

Frequently Asked Questions about Val-U-Therm®



Val-U-Therm®
Future Proof Solutions

1. [What is Val-U-Therm?](#)

Val-U-Therm is a closed-panel building system that combines the best aspects of structural insulated panel (SIPS) and timber frame - the world's most widely used structural building system. Val-U-Therm is produced in three main configurations: wall, floor and roof panels. The panels are constructed of a precisely engineered sandwich of sheathing boards, performance membranes and factory-injected very high performance insulation (which is derived from recycled, renewable vegetable oil).

2. [What are its key benefits?](#)

It provides a high thermal performance, exceptionally air-tight building solution that allows developers to build using thinner walls and so extract maximum value from a development site. Val-U-Therm delivers a very high level of thermal efficiency from a relatively thin panel. It offers a cost-effective way to deliver a load-bearing structural envelope with thermal insulation U-values in the range 0.09 W/m²K to 0.23 W/m²K. It also has excellent environmental and sustainability credentials. It hence provides an integrated solution to the green building challenge.

3. [Does Val-U-Therm comply with Building Regulations?](#)

Val-U-Therm provides a straightforward and proven way to achieve compliance with all relevant building regulations and, if required, exceed future anticipated standards (in line with published government strategies). It therefore lets developers 'future proof' their projects against the demands of ever tightening building regulations. It can also assist to achieve higher levels of energy saving & carbon neutrality whilst minimising the use of renewables that are expensive to buy and maintain. Similarly the kerb appeal of an 'A' rated Energy Performance Certificate is more achievable.

4. [Does it have a BBA certificate?](#)

Yes, it is certificate number 12/4892. This covers key factors such as structural performance, thermal performance, behaviour in relation to fire, sound insulation and durability – the last noting a 60 year minimum service life.

5. [What u-values can I get from your wall panels and floor panels?](#)

Val-U-Therm offers a range of wall u-values from 0.09 to 0.23 W/m²K and beyond depending on the type and size of stud. The really exciting aspect is that this performance is offered with thinner panels that give best use of the plot/site area. Roof and floor panels are offered with similar ranges of u-values but as the depth of the rafters and joists is often dictated by structural requirements, even better u-values can be achieved.

6. [What approximate average Y-values are achievable?](#)

Thermal bridging performance is inherently built-in to the Val-U-Therm family of products. Third party accredited thermal bridging ψ -values are available giving γ -values of 0.03 - 0.04W/m²K.

7. [What is the lambda \(\$\lambda\$ \) value of the insulation core?](#)

From extensive testing both internally and using an independent third party, the declared thermal conductivity lambda value (λ_D -value) is 0.025 W/mK as per Standard BS EN 13165.

8. [What are the common air tightness values that you achieve?](#)

Air tightness or minimum air permeability is required to minimise uncontrolled leakage of warm air from a building and cold drafts into the home. Val-U-Therm offers double resistance to air permeability because its closed cell injected insulation offers this protection as well as the conventional vapour control layer (VCL). Buildings using Val-U-Therm typically achieve 1 to 3 m³/m²h@50Pa – this compares to current Building Standards requiring a maximum of 10 m³/m²h@50Pa. For PassivHaus projects the specification is in terms of air changes per hour and again Val-U-Therm offers an elegant solution to the requirement of a maximum of 0.6 ACH/h or better.

9. [Has Green Guide confirmed what rating the Val-U-Therm wall fabric is?](#)

Using the generic guidance under the Green Guide, Val-U-Therm achieves an A or A⁺ rating depending on the cladding used.

10. [Is the insulation zero ozone depletion potential?](#)

Yes, the insulation has zero ozone depletion potential and is CFC (chlorofluorocarbon) free, HFC (hydrofluorocarbon) free and HCFC (hydrochlorofluorocarbon) free. Its embodied energy is largely irrelevant as the Val-U-Therm insulation saves over 1,000 times more energy than was used to make it in the first place.

11. [Do Val-U-Therm structures qualify for Party Wall Robust Standard Details?](#)

Val-U-Therm is a building system for the external building envelope, i.e. ground floor, external wall and roofs. Whilst it is not appropriate for separating walls and floors, Val-U-Therm complements the use of standard timber frame solutions for these requirements including the use of solid timber, I-joists and metal web beams. When using Val-U-Therm the aspect of flanking transmission will need to be assessed.

