source
 - ~~External 120v~~ (Not implemented, deemed unnecessary)
 - Solar
 - Vehicle - 12v connection (probably more like 14v when vehicle engine running)
- Power cannot be allowed to flow from camper back to vehicle. (Protected by a diode.)

Assumptions:

- Switch to switch from shore power to inverter power (cannot connect both concurrently)
- Safe operation - fused where appropriate
- Camper is primarily a 12v system that will run via battery power for lighting and water pump phone charging (USB) etc.
- When plugged into external power, battery will still power 12v DC pump and lighting.
- The Inverter 12v->120v can operate certain items / certain outlets. Limited to 2500 watt max (although duration cannot be extended if using a single 12v deep cycle battery) This should run CPAP machine on the 120v inverter. When plugged into external power, 12v will still operate water pump and lighting. The inverter is not needed when plugged in to external power and could/should be turned off manually.
- Certain 120v items will only operate when plugged into external power (120v fridge ok for short duration, AC – never on inverter, low wattage hair dryer OK for short duration). A smaller power microwave (e.g. 750 watts) may work on inverter?
- Question - is it ok for both solar and external power (via 12v converter), or solar + vehicle charging, to send 12-14v to the battery? I would think that is ok ?

Water Diagram



Key Accessories / Components:

- Fridge (110v dorm fridge)
- 2-burner cooktop
- Fold-up split bed: 2-28x74 4" thick mattresses (total size= 56 x 74)
- Table under on bed folds up for dining etc.
- Sink ~9"
- Shower (hot water is LP on-demand heater)
- Windows with screen – 2 plus 1 in door.
- Free-standing external heater/ac unit
- Top crank-open vent with 12v fan
- 2 100w 18v solar panels on roof
- Solar charge controller manages power from solar to/from camper battery
- Standard safety components (breaker/fuses)
- External lighting (12v)