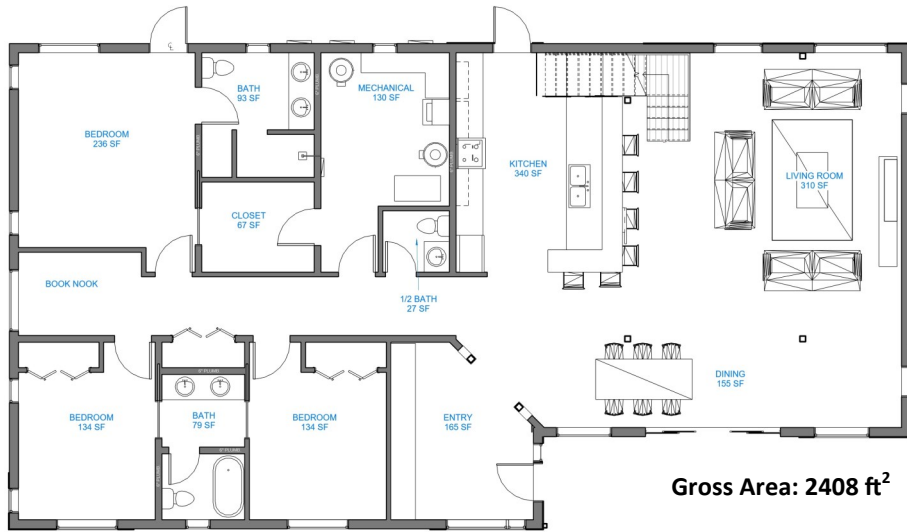


FLOOR PLAN



Gross Area: 2408 ft²

* This floor plan does not include the loft above the kitchen.

On the site, the home is rotated at 15° south-east to optimize the ventilation and solar conditions. The form resembles the geological forms from the Red Canyon. The interior is inspired by western and native cultures.

THANK YOU TO OUR SPONSORS!



