

PROJECT:

Custom Residential Home Construction

LOCATION:

Greenbank, WA

OWNER:

Private Residence

APPLICATOR:

Foamworks, LLC.

SYSTEM:

Bayseal CC™ and Bayseal OC™
Spray Polyurethane Foam
(SPF) Insulation

TOTAL AREA:

4,000 sq. ft.

COMPLETION DATE:

2010

PROBLEM:

The project owner's goal was to create a truly energy-efficient "net zero" home. To accomplish this he planned to install solar panels and needed to use a high performance insulation solution to create a full building envelope.

SOLUTION:

The owner decided to use SPI's Bayseal CC™ and Bayseal OC™ spray foam due to their superior R-Value, air barrier, and unique structural strengthening properties. Using these products reduced the amount of material required, and heating equipment costs throughout the project.

The applicator reduced 2x6 wall studs to 2x4 by meeting energy code using just over 3 inches of Bayseal CC™. Then he reduced vaulted rafter cavities from 2x12 to 2x8 by spraying 2.5 inches of Bayseal CC™ and 4.5 inches of Bayseal OC™. This resulted in R4.8 thermal resistance over energy code requirement, using less framing material and providing a more economical hybrid system. Next, the applicator reduced shear nailing for exterior walls due to the increased structural strength of the Bayseal CC™ 1.9 lb.

foam. Using the SPF insulation allowed for a reduction in the size of the heating system because of the product's high R-Value and low thermal conductive properties.

The project also involved installing a custom radiant slab heating system located in a fully insulated non-vented crawl space. This construction design will provide reliable heat for the entire house. Additional design benefits included pre-heated, fresh air coming into the crawl space area. This eliminated the need to wrap plumbing pipes and keep the crawl space above 45°F, even when temperatures were below freezing.

RESULTS:

The home owner was happy with the workmanship, and his investment in upgrading to a more energy efficient solution. The combined savings on construction materials and reduction in energy usage will pay for the upgrade within 5 -7 years, while continuing to pay dividends for years to come.



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