

Armstrong Zeigler “Addition for the Addition” Eco-roof Report

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Project Overview

My wife and I bought our 1957 ranch house in 2005. Its 910 square feet fit us like a glove. But then, with the approaching arrival of our baby girl, we realized we needed an “Addition for the Addition.”

We decided to bump our house out into the backyard with a 150 square foot master suite with bath and nursery.

We’ve always liked eco-roofs, I’d been wanting to build one, and the incentive program is a nice bonus so we decided to top off our new space with an eco-roof.

Construction of the addition lasted from October 1, 2010 through December 2010, the entire project cost about \$30,000, our house is now a spacious 1060 sf, and our eco-roof was planted in June 2011.

Details

I employed myself to serve as architect with the help of Precision Structural Engineers. With the help of my dad and various tradesmen I built the addition “myself,” or at least self-managed the process. The structure of the addition was built out of Structurally Insulated Panels (SIPs) that sit on pin foundations.

The eco-roof assembly consists of the following (from the top down):

- Sedums
- 70% compost/30% pumice soil mix - 4”
- Reclaimed carpet pad drainage layer
- 40 mil EPDM pond liner membrane
- SIP roof panel

Where the eco-roof meets the existing asphalt roof I created a waterway with 4-6” river rock to direct stormwater to box collectors at each end. To create a parapet on 3 sides I let a 2x10 fascia board extend up past the roof edge 5 inches. The EPDM laps over this parapet and is capped with 1.5 inch angle flashing extending down each face of the fascia board.

Successes

- Technical info on the BES website came in very handy.
- Laying, folding, rolling, anchoring the EPDM proved to be easier than I had feared.
- Planting the sedums (i.e. throwing them on the soil and watering) was super easy.

Lessons Learned

- Slope the roof away from the existing roof. I was trying



front of the house



back of the house (the addition goes here)



SIP panels go up



the addition 95% complete

to be too “designy” in having the new roof slope back to the house. It looks cool, and makes for a dramatic interior space, but the water management aspect is not ideal.

- Make the roof visible. If you’re going to the trouble of making an eco-roof, make it where people can see it. Because of the roof design of my addition, there are only a few places where the roof is visible.

- Take your time laying out the EPDM. Make sure each fold is perfect and that the membrane lays in the inside corners of the parapet smoothly. Mine ended up pulling too tight at the top edge and I had to take it all apart and start over.

Eco-roof Cost

EPDM - \$321.35

Sedums - \$231.38

Gutter parts - \$152.86

Compost - \$73.45

River rock/Pumice - \$80.00

Carpet Pad - free

Labor - \$200

Structural Engineering (added) - \$200

Architectural Design (added) - \$200

TOTAL - \$1459.04 (\$9.7/sf)

Resources

Bulk Sedum Cuttings - Etera - David Gilmore
www.etera.com

EPDM Pond liner - Tranquility Ponds
www.portlandpondsupplies.com

Pumice, River Rock - Mt. Scott Fuel
www.mtscottfuel.com

Organic Compost/flashing - Lowes
www.lowes.com

Carpet pad - Craigslist
portland.craigslist.com

Lumber - Parr Lumber
www.parr.com

Gutter parts - Gutterman’s Supply
www.guttermanschoice.com/

Structural Engineer - Precision Structural Engineering
www.structure1.com

Architect - Strongwork Architecture, LLC
www.strongworkarchitecture.com

SIPs - Structures NW - Patrick Sughrue
www.structuresnw.com

Framing/Carpentry - Compound Construction
www.compoundconstruction.wordpress.com/

Patience - Wife
Free Labor - Dad
“Free” Money - BES Eco-roof incentive program (thanks!)
www.portlandonline.com/bes



SIP roof



EPDM



roof edge and water collector



pumice on carpet pad



soil mix bucket brigade



last buckets full



assembly detail



box o' sedums



planted roof



roof with soil and river rock