Thermosash

BUILDING ENVELOPE SOLUTIONS™

Twin Skin Facade Solutions

Twin Skin Facades

Thermosash are the industry leaders in New Zealand in Twin Skin Facade technology having engineered, manufactured and installed the first twin skin system in the country in 2007 on the Meridian Energy Building in Wellington. Thermosash has extensive experience and capabilities working on uniquely different projects that showcase the versatility of design and architectural aesthetics of passive ventilation systems when done properly.

Twin Skin Façade systems also known as double façade, twin wall façades, active façades, passive façades, double envelope, double skin curtainwall, ventilated façades or multiple-skin façades are generally able to offer the highest performance façade systems on the world market - providing building energy savings, mechanical performance solutions and Green Star recognition beyond that achievable with a monolithic single skin façade system.

Passive ventilation in action

A twin skin façade creates a cavity between two curtainwall systems to enhance natural ventilation. Through the opening and closing of dampers at the top and bottom of the system, and the additional option of using air circulating technology within the cavity, the performance of the facade over the summer and winter months can be controlled. In colder weather the dampers can be closed trapping the sun-heated air within the cavity which helps reduce the load on indoor heating systems. In warmer weather air can be drawn into the cavity by opening the bottom dampers/vents, this air heats behind the first layer and naturally moves upwards creating a draught that cools the inner layer, it is then released through the upper dampers to the outside of the building helping to decrease solar gain and mitigate the internal cooling load. Solar shading devices can also be used to help control the solar gains in summer.

Design considerations & benefits

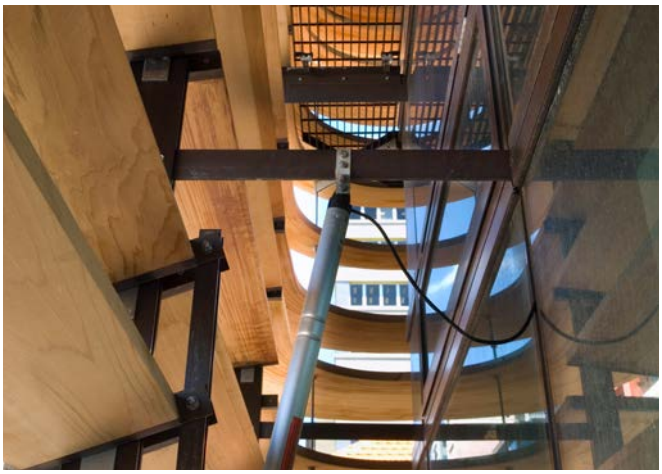
This type of facade system requires careful site based design considerations due to it being dependent on local climatic conditions and the impact of surrounding buildings (casting shade) which will affect the performance of the system. It is also important early on to define the parameters of the design as many other aspects of a project are influenced by the façade, e.g. materials can influence the function and the performance of the system and the physical properties of the cavity. The importance of having a competent mechanical consultant who can provide accurate calculations of the façade performance in the design stage will lead to more precise predictions and certainty going forward in the design solution.

When properly engineered and installed the twin skin facade provides highly improved indoor comfort and reduced energy demands, the double facade also helps reduce solar glare indoors whilst providing views and natural lighting to the occupants, and it acts as an acoustic insulator reducing noise pollution.

Twin Skin Facades - Project Examples

Meridian Energy head office, Wellington

The Meridian Energy building has been a flagship for sustainable architecture and the building continues to outperform on anticipated predictions.

