THE NATURAL HOUSE

The Natural House is a project developed by the Prince's Foundation for the Built Environment demonstrating that the most effective route to low-energy, low-carbon homes is through a robust thermal and airtight envelope, designed for longevity and with traditional appeal.

Built on the Innovation Park of the Building Research Establishment at Watford, the project partners are BRE; Natural Building Technologies, as consultants and materials supplier; and Kingerlee Homes. Building of the Natural House began in Spring 2009 and will be completed by Summer 2010. The Innovation Park is open to both the building industry and the general public.

The emphasis is on natural materials of low-impact provenance, in order to display that traditional design, and construction methods that draw on a traditional skill base, not only have a significant role to play in the carbon agenda, but can also deliver healthier, more attractive and flexible living environments. The materials employed in the building's structure — aerated clay block, lime-based plasters and renders — reduce the risk of VOCs and off-gassing. By eschewing plastic membranes in favour of vapour-open insulating systems, the house avoids the risk of damp and mould build-up within building fabric, a key factor in the development of asthma and respiratory problems. Air quality is maintained by a passive ventilation system.

The principal construction system, NBT ThermoPlan®, pioneered in the UK by Natural Building Technologies, has been developed and employed in Germany for many years. The extruded clay block system traps air in pockets, providing high levels of insulation within a single skin structure that can be self-supporting up to five storeys. Externally clad in a Baumit render and internally with lime plaster, the composition achieves a U-value of 0.2.

The clay block construction is supported by other natural materials including NBT Pavatex woodfibre and Thermafleece sheepswool insulation, wooden floors and roof members. The roof will achieve PassivHaus standards of thermal insulation, U-value 0.11 — including resistance to summertime overheating, a key challenge to high performance buildings, through the use of the NBT Pavaroof system. Internal finishes include linoleum and organic paints.

The house is composed in a traditional style, drawing upon the best lessons of earlier ages of 'energy efficiency', with a simple dual pitched roof, generous proportions and windows that afford ample natural light and ease of ventilation in summer. Furthermore, the house is conceived as an emphatically urban design. As built, the design will incorporate a family house, a small flat and a maisonette, displaying the basic versatility of the terraced house. Designed as a component of strong townscape, the Natural House emphasises attractive urban living for a low-carbon future.

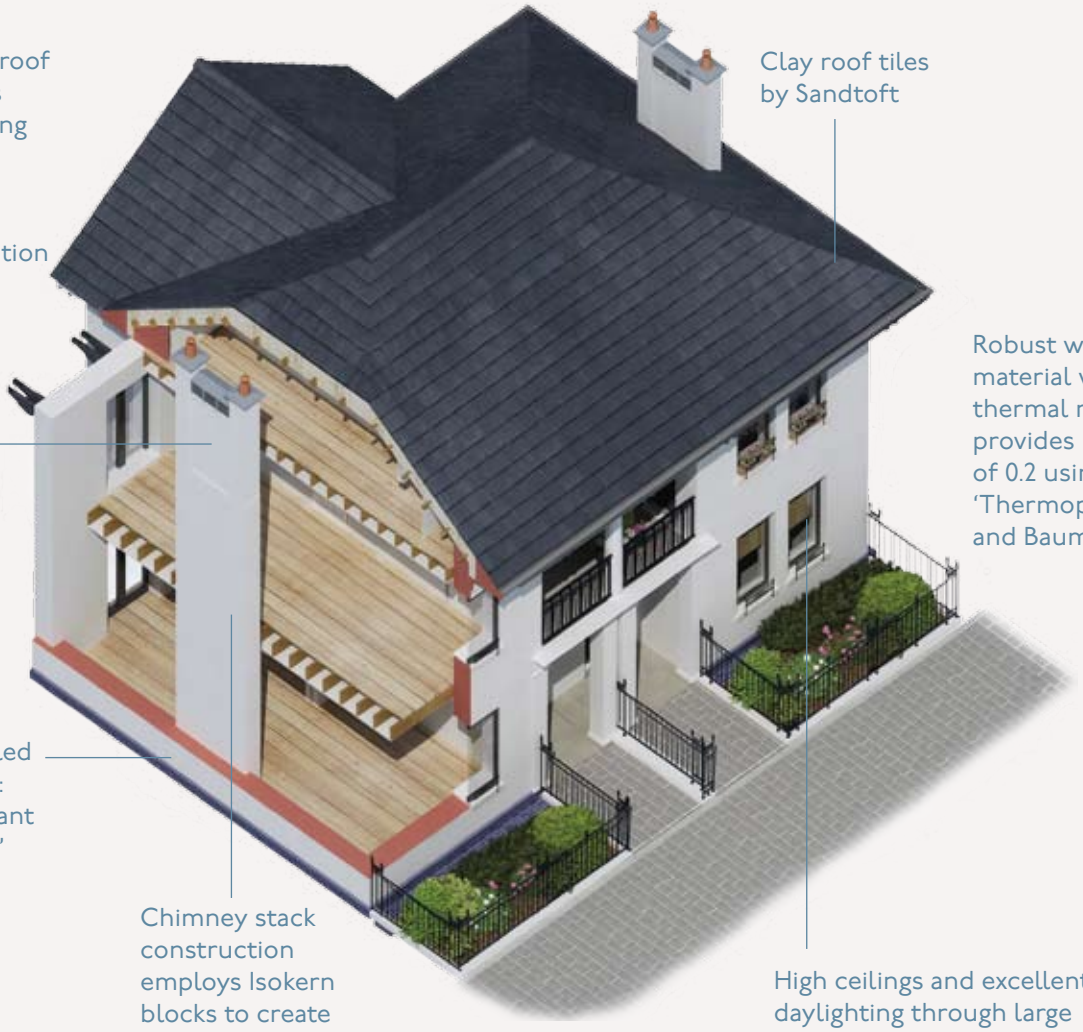
For further information, please contact:
James Hulme, Director of Policy & Research
james.hulme@princes-foundation.org
+44 (0) 20 7613 8555

NON-TOXIC BUILDING MATERIALS: MASONITE I-BEAMS, WOODEN FLOORS AND SINGLE SKIN MASONRY WALLS

HEAT LOSS IS LOW THROUGHOUT THE BUILDING

DESIGNED FOR AN URBAN ENVIRONMENT

CAREFULLY DESIGNED JUNCTION DETAILS WHICH MINIMISE THERMAL BRIDGING



Further details from: www.princes-foundation.org/natural-house
www.natural-building.co.uk