

“Upper Tier” Super E[®] Sendai, Japan

Description

In 2010, Selco Home, the largest Super E[®] builder in Japan, approached Super E[®] to request assistance in developing an “upper tier” Super E[®] standard. Selco is a major importer of Canadian homes, and Super E[®] represents their top-of-the-line models. In consultation with Selco and their Canadian partner Viceroy Homes, the Super E[®] Office set out the energy target for Upper Tier: SuperE[®] homes use 50 percent of the energy used by a home built to Japan’s Next Generation Energy Conservation Law (NGENCL), and Upper Tier should use 50 percent of that.



The builder of the first “Upper Tier” Super E[®] home hopes to make this a regular option in its homes catalogue

Setting

Now world famous because of a devastating earthquake and tsunami in March 2011, Sendai has a humid subtropical climate. Winters are cool and dry, with occasional snow and temperatures hovering around the freezing mark. Summers are very warm, humid and wet. Some builders take extra measures to allow homes to perform better during earthquakes, which are common in this region of Japan.

Super E[®] Japanese Member

Selco Home is a large home builder, based in Sendai. Operating 80+ franchises throughout Japan, Selco concentrates on high-quality Canadian imported homes. Selco has always been conscious of energy conservation in their homes, and is striving to reduce energy consumption even more. Selco has constructed over 100 Super E[®] homes.

Super E[®] Canadian Member

Viceroy Homes has been supplying whole-house packages to the Japanese market since before the development of the SuperE[®] Program in 1999. At their peak, Viceroy supplied about 1,400 homes annually to the Japanese market. Headquartered in Toronto, homes destined for the Japanese market are manufactured at Viceroy’s plant in Richmond, BC.



Selco Homes are noted for their interior design, reflecting the very best in “Canadian lifestyle.”

Member Commentary

“Super E[®] homes use 20 to 30 percent less energy than the average Japanese-built house,” said Viceroy’s Japan Sales Manager Akira Shimizu. “This is important because Japanese consumers pay three times the energy costs we do in Canada.” But Selco wanted to do even better.

“I felt ashamed to realize that Japan, being highly proud of herself to be a world leader in the car and electronics industries, that its level of performance in the housing industry has been very poor,” said Selco President and CEO Yasuo Aramato. In fact, he said, “the housing industry flunked.”

Mr. Aramato draws the analogy with the car industry.

“The reason why Japanese cars have the best gas mileage is because Japan is not a resource-rich country. The industry became a leader because of Kaizen – continuous improvement to become number one in the world,” he said.

Similarly with housing, Selco wanted to improve Super E[®] by adding renewable energy to mass-market housing, and reducing energy consumption even further. The Super E[®] Office responded by developing a set of standards that would upgrade standard Super E[®] by fifty percent, and include the use of renewable energy.

The first house to achieve the new designation was a show home in Sendai, which was officially opened in the Spring of 2011.

House Performance

The house is heated and cooled by a very efficient air source heat pump. Typical Japanese houses are heated with kerosene, but the heat pump uses electricity. Total energy consumption of the house (i.e. not just heating and cooling) is approximately 14,000 kWh/year, compared to 17,500 kWh/year if the house had been built to the NGENCL standard. To hit the 50 percent target, a Canadian-made photovoltaic system was added to the house.



As in other examples of ultra-low energy homes, it is difficult to find any outstanding distinguishing features in this Super E® Upper Tier home.

Unique Features

The home is built with 2x6 framing, as opposed to standard 2x4 construction. There are two reasons for this. First, 2x6 can hold twice the insulation of 2x4; second, 2x6 has better seismic performance. Frame houses perform extremely well in earthquake situations, and, where seismic issues are especially troublesome, additional measures can be taken. These include the use of longer nails, and the addition of metal nailer plates and ties.

In addition to increased energy performance, the home has more environmentally friendly features than a typical Super E® home. This includes several improved water conservation features and highly efficient lighting.

Services Provided by Super E®

The Super E® Office convened a number of conference calls with Viceroy Homes to determine changes to the basic Super E® Technical Standard that would achieve a fifty percent improvement in energy consumption. The Viceroy house package was already somewhat better than basic Super E® because of the air source heat pump used for conditioning the house. The new standard had to be practical and affordable, but still show considerable improvement over basic Super E® in order to receive the “Upper Tier” designation.

The Super E® Office and CMHC International also assisted with the grand opening of the house.