

A higher standard in energy efficient roofing

Many countries around the world have not had to concern themselves with energy efficient building envelope solutions, as their costs to cool or heat buildings have been traditionally low. However, the hunger for energy is constantly increasing and spreading globally, and with regular load shedding becoming a very real contingency to deal with in South Africa, the strain on the generation of power is evident.



It is estimated that nearly 60% of the world's electricity is consumed by residential and commercial buildings, and the building sector is the single largest contributor to greenhouse gas emissions. Yet the cleanest form of power generation is the energy you don't need to generate – through the correct design of solutions to suit industry.

WHAT IS AN ENERGY EFFICIENT BUILDING ENVELOPE?

Metal roof and wall systems are considered energy efficient when they directly contribute to a reduction in the carbon emissions and also the operational energy costs of heating and cooling the building itself. When people think of energy efficient or 'green' roofs, they consider options such as solar panels, wind turbines and green or sedum roofing systems. But there are easier, cheaper and more effective solutions to providing energy efficient roofs.

ROOFING AND THE SANS 10400XA LEGISLATION

Since the legislation came into effect, all new buildings must have insulation installed and a stipulated R-value needs to be achieved. When the requirements of SANS 10400XA are correctly applied, energy efficiency must be reached in one of the following ways:

- Shading or insulating the building
- Heat flow control through the building
- Air leakage needs to be controlled through building fabric
- Air movement for cooling needs to be created for cooling
- Cooling and heating of water systems need to be improved





Internal view of the sealed white Walkable Liner Sheet.



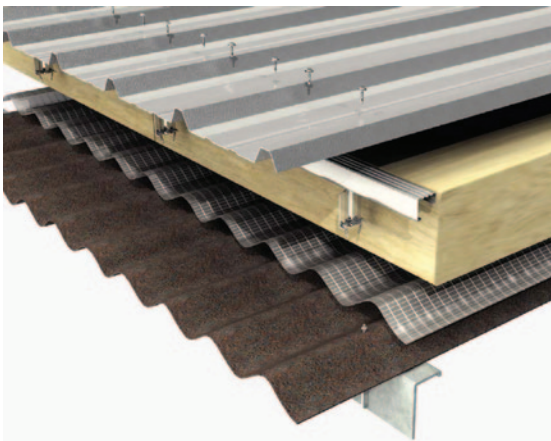
Specialist waterproofing coating that reduces the temperature within the building.

OPTIONS FOR ENERGY SMART BUILDING ENVELOPE SOLUTIONS

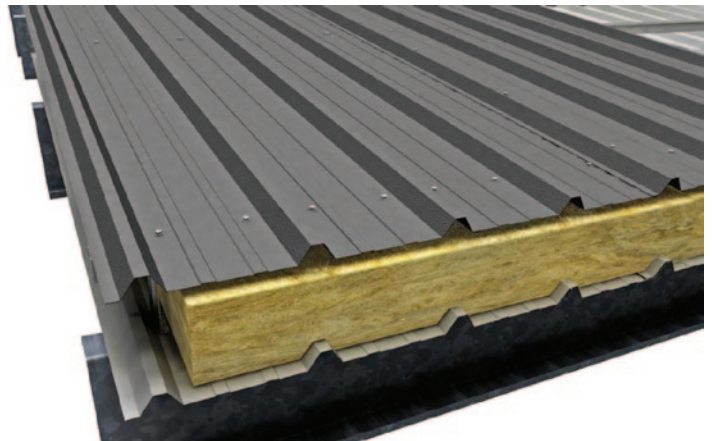
High-quality, simple-to-install solutions, complete with good detailing and workmanship are essential to achieve compliance—not just for the day of installation, but the long-term operational use of the building.

- Implementing energy efficient metal roofing and cladding system designs (with roofs with U-Values of $0.25 \text{ W/m}^2\text{K}$ and walls of $0.35 \text{ W/m}^2\text{K}$) as well as sealing the roof to the walls (thereby reducing the air permeability within the building) will achieve a significant reduction in cooling/heating operational costs.
- Thermally efficient support systems for the building envelope can effectively reduce the transfer of heat or cold bridging, for example “Helping Hand Brackets” for cladding and rainscreen systems, and “Ashgrid Bar & Bracket” for roofing systems.
- Specialist waterproofing coatings such as ceramic or silicone systems reflect the sun’s rays by up to 90%, thereby reducing the temperature in the building and the requirements for cooling.





Illustrational rendering showing a metal built up roofing system over an existing asbestos roof.



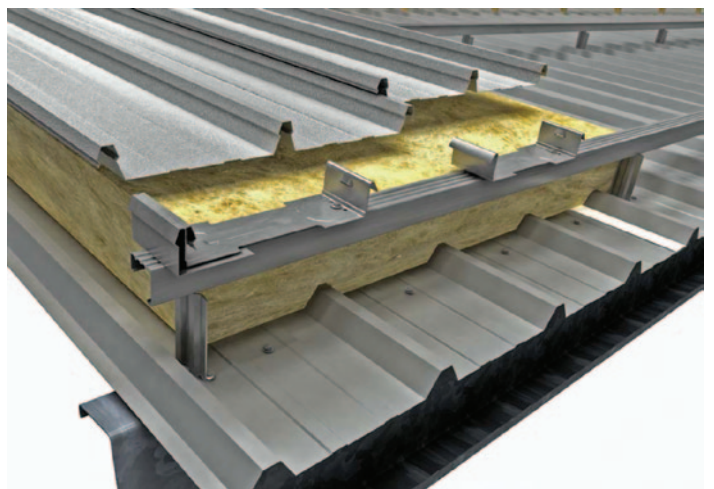
Illustrational rendering showing the built-up double skin metal roofing system using a pierced fix profiled roof sheeting.

SAFE, ENERGY EFFICIENT DESIGN OF METAL ROOFING SYSTEMS

In contrast to the installation of a single-skin roof application, which may be coupled with thin laid insulation and cables using boards and walk purlins or rafters, safe-to-install, thermally efficient metal roofing design solutions demand the use of steel walkable liner sheets over the purlins for new builds, or the existing roof sheet for refurbishments.

MRC Group is heralding the use of high-quality, simple-to-install, easy-to-design and safe thermally efficient building envelope solutions that provide energy savings for the operational life of the building, thereby setting higher standards in system design and installation and reducing the strain on the generation of energy.

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Illustrational rendering showing the built-up double skin metal roofing system using a secret fix-clipped roof sheet.

