



Pennaf Housing Group

Timber Frame

Timber Cladding

Timber Insulation



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Housing Group



An Experienced Team

The Project Team:

Commercial Services Business Partner Pennaf Housing Group

Development & Technical Manager, Pennaf Housing Group

Contractor

Employers Agent

Architect

Wood Knowledge Wales

Welsh Government

Local Authority, Community Council

Feedback – End user, residents, maintenance, EA.



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Why ?

- Off-site manufacture reduces construction time on site
- Low embodied carbon
- Timber is readily available from sustainable source – Europe, UK, Wales?
- More Thermally efficient
- Higher tolerance on quality due to off site manufacturing
- Reduced construction time, Less dependence on good weather
- Reduced risk to programme – Speed?
- Water tight 2 weeks – from slab up in 2 weeks.
- First fix Mechanical & Electrical is more efficient
- Insulation fully sustainable
- Social conscience.
- Engineered solution
- Trada guidance available on construction
- Reduced risk to overall programme
- Less thermal conductivity
- Ideal for up to 4 stories
- Improved air tightness
- Improved u value
- Reduced wall thickness overall.
- Less wet trades

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Timber Framed Schemes completed:



Ynys Mon, Housing
40No Units in 2010.



Wrexham Housing
10No Units in 2010.



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Timber Framed Schemes completed:



54 Unit Extra Care Scheme Wrexham in 2013.



Colwyn Bay, 50 Bed Residential Care Home 2015.



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Timber Framed Schemes completed:



Adapted
Bungalows
Welshpool
in 2015.



Chirk, Wrexham
66No Bed
Residential Care
Home 2015.



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Why would we use Timber, Timber Insulation ?

Lessons Learnt and Issues:

Movement, Cracking, Quality Control of Work, Sprinklers, Fire, Feedback from Residents.

Resolved Movement and Cracking

Resolved Sprinklers

Resolved Fire – Installation and Running of Building (Health and Safety Executive & North Wales Fire and Rescue.

Residents – Positive ??? Yes



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Why would we use Timber, Timber Insulation ?

IS IT ALL A NUMBERS GAME ?

Financially – Do these schemes stack up against other forms of construction?

What sets the precedence number of units or sustainability?

Track record? Masonry?

Funding ? If Welsh Government funding was not in place would we still be moving in this direction?



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Why would we use Timber, Timber Insulation ?

Good Cop, Bad Cop?

Am I a sceptic ? Yes!

Contractors and Consultants try to brain wash us with statistics !

End users and clients sell the product – this presently promotes the products!



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Why would we use Timber, Timber Insulation ?

Supply chain certainty

Contracts – Design & Build versus Traditional Contract

Traditional Insulation v Timber Insulation – performance, cost, availability etc

Welsh Timber ?

Timber Insulation ? Where from?



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Proposed Affordable
Housing Development at
Llanbedr Dyffryn Clwyd, Nr.
Ruthin, Denbighshire



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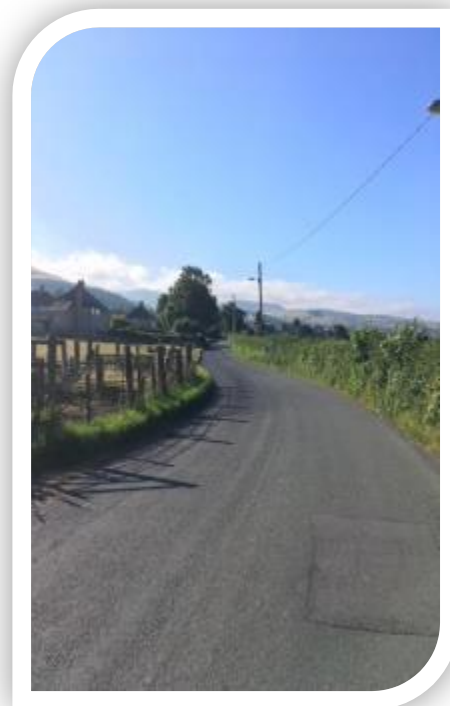




The homes will be extremely low whole-life carbon (both operational and embodied). Low operational carbon emissions will principally be achieved through (1) A fabric first approach using an open panel offsite timber system to create an efficient thermal envelope that exceeds building regulations by eliminating cold bridging (using an external wood fibre insulation) and by paying close attention to design and construction details to eliminate the performance gap (2)

Low embodied carbon emissions will be ensured by using timber for structure, external joinery and insulation (alternative to petrochemical plastic products).

