

CASE STUDY

Thermal performance in a slender design enabled by Architectural Insulation Modules

Riverlight, Battersea, London, United Kingdom

PRODUCTS

Dow Corning® Architectural
Insulation Modules (AIM™)
Dow Corning® 3362 Silicone
Insulating Glass Sealant

ARCHITECT

Rogers Stirk Harbour
& Partners

DEVELOPER

St James

FACADE ENGINEERING

CONSULTANT
Wintech Ltd

INSTALLER

Astec Projects Ltd
Fleetwood Architectural
Aluminium



Image courtesy of St James - AV22353

The Project

Riverlight is a current development which will consist of six residential pavilions, situated in one of the UK's largest and most exciting and important areas of regeneration, Nine Elms on the Southbank in Central London.

Each pavilion rises in height and has a north-south orientation. Their unusual design allows occupants to enjoy outstanding views of the City of London whilst maximising natural light.

Located on the banks of the River Thames, the majority of the development is devoted to outdoor space, carrying the concept of light and waterfront access throughout.

Dow Corning Architectural Insulation Modules were specified to provide additional thermal insulation of the external static balcony doors and contribute to the attainment of the desired U value.

Dow Corning 3362 Silicone Insulating Glass Sealant provides the secondary seal for the Architectural Insulation Modules.

The Challenge

As might be expected from such a prestigious and elegant residential development, the facades of the pavilion towers have been designed to achieve optimal thermal performance. Each luxury apartment includes a balcony and the specification for the static spandrel balcony door demanded that a U value of $0.18 \text{ W/m}^2/\text{K}$ (for the centre of the glass pane) be achieved. As part of their project consultancy remit, Wintech Facade Engineers were charged with identifying a slim, integrated solution to meet this challenging design detail which would not require a change to the door framework or inhibit functionality.

The Solution

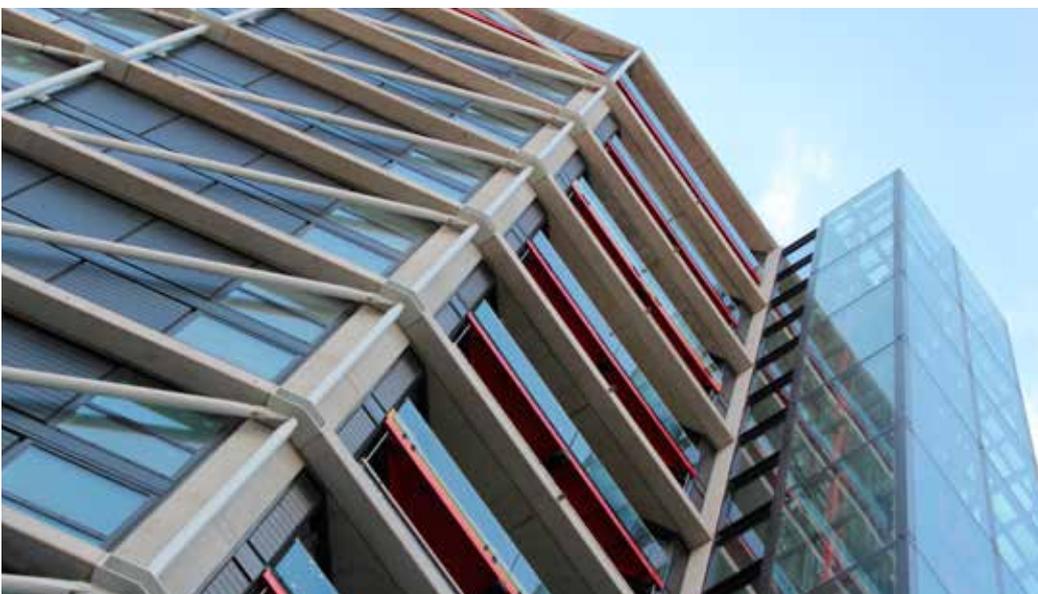
Aware of their ongoing commercial development for high performing vacuum insulation technology, Wintech joined forces with Dow Corning to identify a solution for this complex application. Comprised of an ultra-thin vacuum insulation panel within a sealed unit, *Dow Corning Architectural Insulation Modules* were proposed as meeting the criteria for this installation, where space to meet the declared level of thermal conductivity is limited.

