

## Build Back Better: Marshall Fire Rebuild

Boulder, CO

### Single Family Building

Rebuild from Existing Foundation

PHI Database ID#: Pending

Certification Goal:



Status: Pending - in construction

Size: 4,783 FT2 TFA

**Description:** This house on Paragon Drive was spared the worst of the flames from the Marshall Fire, but the structure had to be rebuilt due smoke damage.

DOE Climate Zone: 5b

### Team:

**Owner:**

Rob Keeley and Peggy Driscoll

**Architect/Designer:**

Renee Golobic  
<https://www.eleven28arch.com>

**PH Consultant:**

Enrico Bonilauri, Emu Passive  
<https://www.emupassive.com>

**Builder:**

Built by Krueger  
<https://www.bykrueger.com>

**Certifier:**

Marco Filippi, Energy Plus Project  
<https://epplus.it>



This large ranch home provides seamless indoor/outdoor living with large Zola sliders connecting the kitchen/living area, and the Library room to southern and western patios.

Large Zola windows frame panoramic Rocky Mountain views. Exterior zip systems will be covered with a rain screen for moisture management and clad with a variety of Stone, Stucco, and Cementitious siding.



The kitchen features a large clerestory with lots of light. The high windows are operational powered Zola windows. The Southern sliding door opens onto the patio with an Herb Garden and a grape vine covered pergola. Exterior finishes and landscaping will create a fire defensible space around the home.

## Thermal Envelope

### Ground:

Main Level: Crawl Space with EPS Foam and 20mil Vapor Barrier  
Garden Level: EPS Foam and 20 mil vapor barrier under slab concrete

### Walls:

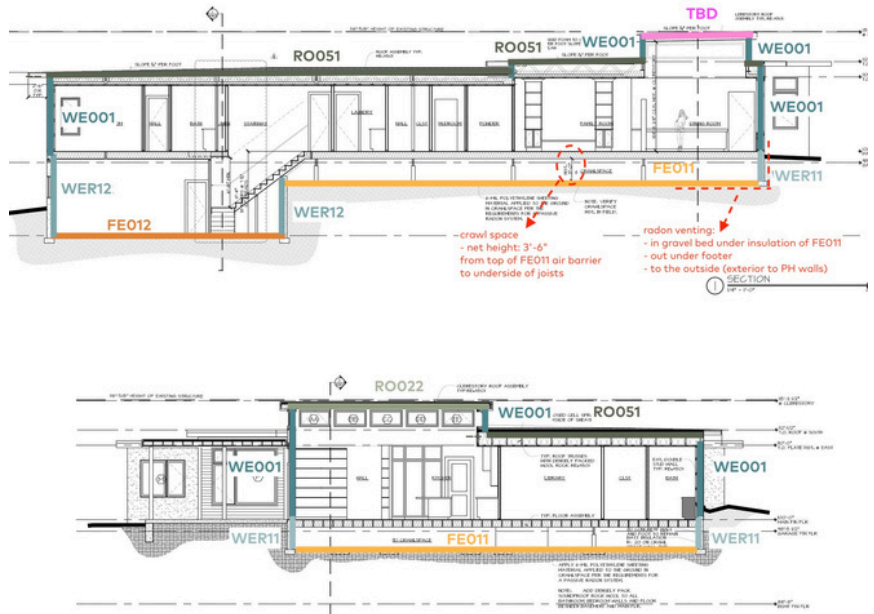
Double Wall assembly with blown cellulose and air sealing, 3rd wall service cavity

### Roof:

RFPI I-Joist Framing System, Under-framed Service Cavity

### Windows & Doors:

Zola



## Mechanical Systems:

### Ventilation:

Zhender ERV

### Heating:

Geothermal Heat Pump

### Cooling/Dehumidification:

Geothermal Heat Pump & Zhender ERV

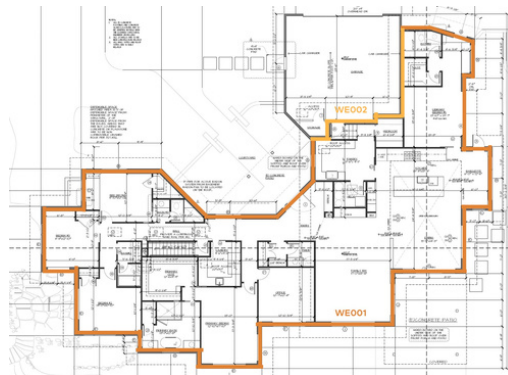
### Domestic Hot Water:

Geothermal Pre-Heating Storage Tank - Electric Booster Tank

### Onsite Renewable Energy:

13.6 kW PV Array

The entire home will be encapsulated and sealed to below 1.0 ACH50. The main level is a full ranch, but there is an attached Accessory Dwelling Unit, which is a basement garden level space. It is accessible from its own entrance outside, or via stairs inside.



The home reuses the existing foundation that was not damaged during the fire. It was modernized by “capping” the foundation to ensure proper damp proofing and frost protection for the footer. The entire crawl space was then retrofitted with 8” of EPS foam and 20mil vapor barrier. Steel elements that were potential thermal bridges were engineered out in favor of Laminated Veneer Lumber and Glu-Lam Beams.

## PHPP Values

### Climate:

Warm-temperate

### Cooling & Dehumidification Demand:

9.4 kBtu/ft2/yr

### Airtightness:

1.0 ACH50 Max

### PER Demand:

< 23.75 kBtu/ft2yr

### Annual Heating Demand:

< 9.5 kBtu/ft2/yr

