Building Healthy, Sustainable, Green Homes with Habitat for Humanity of Cape Cod

- We use Truss Joist I-beams (TJIs) for floor joists & roof trusses. TJIs are engineered and designed to use all parts of the tree with very little waste. Patterned after steel I-shaped beams, TJIs are held together with resins, and are both stronger and straighter than natural wood of the same dimension.

- Our sub floors, walls, and roof sheathing are made from poplar wood Oriented Strand Board (OSB). Poplar is an easily renewable source of wood, and OSB is manufactured so as to produce very little waste.

- We use sustainably harvested, bamboo wood flooring. Prefinished flooring material maintains better indoor air quality with little out-gassing, and uses no mastics or adhesives in its application.

- Our homes have cement-based clapboards for siding, which is manufactured using post-industrial material, thus diverting materials from the landfills. The siding is economical, extremely durable, and requires very little maintenance once installed and painted.

- All exterior walls are 2 X 6. This allows for thicker insulation, which in turn makes the home more energy efficient, reducing the costs of heating and cooling.

- A “California Corner” framing technique adds insulation space further into the corners of the house.

- Using “Raised Heel” trusses allows deep, uncompressed, wall-to-wall insulation of the attic floor, which reduces the heat loss between the living space and attic. We install 22” of formaldehyde-free R-60 insulation. The current building code only calls for R-38.

- Windows are double paneled with argon glass in between for minimal heat loss.

- We pay extra attention to sealing all penetrations – and use blower door tests to check those seals. We use 2-inch R-10 rigid insulation in all window and door headers, all exterior wall cavities, and between all studs. This eliminates drafts near electrical boxes, and provides for a much tighter house. Once the frame of the house is complete and all of the mechanical components are in place, the walls get another 6” of formaldehyde-free fiberglass insulation.

- Whenever possible, we now orient roofs towards the south to maximize passive solar energy, and enable solar panels to be installed on roofs.

- We use solar panels whenever feasible.

- All of our appliances are “Energy Star” rated.

- We receive light emitting diode (LED) lightbulbs for all of the light fixtures in the house. Using just 10 watts, an LED bulb can produce light equivalent to 60-watts, and can last up to 50,000 hours.

- Bathrooms in all our houses are vented to the outside with programmable timers to exhaust the stale & moist air to the outside.

- We no longer rely on the combustion of fossil fuels for heat. We use Air-to-Air heat pumps which deliver clean hot air in the cold winter season, and cool dry air in the humid summer season.

- Domestic hot water is provided by a separate heat pump, which delivers hot water 62% more efficiently than the same size electric heat pump.

- Home Energy Raters (HERS) follow us through initial permitting, construction, and completion. We are graded for the house performance and have been receiving rebates through the State “Energy Star” program.

- Monitoring the houses we’ve built helps us see how these various systems are performing, with an eye to what is working, what is not, and how to improve. The goal is to build healthier homes that give back more energy than they take.