



MINERAL WOOL INSTALLATION GUIDANCE: ENSURE A PERFECT FIT

The Metal Cladding and Roofing Manufacturers Association (MCRMA) has produced a new guidance document, *GD28 Mineral wool insulation installation: best practice guide* which offers guidance in the storage, handling and installation of mineral wool insulation in built-up metal roof and wall cladding systems.

Glass or rock mineral wool quilt insulation is the preferred option due to its lightweight, low thermal conductivity, ease of handling and as a cost effective and sustainable solution. Mineral wool insulation has inherent acoustic absorption properties which mean excellent sound reduction can be achieved with correctly designed constructions.

The design lambda value (λ) represents the thermal conductivity of a material as installed in a building. This value needs to be selected by the designer, taking into account the specific internal and external design conditions (temperature, humidity) which can influence the performance of the material once installed. Depending on different installation conditions, one material can have several design lambda values, even within the same building.

The accurate calculation of U-values is a fundamental requirement to meet Building Regulations and must be carried out at the design stage. In metal roofing and cladding, U-values are calculated to BS EN 10211-1 and take into account bridging effects caused by spacer systems.

It is recommended good practice that insulation products should not be installed whilst wet or into constructions which have become wet. The insulation products recommended for metal built-up systems will be supplied compression-wrapped in polythene on pallets, protected by waterproof shrouding which allows the product to be stored outside for a limited period of time.

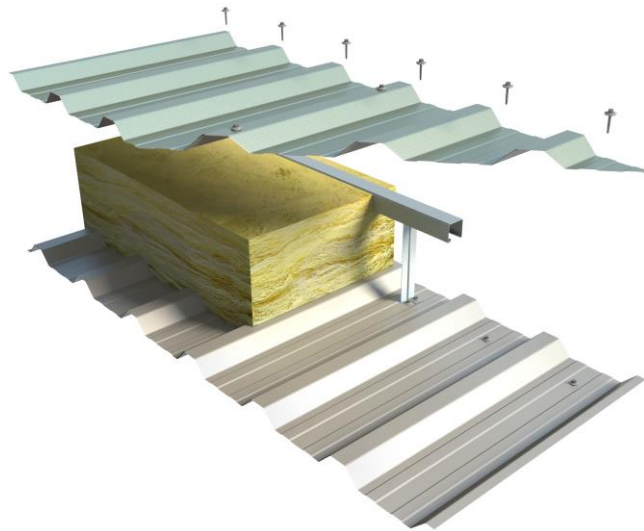


Fig 1: Typical trapezoidal twin skin roof system

In order to recover to the manufactured thickness, air will need to be re-introduced into the wool; the EN standard for mineral wool (EN 13162) references EN 823 for determination of thickness and recognises that mineral wool behaves this way.

For roof installation, the rolls of insulation should be distributed at each run starting at the ridge. Quilt insulation is normally provided at 1200mm widths as standard. Mineral wool insulation is located between the profiled metal outer cladding sheets and inner lining sheets. The lining sheets are fixed on top of the supporting purlins. The inner and outer metal cladding sheets are separated by rail and bracket systems or preformed spacer systems.

To maintain continuity of the insulation where rail and bracket systems are used, the insulation is tucked under the rails, with all quilt edges tightly butted. There is no continuous airspace in the construction other than that created by the cladding profiles. Gaps in the insulation must be minimised.

To ensure recovery to the specified thickness refer to the declared thickness and recovery rate (final thickness) as shown in BS EN 13162:2012+A1:2015 and CE mark.

Care and consideration should be taken when laying insulation around roof lights. Ensure that a clean edge runs the length of the rooflight to maintain a continuous run of insulation. The rail and bracket system is used to create the space for the insulation and is then secured by the recommended fixings to the purlin.

Closely butt all joints to ensure continuity of insulation and reduce the risk of gaps. Where a double layer insulation system is required, stagger joints where possible to minimise thermal bridging gaps.

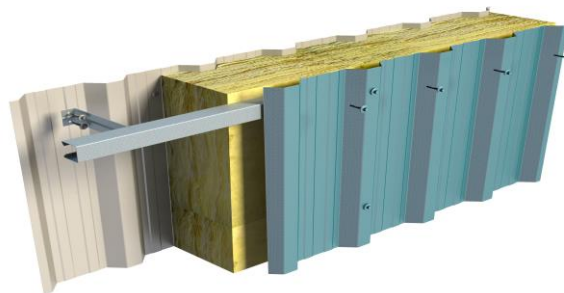


Fig 2: Typical trapezoidal twin skin wall system

Where fixings are already in place, the quilt insulation can be compressed and formed around the bracket and under the rails.

Insulation should be installed from boards or access platforms. Insulation should not be walked on or compressed as this will damage the fibres, and will result in a loss of thickness and thermal performance. If damage should occur then replacement material must be installed.

For wall installation, products should be clamped across the full width at the head of the wall construction to avoid slump. The support rail and bracket system is used to clamp the insulation and is then secured by recommended fixings to the cladding rail - this helps to minimise the thermal bridging effect through the fixings. Allow the roll to drop down and secure the support rail at regular intervals.

To maintain continuity of the insulation the insulation is tucked under the rails, and all quilt edges must be tightly butted.

Where brackets are already in place, the quilt insulation can be compressed and formed around the bracket and under the rails. Tightly butt all joints to ensure continued continuity of insulation and reduce the formation of gaps. Each end of any joints should be pinned to prevent sagging.

Adoption of the guidelines outlined in this document will lead to improvements in building envelope performance, efficiency and health and safety.

MCRMA member companies can advise on the suitability and performance of materials, systems and assemblies to ensure that insulation requirements are calculated properly and specified accordingly. In addition, design information can be obtained from any of the independent roofing and cladding inspectors featured on the MCRMA web site at www.mcrma.co.uk

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