

Building Science Corporation
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BSC Building America Projects
March 4, 2014

BUILDING ENERGY 14
CONFERENCE • TRADE SHOW FOR RENEWABLE ENERGY AND GREEN BUILDING PROFESSIONALS

AIA Best Practice Slide

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Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation

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Merrimack Valley Habitat for Humanity

- Existing brick building (former convent) converted into 10 affordable housing units
 - Roof – R-60
 - Walls – R-30
 - Foundation Walls – R-20
 - Foundation Slab – R-10
 - Windows – R-3
 - Mechanical – hydronic heat (combi DHW), no AC, individual HRVs

Front Entry

XPS Rigid Foam Installation

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Merrimack Valley Habitat for Humanity

- Energy Modeling
 - Wall comparison (6" XPS, 4" XPS, 5" ccSPF, 2" ccSPF + 5.5" FG)
 - Window comparison (existing, storm windows, new windows)

Unit Number	Percent Savings over User Defined Reference Home	HERS	ENERGY STAR v3 Tier II
Unit 2	30.7%	68	Yes
Unit 3	33.3%	66	Yes
Unit 8	43.5%	50	Yes
Unit 9	38.2%	55	Yes

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NIST Net Zero Lab House

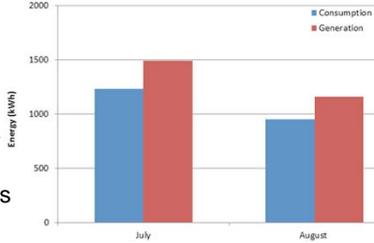
- 3-bedroom, 4-bathroom lab house at the NIST campus in Gaithersburg, MD
 - Roof – R-75
 - Walls – R-48
 - Foundation Walls – R-28
 - Foundation Slab – R-11
 - Windows – R-5
 - Mechanical – multiple mechanical systems
 - PV System – 10.2 kW



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NIST Net Zero Lab House

- Objectives:
 - Provide guidelines to achieve NZEHs
 - Develop effective monitoring techniques
 - Measure system performance of NZEHs
 - Select appropriate heating and cooling equipment
 - Collect and analyze home energy data (interior loads, performance of space conditioning systems, simulated occupant behavior, PV system contribution)



Month	Consumption (kWh)	Generation (kWh)
July	~1250	~1500
August	~950	~1150

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Questions?

This temporarily suspends the AIA CEU content

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Questions?

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Questions?

AIA CEU content is now resumed

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