Forestry Commission



New Forestry Commission District Office

The Forestry Commission's District office at Smithton in Inverness, Scotland, covers the national forest estate across Inverness, Ross and Skye – over 51,000 hectares of forests and woodlands. The office is a busy central hub and co-ordinates a wide range of operations and activities including timber production, forestry management, nature conservation and outdoor recreation. The previous building started life in the 1960s as a timber-drying shed on the site of a former sawmill before being converted to office accommodation. That building was in desperate need of renovation to improve the working conditions of the 20 staff based there. The most practical solution was to replace the old building with a new structure and make more effective use of the site. This was done with the objective of constructing a building based on sustainable design principles, ensuring a reduced carbon footprint in both the construction and in the building's life cycle, while showcasing the structural, practical and aesthetic advantages of using locally-sourced timber. The new office was built to an innovative and contemporary design, and is both visually inspiring and one of the best examples of quality sustainable construction in the country. After the opening in 2006, a visit from Prince Charles gave it the royal seal of approval. Over a hectare of additional land available to the rear of the new building will be used to provide much needed affordable housing in the area.



The new Forestry Commission District office at Smithton in Inverness demonstrates an exemplary approach to using sustainable principles and local timber in construction

The two storey office at Smithton features structural beams made from Douglas fir harvested from the Forestry Commission's own forests. The building design needed some of the timbers to be 12 m long – sizes that are difficult to obtain from home-grown stock. However, timbers of the appropriate length, grade and quality were sourced from woodlands at the side of Loch Ness, near Fort Augustus. The timbers were felled, trimmed and transported to a sawmill in central Scotland, the only sawmill in the country capable of handling such large sections of timber. The stress grade of the cut timbers was found to be of a higher grade and quality than expected when tested. The green timber was then air-dried on site. Careful detailing and cutting of the timber was essential. A fully-dimensioned cutting schedule using computer-aided design assisted the joiners in cutting the timber and assembling the frame. This attention to detail proved beneficial in practice, allowing the frame to fit together accurately.

Scandinavian spruce and Oriented Strand Board (OSB) from locally-grown pine and spruce were used for the floor, wall and roof secondary timbers. The window frames, stair rails, external cladding on the gables and soffits of the roof overhangs are made from untreated larch from Fort Augustus, selected for its naturally durable properties. Locally-harvested Scots pine used for cladding the exterior walls was treated with an alcohol solution to enhance its dimensional stability, prevent insect infestation, and extend it's lifespan to 30 years. No timber went to waste – surplus wood was donated to schools for wood-working classes, and to people in the local community for firewood.

Heat, light and ventilation

The double-height open-plan space is airy and spacious. Large floor to ceiling windows and Velux windows in the roof let natural light flood into the building, minimising the need for artificial lighting. The walls have been well-insulated using crushed volcanic rock sandwiched between particle boarding. The windows are double-glazed, argon-filled and made from low emissivity glass. The temperature is regulated taking into account external heat gained from the sun, and internal heat from IT equipment and people's natural body heat, to create a building with a low carbon footprint. The large exterior overhang and fixed louvres provide shade and protection from bright sunlight in the summer, while the orientation of the building allows the southwest facing façade to absorb the sun's heat in winter. A passive stack ventilation system allows a natural flow of air around the building. Sensor-controlled 'windcatchers' on the roof enable excess heat and stale air to be released, and cool fresh air drawn in to the office as required.

Woodfuel heating

A 55 kilowatt wood chip boiler provides fuel for the underfloor heating system, which works effectively with the passive stack ventilation system. The fuel store is sited at the front of the building in an underground bunker which minimises the visual impact and enables wood chips to be easily delivered. The home-grown wood is chipped by students at the Scottish School of Forestry located just a few kilometres away.

Water Supply

A rainwater harvesting system with an underground storage tank uses rainwater from the roof for flushing the toilets, reducing reliance on the public water supply.

Our advice

High quality office accommodation can be provided using local sources of wood. The wood fuel heating system has proved effective during the winter of 2009/10, one of the harshest in 40 years, and operating costs are significantly below those of fossil fuels.

Achievements

- The Royal Institution of Chartered Surveyors (RICS) Scotland Sustainability Award 2008.
- 2008 Inverness Architectural Association's Awards Best Use of Timber: Commendation.
- Scottish Natural Heritage has adopted the same exemplary design for their new offices.
- Inverness Civic Trust Award in 2007.

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