“We have been blown away at how drastically different living in a high-performance home is compared to a code minimum house.”

Dan Welch, owner of Bundle Design Studio and owner, designer, and builder of the Birch house

KEY FEATURES

Walls: 2x6 24” o.c., R-23 rockwool batt, ½” plywood sheathing, fluid-applied air barrier and window flashing, 2” R-8 rigid rockwool exterior insulation, 1x4 fir battens rainscreen, metal and cedar siding.

Roof: R-60 total: ½” plywood roof sheathing, fluid-applied membrane, three 3” layers R-60 polyiso rigid foam, 30 min. roofing felt, 2x4 battens for venting, ½” OSB, full ice & water shield, standing seam metal roof, ENERGY STAR Cool Roof certified.

Attic: Cathedral ceilings.

Foundation: Vented crawlspace. R-60 rockwool batt, ¾” plywood subfloor, 2” concrete slab w/micro-rebar, ½” EPS under and at slab edge. Radiant heat tubes in slab.

Windows: Fiberglass-framed, triple-pane, argon-filled, U=0.16, SHGC=0.47.

Air Sealing: 0.4 ACH 50.

Ventilation: HRV MERV 13 filter.

HVAC: Air-to-water CO2 heat pump for hot water and radiant floor heat, EF=4.50.

Lighting: 100% LED lighting.

Appliances: ENERGY STAR frig., dishwasher, clothes washer; HP dryer, induction range.

Solar: 9.28-kW solar PV array.


Other: Extensive salvaged wood from local demolition, FSC certified countertops. Indoor solarium for edible plants + oxygen + greywater treatment + passive solar gain. Green roof.

PROJECT DATA

- Layout: 3 bdrm, 2 bath, 2 fl, 2,065 ft²
- Climate: IECC 4C, marine
- Completed: July 2015
- Category: custom spec

MODELED PERFORMANCE DATA

- HERS Index: without PV 36, with PV -9
- Projected Annual Energy Costs: without PV $763, with PV -$91
- Projected Annual Energy Cost Savings: (vs home built to 2012 IECC) without PV $924, with PV $1,914
- Annual Energy Savings: without PV 11,803 kWh, with PV 21,866 kWh

CONTACT

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For more information on the DOE Zero Energy Ready Home program, go to http://energy.gov/eere/buildings/zero-energy-ready-home or scan the QR code.