

**NATIONAL
TYPE
APPROVAL**

Certificate No: **246-5-7081**

Date: **23 May 2007**

1 Certificate holder

Name: **Natural Building Technologies Ltd**

Address: **The Hangar, Worminghall Road, Oakley Bucks HP18 9UL**

B.bergmann@natural-building.co.uk

Tel: **01844 338338**

2 System Title

Description: **NBT timberframe DIFFUTHERM / NBT timberframe PAVACLAD / NBT roof PAVAROOOF**

3

The system has been assessed on the following drawings and documents:

NBT Systems. Specifications overleaf

In accordance with NBT Systems: Climatic Conditions details overleaf

4 Assessment

The design and method of construction of the system described in (2) above has been examined and as far as it has been shown has been found to be capable of complying with current Building Regulations.

5 Conditions of certification

- 1 The design shown and the materials specified shall not be changed without reference to the local authority responsible for certifying the system.
- 2 The certificate shall be valid for three years or until invalidated by formal notice.
- 3 Where reference is made on a plan to any Code of Practice, British Standard or manufacturer's instruction it shall be construed as a reference to such publication in the form in which it is in force at the date of this certificate.
- 4 This certificate should not be regarded as a formal approval under the Building Regulations.

6 Authority

This system approval certificate is authorised by:

Name: **TREVOR HAYNES**

Signature: **Trevor Haynes**

on behalf of: **Birmingham City Council**

Timber frame Diffutherm

NBT System Sheets

System header sheet
System specification sheet
System construction detail sheets 1-7
Critical considerations sheet

Technical Data Sheets for System Components

Pavatex Diffutherm Boards
Warmcell 500 Cellulose fibre insulation
Natlin Flax insulation
Bayosan Mc55W and EST Décor renders
Beecks Silicate paint

Deutsches Institut fur Bautechnik Certificate

Synopsis of the approval document (in English)
The DIBT Certification document (in German)

Test Reports

Summary sheet of the tests carried out in Germany that formed the basis for the DIBT approval.

DIN standards

List of DIN Standards referred to in the certification and test reports.

Timber frame Pavaclad

NBT System Sheets

System header sheet
System specification sheet
System construction details sheets

Technical Data Sheets for System Components

Pavatex Pavatherm Plus Boards
Pavatex Isolair Boards
Warmcell 500 Cellulose fibre insulation
Natlin Flax insulation

Pavatex Wall Insulation Brochure (in German)

Vented Cavity Insulation Application Brochure

DIN Standards

List of DIN Standards relating to the products and their application

Roof PavarooF

NBT System Sheets

System header sheet
System specification sheet
System construction details sheet
System fixings summary sheet

Technical Data Sheets for system Components

Pavatex Pavatherm Plus Boards
Pavatex Isolair Boards
Warmcell 500 Cellulose fibre insulation
Natlin Flax insulation

Pavatex Roof Insulation Brochures (in German)

Over Rafter Insulation Application Brochure
Isolair Roof Insulation Application Brochure

DIN Standards

List of DIN Standards relating to the products and their application

NBT Systems: Climatic Conditions

1. Wind Resistance

NBT System 1: Diffutherm: The relevant factors for withstanding the effects of wind are the board stiffness, the adhesive strength between plaster and board, and the pull-through strength of the fixings. These have been extensively tested and are as follows:

The dynamic stiffness of the boards is $s_{36.2} \text{ MN/m}^3$

The adhesive strength between plaster and board surface is $s_{Hz} = 0.015 \text{ N/mm}^2$ (15kN/m²)

The force required to pull the specified fixing and 60mm washer through the Diffutherm board is 1.5 kN. (installation requires a minimum of 6 fixings per m² providing a resistance to wind suction of 9.0kN per m² for the system).

The tension and shear resistance of the specified fixing and 60mm washer in the Diffutherm is 1.3 kN.

NBT system 2: Pavaclad: The resistance of this system to wind loading is reliant on the cladding system (i.e. brick, weatherboarding) and not on the fixings. However the fixings are the same as for NBT system NW1.

2. Snow loadings

NBT system 5: PavarooF: No snow or imposed loadings are carried directly by the Isolair boarding between the rafters. These loads are carried by the roof covering to the roof structure, neither of which are part of this system. However the fixings for the roof insulation are designed to ensure that the insulation is not compressed at snow loadings or up to 1.5kN/m² at max 600mm centres on roof pitches up to 60 degrees.

3. Exposure grading

NBT system 1: Diffutherm: moderate

NBT system 2: Pavaclad: severe (the exposure grading will be according to the cladding material)

NBT system 5: PavarooF: severe (the exposure grading will be according to the roof covering).