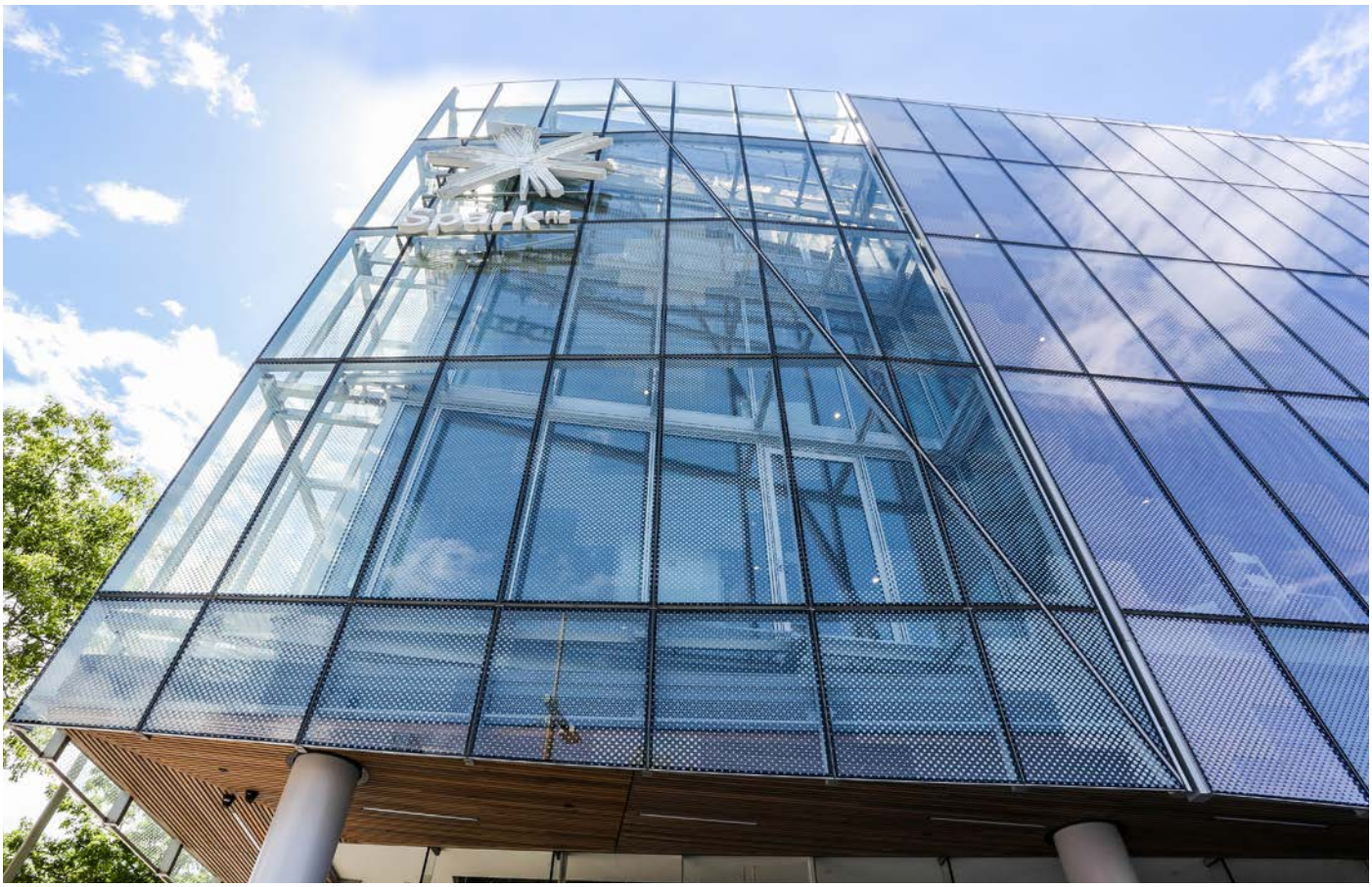


The external louvres offer solar shading whilst the automatic window and louvre actuators provide passive heating and cooling to the building.

Meridian's high performance twin skin Thermosash PW1000 Unitised Curtainwall of anodised aluminium and transparent glazing integrated with maintenance walkways within the 400mm cavity.

