

## METAL HAS MUCH TO OFFER IN THE AREA OF SUSTAINABILITY

Metal building envelope systems can significantly contribute to achieving a sustainable building envelope solution to meet both current and future needs and requirements, thanks to their low maintenance, durability, high recycled content, recyclability and energy efficiency.



*Architectural Profiles' Slimwall CPS aluminium rainscreen system was specified for the redevelopment of Trowbridge County Hall to provide a retrofit building envelope which could achieve a 40 per cent reduction in carbon emissions. The building has achieved a BREEAM 'Excellent' rating. Image courtesy of Architectural Profiles*

Over the past 40 to 50 years there has become an ever-increasing awareness of environmental issues and the need for sustainable development. At an international level, commitments to climate change, reduction of greenhouse gases and keeping the global temperature rise this century below 2°C above pre-industrial levels have been agreed. The UK government has made a commitment to reduce greenhouse gas emissions by at least 100% of 1990 levels (net zero) by 2050.

As the construction industry has an important role to play in delivering sustainable development this has led to changes in Building Regulations in relation to conservation of fuel and power with the main emphasis being on the progressive reduction of carbon dioxide (CO<sub>2</sub>) emissions from buildings.

There is the need for having buildings built for durability with long design lives and utilising materials, products and systems to construct them that can match the desired design life. To ensure value for money over the life of a building Whole Life Costing (WLC) or Life Cycle Costing (LLC) can be used to consider all relevant costs for example, construction costs, operation and occupancy costs, maintenance costs, renewal costs, and end of life costs as well as any environmental costs.

Often there will be a desire that the sustainability and environmentally friendliness of a building goes beyond the basic requirements of Building Regulations. The use of an environmental assessment methodology or rating system (e.g. BREEAM, LEED etc.) can assist in the design and construction of sustainable buildings which are more energy efficient, climatic responsive, material and resource efficient, have healthier indoor environments for occupants and limit waste emissions and pollution.

Members of the Metal Cladding and Roofing Manufacturers Association (MCRMA) can provide third party assessed Life Cycle Assessments (LCAs) and EN 15804 compliant Environmental Product Declarations (EPDs) for their products and systems to assist designers and specifiers to obtain points and credits data to be within environmental rating and certification schemes such as BREEAM and LEED.

Steel and aluminium are the most common materials used in metal building envelopes and offer significant advantages when considering the entire system life cycle. They are produced from materials that have high recycled content from both pre-consumer and post-consumer scrap and can both be reused or recycled repeatedly without losing their qualities as a building material.



*Ash & Lacy perforated aluminium panels and support system were used on Metropolitan Works, the Creative Industries Centre of London Metropolitan University. The centre achieves a BREEAM rating of 'very good'. Sustainability features include green sedum roofs, rainwater harvesting and solar power contributing to hot water provision. Image courtesy of Ash & Lacy*

The design life of a building can only be fully realised if external building envelope materials along with their component products have the durability that can achieve that desired design life. Metal roofing and cladding systems and their associated compatible components are used to form systems for given applications to meet specific project specifications and requirements and can significantly contribute to achieving a sustainable building envelope solution to meet both current and future needs and requirements.

MCRMA members can offer total sustainable building solutions thanks to a range of complementary components which include flexible solar PV fastening systems; sustainable high-performance insulation products, for example the use of recycled glass in glass wool insulation and stone mineral wool sourced from naturally replenishing rock; and daylight options to maximise the transmission of natural light into buildings.

BS EN 1990 (Eurocode 0) and the UK National Annex give indicative design working lives for design purposes for various building types and structures in the UK with Category 4 – Building structures and other common structures equating to a standard 50 years with Category 3 – Agricultural and similar buildings equating to 15 to 25 years and a suggested 120 years for Category 5 - Monumental building structures, bridges and other civil engineering structures.

The indicative design life of any building can only be fully realised if materials, products and systems for the external building envelope are specified which have the durability in the given use, location and surrounding environment that can achieve the desired life and that all necessary cleaning, maintenance, repairs etc. is undertaken.

MCRMA members can also support, contribute to and enhance a building project's sustainability objectives and requirements through all stages of the procurement process, through assistance with developing energy efficient building envelope solutions utilising metal roofing and cladding systems which can offer low maintenance, durability, high recycled content and recyclability.

Detailed information is available from individual member companies and impartial advice can be obtained from any of the independent roofing and cladding inspectors group featured on the MCRMA web site.

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*This article first appeared in RCi Magazine November 2020*

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