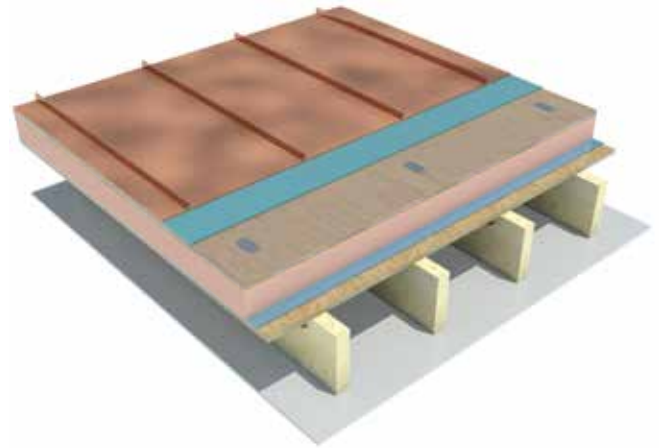
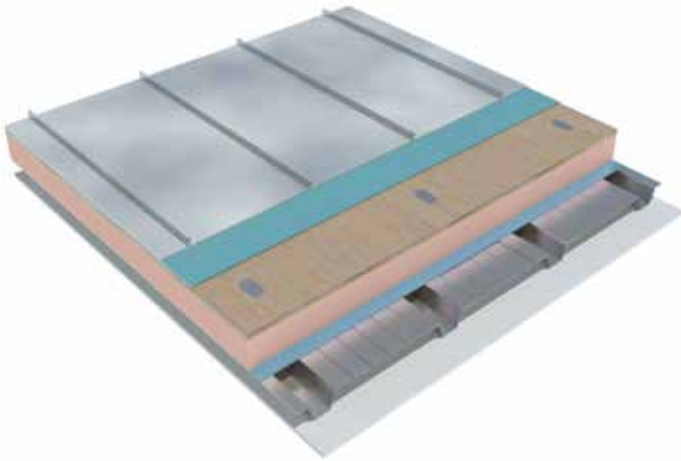


Metdeck™

Warm roof insulated decking board for long strip metal roofing
utilising the high performance of Kingspan Kooltherm technology





Metdeck™

The Metdeck™ warm roof decking board combines the superior thermal performance of Kingspan's Kooltherm Insulation board with an FSC certified WBP exterior grade plywood to provide a continuous supporting substrate for the application of long strip metal roofing, ensuring faster fixing times.

Product Description

The Upper Facing

The upper facing of Metdeck is 18mm FSC Certified WBP exterior grade plywood.

The Core

The core of Metdeck is manufactured from Kingspan's high performance CFC/HCFC-free, zero ODP resol foam technology and has a typical density of 35kg/m³ rigid resol insulation core.

The Lower Facing

The lower facing of Metdeck is a low emissivity composite foil autohesively bonded to the insulation core during manufacture which is highly resistant to the transmission of water vapour.

Durability

Metdeck is a composite roofing board consisting of high performance rigid resol foam manufactured to BS EN ISO 13166 factory bonded to an FSC Certified WBP (Weather and Boil Proof) Plywood layer. This product is specifically designed for metal waterproofing finished roof systems such as zinc/copper.

Wind Loading

Wind loadings should be assessed in accordance with BS EN 6399-2:1997.

Roof Waterproofing

Metdeck is specifically designed for use with Mechanically fixed metal roof finishes such as Zinc & copper to BS EN 5427: Part1 : 1996: Code of Practice for the use of profiled sheet for roof and wall cladding on buildings, BS EN 501: roofing products form metal sheet. Specifications for fully supported roofing products of zinc sheet and BS EN 988: zinc and zinc alloys Specification for rolled flat products for building. Refer to CP 143: Part5 1964 Zinc: Code of practice for sheet roof and wall covering zinc.



Winchester College
500m² VM Zinc plus on Metdeck158

Specification Clause

Metdeck should be specified as:

The roof insulation shall be Metdeck comprising an 18mm FSC Certified WBP exterior grade plywood upper facing bonded to a ___ mm thick CFC / HCFC-free, zero ODP rigid resol foam insulation board.

