Key Features of Transformations Inc. Net-Zero Energy Homes at Devens:

Transformations Inc. is the developer of eight Net-Zero Energy single family homes in Devens, MA. Ranging in size from 1200-1800 sq.ft. and priced in the $280,000 to $350,000 range, these homes are designed to be energy neutral and even energy positive - producing as much or more energy than they consume annually.

These homes will serve as a model for market-rate, affordable workforce energy-efficient housing in Devens, furthering the sustainable redevelopment goals of Devens. The key features of these sustainable homes include:

One of Transformation Inc.'s Net-Zero Energy Homes in Townsend, MA (photo courtesy of www.transforamtions-inc.com)

- Homes are orientated with the longer sides facing east-west, to maximize passive solar orientation and internal natural light.
- Super-insulated 12 inch thick walls
- Triple-pane glass windows
- 18-inches of attic insulation.

- Careful attention to air sealing to reduce gaps and leakage (inefficiencies of typical home construction) to achieve a tight building envelope (blower door test = ~350 cubic feet per minute rating at ~50 Pascals pressure)
- Fresh air systems and air source heat pumps for indoor air quality and heating and cooling (peak heating load for a net-zero energy home ~12,000 BTUs – the equivalent heat of two 1800 watt hair dryers).
- Water saving plumbing fixtures and energy saving electrical fixtures.
- Utilization of long life-cycle materials in addition to glues, paints, and finishes that contain low to zero Volatile Organic Compounds.
- Net-metering to allow for renewable energy systems to feed power back into the grid when not being used within the home.
- Solar Photovoltaic (PV) panels on the roof for on-site renewable energy generation. A typical Transformations Net Zero Energy (0 HERS rating) 3 bedroom house has a footprint of 24 x 36 feet and can support a PV system of (36) 210 watt panels (7.56kW). PV panels have an efficiency rate of 14-15% (conversion rate of the sun to electricity). This typically results in a 36-panel PV system generating enough energy over a year to supply all of the energy needs of the house.

- Optional PV panel upgrades (18% efficiency rate) can generate up to 10.08 kW (33% more power than standard PV option), bringing a new home to -25 to -30 HERS rating - or a Net Zero home with enough excess electricity required to run an electric vehicle 40 miles a day, five days a week, throughout the year – reducing the building and transportation carbon footprint of the homeowner.
- Optional E-Monitor system for homeowners to monitor energy usage and increase the effectiveness of maintaining a Zero-Energy home.
- Low-impact site development features (LID) including reduced pavement widths, porous walkways, on-site roof runoff infiltration (no gutters) and bio-filtration rain gardens help provide no increase in runoff from the development, provide local groundwater recharge and further contribute to the sustainability of this development.

TRANSFORMATIONS, INC.™ Zero Energy Homes

DEVENS ENTERPRISE • COMMISSION

Devens A Community of MassDevelopment

USGBC MASSACHUSETTS A PASSION FOR SUSTAINABILITY

EcoSTAR