



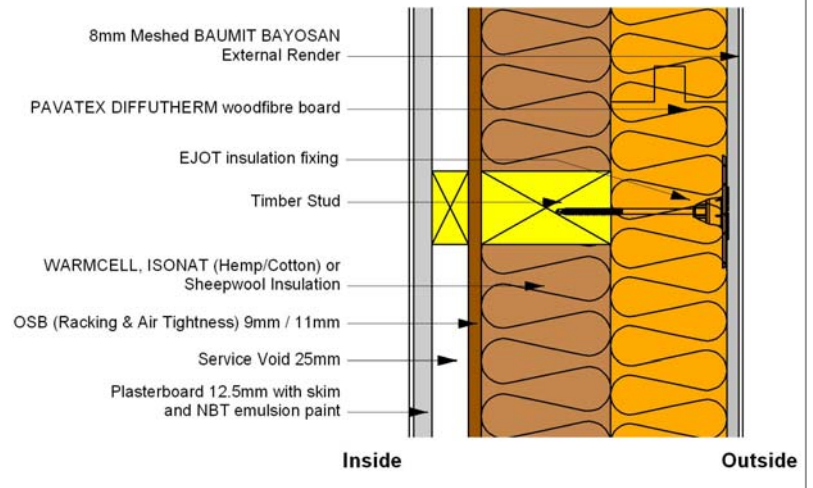
# Timber Frame Solutions

## DIFFUTHERM / System description:

NBT Timber Frame Diffutherm System is for timber frame buildings externally finished with render.

Diffutherm systems use NBT Pavatex woodfibre boards over the outside of the frame in a continuous layer. The racking board is fitted on the inside of the structure, acting also as both the airtightness and the vapour control layer, in a fully breathable construction. Externally a mineral based thin render system is applied directly to the woodfibre. Internally we recommend a service void between racking board and plasterboard for effective airtightness control and easy service alterations.

### NBT Timber Frame DIFFUTHERM System



### System Application:

NBT Timber Frame Diffutherm System can be used with any conventional timber frame design, provided that the racking board is fixed on the inside of the frame rather than the outside. The same limitations apply as to all timber frame applications. The Diffutherm system has good fire rating and is suitable in many situations requiring fire resistance. Contact NBT for further details.



### System Benefits:

- Excellent thermal performance, with very low thermal bridging, enabling very slim construction for new Part L compliance
- Alternatively very high thermal shell performance possible in slim and cost effective way.
- Excellent airtightness by design
- Excellent acoustic insulation
- Good overheating control
- Fully breathing construction
- Full design and site support from NBT
- Full systems parts from NBT
- Tried and tested system, fully certified

### Environmental Performance:

- BREEAM Green Guide rating: A
- Carbon positive (locks up more than is used) and non toxic
- Woodfibre Boards are over 95% waste



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## Technical details: Thermal and other values

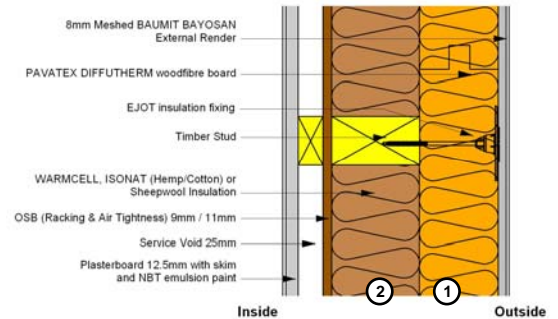
### 89mm Timber Stud

Insulation onto Stud ①	60mm Diffutherm	80mm Diffutherm	100mm Diffutherm
Insulation between Stud ②	89mm Isonat (or equivalent)	89mm Isonat (or equivalent)	89mm Isonat (or equivalent)
U-Value* [W/m²K]	0.28	0.25	0.22
Decrement Factor	0.63	0.49	0.37
Decrement Delay [h]	6.6	8.1	9.5
Admittance [W/m²K]	1.50	1.50	1.50

### 140mm Timber Stud

Insulation onto Stud ①	60mm Diffutherm	80mm Diffutherm	100mm Diffutherm
Insulation between Stud ②	140mm Isonat (or equivalent)	140mm Isonat (or equivalent)	140mm Isonat (or equivalent)
U-Value* [W/m²K]	0.22	0.20	0.18
Decrement Factor	0.55	0.41	0.31
Decrement Delay [h]	8.0	9.5	11.0
Admittance [W/m²K]	1.52	1.52	1.52

\*based on JPA calculation with 15% bridging (timber)  
Isonat Hemp Cotton insulation has a k value of 0.039W/mK. Other vapour open insulations can be substituted. Contact NBT for calculations.



Acoustic rating for all systems:  $r > 50\text{dB}$

Fire rating for 60mm Diffutherm onto 89mm stud full filled with mineral wool insulation = 60mins

For other values contact NBT

Also calculation of  $\gamma$  values is available for specific build ups, enabling better thermal performance (New Part L) calculations and/or thinner structures.

## Full System Components:

**Insulation boards:** Interlocking, water-resistant Diffutherm boards (60,80,100mm), plinth and reveal boards.

**Fixings, tracks and tapes:** Insulated screw and staple fixings, along with starter tracks, and sealing tapes

**Render system:** A fully warranted thin coat mineral render system from NBT BaumitBayosan, with over 200 colours in many types of finish. Comes with full system of reinforcing meshes, beads, APU rails and window cills.

**Infill insulation:** NBT provide natural insulation materials such as Hemp Cotton, Sheepswool and Cellulose

**Plaster boards and paints:** NBT can provide clay boards, plasters and trade environmental paints for internal walls

**Timber frames:** NBT can provide contacts with partnering timber frame manufacturers if required

## NBT Support:

**Design support:** Full design support including drawings review, assistance with detailing, thermal bridging (New Part L) and interstitial moisture calculations

**Training:** either at NBT or on site for applicators, site managers etc

**Site Support:** NBT will assist on site, giving advice on technical, application and quality issues.

**Approved Applicators:** NBT have a list of trained and approved applicators for the various systems processes.

