Paul Torcellini
Eastford Farm Bungalow  |  Eastford, CT

“Of course it’s going to be a zero-energy house!”  Paul Torcellini, home owner and builder

PROJECT DATA

• Layout: 3 bdrm, 2 bath, 2 fl + bsmt, 3,597 ft²
• Climate: IECC 5A, cold
• Completed: March 2016
• Category: custom for buyer

MODELED PERFORMANCE DATA

• HERS Index: without PV 35, with PV 2
• Projected Annual Energy Costs: without PV $2,303, with PV $80
• Projected Annual Energy Cost Savings: (vs home built to 2009 IECC) without PV $3,246, with PV $5,469
• Annual Energy Savings: without PV 17,404 kWh, with PV 29,758 kWh

KEY FEATURES

• Walls: Double-stud walls, 12” cavity dense-packed with fiberglass insulation (R-52); plywood sheathing taped at seams to act as drainage plane; fiber-cement lap siding.
• Roof: Taped plywood roof decking, furring strips, standing seam metal roof.
• Attic: Insulated along roof line with R-60 to R-80 fiberglass dense packed in roof rafters.
• Foundation: Daylight basement of poured concrete walls insulated on interior with R-10 rigid foam + fiberglass batts in stud cavities.
• Windows: Double-pane, double-hung, argon filled, low-e coating. South U=0.31, SHGC=0.48; all other sides: U=0.29, SHGC=0.24.
• Air Sealing: 0.75 ACH 50.
• Ventilation: HRV with timed high-speed boost for kitchen and bath spot exhaust.
• HVAC: CO₂ air-to-water heat pump for radiant floor heat, 4 COP; ductless mini-split heat pump for cooling 26 SEER and supplemental heating, 12.5 HSPF.
• Hot Water: Air-to-water heat pump with 80-gal storage tank, 2.5 EF.
• Lighting: 100% LED.
• Appliances: ENERGY STAR refrigerator.
• Solar: 9.4-kW PV. Emergency circuits tied to inverters in case of grid disruption.
• Water Conservation: WaterSense fixtures, separate black water and gray water plumbing, rainwater collection from metal roof, low-irrigation landscaping.
• Energy Management System: Radiant heat thermostats for each room.
• Other: No-VOC paints, glues, finishes; wired for electric car station.

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.