Content
Description of Timber Frame Systems  2
Performance Guide  3
Airtightness  4
Summer Overheating  5

NBT Timber Frame Render System
System Build up  6
Physical Properties  7
Key Considerations - Designers  8
Key Considerations - Installers  9
Installation Procedures  10
Detail Solutions  13
Components & Accessories  14
Detail Drawings NBT DIFFUTHERM  19

NBT Timber Frame Render Systems
The building system is a timber frame structure insulated between studs with PAVATEX flexible woodfibre insulation (PAVAFLEX) and externally with PAVATEX high density tongue and groove woodfibre (NBT DIFFUTHERM or NBT ISOLAIR) and finished with render.

Made from over 95% waste softwood and under 5% inert water-proofing additives, PAVATEX woodfibre boards, are a genuinely sustainable non-toxic building material.

To produce NBT DIFFUTHERM boards, waste wood fibres are pulped and mixed with water. The pulp is heated to activate the natural lignin they contain in order to glue the fibres together. The pulp is then pressed into boards, dried, and cut to size. NBT ISOLAIR is produced with dry process.

The advanced manufacturing process uses the inherent properties of wood fibres to produce boards with many excellent technical qualities for thermal and acoustic insulation, thermal storage capacity, vapour permeability and moisture control.
Performance Guide
A modern wall insulation system must do more than just protect building occupants from cold. It must create a comfortable and healthy environment in all possible combinations of external and internal conditions and control the effects of external heat, cold, noise and internal moisture generation.

NBT Building Systems
Keep the building warm for longer in cold weather:
Low thermal conductivity and high vapour permeability provide high thermal insulation with no risk of interstitial condensation. Vapour barriers are unnecessary. Woodfibre boards reduce the effect of thermal bridging and the interlocking board design easily achieves good windtightness, so increasing thermal performance. Energy use for heating is significantly reduced leading to lower CO2 emissions and running costs.

Keep the building quieter:
The high mass and the fibrous texture of PAVATEX woodfibre boards give excellent acoustic performance to buildings.

Keep the building cooler in hot weather:
The unique combination of high density, high specific heat capacity and low thermal conductivity gives External Wall Insulation (EWI) solutions the effect of thermal mass that would normally be associated with render onto masonry. Compared to conventional EWI material the risk of condensation behind the render during cold nights is minimized as the boards will store the day’s heat.

Keep the building dry and breathable:
PAVATEX woodfibre boards are very vapour permeable and hygroscopic. This allows them to disperse accumulating short term moisture and protect vulnerable elements of the building fabric, with no reduction in the performance of the boards themselves. The boards allow moisture from within the structure to pass easily to the outside. This provides a safeguard against high moisture content. This is vital for the long-term health of the building fabric, and is completely overlooked by most conventional insulation systems.
Airtightness

Principle
A building envelope should be airtight when all ventilation openings are closed. The design requirement for air changes has to be provided by opening the windows manually, other controllable ventilation openings or suitable mechanical ventilation systems.

When assessing the air permeability of the building envelope, the following aspects must be considered separately:

- Individual building components must exhibit the necessary airtightness in accordance with building component standards
- The overall air permeability of the building envelope must meet the limiting and target values of building regulations
- Local air permeability (leaks, primarily on the inside) can lead to moisture damage because they allow moist interior air to infiltrate the construction
- Local air permeability and associated draughts can have a detrimental effect on the thermal comfort of the occupants and can also lead to increased energy consumption

Air permeability
The air permeability of the building envelope is specified by the ratio of surface area of the building to the hourly air exchange rate for a 50 Pa pressure difference. In Part L Building Regulations an air permeability of 10.0 m³/m²/h is allowed. 0.6 Air changes/hour at 50 Pa pressure for Passivehaus.

Design and construction
To ensure that the building envelope has the necessary degree of airtightness, an airtightness layer is required over all parts of the construction on the warm side of the thermal insulation. Generally, the vapour control layer and airtight layer functions are combined and provided by one membrane, sheeting or a board type material (OSB, multi-ply board, plywood, gypsum fibreboard, etc.). Such materials require fixings and permanent air tight seals at joints and junctions in the form of adhesive tape, glue, mechanical fasteners etc., or may need to be held in place with battens. Rock wool and glass-fibre boards, wood fibreboards, wooden panelling, planking, acoustic linings, building papers, plaster board etc. cannot achieve the degree of airtightness required for modern buildings.

