SIKA AT WORK

THE GREEN HOUSE NORTHUMBERLAND

CONCRETE: Sika® Watertight Concrete System

BUILDING TRUST

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Vlew looking from the kitchen towards the dining area

The roof garden constructed over a Sika Sarnafil green roof

Project Description

This project is a carbon neutral subterranean eco dwelling in an Area of Outstanding Natural Beauty in Northumberland. This ambitious project was the brainchild of a retired couple who embarked on an adventure to build a 'Green House' in the garden of their existing home.

Although built mainly underground, an inner courtyard is lit by a large skylight which provides secondary lighting to the bedrooms that open onto it. By incorporating sound building techniques, good insulation, efficient lighting systems, solar energy and rainwater harvesting the owners have built a carbon neutral home without any sacrifices or compromise to their comfort and lifestyle.

Project Requirements

As the site sloped three and a half metres from back to front, the dwelling was built into the hillside with large windows opening onto a small garden at the lowest point. With the main section of the building being underground, a watertight solution was a main priority in formulating the construction process.

Sika Solution

Following extensive research, the couple decided to use the BBA approved Sika Watertight Concrete system to construct the base and walls of the building, and a 'green roof' membrane system, chosen from Sika Sarnafil to waterproof the flat roof. The roofing membrane enabled them to fulfil another important requirement as it is designed to accommodate their need of a roof garden built on top.

The Sika Watertight Concrete System is a high quality solution for basement and below ground construction, which prevents water from migrating through the concrete. State-of-the-art Sika admixtures work within the concrete, firstly to reduce the water/cement ratio, thus increasing the density of the mix and minimising the size, volume and continuity of the concrete's pores, and secondly, fill the remaining pores. This also helps with the placing of the concrete and ensures a completely watertight finish. It is a cost effective system, saving time at the design and construction stages and is backed by a Sika warranty and a 50 years successful track record.

The overdig requirement is also greatly reduced, which was an important consideration on this project with excavation into the hillside on a restricted site.

The BBA approved SikaSwell® jointing system, which consists of joint sealing profiles that expand on contact with water, were used to seal the joints between the concrete base slab and the walls.

A 30 year proven track record in green roof construction convinced the owners to use a Sika Sarnafil membrane system to waterproof the flat roof. The system is resistant against biological and micro-organisms and root penetration allowing flowers and vegetables to be grown in raised beds upon the roof. Fast and efficient application in most weather conditions were other key benefits of the Sika system.

Project Participants

Owner:	Private residence
Main Contractor:	Self Build
Sika Company:	Sika Limited

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