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OVERCLADDING SPECIALISTS

aluminium rainscreen overcladding system

RAINSCREEN OVERCLADDING SYSTEM

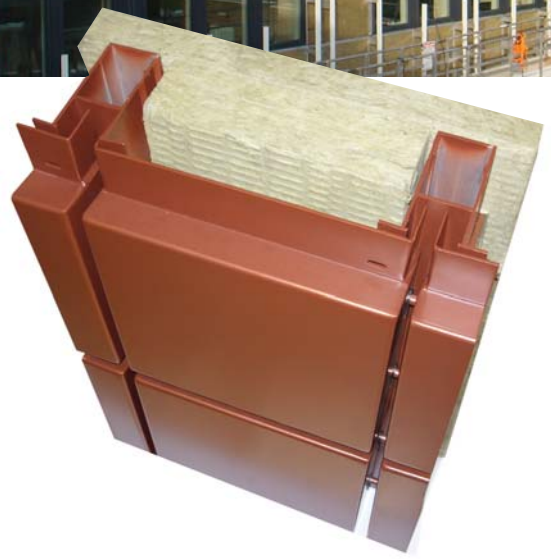
General Description

A pressure-equalised, back-ventilated, insulated aluminium rainscreen cassette system secretly fixed to an aluminium framework which is secured to the existing structure by stainless steel connections. The rainscreen is integrated with high-performance windows by aluminium window pods and readily interfaces with other systems including curtain walling using proprietary extrusion profiles. This system has been proven for more than 25 years and comprises only inert aluminium and stainless steel, therefore its anticipated service life is well in excess of 60 years.

Appearance

Cassette panels offer architects extensive design flexibility as they are readily fabricated in a wide variety of shapes and sizes, both flat and curved, to meet the required aesthetics. Fabricated panels are then polyester powder coated in any colour from the full RAL range as well as an extensive selection of special and metallic finishes, all of which are backed by a 25 year guarantee. Other finishes such as anodising are also readily available.

The material for panels, window pods and support structure is predominantly recycled aluminium which is fully recyclable at the end of its useful life. Cassette panels are manufactured from 3mm aluminium coil which is fully welded and dressed to form a diaphragm thus ensuring panels remain flat in service, providing outstanding strength and longevity unlike composite cladding materials that rely upon bonded components for their flatness, strength and longevity.



Vertical and horizontal joints of the secretly-fixed cassette system are baffled and designed to manage water run-off, channelling water and atmospheric residue away from surfaces. This prevents pattern staining, minimises the need for periodic cleaning and enables the rainscreen to retain its as-new appearance throughout its service life. There are no sealants or gaskets to rely upon for weatherproofing. The matrix of ventilated joints in the pressure-equalised system allows the use of durable mineral wool fire barriers rather than the intumescent fire barriers which have limited life expectancies and are used for face-sealed, face-fixed, back-ventilated rainscreen systems.

Installation

The system is engineered to maximise off-site fabrication for improved quality control enabling rapid assembly on-site, avoiding reliance on site workmanship and minimising disruption to users. It is lightweight and optimised for installation using any recognised means of access.

The new building envelope and the existing structure are mutually dependent upon one another for near- and long-term performance. The existing structure and building fabric is first geometrically surveyed, opened-up, inspected, tested and calculations made to ensure it can withstand the additional load imposed by the overcladding. Prior to overcladding, the existing building fabric is repaired so that its expected life under the protection afforded by the rainscreen is comparable to that of the rainscreen itself. The lightweight system is proven to be compatible with almost any building type, including system-built such as SCOLA and CLASP.

The extruded aluminium carrier system provides three dimensional tolerance permitting accurate alignment and can be manufactured in a wide range of section sizes to accommodate different building modules and wind load conditions. It is readily adaptable to both strengthen and reinforce the existing building whilst restraining the new rainscreen. The sub-structure is secured back to the existing structure using stainless steel fixings. Their type, spacing and embedment depth is specified and tested on a project-specific basis by our Structural Engineer.

Cassette panels are supported and laterally restrained in place by keyhole slots in the panel flanges which locate onto pins in the support rails. This hook-on system allows for thermal movement and tolerance fit for high-rise performance and enables each panel to be individually removed and/or replaced thereby aiding construction sequence, future maintenance and/or changes that may be required.

High-performance aluminium-timber composite windows are seamlessly integrated into the rainscreen system with fully-welded window pods manufactured from 3mm aluminium using proprietary techniques which achieve rapid installation and minimum disruption to occupants. The entire new façade is designed to be installed forward of the existing windows which have safety/privacy film applied to them thereby isolating the construction site from the building users, maintaining protection and weatherproofing for occupants at all times and enabling the overcladding process to proceed independently of other works thus expediting project delivery. Existing windows are removed from within the building and new window linings installed in a flexible sequence and programme to suit the occupants.

Sustainability

System longevity is the true determinant of sustainability. All system components are inert and expected to last considerably longer than the projected 60 year design life. Innovative water management prevents staining of surfaces, deterioration of visual appearance and the need for periodic cleaning such that the new facade remains aesthetically pristine throughout its installed life. The protection afforded to the existing building once overclad ensures that its useful life is similarly extended by the life of the system. From an environmental perspective, aluminium is the third most abundant element in the earth's crust, infinitely recyclable and in practice an inexhaustible construction resource. Thermal insulation to surpass current standards by up to 30% is readily incorporated substantially reducing heating energy consumption and 'future proofing' to meet the needs of generations to come. Our 25 year old Hyde Park project not only looks pristine today despite having never been cleaned or maintained, it also meets today's U value standards.

Hyde Park, Sheffield, remains pristine after 25 years and meets today's U value standards.

Through this powerful combination the system is proven to deliver sustainable development of dated building stock without depleting resources or having harmful impacts, thereby meeting the Brundtland Commission's widely accepted definition of sustainability as *"meeting the needs of the present without compromising the ability of future generations to meet their own needs"*.

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