UltraTherm MSR
Metal Skin Roof Systems
RoofLogic is committed to providing specifiers, installers and building owners with roofing systems that set a new standard for commercial roofing in New Zealand.

RoofLogic believes its customers should have access to the worlds best roofing products and technology. But more than that, RoofLogic believes its customers should be offered A SYSTEM.

A SYSTEM where every component has been engineered and tested to ensure they work together to provide optimal durability and long term performance.

“It’s about utilising the worlds best available roofing components to engineer New Zealand’s very best roofing systems”
RL UltraTherm MSR

System Components

Base Deck - a Solid Foundation
RL Base Deck is the only structural steel deck tested in New Zealand for wind uplift, point load and fastener pull-out resistance.

RL Rigid PIR Board- Thermal Performance
RL PIR insulation provides the highest levels of insulation relative to thickness. Thermal breaks are eliminated and thermal performance is guaranteed over the life of the roof assembly.

RL Securock - Accoustic Enhancement
Securock Roof Board can be incorporated into the assembly to enhance the acoustic performance of the system.

Top Deck - Proven Performance
Designed and manufactured in New Zealand the Top Deck is available in a wide range of colours and guaranteed to perform.
UltraTherm MSR - System Benefits

Thermal Performance

The use of a high density rigid PIR Board ensures superior thermal performance for the life time of the roof assembly, providing the highest level of insulation per mm of thickness.

Roof insulation in New Zealand has traditionally consisted of fibreglass blankets installed between purlins or over purlins and then compressed. These methods result in thermal bridging which dramatically reduces the performance of the insulation. RoofLogic PIR eliminates thermal bridging by providing a continuous layer of insulation over the entire roof structure.

Thermal performance of insulation is measured as R-value. R-value is defined as resistance to heat flow. The R-value of PIR is based on an assessment of LTTR, or Long Term Thermal Resistance. An LTTR R-value is derived from a 15 year weighted average of thermal performance, a guarantee that RoofLogic PIR insulation will continue to perform to specification for the life of the roof system.

Improved Weathertightness

UltraTherm MSR provides superior weathertightness compared to other insulated panel systems. The MSR Top Deck is installed as a single length top skin from ridge to gutter, eliminating panel joints that are an inherent weakness with alternative insulated roof panel systems.

Because the UltraTherm MSR system incorporates a separable top skin all flashing and penetration details can be installed in accordance with the NZ Metal Roofing Code of Practice. This ensures a more robust and weathertight roof.

Unlike composite panel roofs UltraTherm MSR roofs can be installed in compliance with the Building Code and Metal Roofing Code of Practice to guarantee a more robust weathertight roof.
Improved Buildability

The UltraTherm MSR system is simple and efficient to install even on the most challenging projects:-

- The Base Deck can be installed very quickly and once installed provides a dry working environment below and a safe working platform above. To further improve efficiency the Base Deck can also be installed at whatever length suits the site conditions and purlin set-out.
- Once the Base Deck is installed all roofing work is carried out above deck level ensuring a safer, more efficient and less congested site.
- UltraTherm MSR components are manufactured in New Zealand allowing for minimal lead times and the ability to site measure prior to ordering.

Design Flexibility

The UltraTherm MSR System can easily be adapted to specific project design requirements:-

- The gauge of the Base Deck and Top Deck can be varied depending on the purlin spacing and wind zone.
- Insulation thickness can be varied depending on the required thermal performance.
- Acoustic layers can be incorporated above the level of the Base Deck.
- The standard trapezoidal profile of the Top Deck can be substituted for alternative architectural metal skin options.
- Multiple colour options are available for both to Top Deck and the Base Deck where this will be visible internally. A coloured Base Deck can provide an attractive low cost interior finish.
UltraTherm MSR vs Composite Insulated Panel

The same continuous PIR insulation layer used to create a composite roof panel is incorporated within the MSR roof system. This ensures optimal thermal performance.

However there is so much more to a quality roof than thermal performance alone and in many other critical respects composite panels can prove problematic:

- Weathertightness issues have plagued composite roof panel systems. Composite roof panels are installed in relatively short lengths resulting in end-lap joints that are susceptible to leaking. Achieving a long-term, robust flashing solution with composite roof panels is also complex and often relies on a range of secondary coatings and sealants in an attempt to avoid roof leaks.
- Due to the requirement to manufacture and import composite panel systems the lead time for product is significant. For this reason composite panel measurements are usually taken off plans rather than relying on site measurements. This creates added construction risk.
- The Ultratherm MSR system assists the construction programme by providing rapid close-in with the installation of the Base Deck. In comparison close-in is not achieved with composite panel roofs until the last composite panel is craned in to position on the roof.

Flashing details and end lap joints are a fundamental weakness with composite roof panel systems.
UltraTherm MSR vs Long-run Metal Roofing Solutions

Traditional long run metal roofing provides many benefits. Long run metal products are locally manufactured, efficient to install and cost effective.

However one of the challenges with traditional metal roofing is designing a solution that is thermally efficient. The detail below shows what is known as a built-up metal roof system. This system is an attempt to provide a more thermally efficient solution using long run metal roofing. But these types of built-up roofing systems have a number of limitations:

- This system is complex and time consuming requiring multiple layers of paper and netting along with the installation of "top hats" along the purlin lines.
- This built up system relies on a fibreglass blanket for insulation. As this product ages it loses loft and therefore thermal efficiency. These products do not provide long term thermal resistance (LTTR.)
- This system requires insulation to be installed between purlins. This results in what is known as thermal breaks. Where the insulation is not continuous, but is broken, the thermal efficiency of the system is dramatically reduced. The MSR system incorporates rigid PIR board which is installed continuously across all structural members and maintains its thermal efficiency over the life of the system.

