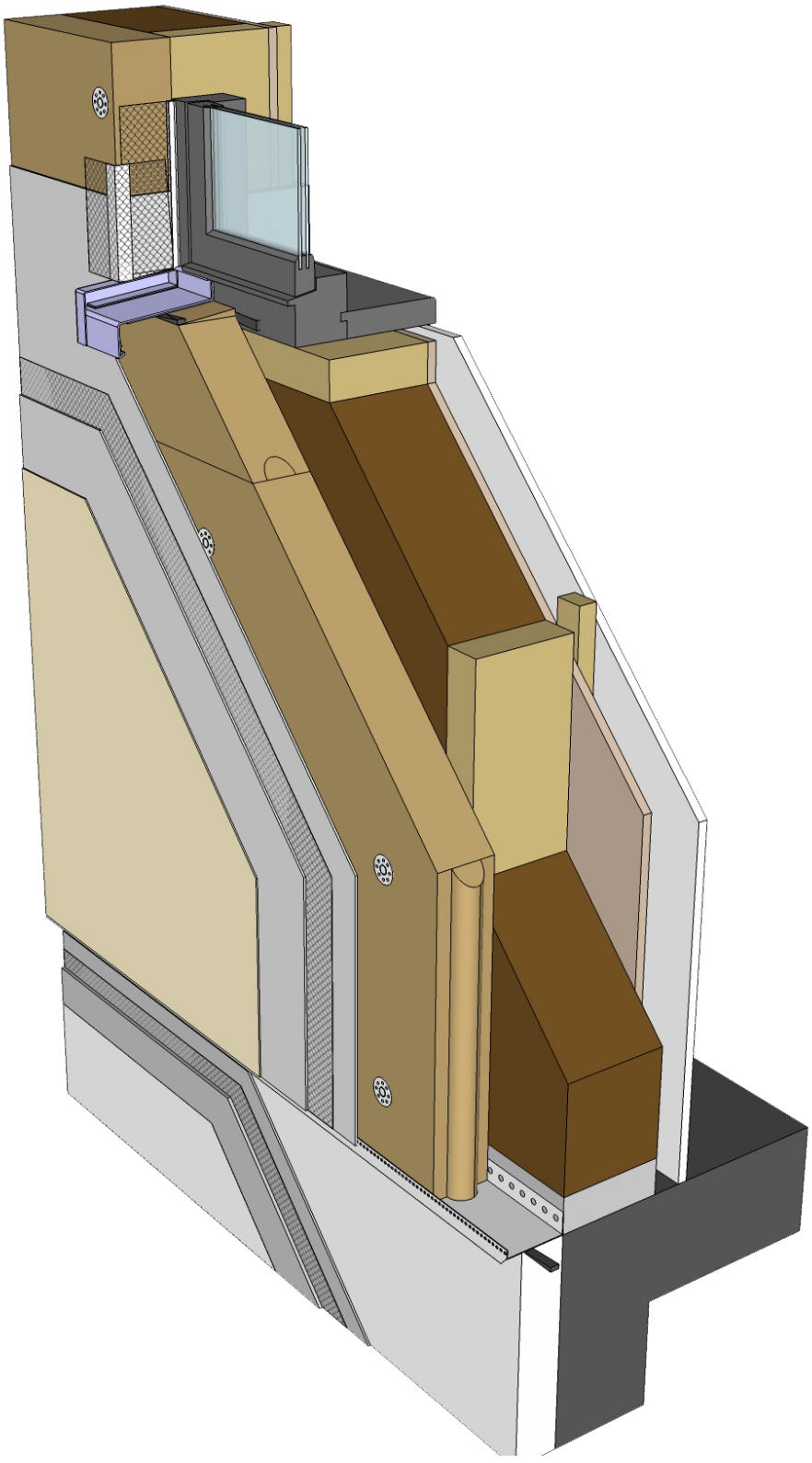
NBT

Natural
Building
Technologies

Technical Manual, NBT Timber Frame

Render System



NBT TIMBER FRAME EWI - Render

Introduction

Content

NBT Timber Frame Render System

No limits to architectual design: NBT CLAD System and NBT RENDER System facades interact togethe

NBT Timber Frame Render Systems

The building system is a timber frame structure insulated between studs and externally with woodfibre (Pavaflex and Diffutherm respectively) and finished with render.