Cold Bridging

Reasonable provision must be made to limit the effects of cold bridging. The design should ensure that roof-light or ventilator kerbs etc. are always insulated to a similar standard as the general roof area. Where the roof design incorporates a parapet, 25mm thick insulation upstand of at least 150mm should be used around the perimeter of the roof on the internal facade of the parapet. The exposed face of the insulation must be lined with 18mm exterior grade plywood prior to the application of the waterproofing layer. Wall insulation should also be carried up into the parapet creating an overlap of insulation. Please contact the Technical Service Department (see rear cover) for further advice.

Metdeck Vapour Control

A continuous bituminous self sealing vapour barrier to BS EN 13970:2004 (Flexible sheets for waterproofing - Bitumen water vapour control layers - Definitions and Characteristics) must be applied on the roof deck prior to fitting Metdeck boards. The preferred system is Metdeck or Alutrix 600 barrier.

Thermal Resistance

Thermal resistance (U-value) varies with the thickness of each component. It is calculated by dividing the thickness of each component (expressed in metres) by its thermal conductivity, followed by adding the resulting figures together.

Table of U-Values:

Product Thickness* (mm)	U-Value (W/m ² K)
78	0.25
98	0.23
108	0.21
118	0.19
138	0.16
148	0.15
158	0.13

*Product thickness = insulation + 18mm FSC Certified WBP Ply. Other thicknesses available.

Note: Calculations are based on metal roofing on Breathable membrane on Metdeck composite insulation on bituminous vapour barrier on Profiled metal deck. U-Value will vary depending on final fixing arrangement to be determined by site specific wind uplift calculation

NB When calculating U-values to BS / I.S. EN ISO 6946: 2006, the type and quantity of mechanical fixing used may change the thickness of insulation.

For the purposes of these calculations the standard of workmanship has been assumed good and therefore the correction factor for air gaps has been ignored.

NB The figures quoted are for guidance only. A detailed U-value calculation together with condensation risk analysis should be completed for each individual project.

Kings Troop Barracks, Woolwich, London



600m² VM Zinc plus on Metdeck128 on concrete deck

Environmental Performance

Kingspan Kooltherm products have the following ratings:

- Global Warming Potential (GWP): 3
- Ozone Depletion Potential (ODP):> 0
- Green Guide Rating: A+

Certification & Approval

- The high performance Kooltherm core has achieved a BREEAM A+ rating.
- The WBP Plywood component is FSC (Forest Stewardship Council) certified Metdeck is manufactured to the highest standards under a management system certified to BS / I.S. EN ISO 9001: 2008 (Quality management systems) and BS / I.S. EN ISO 14001: 2004 (Environmental Management Systems)



Belmont Boys School, North London
750m² VM Zinc plus on Metdeck138 on metal deck

Cutting

A fine toothed saw should be used to cut the boards. Ensure that all boards are allowed to butt close together to ensure continuity of insulation.

Packaging

The boards are supplied in labelled packs shrink-wrapped in polythene.

Storage

The polythene packaging of Metdeck should not be considered adequate for long term outdoor protection. Ideally, boards should be stored inside a building. If, however, outside storage cannot be avoided, then the boards should be stacked clear of the ground and covered with a polythene sheet or weatherproof tarpaulin. Boards that have been allowed to get wet should not be used.

Fisher House, Lough Erne, Enniskillen



350m² of VM Zinc plus on Metdeck158 on plywood deck

Health and Safety

Metdeck is chemically inert and safe to use. A leaflet on this topic which satisfies the requirements set out in the Control of Substances Hazardous to Health Regulations 1988 (COSHH) is available from the Metal Processors.

CFC/HCFC-free

Metdeck is manufactured without the use of CFCs/HCFCs and has zero Ozone Depletion Potential (ODP).

Boyle Church, Co Roscommon, Ireland



550m² of Classic Copper on Metdeck118 on CLT

Standard Dimensions

Metdeck is available in the following standard size:

Length 2.4m x 1.2m

Length 2.4m x 0.6m *

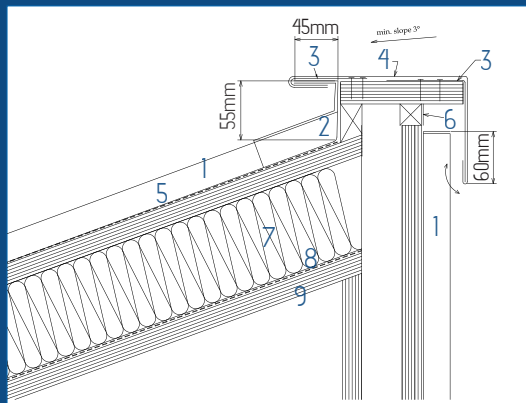
Thickness (mm) 60+18, 80+18, 90+18, 100+18, 110+18, 120+18, 130+18, 140+18, 150+18

*Available on request, minimum quantities will apply.

