In 2011, Building America assisted Habitat for Humanity of Palm Beach County (HabitatPBC) in completing three high-performance prototype houses that achieved HERS index scores of less than 60, which is about 30% better than typical HabitatPBC construction, at a payback of less than 4 years. The HabitatPBC is planning to implement these strategies in future homes they build. This has the potential for significant and affordable energy savings as HabitatPBC has built more than 111 affordable houses and served an additional 125 families worldwide through their affiliation with HFH International (today serving >20 families a year).

Building America (through the Florida Solar Energy Center, a member of the Pacific Northwest National Laboratory team) achieved the energy savings at a cost of $1500 per house with a projected utility bill savings of $434 per year. All three houses involved were also certified to ENERGY STAR® for New Homes, Version 2.0 or 2.5.
Lessons Learned

• Increases in roof reflectance and attic insulation achieved greater energy efficiency gains than added wall insulation.

• Because cooling and heating loads are small in small, well-built Florida houses, dramatic increases in air conditioning equipment efficiency were not warranted.

• HabitatPBC was able to achieve the HERS indexes (57, 57, and 58) for the three homes using off-the-shelf components and building materials.

• Air sealing around the window and door frames and air sealing the top plate to the wallboard with a foam gasket significantly improved the overall air tightness of the home.

• As HabitatPBC homes are not normally built with a garage, a small external closet was built to house the heat pump water heater (HPWH) and the space was connected to the attic, which provides warm air that results in better performance of the HPWH.

“Participation in the program) has been a positive experience for our affiliate, not only for the homeowners, but also for our staff in making them aware of the large energy impact that small changes can make. The small upfront investment is minimal compared to the huge long-term payoff we receive.”

Don Kula, Construction Manager
Habitat for Humanity of Palm Beach County, Florida