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

To produce NBT PAVATEX 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.

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.

NBT TIMBER FRAME EWI - Render

Introduction

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 NBT 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:
NBT 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.

NBT Natural Insulation Products for:

Simple and robust
Improved heat storage for light weight structures
Excellent sound insulation for light weight structures
Highly vapour permeable constructions that do not need membranes to control interstitial condensation
Substantial saving of build cost compared with conventional timber frame construction
Simple robust construction has few skilled operations and is easily adapted for off site manufacture
Reduced thermal bridging - ideal to achieve high standard and beyond

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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 $m^3/m^2/h$ is allowed. 0.6 Air changes/hour at 50 Pa pressure for Passivhaus .

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.

△ Sketch of the principle of an airtightness layer: Build tight, ventilate right.

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 fulfil 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.

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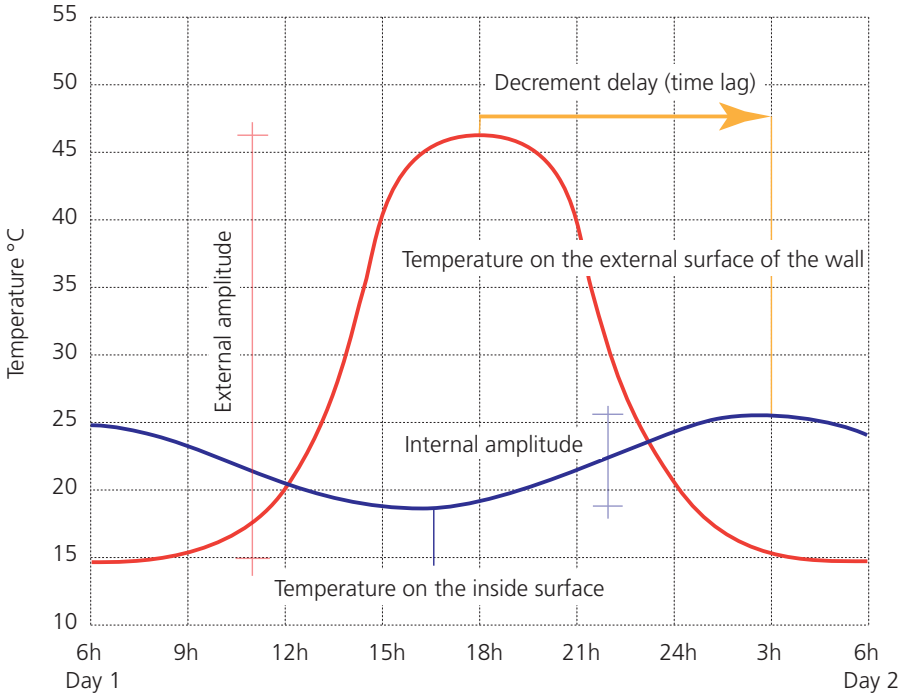
Summer Overheating



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.

NBT 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 NBT PAVATEX woodfibre insulation 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.

