LOW IMPACT MATERIALS: CASE STUDIES

NATURAL FIBRE INSULATION

One Brighton

EcoHomes Excellent

Developer:	Crest Nicholson BioRegional Quintain LLP
Architect:	Feilden Clegg Bradley
Contractor:	Denne Construction
Completion:	2010
Location:	Brighton, East Sussex
Interviewees:	Neil May Managing and Technical Director, NBT Keith Brunt Technical Director, Denne Construction

Newly completed (NBT)

One Brighton is located in the centre of Brighton within easy walking distance of the central train station, one hour from London. It is made up of 81 two-bed units, 68 one-bed units and 19 smaller 'eco-studios' over 6 - 10 stories. 54 are designated as affordable housing. In addition there is 2,063m^2 of community, commercial and service space.

Blockwork going in between concrete super-structure (NBT)

WHY WAS NATURAL FIBRE INSULATION CHOSEN?

- It offers high breathability, thermal and acoustic performance
- It was part of a vapour permeable walling system that included interlocking clay blocks on one side and lime render on the other, which met the One Planet Living criteria (renewable, zero waste, zero carbon)

WHAT ISSUES WERE FACED AND OVERCOME?

The most significant issue on the supply side was the resistance from designers, contractors and insurance companies who were unfamiliar with the product; they

required industry standard approvals. As such, BBA approval on durability was sought and achieved, as was BRE testing on fire resistance. Finally we provided a considerable amount of case study evidence as well.

In terms of construction and project management, there is always an issue with lack of experience and scepticism with new products. However, on-site training was organised and there was no significant issue, perhaps because the products were so similar to standard materials.

WHAT ARE THE PROS AND CONS?

The wood fibre is somewhat heavier than other materials and, while it can be cut, it can't be shaved or planed as easily as, say, polystyrene. That said, there were no reports of difficulties from the construction team; it just meant that in places it was a question of adjusting the render rather than the insulation. Furthermore, the block elements of the walling system were easier to put up than standard blockwork as there was no mortar needed.

The interlocking insulation boards also ensure high performance (zero gaps) and are as easy to install as standard materials. There are no toxic fibres making installation easier and more pleasant than glass or mineral wool, though there were no reported benefits on site, perhaps due to comparison with polystyrene.

In terms of performance it is dense and offers a stable thermal mass that increases decrement delay as well as acoustic absorption.

WOULD YOU USE IT AGAIN AND, IF SO, WHAT CHANGES WOULD YOU MAKE?

BioRegional Quintain are already using it again on another project. It is similar to standard products and performs well so there is very little to change.

WHAT WAS THE ELEMENTAL COST?

Prices for this material vary from project to project. While it may not be the cheapest system on the market, the overall cost is competitive when the full performance benefits are taken into account.

Interlocking edging along one of the insulation board types (Pavatex)

Wood fibre panel with render and mesh layers (Pavatex)

This case study was produced as part of the University of Bath's EPSRC funded Knowledge Transfer Account, a working partnership between BRE and the University of Bath. Further information on Natural Fibre Insulation is provided in a BRE Information Paper that can be purchased in hard copy from www.brebookshop.com and downloaded free from www.bre.co.uk. Four other case studies and Information Papers are also available on unfired clay block, straw bale, cross laminated timber and hemp-lime.

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