Super E® Development
Inverness, Scotland

Description

The first Super E® house in Scotland is one of a collection of Super E® homes in a landscaped community on the north side of the Ness River in Scotland. While there is a “cottage” feel to the community, these are actually larger homes occupied all year around.

The first Super E® home in Scotland is part of a development of about a dozen Super E® Homes just north of the River Ness.

Setting

The city of Inverness is in the Scottish Highlands, at the mouth of the Ness River (which leads, further inland, to Loch Ness). It has an oceanic climate, and is fairly mild, considering how far north it is. Although snow in the winter is common, the Inverness area records only about 40 frosts per year. Summers are wet and mild.

Super E® UK Member

Led by architect Les Wyatt, the Super E® UK Member is Interhabs UK. This is the UK subsidiary of Interhabs. Interhabs UK teamed with local builder Capital Homes to complete this development.

Super E® Canadian Member

Halifax, Nova Scotia-based Interhabs is the Canadian Super E® Member. The Inverness development was the first Scottish Super E® project, and was the first Super E® project completed by Interhabs.

Homes in Scotland, unlike the rest of Great Britain, are often built of wood frame.

Member Commentary

Unlike most of the United Kingdom, a large percentage of houses in Scotland were wood frame in the early 2000s. This project was built by an experienced wood framer, who used Super E® technology to upgrade energy performance. It is now increasingly believed by the UK housing industry, that the easiest way to improve energy performance is by constructing air tight wood frame houses with mechanical ventilation systems – what most Super E® homes are.

"Wood is a good insulator because of its cellular structure," said Interhab's Rob Williams. "This means better overall assembly performance because wood better answers thermal bridging problems that steel frame has, and allows for the economical installation of cavity insulation, unlike concrete."

Interhabs UK architect Les Wyatt (seated) in the open-concept kitchen of the Inverness home.

Unique Features

There are none. This is a standard Super E® home. That means it has achieved an air leakage rate no greater than 1.5 air changes per hour at 50 Pascals test pressure, is insulated to achieve better thermal performance than the building regulations, has a continuous whole-house ventilation system with heat recovery, and has upgraded windows, taken several measures to improve indoor air quality and to reduce harm to the environment. Most important of all, it has been third-party checked and tested.

Super E® performs a number of critical tests on all houses that receive Super E® recognition. First, before the construction phase, design documents are submitted to the Super E® Office to be reviewed by an engineer to determine moisture control strategy and predicted energy performance.

Once the house has been completed, the builder notes any changes between the original design documents and the house as-built. A ventilation flow and balancing test is then performed on the house to ensure adequate ventilation throughout and to ensure that the ventilation system will not over-pressurize or de-pressurize the house (which can lead to moisture accumulation by increasing air leakage). Next, a blower door depressurization test is performed to determine the rate of air leakage in the house.

House Performance

The house has an energy performance about 25 percent better than a similar house built to the Building Regulations of the time. Total energy consumption is about 30,375 kWh/yr, but over half of that is for lights, appliances and water heating.

The homes feature the characteristic Interhabs rooflines and over-sized windows.

Services Provided by Super E®

Super E® and CMHC International organized and sponsored an official house opening for the Inverness home. CMHC International and the Super E® Office arranged a full-day program for the Scottish builder to visit Canada to learn about Super E® and the extensive resources available from CMHC and the National Research Council of Canada. The tour included seminars at the Canadian Housing Information Centre at CMHC and demonstrations at the Canadian Centre for Housing Technology on the grounds of the National Research Council.