



GUARANTEED ROOFING SOLUTIONS

ProTherm
Quantum[®]

The world's thinnest
inverted roof insulation

What is Quantum®?



**The world's first
BBA Certified Inverted
Roof Insulation**

ProTherm Quantum VIP Inverted Roof Insulation System provides a state of the art insulation solution for inverted roofs designed to be used as balconies, terraces, podiums and green roofs built over heated space. Thanks to its ultra-high thermal performance the Quantum system can dramatically reduce the thickness of an inverted roofing system without compromising on thermal performance, and whilst still achieving level thresholds.

The power behind the high thermal efficiency of the **ProTherm Quantum VIP Inverted Roof Insulation System** is a rigid Vacuum Insulation Panel (VIP). Consisting of a compressed fumed silica sand microporous core which is evacuated of air and moisture the core is encased in a special thin, gas-tight, hybrid aluminium foil envelope before having all air removed and the overlap joints sealed. The resulting VIP panel gives an outstanding thermal conductivity, providing the thinnest possible insulation solution currently available.

British Board of Agrément Certified (No. 16/5347) for inverted roofing applications, ProTherm Quantum has been assessed in accordance with ETAG 031 and has a Declared (aged) thermal conductivity of 0.008 W/m K, up to five times better than other commonly available inverted insulation materials

Whether designing an inverted roof to achieve the lowest possible Surface Slab Level to Finished Floor Level (SSL-FFL), or rectifying unexpected slab or floor level issues **ProTherm Quantum VIP Inverted Roof Insulation System** is rapidly becoming the system of choice for inverted roofs, terraces, podiums and balconies.



Lose height, gain value

Developed by inverted roof experts to solve regularly occurring challenges created by the drive for more thermally efficient buildings, safer access and more external space, the **ProTherm Quantum VIP Inverted Roof Insulation System** enables architects to dramatically reduce the depth of a finished roof system; providing the solution to counter low upstands against the increasing thickness of traditional EPS & XPS products specified in order to meet more stringent thermal demands.

Where is it best used?

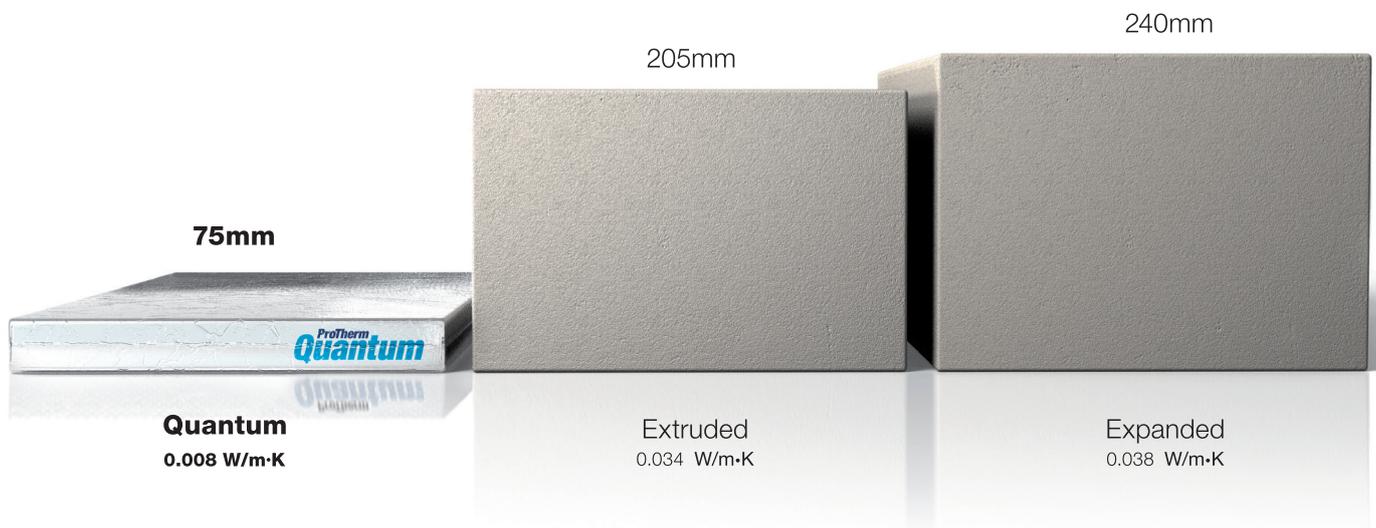
On terraces and balconies where there is a requirement for thermal performance, and any insulated area where depth is critical to the overall construction.