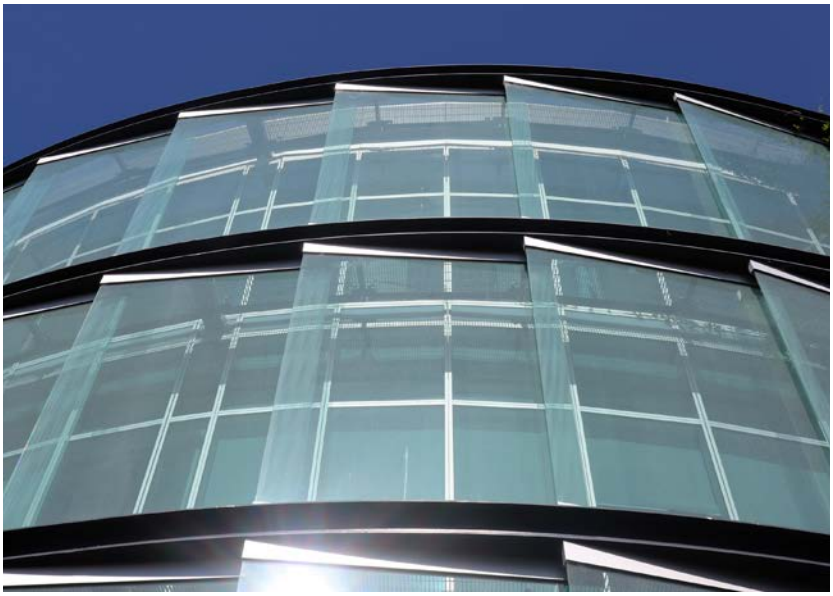
Spark HQ, Christchurch

Spark HQ is a 5000m² twin skin facade with more than 1000 pieces of glass forming a complex geometric design.



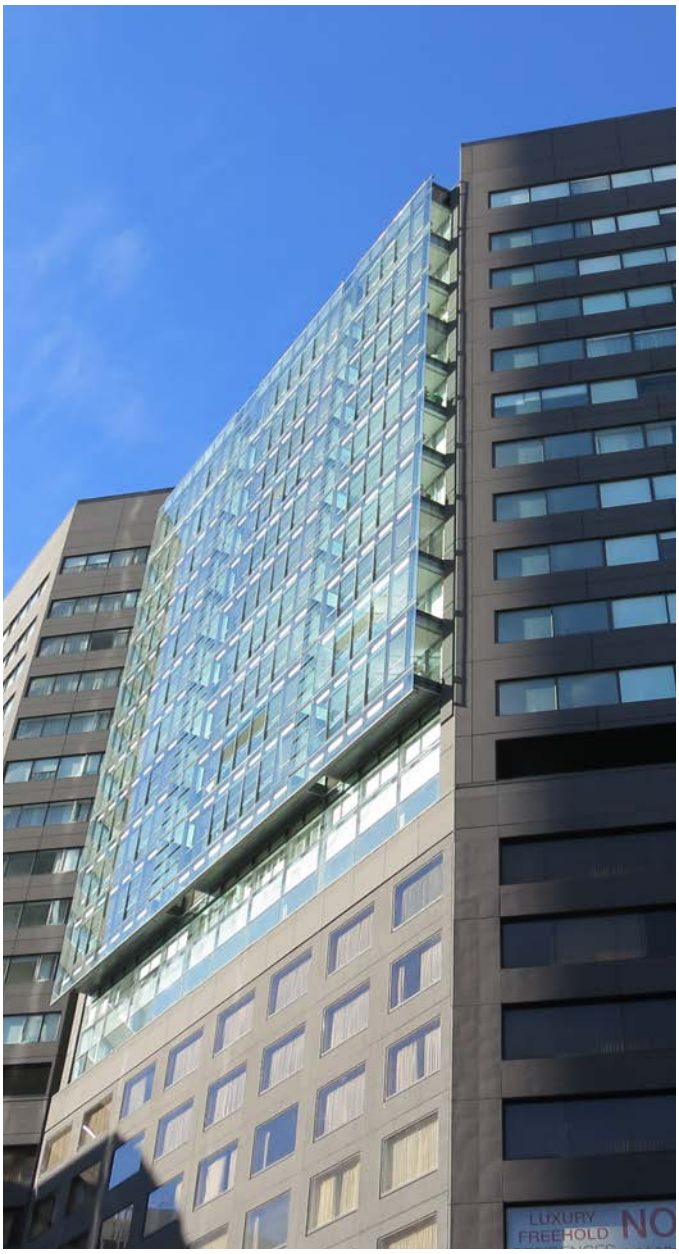
The facade cantilevers both vertically and horizontally out from the building, sometimes up to 3m. The structurally glazed outer skin is our Thermosash PW1000 Unitised Curtainwall system with integrated LED lighting whilst the inner skin is our Thermosash PW400 mechanically engaged curtainwall system composed of IGUs.