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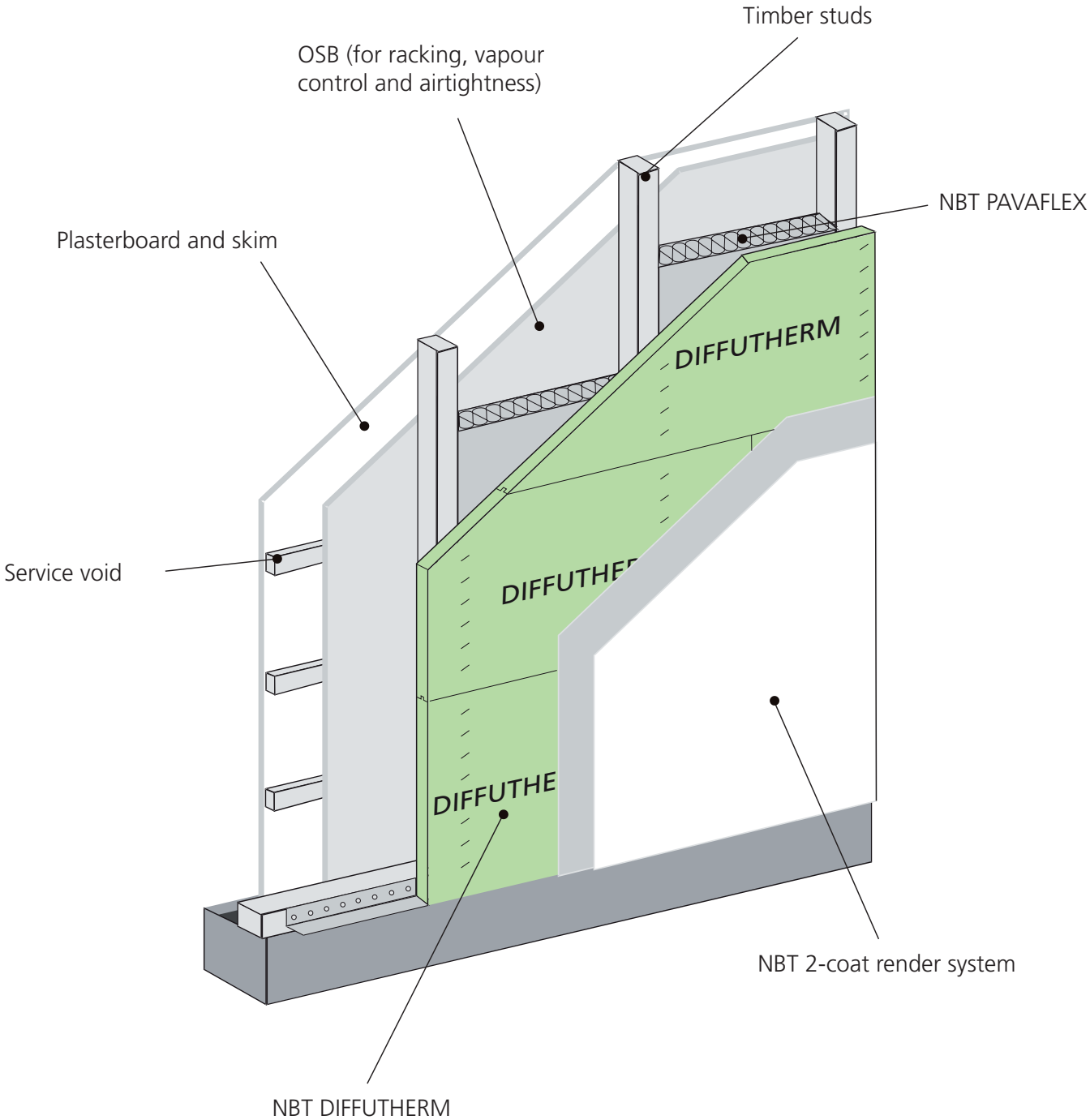
Rendered System



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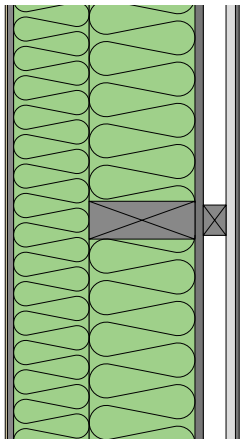
Physical Properties

Physical Properties NBT RENDER



1. NBT 2-coat render system
2. NBT DIFFUTHERM 60/80/100/120 mm
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

1. 2. 3. 4. 5.6.7.

89 mm stud

Insulated with NBT PAVAFLEX

Insulation onto stud	NBT DIFFUTHERM							
	60 mm	**80 mm**	**100 mm**	**120 mm**	**140 mm**	**160 mm**	**180 mm**	**200 mm**
U-Value [W/m²K]	0.27	0.24	0.21	0.19	0.17	0.16	0.15	0.14
Admittance [W/m²K]	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Sound insulation ca. [dB]	47	48	49	49	50	51	51	51
Decrement delay [h]	6.0	7.4	8.8	9.9	11.3	12.6	13.9	15.3

140 mm stud

Insulated with NBT PAVAFLEX

Insulation onto stud	NBT DIFFUTHERM							
	60 mm	**80 mm**	**100 mm**	**120 mm**	**140 mm**	**160 mm**	**180 mm**	**200 mm**
U-Value [W/m²K]	0.21	0.19	0.17	0.16	0.15	0.14	0.13	0.12
Admittance [W/m²K]	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51
Sound insulation ca. [dB]	49	50	50	51	52	52	53	53
Decrement delay [h]	7.9	9.3	10.6	11.8	13.2	14.5	15.8	17.2