What can it help to deliver?

- **Part M Compliance:** Level threshold to external balcony ✓
- **Part L Compliance:** Exceptional thermal performance ✓
- **NHBC Chapter 7.1 Compliance:** Insurance and warranty requirement of 75mm threshold achieved ✓

What does it save?

ProTherm Quantum® delivers an exceptional reduction in overall depth compared to a traditional inverted system. The image below highlights the impressive thermal performance.



Typical thickness to achieve a 0.15 W/m²K u value 5mm

Scan the code or visit the Quantum® website at:

prothermquantum.com



The Anatomy of Quantum®

The ProTherm Quantum® system is made up of a rubber crumb base layer factory bonded to the VIP insulated panels. As the VIP panels cannot be cut thermoset infill boards are used to cut and fit around penetrations and curved upstands.

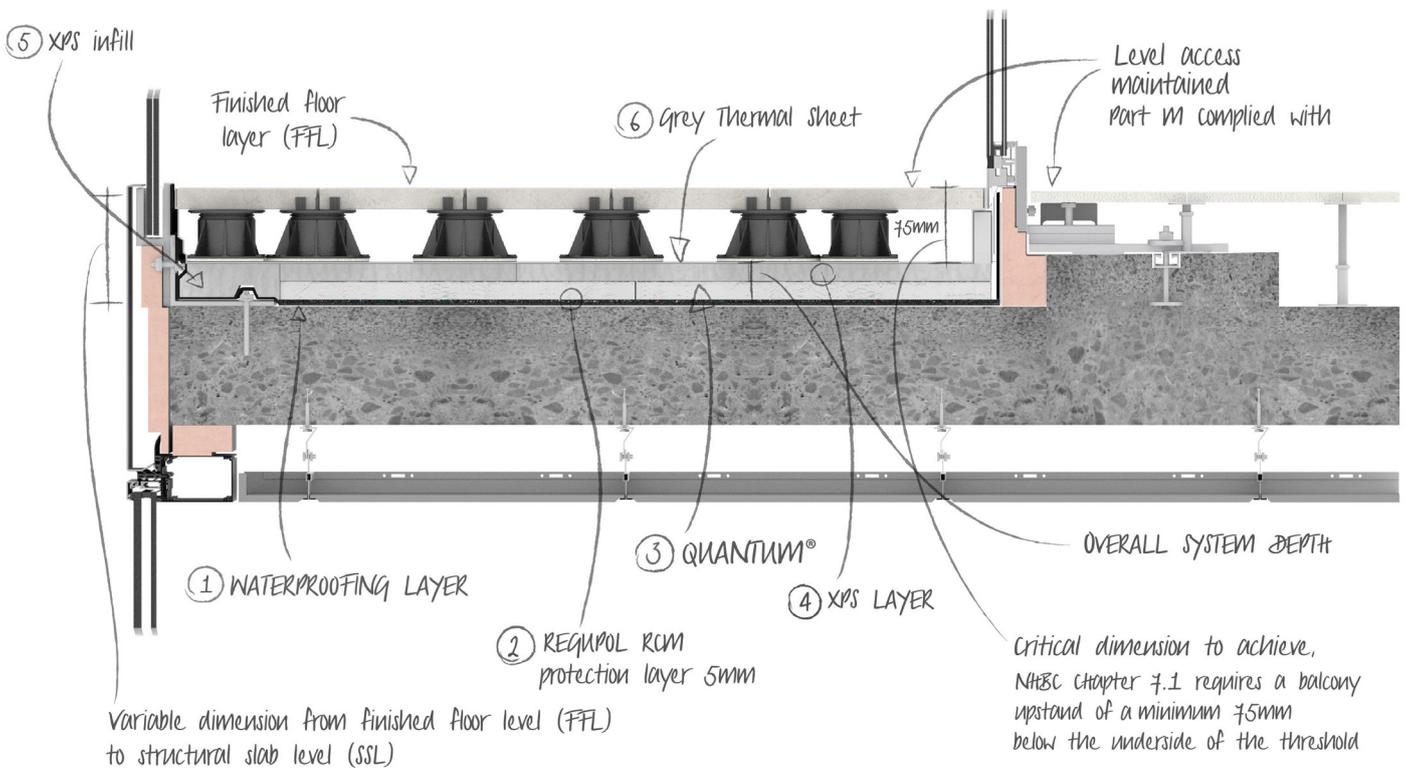
With the limitation of traditional products it can be difficult for a designer to insulate above a habitable space against the backdrop of increasing thermal requirements. This, together with the desire to maximise the glass facade and cater for a level threshold has created a near impossible task, now made easier with Quantum®.