University of Auckland, Thomas Building

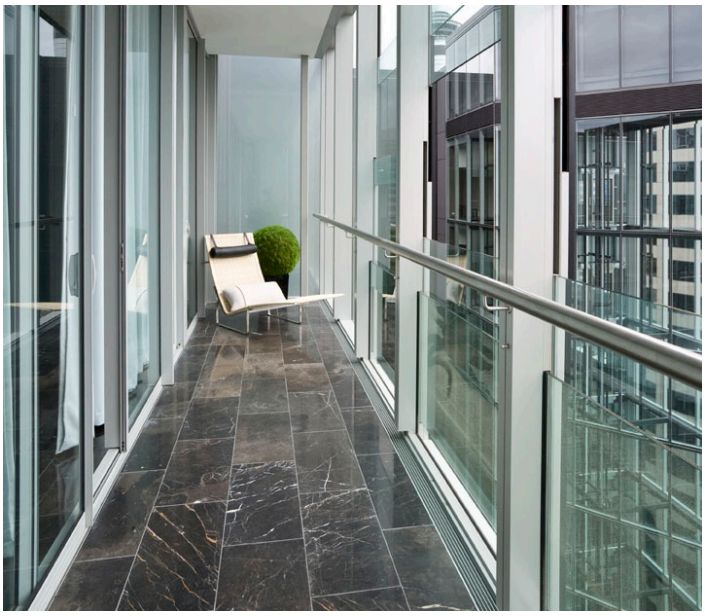


Manually operated louvered panels with frit glass provide flexibility of light and air as an outer skin to the Thermosash PW400 double glazed curtainwall inner skin.

Stamford Plaza Apartments



11 storey Stamford Plaza Apartments are built on top of the Stamford Plaza Hotel. The twin skin facade provides enclosed balcony space.