The airtightness layer must be conceived at the design stage as a “seamless” layer over the entire building envelope, planned with its practical installation in mind, and shown as a separate layer on all drawings. Good planning includes corresponding information in the tender documents and detail in the working and fabrication drawings. The materials used to achieve the airtightness must be sealed airtight at junctions with adjoining elements such as windows, doors and foundations. The installation of several layers each of which are only partially airtight will not result in a building with an adequate degree of sealing.

Testing
In order to achieve an airtight building envelope, measures and checks during construction and after completion of the building are necessary. If the airtightness layer has been properly designed and planned, expensive blower door measurements, leak detection by means of smoke tests or IR thermography, and unnecessary costs of repairs can be saved.

A properly designed and constructed building will fulfill airtightness requirements without the need for further special work. NBT systems provide proper design and site support to ensure that the correct levels of airtightness are achieved.
Selecting the right insulation
As part of a building's design it is important to consider the effects of summer overheating control, particularly when there are rooms in roofs or where the construction system is lightweight such as steel or timber frame.

Summer overheating is caused by any or a combination of three reasons:
• high internal gains from appliances, people, machines etc.
• high solar gain through windows due to poor summer shading
• heat passing directly through the walls

The solution to the first is to reduce the gains or ventilate, the second requires better shading, and the third is solved by reducing peak heat gain to the room by changing the decrement delay and factor.

Decrement delay and factor can be thought of as the amount a peak external surface temperature is smoothed out by the structure, and the time that the peak is delayed before it reaches the inside.

To reduce the solar heat passing through a roof or a wall, a low decrement factor is needed, and more importantly, it should delay the passage of heat by between 6 - 12 hours after the external solar radiation peak – this means that the decrement delay of a wall or roof construction should be between 6 - 12 hours.

In terms of achieving these satisfactory values, an insulation material that has a high thermal mass is needed to produce better values. A combination of density, thermal conductivity and specific heat capacity is required.

PAVATEX woodfibre boards have an excellent combination of low λD (k-value) (0.038 - 0.047 W/m²K), high specific heat capacity (2100J/kgK) and for insulation boards a high density (140 - 240 kg/m³). These values far exceed any conventional insulation material. This means that with PAVATEX woodfibre insulation on a roof or “lightweight” structure such as lightweight frame building can perform as though it was a much more massive structure.

The consequence is the reduction of internal temperatures by 4°C or more in summer compared to a room which may have the same U-value but conventional insulation.
NBT TIMBER FRAME EWI - Rendered System

OSB (for racking, vapour control and airtightness)

Timber studs

Plasterboard and skim

Service void

NBT DIFFUTHERM

OR

NBT ISOLAIR
(for projects where BBA certification not required)
**NBT TIMBER FRAME EWI - Render**

**Physical Properties**

Physical Properties NBT RENDER

1. NBT 2-coat render system
2. NBT DIFFUTHERM OR ISOLAIR 60/80/100/120mm or more.
3. Stud & NBT PAVAFLEX (k = 0.038 W/mK)
4. Racking board incl. airtightness detail
   (e.g. OSB 12/15 mm)
5. Service void 25 mm
   (can be insulated for improved performance)
6. Plasterboard 12.5 mm
7. Plaster, skim and NBT emulsion paint

**89 mm stud**

Studs Insulated with 80mm NBT PAVAFLEX (friction fitted between studs)

<table>
<thead>
<tr>
<th></th>
<th>60 mm</th>
<th>80 mm</th>
<th>100 mm</th>
<th>120 mm</th>
<th>140 mm</th>
<th>160 mm</th>
<th>180 mm</th>
<th>200 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>U-Value [W/m²K]</td>
<td>DIFFUTHERM</td>
<td>0.27</td>
<td>0.24</td>
<td>0.21</td>
<td>0.19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U-Value [W/m²K]</td>
<td>ISOLAIR</td>
<td>0.21</td>
<td>0.19</td>
<td>0.17</td>
<td>0.16</td>
<td>0.15</td>
<td>0.14</td>
<td></td>
</tr>
<tr>
<td>Sound insulation ca. [dB]</td>
<td>47</td>
<td>48</td>
<td>49</td>
<td>49</td>
<td>50</td>
<td>51</td>
<td>51</td>
<td>51</td>
</tr>
<tr>
<td>Decrement delay [h]</td>
<td>6.0</td>
<td>7.4</td>
<td>8.8</td>
<td>9.9</td>
<td>11.3</td>
<td>12.6</td>
<td>13.9</td>
<td>15.3</td>
</tr>
</tbody>
</table>