219 mm stud

Insulated with NBT PAVAFLEX

Insulation onto stud	NBT DIFFUTHERM							
	60 mm	**80 mm**	**100 mm**	**120 mm**	**140 mm**	**160 mm**	**180 mm**	**200 mm**
U-Value [W/m²K]	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.10
Admittance [W/m²K]	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53
Sound insulation ca. [dB]	51	52	52	53	54	54	55	55
Decrement delay [h]	10.8	12.2	13.6	14.8	16.2	17.5	18.8	20.1

Note: Calculations are done according to BS EN ISO 6946:1997 and BR 443. Studs assumed to be 38 x 89 mm, 38 x 140 mm and 50 x 219 mm at 600 mm centres (allowances for sole plates etc, give a 15% bridging area for the timber). Stud depth is taken to be the same as the thickness of insulation specified. 140mm insulation layer onto studs is made of NBT DIFFUTHERM 60 mm & NBT PAVATHERM 80 mm; 160 mm insulation layer onto studs is made of NBT DIFFUTHERM 80 mm & NBT PAVATHERM 80 mm; 180 mm insulation layer onto studs is made of NBT DIFFUTHERM 80 mm & NBT PAVATHERM 100 mm; 200 mm insulation layer onto studs is made of NBT DIFFUTHERM 100 mm & NBT PAVATHERM 100 mm. 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".

System Guarantee:

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

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 boards below DPC level. Use boards suitable for wet exposure (EPS, XPS) and a different NBT base coat (HM 50) in the plinth area (i.e. within 300 mm of ground level).

Building Height:

The NBT RENDER system is for use in buildings where the height to the top floor is $\leq$ 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 DIFFUTHERM boards. Carefully plan the location of down-pipes, lights, security systems etc.

Movement Joints:

Movement joints in the substrate must be incorporated into the NBT EWI RENDER system. Consider render only movement joints for walls $\geq$ 18 m.

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.
For weather tightness, 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 eg. 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

Airtightness:

Carefully detail the OSB layer for airtightness at all openings and at internal corners and junctions.

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, that it must be taken into account that the LIGHT-BRIGHT RELATION VALUE 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.
Please check page 29 and 30 of the BAUMIT Product Brochure "Render, Plasters, Mortars" for further information and a wide range of different colours.

Grain size:

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

Apply equalisation paint to the finish render coat to avoid discolouration from uneven drying.
To select paints for applying to the finished surface without significant reduction of the vapour permeability of the RENDER system, refer to NBT.

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NBT TIMBER FRAME EWI - Render

Installers: Key Considerations

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 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 moisture within the construction.

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

Only lightweight fittings can be attached directly to the NBT DIFFUTHERM boards. 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 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.

Do not use the NBT RENDER system below DPC level.

Use appropriate boards (XPS) and a different NBT base coat (HM 50) in the plinth area (i.e. within 300 mm above ground level).

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 reinforcing mesh should lie in the outer 1/3 of the basecoat 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).

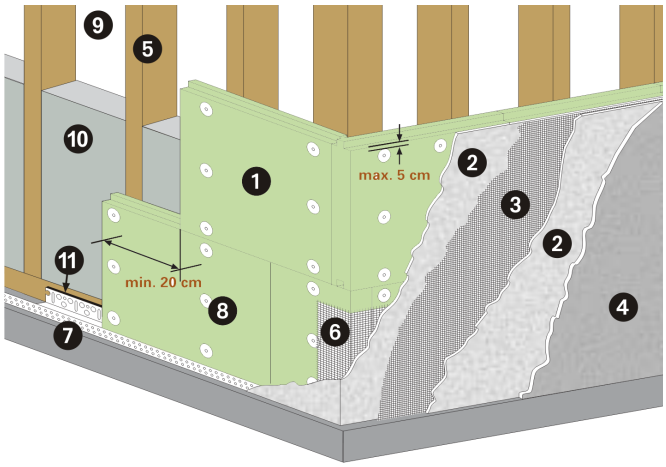
Allow 1 day per 1 mm thickness drying time for the basecoat before applying the topcoat.