BrightSense



**ENGINEERING
DESIGN ASSOCIATES**

ARCTIC HEAT PUMPS

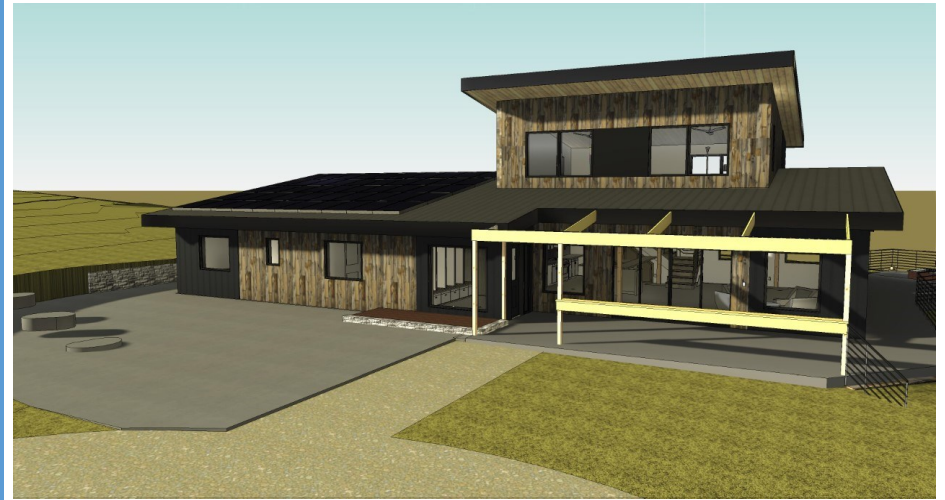


**ALPEN
CLEAR PERFORMANCE**



U.S. DEPARTMENT OF ENERGY

Solar Decathlon



Wind River
Wyoming



Timshel Construction, LLC



UWYO SOLAR DECATHLON

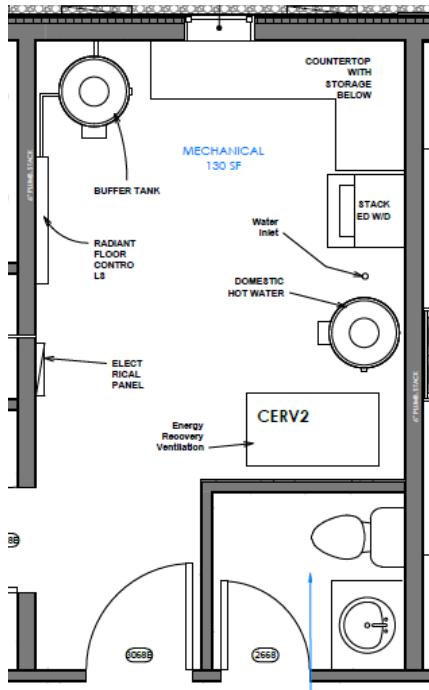


UWYOSOLARDECATHALON

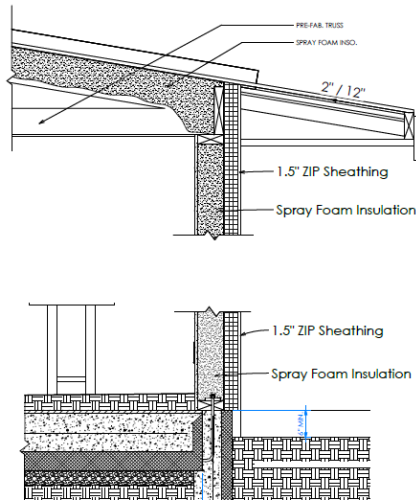


College of Engineering and Applied Science
Civil and Architectural Engineering
and Construction Management

MECHANICAL



ENVELOPE



R-Values

Wall: R30

Roof: R50

Floor: R20

HYDRONIC HEATING & COOLING

- Uses water or glycol to transfer heat which makes it cleaner, quite and more cost effective
- Stores liquid and can distribute to any place in the home.

VENTILATION

- CERV monitors CO₂ & VOC levels
- Geo-boost with ground source loop, which preheats and precools the air

AEROBARRIER

- House is sealed with acrylic mist to close small gaps in framing
- Supertight envelope reduces heating and cooling needs

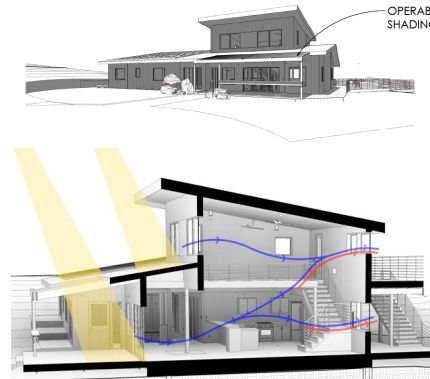


SOLAR

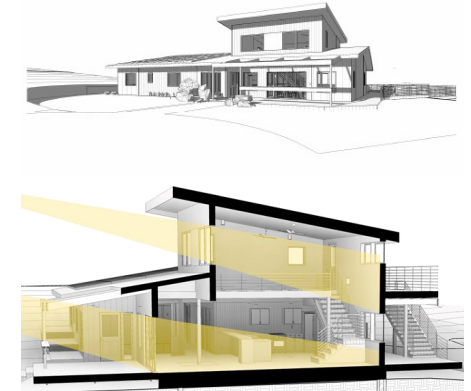
The architecture of the home and the layout all help to provide passive heating and cooling, reducing the overall need, as well as, optimizing the solar panel system to collect the most sunlight.

PASSIVE HEATING AND COOLING

Summer



Winter



Ventilation & Passive Heating and Cooling Diagrams

SOLAR DESIGN

- 16.5 KW system with 32 480W Panels
- 4 Arrays of 8 panels each
- Hybrid inverter
- Two (2) 7.5KWH lithium ion wall mounted batteries

Based on current energy modeling, this system will use only half the energy it will produce. This would allow future homeowners to grow in their home, power two electric vehicles and sell back to the grid.