**140 mm stud**

Studs Insulated with 140mm NBT PAVAFLEX (friction fitted between studs)

<table>
<thead>
<tr>
<th>Insulation onto stud</th>
<th>NBT DIFFUTHERM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>60 mm</td>
</tr>
<tr>
<td>U-Value [W/m²K] [DIFFUTHERM]</td>
<td>0.21</td>
</tr>
<tr>
<td>U-Value [W/m²K] [ISOLAIR]</td>
<td>0.17</td>
</tr>
<tr>
<td>Sound insulation ca. [dB]</td>
<td>49</td>
</tr>
<tr>
<td>Decrement delay [h]</td>
<td>7.9</td>
</tr>
</tbody>
</table>

**219 mm stud**

Studs Insulated with 220mm NBT PAVAFLEX (friction fitted between studs)

<table>
<thead>
<tr>
<th>Insulation onto stud</th>
<th>NBT DIFFUTHERM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>60 mm</td>
</tr>
<tr>
<td>U-Value [W/m²K] [DIFFUTHERM]</td>
<td>0.16</td>
</tr>
<tr>
<td>U-Value [W/m²K] [ISOLAIR]</td>
<td>0.13</td>
</tr>
<tr>
<td>Sound insulation ca. [dB]</td>
<td>51</td>
</tr>
<tr>
<td>Decrement delay [h]</td>
<td>10.8</td>
</tr>
</tbody>
</table>

Note: Calculations are done according to BS EN ISO 6946:1997 and BR 443. Passivhaus solutions are marked in green.
NBT TIMBER FRAME EWI - Render

Designers: Key Considerations

General:
Provide the contractor with full and complete details for all critical areas of the system including those listed below. Leave nothing to be agreed "on-site".

NBT RENDER SYSTEM = NBT RENDER SYSTEM APPLIED ON NBT DIFFUThERM/ISOLAIR BOARDS

System Guarantee:
The NBT RENDER system is guaranteed only if boards, mortars, renders and accessories approved by NBT are used. NBT DIFFUThERM has LANTAC (Local Authority National Type Approval Confederation) and BBA (British Board of Agrément) approval (BBA CERTIFICATE No 10/4723). NBT ISOLAIR and NBT DIFFUThERM both are tested and approved by European organization.

The NBT RENDER system is certified for use in rain exposure zones (EZ) 1-3 (described in BS 8104 and the BRE report “Thermal Insulation, avoiding risks”). If intended for use in EZ 4, contact NBT for advice.

DPC-Level:
Do not use NBT DIFFUThERM/ISOLAIR boards below DPC level and in 300mm zone above ground level. Use suitable boards (NBT Plinth & Perimeter Boards) for wet exposure i.e. below DPC and in 300mm zone above ground level.

Building Height:
The NBT RENDER system is for use in buildings where the height to the top floor is \(< 18\) m. If intended for use in higher buildings, contact NBT for advice.

Non Load Bearing:
The NBT RENDER system must be designed so that no loads from the structure are carried by the boards or render.
Only lightweight fittings can be attached directly to the NBT RENDER system. Carefully plan the location of down-pipes, lights, security systems etc.

Movement Joints:
Movement joints in the substrate must be incorporated into the NBT RENDER system. Consider render only movement joints for walls \(\geq 18\) m (vertical or horizontal).

Weather Tightness:
For weather tightness seal the boards against the structure at all joints, intersections, openings and penetrations and along all edges using ISO-BLOCO expanding sealing tape. Further, seal the render around all openings (door/window) using the appropriate APU rail.