TRADITIONAL BUILT-UP METAL ROOF ASSEMBLY

This system is time consuming and still results in thermal breaks.

Fibreglass insulation blankets can absorb moisture and cause the metal roof to deteriorate, particularly where they are compressed along purlin lines.

A continuous layer of rigid PIR insulation also enhances the point load resistance of the Top Deck reducing the risk of damage due to foot traffic.
When installing a roof assembly it is important that the design of the roof takes account of the forces to which the roof will be exposed.

Forces exerted on a roof are referred to as imposed loads. These loads are generally classified as Uniformly Distributed Loads (UDL) and Concentrated Live Loads (often referred to as a Point Load.)

**Uniformly Distributed Load (UDL)**

The most common UDL on a roof is WIND.

A roof must be designed and installed to accommodate the negative pressure (referred to as wind uplift) that is imposed on a roof. In the case of a built up roof the entire assembly must be designed to resist the anticipated wind uplift pressure.

**Point Load**

Point Loading generally occurs when a roof is subject to foot traffic. If personnel are permitted to have access to a roof then the roof system must be designed to limit deflection caused by point loading.

Point load also occurs during roof construction. For purlin spacings up to 3.00m RL Base Deck S (standard) is used and for purlin spacings greater than 3.00m and up to 4.50m RL Base Deck HD (Heavy Duty) must be used.

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A - Top Deck HD.
B – Top Deck S.

- Graph shows intermediate span in metres.
- End span to be maximum of 2/3 of intermediate span.
- Fixing required to every profile crest.
Vapour Control within the roof system

The air inside an occupied building is a mixture of dry air and water vapour. The water vapour can be thought of as steam at very low pressure that behaves like a gas. Its pressure forces it to move to areas of lower vapour pressure which means the water vapour will want to move to the underside of the roof and then through the roof assembly.

The quantity of water vapour in the air depends on the amount of moisture that is released within a building and the overall resistance of the building envelope to vapour transmission. This will depend on building design (how well it is sealed, the use of mechanical air exchange systems) and building use (density of occupation and humidity of the internal environment.)

As water vapour moves through the roof assembly it will change to water (condensation) when it reaches its dew point (the point at which it reaches a relative humidity of 100%). Condensation will eventually saturate the insulation and reduce its thermal efficiency.

A vapour control layer is placed on the warm side of the insulation (i.e. between the Base Deck and the underside of the insulation) to stop water vapour from reaching the dew point. This will minimise the potential for surface and internal condensation to form and maintain system performance over time.

RoofLogic specifies a range of different vapour retarders within its roof assembly to optimise the performance of the system depending on the specific requirements of the project.
Whenever you are selecting a high performance roof system the first question you need to ask is about the performance of the system and the quality of the system components. You should always, first and foremost, select a roofing system based on technical merit.

Be wary of companies that want to promote a warranty rather than promote the quality of the roofing system they supply. The reality is that most warrantees detail “exclusions” intended to limit the liability of the roofing system supplier – exclusions related to substrate quality, environmental exposure, impact damage and installation.

There’s never been a warranty written that has stopped a roof leaking and what every building owner really wants is a quality roofing system, not a piece of paper with an 0800 number and a PO Box address.

From specification to final system sign off, RoofLogic provides the technical support required to ensure project success.

Our technical support services include

- Project specific system specifications
- Project specific architectural details
- Project specific wind uplift and point load design
- Pre-installation project meeting
- Quality Assurance programme covering each stage of warranted system installation
- Final inspection prior to warranty issue
- Project specific maintenance schedule
What does a RoofLogic UltraTherm MSR warranty cover?

UltraTherm systems provide an exceptional commercial roofing solution. But they can only be exceptional if each individual system component performs to specification.

That is why RoofLogic provides a warranty for the complete roof assembly, because every component must perform if the roof system is going to perform.

Take the UltraTherm MSR over RL Base Deck. Our warranty doesn’t just cover the trapezoidal top skin, it covers the complete assembly from the purlin up. In this case our standard 15 year system warranties will incorporate:

- Structural Steel Deck performance.
- Structural steel deck to purlin connections.
- RL PIR insulation and vapour retarder performance.
- Trapezoidal top skin durability and weather-tightness.

RoofLogic leaves nothing to chance with the most detailed specifications in the industry. Based on system testing data our specifications nominate every system component and the associated installation processes. From the fastener pattern of the RL Base Deck to the detailing of a roof penetration, every component and every process is covered.

RoofLogic works in partnership with its approved applicators who are pre-qualified based on their training and competency. Installing an UltraTherm MSR system in compliance with specification requires absolute attention to detail. For this reason the professionalism and training of UltraTherm installers is critical in ensuring long term system performance.

From pre-installation to signing off the completed roof system a detailed Quality Assurance programme must be complied with. QA documentation that is completed by both the approved installer and RoofLogic forms the basis of issuing the RoofLogic System Warranty.

When you specify UltraTherm do so confident in the knowledge that your roof is SYSTEM TESTED AND SYSTEM WARRANTED in New Zealand.