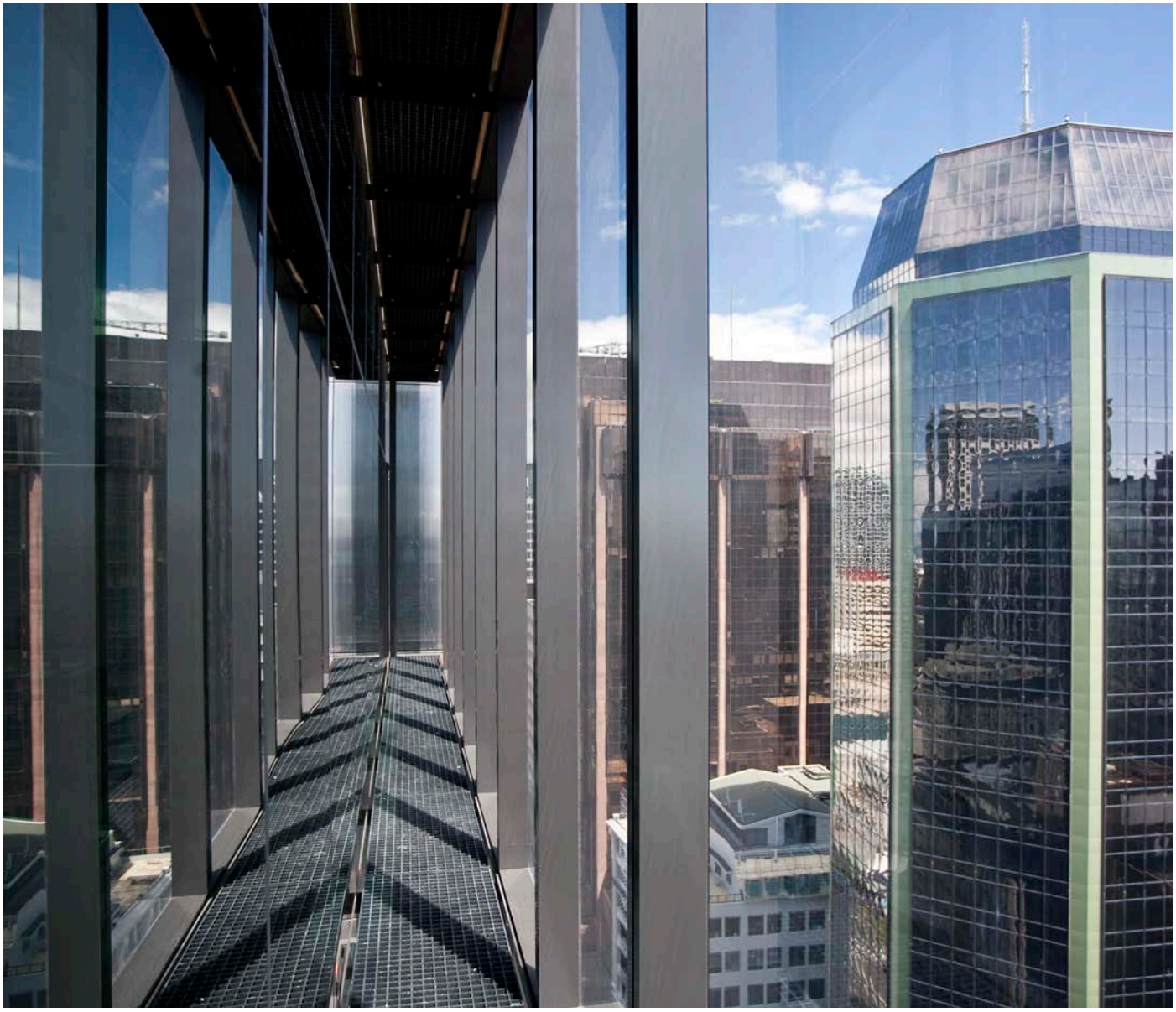
A sheltered narrow balcony is provided to each apartment by the twin skin facade with integrated sliding windows and internal balustrade to the outer skin.

Our Thermosash PW1000 Unitised Curtainwall system provides the outer skin with the inner skin comprised of Thermosash Delta Suite Commercial acoustic sliders.

NZI Centre, Auckland

The NZI bulding received the NZIA Sustainability Award in 2010. The Northern elevation showcases an outer skin of triple glazed Thermosash PW1000 Unitised Curtainwall with an inner Thermosash CW600 Total Vision skin and integrated maintenance walkways. Each triangle is a separate framed and glazed unit engineered to fit into neighbouring triangles, allowing for rapid installation.

Deloitte, 80 Queen Street, Auckland



Our high performance Thermosash PW1000 Unitised Curtainwall forms both inner and outer skins and incorporates maintenance access walkways in the cavity.

The twin skin high performance Thermosash PW1000 Unitised Curtainwall with low 'E' glazing maximises views and light whilst delivering passive ventilation.

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