Rain Penetration:
Design a positive strategy for avoiding rain penetration of the external wall insulation system. This will include:
- Generous overhangs for roofs, sills and copings (in no case \(\leq 30\) mm), drip details on all overhangs
- Careful detailing of flashings at critical areas e.g. balconies, decks, walkways, parapets, copings, service penetrations, roof abutments, intersecting and adjoining buildings, etc.
- Window and door frames set back from the external face of the wall by at least the thickness of the insulation boards. (other methods are available, talk to NBT technical)

Airtightness:
Carefully detail the OSB layer for airtightness at all openings and at internal corners and junctions. (Talk to NBT airtightness experts for right components)

Fire Resistance:
NBT RENDER system has been tested by Warrington Fire (report no 154324) and achieves a fire resistance of 60 minutes according to BS EN 1365-1:1999.

Render:
Colours:
Please be aware, when choosing colours for the top coat, it must be taken into account that the LIGHT-BRIGHT RELATION VALUE (HBW) is not less than 20.0. This is due to the fact that dark colours can be directly linked to elevated thermal stress, which leads to an increased risk for cracks.

Grain size:
Coarse-grained finishes (2-5 mm grain sizes) are preferred for long-term durability and appearance.

To select paints for applying to the finished surface without significant reduction of the vapour permeability of the RENDER system, refer to NBT. [NBT SilikonTop do not require paint finish].
General:
The NBT RENDER system must only be installed by approved contractors who have been trained by NBT.

The details and specifications in this guide and from the designer should be followed as the basis of a successful installation.

The system is guaranteed if only boards, mortars, renders and accessories approved by NBT are used.

Timber frames must not be excessively wet when the boards are applied to avoid trapping excess moisture within the construction.

Movement joints in the substrate must be incorporated into the full thickness NBT RENDER system.

Only lightweight fittings can be attached directly to the NBT RENDER system. Carefully plan the location of down-pipes, lights, security systems etc.

Boards:
Plan board layout to reduce wastage prior to commencing installation.

A base rail (starter track/) must be used to start the system.

Minimum bond overlap is 200 mm between courses.

Boards must not be wet or damaged and board edges must be tightly butted together.

Tightly fill all gaps with woodfibre.

For weather tightness, seal the boards against the structure at all joints, intersections, openings and penetrations and along all edges. [see Weather Tightness, page 8]

Use appropriate boards NBT Plinth and Perimeter boards (XPS) in the 300mm zone above the ground level and below DPC (damp proof course). See plinth detail on page 19 for Plinth render details.

Do not allow the boards to stand exposed to weather for more than 60 days after fixing before applying the render system.

Renders:
Do not apply the render system onto rain-soaked boards or when the air temperature is below 5°C and avoid working in strong, direct sunlight.

The render reinforcing mesh should lie in the outer 1/3 of the base coat layer and sheets should overlap by at least 100 mm.

Additional mesh reinforcement is required around all openings, along all corners and edges, across zones where suspended floors intersect walls and where boards are applied over different substrates, along continuous straight board joints and over repaired areas.

Seal the render around all openings using the appropriate APU rail (Window Frame Sealing Bead).

Allow 1 day per 1 mm thickness drying time for the base coat before applying the topcoat.

Apply equalisation paint to the finish SEP render coat to avoid discolouration from uneven drying. This is not required where the top coat is Silicon top coat render is used.

For premixed Top coat i.e. SilikonTop, apply DG27 primer for suction and key on the base coat.
NBT TIMBER FRAME EWI - Render
Installation Procedures

General:
The system comprises NBT DIFFUTHERM or NBT ISOLAIR insulation boards and NBT thin mesh coat renders supplied together with all accessories by NBT.

Access:
Scaffolding and access to the work must be carried out in accordance with current CDM and Health and Safety Regulations.

Adverse Weather/Storage:
Application of the system must only take place in suitable weather conditions, in accordance with NBT recommendations and good rendering practice. Work may be protected if necessary. Do not apply the render system if ambient temperatures below 5º C. Boards should be rendered within 2 months. Boards should be stored flat and dry. Edges should be protected to prevent damage to tongue.

Cutting:
The boards are easily cut with any of the following tools:
- NBT PAVATEX jigsaw blades (bayonet fitting to suit most makes of jigsaws)
- Standard wave edge insulation knife
- Circular saw, hand-held or bench mounted with a fine, cross-cut, tungsten tipped blade

Safety goggles and dust mask must be worn during cutting to protect the user from the small, nonhazardous, dust particles.