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

For premixed Top coat apply DG27 primer for suction and key.

NBT TIMBER FRAME EWI - Render

Installation Procedures



1 NBT DIFFUTHERM insulation board
2 NBT base coat (MC 55 W)
3 NBT reinforcement mesh
4 NBT decorative finish
5 Timber studwork
6 Wemico corner mesh bead
7 Wemico base rail
8 EJOT STR-H (inter grated washer with insulated plug all in the box)
9 OSB (airtightness, vapour control & racking)
10 NBT PAVAFLEX
11 ISO-BLOCO sealing tape

General:

The system comprises NBT DIFFUTHERM 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 NBT RENDER system in 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:

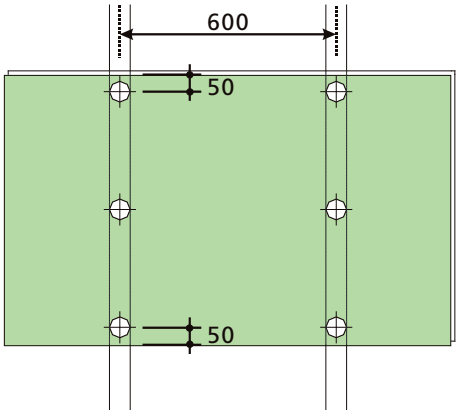
The boards are easily cut with any of the following tools:

- 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:



NBT provides fixings for the NBT RENDER system:

Thickness insulation	EJOT Fixings	
40 mm	STR-H	80 mm
60 mm	STR-H	100 mm
80 mm	STR-H	120 mm
100 mm	STR-H	140 mm
120 mm	STR-H	160 mm
140 mm	STR-H	180 mm
160 mm	STR-H	200 mm
180 mm	STR-H	220 mm
200 mm	STR-H	240 mm

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 boards

Fitting:

Above plinth area: Fix the base rail and corner rail 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 and corner rail. Alternately use PVC (adjustable) two part base rail with integrated drip. When applicable apply ISO-BIOCO 600 between the base rail and XPS board.

Locate the 1st course of NBT RENDER 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 woodfibres 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:

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) across the corners of all openings and continuous strips of mesh reinforcement above the 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.

Apply 2 - 3 mm decorative finish coat after 6 days. Apply equalizing paint after 6 days.

NBT TIMBER FRAME EWI - Render

Installation Procedures

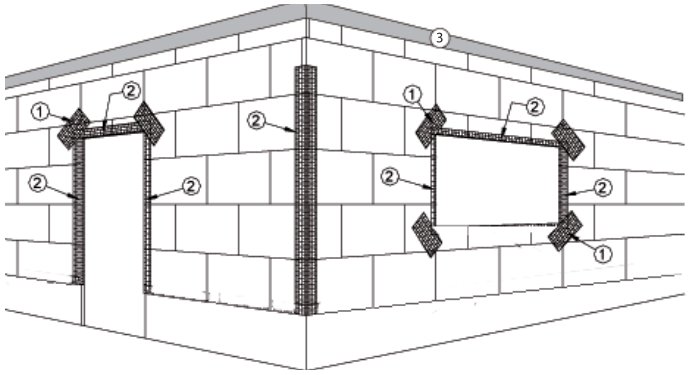
Additional Meshing:

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 NBT TIMBER FRAME RENDER system to prevent cracking due to differential movement. NBT recommends Wemico PVC system movement bead.

Render Movement Beads:

Render movement joints in the substrate must be incorporated into the NBT RENDER system every 18m on a continuos 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.

