THE NET ZERO ENERGY RESIDENTIAL TEST FACILITY

Therrien Waddell Construction was selected as the most qualified technical contractor among a widespread group of competitors to execute this landmark project. The unique features of the facility include the following:

- Advanced Framing & Insulation techniques
- Ductwork in conditioned space
- Extreme attention to envelope details
- R-11 Basement Slabs; R-25 Below Grade walls; R-48 Above Grade Walls; R-75 Roof.
- Photovoltaic, rack mount roof System
- Solar Thermal/Heat Pump Water Heating System
- Smart Grid Meter/Network for Smart Appliances & Equipment
- Multiple Zone Air Distribution Systems
- Dedicated ductwork for Humidification, Dehumidification, & Heat Recovery Systems
- Air - Air Central & Multi-split Heat Pump Systems
- Geothermal Heat Pump System options with 3 distinct loops – Vertical, Horizontal, & Slinky
- Fire Sprinkler & Fire/Smoke Detector Systems

Purpose

The Net Zero Energy Residential Test Facility, located at the National Institute of Standards and Technology (NIST) in Gaithersburg, MD, will enable the development and demonstration of measurement science needed to achieve net-zero energy residential homes. The facility will initially be used to demonstrate that a residence, typical in size/features of homes in the metropolitan D.C. area, can produce as much energy from renewable energy resources as it consumes on an annual basis. It will subsequently be used to provide "real world" field data to validate and improve energy models and to improve laboratory based measurements of systems and components to better represent field performance. This facility, designed to achieve LEED Platinum certification, represents the joint efforts of NIST's Engineering Laboratory, Building Science Corporation, the Department of Energy's Building America Program, and NIST's Office of Facilities and Property Management.