Fixings:
NBT DIFFUTHERM boards need to be fixed with special thermally-broken fasteners. The washer is flush with the surface of the NBT DIFFUTHERM. Use 3 No. Fixings per stud/board as shown:

<table>
<thead>
<tr>
<th>Thickness insulation</th>
<th>EJOT Fixings lengths</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 mm</td>
<td>STR-H 80 mm</td>
</tr>
<tr>
<td>60 mm</td>
<td>STR-H 100 mm</td>
</tr>
<tr>
<td>80 mm</td>
<td>STR-H 120 mm</td>
</tr>
<tr>
<td>100 mm</td>
<td>STR-H 140 mm</td>
</tr>
<tr>
<td>120 mm</td>
<td>STR-H 160 mm</td>
</tr>
<tr>
<td>140 mm</td>
<td>STR-H 180 mm</td>
</tr>
<tr>
<td>160 mm</td>
<td>STR-H 200 mm</td>
</tr>
</tbody>
</table>

Use extension washer EJOT SBL 140 along the corners and opening if the boards thickness is 120mm and above.
NBT TIMBER FRAME EWI - Render
Installation Procedures

Board System:
Below the DPC and in the plinth area (up to 300 mm above finished ground level) use XPS plinth boards; above the plinth area use NBT DIFFUTHERM or NBT ISOLAIR boards

Fitting:
Above plinth area: Fix the base rail (starter track) above DPC to each stud packed to true line and level, using 1 fixing per stud. Rail connector clips may be fitted at rail joints. Attach clip-on drip profile to complete run of base rail. Alternately use PVC (adjustable) two part base rail with integrated drip. When applicable apply ISO-BLOCO 600 between the base rail and XPS board.

Locate the 1st course of boards tightly in the base rail channel with grooved side down and edge tongue and groove joints fully engaged. Fix through the boards into the studs using 3 fixings per stud/board.

If the building height is ≥ 18 m ask NBT for advice on fixings.

Boards must span at least 2 studs. Board edges need not coincide with stud positions, which should be at ≤ 600 mm centres. The faces of the boards should be flush. Stagger fixings where board edges coincide with a stud position.

Install 2nd course in ½ bond pattern with overlap ≥ 200 mm, over-lapping board ends at vertical corners, ensuring all board joints are fully engaged and tightly packed. Fix to studs as for 1st course.

Fill any gaps and areas of damaged boards with loose woodfibre and apply a "patch" of reinforcing mesh at least 200 mm larger than area of damage/repair.

Openings and Abutments:
At all openings, service penetrations and free edges, seal the board to the structure/service substrate using ISO-BLOCO sealing tape to create a weather tight joint.

Reveals (optional):
Fix the Diffutherm reveal board with appropriate STR-H fixings to the studs. Apply ISO-BLOCO sealing tape along the edge of the board and place the board tightly up against the window or door frame.

Render System:
Apply APU rails to all door and window frames to form a weather tight joint.

Apply diagonal strips of mesh reinforcement (see diagram below/next page) across the corners of all openings and continuous strips of mesh reinforcement above the base rail (not for PVC adjustable base rail) and along all free board edges into 2 mm of NBT base coat mortar.

Apply NBT base coat mortar to all corners and reveals and set fibreglass mesh beads plumbed and aligned to a render depth of 5 - 8 mm.

Hand or machine apply NBT base coat over the board surface and straighten out. Comb with a tooth trowel to an overall depth of 4 - 6 mm then place sheets of fibreglass mesh lightly onto the render (≥ 100 mm overlap).

Apply a further 2 - 3 mm coat of NBT base coat and smooth out. On hardening, scrape back the surface with the edge of a trowel.

Decorative finish
SilikonTop
Apply the suction control primer after 6 days. Leave for 24 hours. Apply the SilikonTop decorative finish. No paint required.

OR

SEP
Apply decorative finish coat after 6 days. Apply equalizing paint after 6 days.
**NBT TIMBER FRAME EWI - Render**

**Installation Procedures**

**Additional Meshing:**
To reduce the risk of cracking, additional mesh reinforcement is required along all exposed board edges and around all openings.

Bed the mesh in NBT base coat mortar and then apply the main meshed render layer.

In the diagram below additional mesh is shown across the corners of window and door openings (1), along all reveals and corners (2) and Mesh strips 500 mm wide at floor level.

