



# [bundle] design studio

Midcentury Deep Energy Makeover | Bellingham, WA | BundleDesignStudio.com



Photos courtesy of [bundle] design studio

“The main goal of this retrofit project was to take a home that was built in 1952 and get it ready for the next 100 years.” Homeowner



## PROJECT DATA

- **Layout:** 3 bdrm, 2.5 bath, 1 fl, 2,277 ft<sup>2</sup>
- **Climate:** IECC 4C, marine
- **Completed:** October 2020
- **Category:** Custom for Buyer <3,000 ft<sup>2</sup>

### MODELED PERFORMANCE DATA

- **HERS Index:** without PV 43; with PV -41
- **Annual Energy Costs:** without PV \$700; with PV -\$550
- **Annual Energy Cost Savings:** (vs typical new homes) without PV \$800; with PV \$2,000
- **Annual Energy Savings:** without PV 9,700 kWh; with PV 25,200 kWh
- **Savings in the First 30 Years:** without PV \$31,400; with PV \$81,900

## CONTACT

Dan Welch  
360-296-2657  
dan@bundledesignstudio.com

## KEY FEATURES

- **Walls:** Double wall retrofit, R-23 total: existing 2x4 16" o.c. with fiberglass batts, replaced drywall with CDX plywood, horizontal 2x3s 24" o.c. and R-11 fiberglass batts and drywall. On exterior, topped old 1x sheathing with self-adhered WRB, metal siding.
- **Roof:** Gable roof: Covered existing 1x sheathing with membrane taped, new 9.5" I joists, OSB, self-adhering membrane; composite shingles.
- **Attic:** Vented vaulted ceilings: 5.5" + 8.5" R-54 fiberglass batts.
- **Foundation:** Vented crawl space: batt insulation in 2x8 floor. Topped existing subfloor with 1/2" EPS, radiant floor tubing, 2" poured concrete slab.
- **Windows:** Thin-film triple-pane, argon-filled, low-e, fiberglass frame; U=0.18, SHGC=0.30.
- **Air Sealing:** 1.34 ACH50, all edges and holes sealed with joint sealer, vapor air barrier with sealed edges on existing roof deck, self-adhered WRB over existing sheathing.
- **Ventilation:** HRV, MERV 13 filters, separately ducted in conditioned attic.
- **HVAC:** Air-to-water CO<sub>2</sub> heat pump for hot water and radiant floor heating. 5.2 COP.
- **Hot Water:** Air-to-water CO<sub>2</sub> heat pump for hot water and radiant heat. 119-gal, 3.00 EF.
- **Lighting:** 100% LED.
- **Appliances:** ENERGY STAR refrigerator, dishwasher, clothes washer, heat pump dryer.
- **Solar:** 13.44 kW, 42 320-W rooftop panels, passive solar design.
- **Water Conservation:** EPA WaterSense showerhead, smart recirculation pump.
- **Energy Management System:** Smart thermostats.
- **Other:** EV charging; accessible floorplan, shower; low-VOC paints, finishes.