The Quantum® Systems

A **ProTherm Quantum® Hybrid** inverted roof system is our most popular solution. Using a combination of both XPS and Quantum® we can normally supply an exceptional thermal outcome without compromising the internal upstand and deliver the ability to maintain a level floor between both internal and external spaces.

A **ProTherm Quantum® Pure** inverted roof system is the thinnest solution possible where the severe lack of space calls for using just the Quantum® panel. Even in these challenging conditions this system will offer outstanding results.

In the U-Value Calculation chart opposite (column 1), we have inserted common measurements from a structural slab to a finished floor level. As highlighted on the 2D section below, an overall system depth (column 7 of next page) can be measured once the 75mm needed to comply with industry requirements has been deducted.



Central to both systems' outstanding thermal performance is the **Quantum® Vacuum Insulated Panel (VIP)**. Manufactured in a UK based, state-of-the-art production facility, the Quantum® VIP panels achieve an aged thermal conductivity design value of 0.008 W/mK – the thinnest possible inverted insulation solution available today.

Consisting of a microporous fumed silica core, evacuated of air and moisture prior to being encased and sealed in special, gas-tight, aluminium foil, Quantum® VIP panels are manufactured in a range of sizes and thickness to enable installation as complete boards. This helps ensure optimum thermal performance is achieved across the balcony/terrace area. Where penetrations are required, or where infilling is necessary to accommodate a specific shape or size, thermoset boards can be used. These are manufactured to the same thickness as the Quantum® VIP and are easily cut to suit detailing or infill areas.

U-value Calculation Chart							
	1	2	3	4	5	6	7
	U-value W/m ² K	SSL-FFL	Waterproofing	Regupol RCM	Quantum®	XPS	System Depth
ProTherm Quantum Hybrid	0.19	190	10mm	5mm	20mm	80mm	115mm
	0.16	230	10mm	5mm	20mm	120mm	155mm
	0.15	190	10mm	5mm	40mm	60mm	115mm
	0.14	210	10mm	5mm	40mm	80mm	135mm
	0.13	190	10mm	5mm	50mm	50mm	115mm
	0.12	270	10mm	5mm	30mm	150mm	195mm
	0.12	210	10mm	5mm	50mm	70mm	135mm
	0.11	270	10mm	5mm	40mm	140mm	195mm
	0.10	230	10mm	5mm	60mm	80mm	155mm
ProTherm Quantum Pure	0.24	135	10mm	10mm	40mm	0mm	60mm
	0.22	140	10mm	10mm	45mm	0mm	65mm
	0.18	150	10mm	10mm	55mm	0mm	75mm

These U-values are based on the construction shown on the 2D section, however to obtain a specific thermal performance for your project please contact our technical department on 01858 410372 or email techenquiries@radmat.com

High performance insulation for terraces and balconies

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