An additional band of mesh should be applied across the zone where suspended floor joists bear onto timber frame walls (3).

**System Movement Beads:**
Where structural movement joints or change in substrate occur a system movement bead should be incorporated into the full system to prevent cracking due to differential movement.

**Render Movement Beads:**
Render movement joints in the NBT RENDER system every 18m on a continuous horizontal span.

**ISO-BLOCO sealing tape:**
For weather tightness seal the boards against the structure at all joints, intersections, openings and penetrations and along all edges using ISO-BLOCO sealing tape. Such areas include window and door frames, sills, eaves and soffit boards. ISO-BLOCO is also recommended around service penetration into the Diffutherm.

**System Stop or Butting to other substrate:**
Where boards butt up to other substrates or need a stop (Mid terrace), use system stop profile at the edge of Diffutherm. Seal the junction by ISO-BLOCO sandwiched between the substrate and the stop profile.
1  **Edges:**
- Weather tightness with use of ISO-BLOCO sealing tape

2  **Plinth:**
- Plinth area 300 mm
- Use plinth & perimeter insulation board (XPS) in plinth area
- Use base rail at bottom of NBT DIFFUTHERM or NBT ISOLAIR

3  **Window and door:**
- Weather tightness with use of ISO-BLOCO sealing tape and APU-rails (window frame sealing bead)
- Use window sills with upstands. For wind driven rain exposer zone 3&4 use expansion resistance sill ends. Contact NBT for details.
- NBT DIFFUTHERM or NBT ISOLAIR board pattern to window and door opening (see below)

**Board Pattern:**

**NOTE:**
PLEASE FIND FEW STANDARD DETAIL DRAWINGS AT THE END OF THIS MANUAL. Contact NBT for full detail manual or for specific detail help.

Set out NBT DIFFUTHERM or NBT ISOLAIR boards so that board edges DO NOT coincide with the corners of wall openings.

Always ensure that the vertical joints are staggered by at least 200 mm between courses and that each board is supported on at least two studs.

NBT DIFFUTHERM or NBT ISOLAIR board joints DO NOT have to terminate on a stud due to the tongue groove board edge.
BASE COAT FOR ALL EXPOSURE ZONES

BAUMIT MC55
Factory prepared dry powder mortar according to EN 998-1. Mineral based, multi-purpose contact mortar for manual and machine application.

TOPCOAT FOR ALL EXPOSURE:

BAUMIT SILIKON TOP
Ready to use, wet topcoat render for thin coat application. Silicone based and stain retarding decorative finish with scratched or dragged grain texture for internal and external areas. Suitable for hand or machine application. A system component of the Baumit External Wall Insulation Systems EPS, XPS, XS 022, and Mineral. System tested according to ETAG 004 and EN 15824.

BAUMIT DG27 - PremiumPrimer
Ready to use, acrylic based, waterborne quartz filled liquid primer for all Synthetic and mineral decorative finishes with high covering power. Hand application for external areas.

TOPCOAT FOR EXPOSURE 1&2:

BAUMIT SEP TOP
Factory prepared dry powder mortar in accordance with EN 998-1. Mineral based decorative topcoat render for thin coat application for internal and external areas. Suitable for hand or machine application.

BAUMIT SILIKAT PAINT
Factory prepared dry powder mortar in accordance with EN 998-1. Mineral based decorative topcoat render for thin coat application for internal and external areas. Suitable for hand or machine application.

Please check www.natural-building.co.uk or contact NBT for other top coat finishes
**EJOT STR-H**
For fixing NBT DIFFUTHERM wood fibre insulation boards onto timber. Embedment of 40 mm into timber. The polystyrenes plug is inserted in the washer head cavity to ensures least thermal bridging. Heat loss through conduction is therefore substantially reduced.
Use **EJOT VHT-R fixings + SBH WASHER** for reveal boards or board thickness 35mm & below

**PVC, 2-part base rail (Adjustable).**
The base rail is generally fixed at DPC level to act as a base for the first layer of NBT DIFFUTHERM or NBT ISOLAIR. The front part has integrated drip profile clipped to the front edge of the rail to provide a clean edge for the render to finish to.