Each Architectural Insulation Module within the static balcony doors is $2.226\text{m} \times 1.20\text{m}$ and 51mm in depth. From an aesthetic perspective, the external

face of the spandrel module is of 6mm toughened glass with a black ceramic coating, whilst the inner panel is a 6mm toughened glass with low iron brilliant white ceramic coating, which encapsulate the high performance vacuum insulation panels. Black warm edge spacer bar was applied around the perimeter and sealed to a depth of 5mm with *Dow Corning 3362 Silicone Insulating Glass Sealant*, to minimise heat transmission and maximise protection. This configuration enabled the static spandrel balcony door to meet the targeted U value of $0.18 \text{ W/m}^2/\text{K}$ (for the centre of the glass pane).

David Watabiki of Wintech commented, 'Our close association with Dow Corning and shared know-how permitted a speedy resolution for this challenging aspect of the glazing, which supports the overall building efficiency. We increasingly place greater importance on these types of collaborations which pave the way for the use of clever and appropriate innovation for the construction of smarter buildings'.

Dow Corning Architectural Insulation Modules offer designers a new solution and flexibility to better manage thermal performance and visual aesthetics. Available in a range of architectural finishes, coatings and customised colours, Dow Corning can provide specific project advice pertaining to glass types and thickness, according to panel dimensions, building type, location and encountered loads from an early stage of design.



The AIM™ is an innovative building envelope component that works in synergy with other facade elements to help increase energy efficiency.

Dow Corning Architectural Insulation Modules (AIM) - For Design and Performance

The *Dow Corning* AIM incorporates a vacuum insulation panel within a sealed unit which is designed to protect the fabric of a building, creating uninterrupted glass walls to allow fixed glazing, non-vision panels and windows to work in unison. Inherently moisture resistant, they offer superior insulation which is 5 – 10 times better than some conventional products such as mineral wool. They are also available in multiple design options; for example, glass surfaces may be coated, screen or digitally printed whilst inlays such as wood, metal and glass fibre tissues can provide special effects on the exterior as well as to the interior appearance.

Dow Corning's internal testing has shown that the AIM delivers sustained high thermal performance for up to 50 years, matching the anticipated service life of the facade. In addition to published data in the *Journal of Building Physics**, the AIM protects the high performance vacuum panel from moisture, dirt and mould growth. A range of tests have also been successfully completed at recognized test institutes which include fire resistance, fogging, improved acoustics, impact resistance and deflection.

Dow Corning holds DIBT certification for the high performance Vacuum Insulation Panel and has recently published a dual region recognized Environmental Product Declaration for the same VIP product.

The durability of an insulating glass unit is dependent on the desiccant and the primary and secondary seal. For the secondary seal of an AIM, the newly developed *Dow Corning*® 3363 Insulating Glass Sealant may be used due its inherent elastic recovery, lower temperature dependency, moisture resistance and UV-stability.

Dow Corning 3362 Silicone Insulating Glass Sealant

A neutral curing silicone sealant specifically formulated for use as a secondary seal in the manufacture of high performance insulating glass units, with outstanding adhesion to a wide range of substrates including coated, enamelled and reflective glass. *Dow Corning* 3362 has excellent temperature stability, is resistant to ozone and ultra-violet radiation and is certified by European Technical Approval ETA 03/0003 and complies with EN 1279 requirements.

* *Journal of Building Physics*, Durability of Vacuum Insulation Panels in the cavity of an insulating glass unit, published 17th February 2014.



Learn More: Contact Us

Dow Corning High Performance Building Solutions include proven materials for structural and protective glazing, weatherproofing, insulating glass, window and door fabrication, and building materials protection, as well as innovations for high-efficiency insulation, such as *Dow Corning Architectural Insulation Modules*, *Dow Corning® Vacuum Insulation Panels* and the *Dow Corning® Building Insulation Blanket*.

To learn more about Dow Corning High Performance Building Solutions, visit

www.dowcorning.com/HPInsulation



Photos: Front: (Image courtesy of St James) AV22353, AV22137, AV22147

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