Contact for availability.

Compressive Strength

Typically exceeds 125kPa at 10% compression when tested to BS EN 826: 1996 (Thermal insulating products for building applications. Determination of compression behaviour).



MONO RIDGE

1. Standing Seam Metal Roofing Panels
2. Head Saddle Piece
3. Sheet strip, continuous
4. Continuous capping piece
5. Breather Membrane
6. Mesh
7. Metdeck composite panel, incorporating an 18mm WBP plywood sheet factory bonded to the Resol foam
8. Bituminous Vapour Barrier - type Aluminium face with bitumen
9. Vapour Barrier support (plywood or structural metal deck)

Water Vapour Resistance

Modified to include board facings, the boards achieve a resistance far greater than 100 MN.s/g when tested in accordance with BS EN 4370-2: 1993 (Methods of test for rigid cellular materials. Methods 7 to 9).

Resistance to Solvents, Fungi & Rodent

The insulation core is resistant to short-term contact with petrol and with most dilute acids, alkalis and mineral oils. However, it is recommended that any spills be cleaned off fully before the boards are installed. Ensure that safe methods of cleaning are used, as recommended by the suppliers of the spilt liquid. The insulation core is not resistant to some solvent-based adhesive systems, particularly those containing methyl ethyl ketone. Adhesives containing such solvents should not be used in association with this product. Damaged boards or boards that have been in contact with harsh solvents or acids should not be used. The insulation core and facings used in the manufacture of Metdeck resist attack by mould and microbial growth, and do not provide any food value to vermin.

Fisher House, Lough Erne, Enniskillen



350m² of VM Zinc plus on Metdeck158 on plywood deck

Durability

If correctly applied, Metdeck has an indefinite life. Its durability depends on the supporting structure, the waterproofing and the conditions of its use.

Sitework

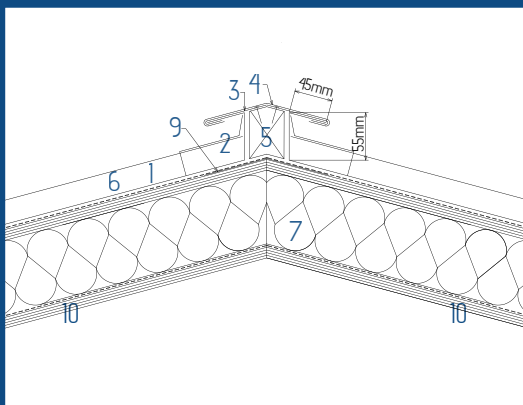
Metdeck should be mechanically fixed, plywood uppermost, onto a continuously supporting substrate such as metal deck, plywood deck or concrete deck prepared with a bituminous vapour barrier (see Water Vapour Control). Number and type of fixings to be determined by the fixing manufacturer/supplier and should be designed taking into account wind loading (see Wind Loading).

Daily working Practice

Metdeck is not designed as temporary waterproofing and should be protected as soon as possible after fixing. Due to the impermeable nature of metal waterproofing it is imperative that moisture is not trapped within the construction build-up. At the end of each days work or during extended periods of time a night joint should be formed to prevent water penetration of the construction.

Standards and Approvals

Manufactured to the highest standards under a management system certified to I.S. EN ISO 9001: 2008 (Quality management systems. Requirements), I.S. EN ISO 14001: 2004 (Environmental Management Systems. Requirements) and I.S. OHSAS 18001: 2007 (Health and Safety Management Systems. Requirements).



RIDGE / HIP

1. Standing Seam Metal Roofing Panels
2. Saddle Piece
3. Sheet clip in: th = 0.7mm, w = 18mm, 2 per 1000mm
4. Ridge piece in: th = 0.7mm
5. Rafter
6. Breather Membrane
7. Bituminous self sealing vapour barrier - type Aluminium faced bitumen
8. Metdeck composite panel, incorporating a 18mm thick WBP plywood sheet factory bonded to the Resol foams
9. Fixing plate in galvanized steel
10. Vapour barrier support (plywood or structural metal deck)



The last Century can have produced few more iconic designs than that of the £100 million “Titanic Belfast” building. Opening to coincide with the Centenary of the vessel’s maiden voyage, the stunning piece of architecture situated adjacent to the slipway from which it was launched in 1911 has been attracting visitors months before the official opening in April 2012.