Length, 2m.
Thickness, 60-90mm, 100-160mm & 160-220mm

**Metal base rail (fixed)**
The base rail is generally fixed at DPC level to act as a base for the first layer of NBT DIFFUTHERM or NBT ISOLAIR. The clip-on profile is then clipped to the front edge of the rail to provide a clean edge for the render to finish to.

Length, 2.5m.
Thickness, 40 - 200mm with an increment of 20mm

* Stainless steel also available

**PVC Clip on profile**
The PVC clip-on profile with integrated mesh provide better connection with the main mesh.

Length 2500 mm.
Drip - 6mm & 10mm
NBT TIMBER FRAME EWI - Render Components & Accessories

PVC Corner ‘mesh’ bead
Corner mesh bead with alkali resistance glass fibre mesh wings.
Length - 2.5m

PVC Corner ‘mesh’ bead with 6mm nosing
Corner mesh bead with alkali resistance glass fibre mesh wings with 6mm nosing for render stop.
Length - 2.5m

PVC Window Frameseal Bead (APU rail)
Self-adhesive PVC profile for use on window or door frames for crack free render stop. Sacrificial sticky strip to stick a protective sheet over the window during rendering.
Length - 2.6m

PVC Window head/Balcony Drip Bead with mesh,
Window head and balcony corner mesh bead with in-built drip profile and alkali resistance glass fibre mesh wings.
Length - 2.5m

PVC Render Stop Bead 6mm, mesh wing
Length - 2.5m
PVC Render Movement Bead, perforated wings
Length - 2.75m

PVC Full System Movement Bead (Vertical)
Insulation expansion joint profiles with soft PVC centre section for insulation systems, with alkali-resistance glassfibre mesh. Recommended for vertical movements +/- 5mm. Flat and internal corners
Length - 2.5m

ISO-BLOCO 600
High quality joint sealing expansion tape for external use to form water tight junction. Applied around all butt junction of boards to all substrate i.e. window frame, service penetrations, abutment junctions etc.
Size - 12m Roll, 12mm wide, 2-6mm expansion
       - 4.3m Roll, 15mm wide, 6-15mm expansion

Render reinforcing Glassfibre mesh
render mesh for fully meshing the base coat and applying stress patched around the window etc.
Size - 50m x 1m roll
NBT TIMBER FRAME EWI - Render
Components & Accessories

Pavafix WIN
Render only compression joint for thin coat render. Ideally suited to timber framed buildings. The aluminium base section is supplied pre-coated white, but can be powder coated to any colour if required. Corner and Joint products are available on request.
Length - 2.5m

Pavafix WIN
Window sill sealing tape. To create secondary protective sill tray under the metal sill. (Prior to sill installation or window in case of Velfac)
Size - 25m Roll, 90mm wide

Pavaprim Primer
Primer must be applied on the woodfibre and other substrate prior to sealing with Pavafix WIN tape.
Size - 1L Bottle, cover 2 Rolls of Pavafix WIN tape
NBT Iso-Bloco 600 12/2-6 expansion tape

NBT Base rail (PVC 2-part rail system or metal base rail with PVC clip-on drip)

Plaster board

Service void

12mm OSB CLASS 3 and/or NBT DB 3.5 airtight membrane (sealed with Pavafix 60 tape)

NBT STR-H fixings

NBT Pavafix I50 tape

NBT Pavaflex Flexible Woodfibre slabs

NBT Diffutherm T&G Woodfibre boards

NBT MC55 Base coat render 6-8mm, meshed

NBT SilikonTop over DG27 primer or Silicon Paint over SEP top coat

Detail-A

NBT Base rail (PVC 2-part rail system or metal base rail with PVC clip-on drip)

NBT Iso-Bloco 600 12/2-6 expansion tape

(Optional) NBT-H3 Masonry washer fixing (only above damp proof layer)

NBT Plinth and Perimeter board

NBT DS27, 1:1 cement mix damp sealant and adhesive

NBT MC55 Base coat render 6-8mm, meshed

NBT SilikonTop over DG27 primer or Silicon Paint over MC55 base coat

NBT DS27, 1:1 cement mix damp sealant

Hydroduct 220 Plinth protection or similar

Drawing Title: NBT: Plinth Detail - Beam & Block Floor

Drawing No. TF-R-WF-GBB01

Scale: 1:5 @ A4

Version: 25-09-2018
NBT: Standard Head Detail (window must be installed prior to Woodfibre installation)