12. [What is the product made of?](#)

It uses conventional proven timber frame technology that uses softwood timber from sustainable FSC & PEFC sources. Thus the design uses conventional centres and complies with all the generic British, European and ISO codes & standards. The frame is clad both sides with OSB3 and then injected with a proprietary polyurethane insulation that fills every void with foam in a similar manner as used in SIPS (Structural Insulated Panels) technology. On the inside face a service zone and various options to mitigate thermal bridging can be added and on the outside face a reflective or non-reflective breather membrane is applied.

13. [What is the insulation core made of?](#)

It is made of UK grown vegetable oil – the same clean, hygienic material that is the healthy option to spread on your toast in the morning. We actually use recycled vegetable oil that has previously been used in industrial cooking; it is then filtered, scrubbed & chemically reformulated into our insulation base material. We have had our material independently third party tested to ASTM standards to prove its high level of bio-based content. Also the conversion of vegetable oil into insulation uses 10% of the energy required in a conventional insulation manufacturing process.

14. [Can Val-U-Therm assist with PassivHaus?](#)

It offers a state-of-the-art fabric first approach allowing designs to achieve a specific space heat demand < 15kWh/m²yr and a heat load < 10 W/m². Val-U-Therm offers double resistance to air permeability and hence provides an elegant solution to the requirement of a maximum of 0.6 ACH/h (air changes per hour).

15. [How much will it reduce the running costs in relation to a standard building regulations property?](#)

The heating costs of a typical Val-U-Therm home will be 10 – 15 % of the cost of heating a property built to the latest Building Regulations requirements. Independent third party dynamic modelling of typical homes in both England & Scotland demonstrate that a typical family home with a Val-U-Therm building envelope costs much less than £100 per year to heat based on gas heating. These economies allow possible economic use of electricity in areas off the gas main.

16. [How is the expanding foam injected?](#)

It is injected under factory quality controlled conditions using state-of-the-art computer controlled technology that ensures the two components are brought together at the correct temperature, pressure and ratio. Val-U-Therm insists that only the most advanced high pressure technology is used for its manufacture – the mixing occurs at 120 bar (approximately 60x the pressure in your car tyres). This provides special microcellular technology giving smaller cell sizes and an improved cell structure – the insulation contains literally billions of bubbles.

17. [Design for flood resilience is a key aspect in some areas – can Val-U-Therm help?](#)

The insulation foam in Val-U-Therm is of a specially developed rigid closed cell type so it does not absorb water and moisture as is common with many other forms of insulation. Hence it is ideal for specifying as part of the counter-measures in situations requiring flood mitigation. It is well proven that timber frame homes offer quicker drying out and hence a shorter refurbishment period after major flood incidents.

18. [There has been much talk about the fire risks with timber frame; how does your product perform in relation to fire?](#)

In common with all methods of construction, Val-U-Therm meets all the fire resistance requirements of Building Regulations when constructed. Our experience is that if a Val-U-Therm panel suffers arson attack during construction the fire spreads more slowly than expected because of the oxygen starvation that occurs in a closed panel with injected insulation (every cubic millimetre is filled so there is no space for the air). Also the billions of bubbles in the insulation foam contain carbon dioxide, an inherent fire extinguisher.

19. [Can it be used for floors and roofs as well as walls?](#)

Yes, the Val-u-Therm building system offers an excellent high-performance solution for pitched and flat roofs. The panels are ideal for room-in-the-roof designs where the goal is to maximise floor space. They allow long unsupported spans and the conventional ridge to eaves configuration. Val-U-Therm floor panels are a 21st century version of the traditional suspended ground floor. They offer a highly-insulated solution that is cost-competitive with low U-value masonry systems. By integrating I-joists, up to 12 metre clear span can be accommodated for both roofs and floors.

20. [Does injecting insulation make the panel weaker or stronger?](#)

Val-U-Therm is much stronger as it takes the best aspects of timber frame and the best aspects of SIPS (Structural Insulated Panels). Unlike SIPS where the bonding of the insulation is in one plane, in Val-U-Therm the bonding is in all three planes and hence its ability to withstand a wide variety of forces. For instance, the Val-U-Therm high torsional strength allows straightforward factory fitting of patio doors and large panoramic windows.

For further details, please contact:

Val-U-Therm Limited
Inverurie Business Park
Souterford Avenue
Inverurie
Aberdeenshire AB51 0ZJ

Tel: +44 (0) 7572 860014

Email: info@valutherm.co.uk

or visit valutherm.co.uk