NBT TIMBER FRAME EWI - Render

Detail Solutions

1 Edges:

- Weather tightness with use of ISO-BLOCO sealing tape

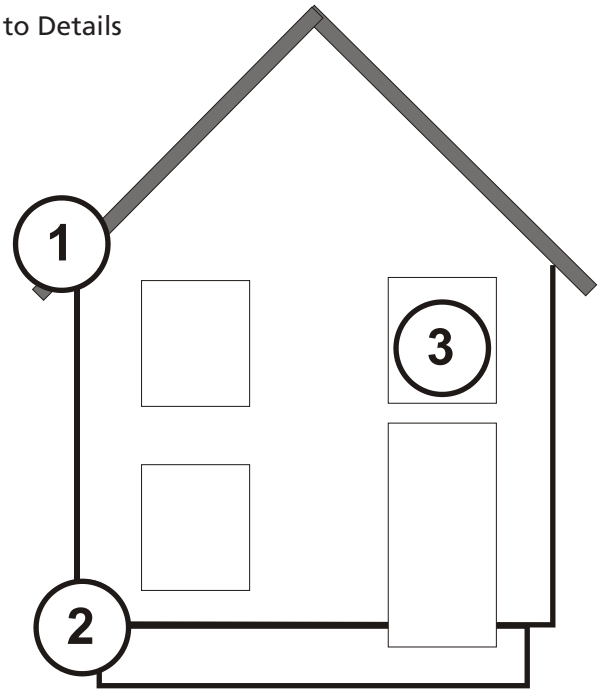
2 Plinth:

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

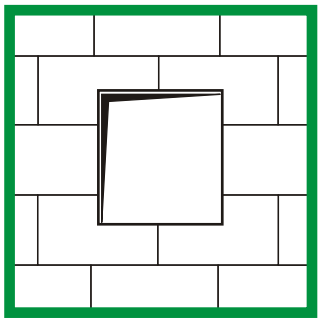
3 Window and door:

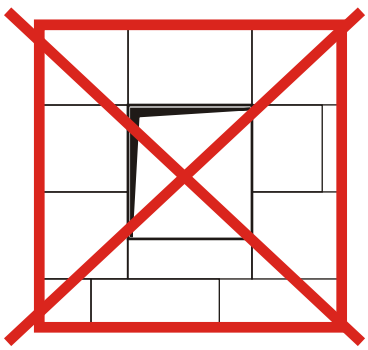
- Weather tightness with use of ISO-BLOCO sealing tape and APU-rails (window frame sealing bead)
- Use window sills with up stands. For wind driven rain exposer zone 3&4 use expansion resistance sill ends. Contact NBT for details.
- NBT DIFFUTHERM board pattern to window and door opening (see below)

Key to Details



Board Pattern:





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

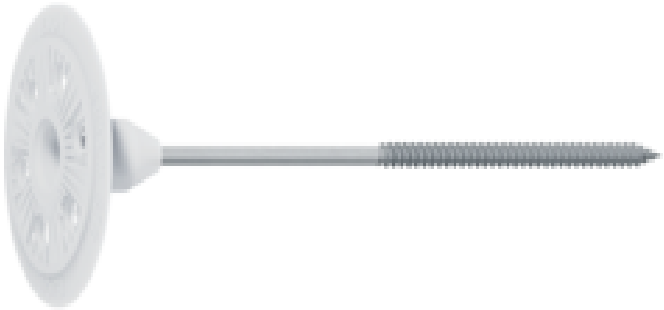
Set out NBT DIFFUTHERM boards so that board edges DO NOT coincide with the corners of wall openings.

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 board joints DO NOT have to terminate on a stud due to the tongue groove board edge.

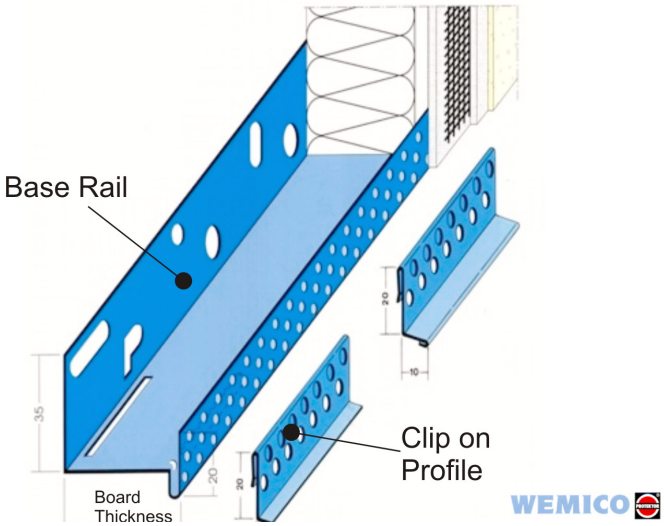
NBT TIMBER FRAME EWI - Render

Components & Accessories



EJOT STR-H and EJOT TKR + SBH WASHER

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. Please find required length of fixings on page 25.