Drawing Title:

NBT Pavaflex Flexible Woodfibre slabs
NBT Diffutherm T&G Woodfibre boards
NBT MC55 Base coat render 6-8mm, meshed
NBT SilikonTop over DG27 primer or Silicon Paint over SEP top coat
NBT STR-H Timber washer fixings

Detail-A

NBT 3797 Corner mesh bead; for exposure zone 3 & 4 use 3794
NBT Iso-Bloco 600 12/2-6 expansion tape
NBT 38909 APU rail, frame sealing bead
NBT Pavafix 60 tape
NBT Pavafix 20-40

Drawing No.
TF-R-WO-SH01

Scale:
1:5 @ A4

Version:
25-09-2018
NBT SilikonTop over DG27 primer or Silicon Paint over SEP top coat
NBT MC55 Base coat render 6-8mm, meshed
NBT STR-H Timber washer fixings
Detail-A
NBT 3797 Corner mesh bead
NBT Iso-Bloco 600 12/2-6 expansion tape
NBT-38909 APU rail, frame sealing bead

NBT Diffutherm T&G Woodfibre boards
NBT Pavaflex Flexible Woodfibre slabs
NBT Pavafix 20-40 tape
NBT Pavafix 60 tape
12mm OSB CLASS 3 and/or NBT DB 3.5 airtight membrane (sealed with Pavafix 60 tape)
Service void
Plaster board

Detail-A
NBT 3797 Corner mesh bead; for exposure zone 3 & 4 use 3794
NBT Iso-Bloco 600 12/2-6 expansion tape
NBT 38909 APU rail, frame sealing bead

Drawing Title: 
NBT: Standard Jamb Detail (window must be installed prior to Woodfibre installation)

Drawing No. 
TF-R-WO-SJ01

Scale: 
1:5 @ A4

Version: 
25-09-2018

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T: 01844 38338; E: info@natural-building.co.uk
W: www.natural-building.co.uk

NBT: Natural Building Technologies
NBT Pavafix WIN tape + Pavaprim primer, render tape flashing, ensure 100mm up-stand at the ends.

NBT Iso-Bloco 600 12/2-6 expansion tape

Plaster board

Service void

12mm OSB CLASS 3 and/or NBT DB 3.5 airtight membrane (sealed with Pavafix 60 tape)

NBT STR-H fixings

NBT Pavaflex Flexible Woodfibre slabs

NBT Diftherm T&G Woodfibre boards

NBT MC55 Base coat render 6-8mm, meshed

NBT SilikonTop over DG27 primer or Silicon Paint over SEP top coat

NBT Pavafix 20-40

Sill with sealed end caps

Detail-A

NBT Pavafix 60 tape

NBT Pavaflex Flexible Woodfibre slabs

NBT Pavafix WIN tape + Pavaprim primer.
Renderable tape flashing, ensure 50mm up-stand at the ends. Alternatively, Pavaflash sealing system

Detail A

Drawing Title:
NBT: Standard Sill Detail

(window must be installed prior to Woodfibre installation)
For more detail drawings, contact NBT for the Detail Catalogue (Catalogue is not on the website!)
high performance systems  NBT PAVATEX woodfibre systems provide exceptional thermal & acoustic insulation, summer overheating protection and moisture control for the whole building in wall roof and floor

low carbon, renewable products  NBT PAVATEX boards are made of waste wood and lock up the equivalent of ca. 11 tonnes of CO$_2$ per building. Raw material resources are entirely renewable, unlimited and FSC certified

healthy housing  NBT PAVATEX insulation boards are certified by natureplus as non-polluting and the NBT systems lead to breathable constructions; NBT PAVATEX insulation is specified exclusively by the Sentinal Haus Institute for healthy housing

tried & tested systems  NBT PAVATEX woodfibre insulation are widely used across Europe in all climates and conditions; physical values are 3rd party tested and guaranteed and production is according to BS EN

local service & support  Pavatex’s partner in the UK is Natural Building Technologies (NBT) who are a Technical Sales Company with nationwide coverage based in Oakley, Bucks. NBT lead the UK sustainable materials & systems for high performance building shells

swiss quality & know-how for the UK  produced and developed in Switzerland for more than 70 years by the world’s most innovative woodfibre insulation manufacturer