

THE CASE FOR METAL ROOFS



*Amex Community Stadium, Brighton & Hove Albion Football Club
Image courtesy of C A Building Products Limited*

Modern metal roofing systems offer a lightweight, easy to install and cost-effective method of construction that consistently delivers a weathertight and airtight solution. This article by the Metal Cladding and Roofing Manufacturers Association (MCRMA) outlines some of the benefits of installing metal roofing systems.

Steel and aluminium roofing systems contribute significantly to the sustainable design concept thanks to their high recycled content, energy efficiency, low maintenance, durability and recyclability which have all helped to establish steel and aluminium as the materials of choice for both new and refurbishment roof projects.

Metal has other attributes namely its striking beauty, clean appearance and versatility offering a choice of steel or aluminium substrate which can be linked with a range of colours, shapes, finishes and profiles. These attributes provide unrivalled aesthetics which allows the designer and building owner the opportunity to fine tune the appearance and style of the building.

Steel and aluminium offer a better life cycle return on investment than other materials. Today's products are protected by highly durable paints and coatings that can ensure a service life in excess of 40 years. Metal construction is efficient and competitive; buildings can be rapidly constructed using metal-based primary and secondary components that are manufactured off-site and therefore are dimensionally accurate and of known quality. Speed of construction also means that buildings are completed earlier, enabling building owners to achieve a faster rate of return on their investment.



*Marks & Spencer, Cheshire Oaks
Image courtesy of Euroclad Limited*

Roofing systems provide the scope, in association with other materials, to design buildings with low overall environmental impacts and have much to offer in the areas of green technology and sustainability. MCRMA members are at the forefront of developing and incorporating innovative solutions, for example green roofing systems that can improve the thermal performance of a building by providing protection against heat loss in the winter and heat gain in the summer.

Sheet systems coated with highly reflective surfaces and designed with insulation and ventilation can provide considerable cost savings for heating and cooling. Innovative cool roof coatings for roofs are now available which have moderate to highly reflective surfaces over a range of colours and some engineered coatings can increase the emissivity of the roof surface to allow solar energy and heat to dissipate quickly.

Metal roofing has been used successfully for many years on industrial and commercial buildings but the demands put on it by modern architecture and sustainability requirements have set new challenges. Thermal performance and airtightness of buildings have become increasingly important as the regulatory authorities focus on reducing energy consumption and associated greenhouse emissions. The widely adopted systems approach also ensures that performance criteria is known factor at the design stage and is reflected in the finished and installed construction.

Correctly specified metal cladding and roofing systems competently installed will provide high levels of thermal performance and achieve consistently good air tightness which outperforms regulatory standards.

When designing a roof to resist local environmental conditions, it is essential to take account of the prevailing exposure conditions so that the appropriate methods of construction can be implemented. Weather tightness is a must have for any building and small changes in design such as the pitch of the roof, the length and method of sealing of the end laps and side laps all help with finished performance.

In addition the number of secondary fixings can be increased; wider troughs can be used to assist in shedding water, and end laps eliminated or reduced by using longer lengths of sheeting. Further guidance is available in MCRMA guidance document, *The effective sealing of end lap details in metal roofing constructions*.

Metal roof cladding is designed and manufactured to give many years of reliable service, and will do so provided that a managed inspection and maintenance programme is followed. Roof sheeting, together with other component parts should be inspected for local damage and repaired in accordance with the agreed and documented maintenance schedule. It is important to note that any maintenance programme must minimise the need to gain access to the roof covering and should only be conducted by fully trained operatives using appropriate safety equipment.



*West Ham Bus Depot featuring a Kalzip Nature Roof
Image courtesy of Kalzip Limited*

MCRMA member companies are best placed to offer advice about their particular products and any variation from their published data during the design or construction process may result in the component or system failing prematurely.

Any uncertainty about the use or application of a product or system should be referred back to the manufacturer for detailed written advice. Additional project specific advice for demanding or complex constructions may also be obtained from one of the independent inspectors featured on the MCRMA web site at www.mcrma.co.uk.

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