

## Deep Energy Retrofit Open House

Saturday, October 1, 2011 • 10:00 AM — 2:00 PM

2 Bromfield Street • Quincy, MA

The Hall family, in conjunction with National Grid, Timeless Architecture and Grifcon Contracting, will be sponsoring an Open House showcasing a Deep Energy Retrofit of their home in Quincy, MA. It will also be part of NESEA's Green Buildings Open House tour.

Now in the final construction phase, the design and building team has been transforming a 1903 bungalow to a 4 story, state-of-the-art 21st century home. The team includes: Building Science Corp. (Building Science & DER Specialists), Conservation Services Group (Energy Performance and Verification), Ondrick Engineering (Structural), Drew Gillette (Mechanical Engineering), Alteris Renewables (Solar Systems), Anderson Insulation, Jordan Woodworking, DL Services (HVAC and Plumbing), Taylor and Bailey Framers (Framing), AMC Electric (Electrical), Yale Appliances (Appliances and Lighting), Ferguson Plumbing (Plumbing Fixtures), Jackson Lumber (Windows and Doors), SRW Supply, and Bradco Inc., Boston Green Building (DER Consulting).

This self-described typical family of five is expanding to allow for the most efficient use of this 900 SF footprint home that was adequate when they numbered just 2. While the original footprint of the home has not been altered (with the exception of new decks), the usable space has increased 34% from 2,647 to 3,560 SF. This project demonstrates a way to maximize space for a growing family while reducing onsite energy use.

The super insulated enclosure was substantially enhanced through financial and technical support from National Grid and Building Science Corporation. The combined focus on energy efficiency and renewables has earned the project a low Home Energy Rating (HERS) score of 26. The home is also participating in the National Thousand Homes Challenge – an ambitious program to showcase very significant energy use reductions in existing homes. Ongoing monitoring is being performed by PowerHouse Dynamics and Solar Wave Inc. This project is the first single family home of its kind to be built in Quincy.

### Here are some of the highlights of the Deep Energy Retrofit of this transformed 1903 Bungalow.

- **Attic/Roof:** R-60 (10" Icynene 4" Rigid Polyiso Foam added to exterior)
- **Walls:** R-40 (4" Rigid Polyiso Foam added to exterior, 2 layers interwoven for no thermal breaks)
- **Windows:** R-5 (0.2 U-value) Paradigm triple glazed, low E, argon filled
- **Air leakage reduction:** 85% from initial leakage 5050 cfm at 50 Pa, final 762 cfm at 50 Pa
- **Heating system:** 96% eff Phoenix Evolution, integrating solar & back up water heating, radiant slab & hydro air
- **Cooling:** Carrier Air to Air Heat Pumps, COP 4.08 @47°F. 2.80@17°F
- **Heat Recovery Ventilation:** Lifebreath HRV, 88% efficient heat recovery
- **Lighting:** Compact Fluorescent or better throughout
- **Appliances:** all ENERGY STAR®
- **Renewables:** Velux integrated Solar DHW & a 6.25 KW Solar PV w/ Sun Run Residential Power Plan.
- **Thousand Home Challenge:** Acceptance into the THC program and ongoing monitoring w/ total energy threshold of 11,007 kWh/yr.

### Directions to the open house at 2 Bromfield St, Wollaston, North Quincy MA

#### 93 South from Boston:

- Take Exit 12 to merge onto Gallivan Blvd
- Take Mass. 3A S toward Neponset /Quincy
- Follow Mass. 3A S slightly left @ Quincy Shore Drive
- Right at Bromfield Street

#### Public Transportation:

MBTA stop is Wollaston on Red Line



**Before construction**



**During Construction**



**New 4-story home with super-insulated exterior wall and roof build-outs and south-facing solar installations.**