

Deep Energy Retrofit Open House

Saturday, April 6, 10:00am to 2:00pm

Special Visit to the Project at 11am by **US Congressman Jim McGovern**

A presentation about National Grid Deep Energy Retrofit projects, including this project and results will be at 11:45am and 1:00pm

29 Crompton Street, Worcester, MA 01605

National Grid will be sponsoring an Open House, with Jeff Oliver, showcasing the Deep Energy Retrofit of a 1890 three-family home at 29 Crompton St. Worcester, MA. 01605

For 13 years, Jeff and Kate Oliver, have been interested in properties near The College of The Holy Cross. They found the perfect three-family home which had housed students in the past, but was in need of a gut rehab. A fellow soccer parent and green energy enthusiast/engineer, Dana Dorsett suggested they look into National Grid's DER Pilot. Dana's expertise and insight helped guide Jeff and Kate through this intimidating project. Their goal was to become the most energy efficient multi-family in Worcester County.

The building was totally stripped, interior and exterior in what is called a "Chainsaw Retrofit". The super-insulated enclosure, made possible through financial and technical support from National Grid and Building Science Corporation, includes an exterior insulation wall and roof build-out. There were no limitations (besides the cost) to meet the rigorous requirements of National Grid's DER program. The team used two three-inch layers of reclaimed polyisocyanurate (polyiso) rigid foam on the exterior of the roof and 3" of closed cell foam on the inside of the roof slopes. The exterior walls were insulated with one layer of 3" reclaimed polyiso and 1" of new foil-faced polyiso. The interior walls were insulated with 2" of closed cell foam to ensure the air infiltration goals were met. Separate heat recovery ventilators with ERV cores in each unit will lower energy use, improve indoor air quality and eliminate cross-contamination between units.

The project was completed in September 2012.

Here are some of the highlights of this Worcester 3-family DER retrofit project:

- **Roof:** R-60+ (closed cell spray foam interior and polyiso rigid boards outside)
- **Walls:** R-40 with 4" of polyiso rigid foam on exterior and closed cell foam on the inside surfaces.
- **Basement walls:** R-20 with 3" of closed cell foam on the inside walls.
- **Basement floor:** R-12 with 2" of rigid foam boards under a new concrete slab
- **Windows:** R-5, Paradigm windows. 24 total windows
- **Heating and Cooling:** Mitsubishi Hyper Heat Electric Heat Pumps. 1 Unit for each apartment.
- **Domestic Hot Water:** Rinaii Condensing on demand hot water heaters.
- **Ventilation:** Balanced ventilation with 75% efficient Heat Recovery Ventilators with ERV cores in each unit

Directions by car to the Open House:

From Mass Turnpike

- Mass Pike to exit 10A (route 146)
- MA. 146 North to end.(2.8 miles)
- Left on Cambridge St.(.4 miles)
- Left onto Southbridge St. (.1 miles)
- First right onto Crompton St.(.1 miles)



Worcester three-family home before construction



Installing two 2" layers of foil-faced rigid foam insulation (w/ staggered joints)



New Siding attached over furring strips



Heat Recovery Ventilation for all units



Interior of unit



by David Connelly Legg

Completed Project