We have an aspiration subject to funding, viability and economies of scale this housing scheme will not be a one off. We believe that by focusing on whole life costs and whole life carbon, the project team will be able to demonstrate a strong commercial incentive to repeat the approach on multiple schemes throughout Wales. The focus on local timber should act as a stimulus for the forest sector to invest in both planting and in higher value processing creating jobs (particularly in rural areas). This in turn will help Wales meet its legally binding carbon reduction targets in terms of afforestation and carbon storage in timber products in buildings.



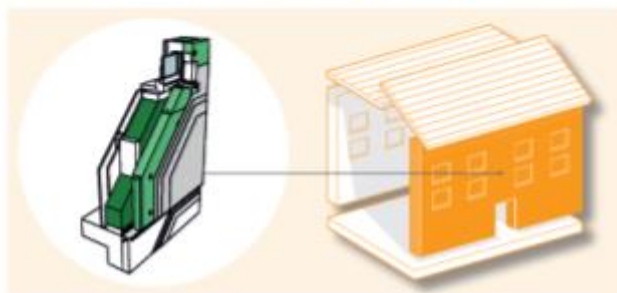
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Natural
Building
Technologies

New Build System for Timber Frame Render

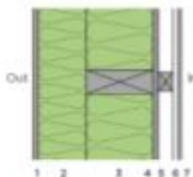


System Performance

u - values 0.26 - 0.10
y - values 0.05 - 0.02

The system complies with the most stringent of standards - from baseline building regulations through to Passivhaus. The system is available in an extensive number of render options including, colour, texture and weathering resistance. All components for the system are available from NBT.

Cross-section of system



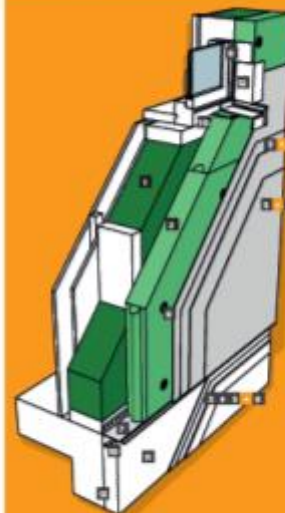
1. NBT 2-coat render system
2. NBT DIFFUTHERM 60/80/100/120mm
3. Stud fully filled with NBT PAVAFLEX
4. Racking board incl. airtightness detail (eg OSB 12/15mm)
5. Service void 25 mm (can be insulated for improved performance)
6. Plasterboard 12.5 mm
7. Plaster, skim and NBT emulsion paint

How NBT systems compare to standard build



Natural Building Technologies The Hangar, Warrington Road, Oakley, Buckinghamshire HP8 9UL

Components & Accessories for NBT System for Timber Frame: Render



* Please refer to www.natural-building.co.uk or the contents page of this pack to find more information about the range of NBT products



System build up



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Delivering Homes & Services

Our Growth Plan

- a) A key contributor to the Welsh Government's target for 20,000 new affordable homes by 2021
- b) Based on a supportive Welsh grant regime
- c) A Development & Investment Strategy which sets out our plans
- d) Aims to deliver 1,500 homes over five years



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Delivering New Homes



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Recently Completed Projects



Regeneration for rent and sale, Denbighshire



Private Rental, Anglesey



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Recently Completed Projects



Social Rent - Flintshire



Rent to Own, Anglesey



Social Rent - Conwy



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Extra Care, Anglesey 63 units,
£10m



Extra Care, Flintshire 73 units,
£10.2m



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Extra Care, Wrexham 60 units,
£11m

Social Rent, Wrexham 50 units,
£6.5m



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