



# At Work

## Pittsburgh Home Energy Efficiency Project

Students working in the National Energy Leadership Corps (NELC) have provided more than 150 home energy assessments, without cost to the homeowner, since 2012. Homeowners from the Pittsburgh area have been provided this service to help them find ways to increase the comfort of and reduce energy costs in their homes. The NELC assessment teams are college students—predominantly engineering undergrads—that have completed course work in the science of whole house performance and energy efficiency measures as well as servant leadership concepts.

The curriculum has been developed at Penn State in the School of Architectural Engineering with financial support from the BNY Mellon Foundation of Southwestern Pennsylvania. The curriculum is designed to be taught in a “flipped classroom” approach with students getting much of the course content on-line. Classroom time is then spent applying the concepts in real world situations. During the semester the students perform home assessments and report generation in a learning environment, starting in the homes of people affiliated with the university. During the summers, a small cohort of students who excelled in the class served as interns to the program and spent the 12-weeks honing their skills completing additional home energy assessments.

The student teams begin the process, which takes about two hours, with a detailed discussion with the decision-makers in the household about their particular energy consumption goals and needs such as, improved comfort, reduction in energy usage and cost, environmental considerations, or all of the above. The assessment includes a visual inspection of the building structure, collection of data from the homeowner, including utility bills for the past year, if available. The students also use an infrared camera and specially developed iPad application to capture images and information. The homeowners receive a personalized written report that includes:

- Current annual energy costs
- Home energy profile
- Five recommended energy efficiency measures

The reports and recommendations are sensitive to the



dynamics of the family living in the home and are based on the needs and concerns expressed by the homeowner. The written report is provided to the homeowner along with general information about ways to manage energy usage.

The NELC provides university students with real world, hands on job experience while providing a service to their community; service based leadership is included in the curriculum. Students cite the experience of interacting with the homeowners as an enriching experience they do not gain in other classes and one more challenging than they expected.

The project is the result of collaboration among:

- Penn State Center: Engaging Pittsburgh
- Penn State University, Dept. of Architectural Engineering
- Penn State University, Sustainability Institute
- University of Pittsburgh, Dept. of Civil and Environmental Engineering
- University of Pittsburgh, Mascaro Center for Sustainable Innovation

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NATIONAL ENERGY LEADERSHIP CORPS