A Titanic Achievement

The centre forms the focal point of the Titanic Quarter regeneration which, at 75 acres, is Europe’s biggest waterfront development. The project has a zinc roofing system fitted by FTMRC members, Edgeline Metal Roofing, which will form the first view of the project for thousands of tourists on their flights in to Belfast.

A compact warm roof, on this occasion specified by Civic Arts / Eric R. Kuhne & Associates and delivered in collaboration with Todd Architects Belfast, involved installation of the VM Zinc Plus® standing seam system in Quartz-Zinc®. Installed over Metdeck composite roofing boards. The roof build-up was metal deck, Alutrix 600 vapour control layer Metdeck158: 158mm thick Metdeck warm roof decking board, VM zinc membrane, VM Quartz plus. The resol insulation core of the boards which is factory-bonded to 18mm exterior grade plywood has a typical density of 35KG/m³ and with a thermal conductivity of 0.02 W/m²K, out performs all other types of rigid foam insulation.

The VM Zinc Plus system was mechanically fixed but required no underside ventilation through use of a specially developed coating and high performance system installation incorporating a metal lined vapour barrier .

The self-protecting, pre-weathered outer surface will also continue to patinate naturally retaining an 'as installed' appearance without maintenance for years to come, even in such a coastal environment. Angus Waddington, Associate at TODD added, “We realised early on that if the Titanic building leaked, the press would have lots of fun. A VM Zinc standing seam roof was adopted as a safe choice: low maintenance, time proven and able to achieve the stringent design life criteria included in the brief.”

“The build-up we used was an example of ‘value engineering’ working - using the expertise of the main contractor Harcourt Construction and the specialist metal roofers Edgeline Metal Roofing. A number of proposals were reviewed in a series of meetings and reports before the Metdeck and Alutrix 600 combination was adopted. We had to achieve the insulation levels needed to meet our BREEAM excellent rating, but our main concern on such a large unventilated construction, was to minimise the number of punctures through the air tightness and vapour barrier. The Metdeck reduces fixing penetrations while the Alutrix 600 vapour barrier offers a degree of ‘self-sealing’. For similar reasons, we ‘designed out’ any services penetrations through the roof and adopted a clamped latchway system.

Metdeck+ VM ZINC

The roof of the Titanic Quarter provided a particular challenge both in terms of scale and complexity. The complex, geometric shape along with the 3-stage stepped profile of each roof required innovative solutions to realise the project design. Metdeck was used to simplify the metal roofing application as it provided a continuous fixing substrate - the simplicity of installation greatly reduced labour on site ensuring that the building was watertight within a minimum time frame. The continuous substrate meant that the precise alignment of each run of VM Zinc Plus was not critical, unlike alternative substrates, and this eliminated the need for re-alignment and associated labour time on site.

The design's average U-Value of 0.16 W/m²K, some 18% lower than that required by Technical Booklet Part F2, with some roof sections achieving an U-Value of 0.09 W/m²K. At this high performance level, the additional adverse effect of mechanical fixings plays a much bigger part in terms of total heat loss.

The Metdeck solution ensured that fixing penetrations through the high performance insulation core were significantly minimised. Those specifically for the zinc did not penetrate the insulation layer so the designed U-Value was fully realised across the entire roof. Had it been necessary for fixings to penetrate the insulation layer, the U-Value would have been increased by between 5 and 10% (depending on the number of fixings). This would also have introduced a direct thermal bridge, particularly to sections of the roof with an underlying metal deck – potentially leading to localised temperature fall and associated condensation and mould growth.

Of course the elimination of these additional fixings also meant that the underlying vapour barrier was not extensively punctured resulting in minimal risk of interstitial condensation within the build-up. The Metdeck system incorporates a high performance bituminous vapour barrier which “self-seals” around fixing penetrations, ensuring minimal adverse effect for the small number of penetrations needed to secure the boards to the deck.”

“We realised early on that if the Titanic building leaked, the press would have lots of fun.”

At such a size, the Titanic Belfast was always destined to attract a high profile and make a lasting, local impact. The disaster that claimed more than 1,500 lives led, for decades, to a reluctance to use the ship in a way that might have a positive impact on the Northern Irish economy. At long last, the project and the ship's construction are rightly being seen as aspects of local pride.





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