

The Passive House at 214 Harrison Street, Rockville, MD

Building Facts

Building envelope

Roof	12" InsulSpan Structural Insulated Panels (SIPs). Standard asphalt shingles over building felt.	R45
Building walls:	6" InsulSpan SIPs. 4" External Insulating Finishing System (EIFS) with stucco finish.	R40
Foundation walls:	5" EPS on exterior of 10" concrete foundation wall with 2" EPS insulation board + 5-1/2" fiberglass at interior face.	R50
Basement slab:	4" concrete over 15 mil vapor barrier over 4" EPS insulation.	R17
Footings:	Placed over 4" high density EPS foam.	R17
Windows and exterior doors:	Zola triple-glazed casements w/ insulated sash and frames.	R6
Solar protection:	SunAir motorized awnings at first floor south wall. 32" roof overhangs at second floor south wall. Traditional operable louvered shutters at north, east and west walls. Dense evergreens at west wall.	
Airtight layer:	Placed at interior face of SIP OSB panels.	
Vapor Permeability:	Walls are vapor open. Minimum perm rate: 1.	

Mechanical and electrical

Pretempering:	600' PEX tubing runs to heat exchanger in ERV intake manifold.
ERV:	Ducted Zehnder ComfoAir 550 rated at 86% efficiency by PHI.
Heating, cooling and dehumidification:	Mitsubishi 18,000 BTU heat pump dials down to 6,000 btu. 1 ducted minisplit for attic and second floor; 1 for basement and first floor.
Hot water:	Caleffi solar system provides 63% of domestic hot water.
Appliances:	Energy Star where applicable.
Lighting:	All CFL and LED fixtures throughout.
Photovoltaics:	TBD.
Energy monitoring:	TBD.

Anticipated Energy Costs

House size		4,960 SF
Projected annual heating and cooling energy cost =	\$.11/sf/yr =	\$450
Projected annual total household energy bill ¹ =	\$.53/sf/yr=	\$2,630

¹ As predicted by PHPP energy modeling software at today's rates. Actual energy use may vary based on user habits. Predicted energy costs of 2011 Bethesda Passive House fell within 2.5% of actual performance.