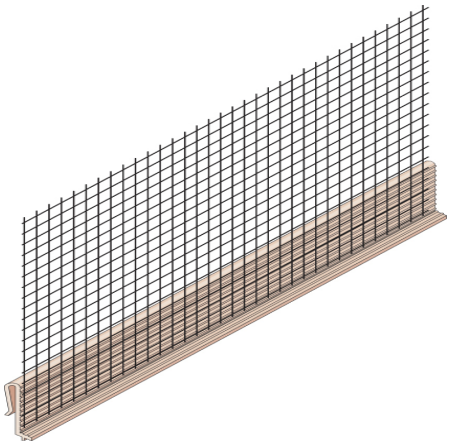


Base rail & clip on profile

The base rail is generally fixed at DPC level to act as a base for the first layer of NBT DIFFUTHERM. 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 2500 mm.

BYY9146	Base rail aluminium 60 mm*
BYY9148	Base rail aluminium 80 mm*
BYY9150	Base rail aluminium 100 mm*
BYY9121	Base rail clip aluminium 6 mm*
BYY9124	Base rail clip aluminium 10 mm*

* Stainless steel also available



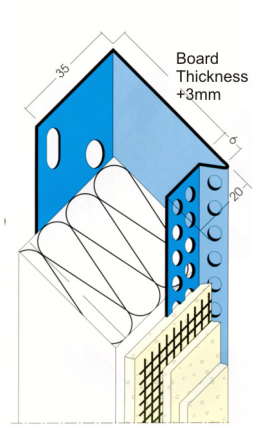
PVC Clip on profile

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

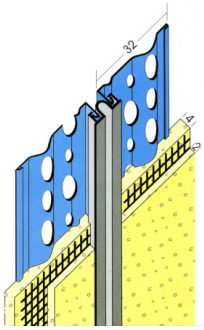


WEMICO

System Stop Profile

Similar in appearance to the base rail the stop end profile is used where the NBT DIFFUTHERM system finishes up against another wall of a different type, e.g. against timber or rainscreen cladding or a masonry wall. They are fixed vertically against the other wall with ISO-BLOCO sealing tape between the profile and wall to ensure the joint is sealed against the weather. The lip on the edge of the profile is used to provide a solid edge for the render to finish up to. Length 2500 mm.

BYY9246	Stop profile aluminium 60 mm
BYY9248	Stop profile aluminium 80 mm
BYY9250	Stop profile aluminium 100 mm

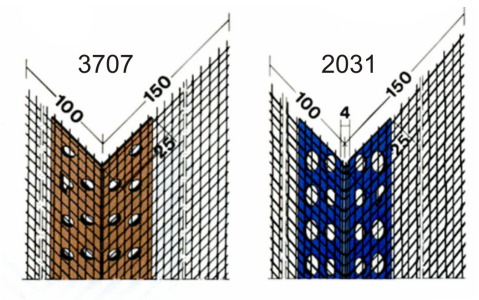


WEMICO

Movement beads

Applied where a movement joint occurs in the structure. The boards must be spaced apart over the joints and the bead set in NBT base coat mortar across the joint. Provides a neat joint to take up movement of the render. Length 3000 mm.

BYYWE79/79	Stainless steel for render 6 mm
BYYWE80/80	Stainless steel for render 10 mm



WEMICO

Corner mesh angle

PVC or stainless steel meshed angles are used on the corners of windows, doors and building corners to provide a straight reinforced edge for the render to finish to. Fixed prior to rendering with NBT base coat to the NBT DIFFUTHERM boards and levelled up. Length 2500 mm.

BYY3707	Corner mesh bead PVC
BYY2031	Corner mesh bead stainless steel

NBT PAVATEX jigsaw blade

Bayonet fitting jigsaw blade from PAVATEX for cutting woodfibre insulation boards. Length approx. 130 mm.

PAVZK	NBT PAVATEX cutting blades

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Natural Building Materials and Systems

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 wiedely used across Europe in all climates and conditions; pysical values are 3rd party tested and guarenteed 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

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Subject to alteration due to development-Oct, 2014 - US