



# Thermosash

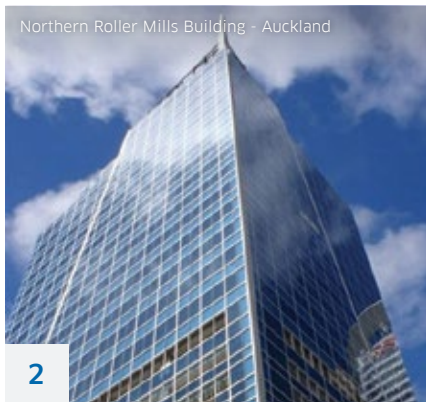
BUILDING ENVELOPE SOLUTIONS™



Gibson Centre, Rangi Ruru Girls' School - Christchurch



Northern Roller Mills Building - Auckland



Meridian Building - Wellington



# OUR VISION

**Welcome to Thermosash Commercial Ltd:  
New Zealand's largest commercial window,  
curtain wall, integrated total clad façade  
designer, manufacturer and contractor.**

As a world class supplier of engineered façades, we are committed to providing tried and proven systems, through constant evolution of our product range – products that provide long term performance solutions to building owners.

"Our work at Thermosash is critical to the building industry. Our prefabricated design specific engineered building envelopes shape the appearance of our skylines: offering comfort to occupants from heat and cold, protection from the elements, respite from the acoustic discomfort of busy cities and pleasure to those who appreciate the built environment". David Hayes, CEO, Thermosash Commercial.

Our growth since 1973 demonstrates that the strength we offer the building industry is underpinned by supplying quality, long lasting, engineered building envelope systems. Our ability to meet tight lead times and on-site programmes, our acceptance of transfer of design responsibility together with our team's passion and quality service commitment, is linked to our sustainable future.

## Our Expertise

Thermosash's abilities have evolved since its 1973 start-up when Laurie Hayes and colleagues manufactured commercial windows out of a small production facility. Even then the growing workforce demonstrated a desire for delivering a high performing product of quality, with a design flexibility that the market sought.

Over time, our teams of dedicated and committed people have grown. This has been possible through constant reassessment of internal and external processes and manufacturing methods from around the world. We've also provided on-going reinvestment in the training of our people to, IT Systems, material handling machinery and transport logistics equipment, as well as design office and factory production process improvements. We are able to offer a world class company with manufacturing facilities in Auckland, Wellington and Christchurch.

By maintaining an understanding of what our customers want and delivering the concept, we have been able to remain at the forefront of the specific design building envelope solution industry in New Zealand.

## Our Offering

We offer an extensive range of cost effective, high performance rainscreen, pressure equalised window, door and façade solutions to suit any commercial project. Our products are incorporated in high-rise office blocks, apartment buildings, shopping centres, airports, institutions, hotels, industrial complexes and quality architectural homes.

We are experts in recladding, rainscreen over-cladding and the refurbishment of existing façades.

**"OUR VISION IS TO  
SIMPLIFY YOUR  
LIFE, BY BEING A  
SINGLE PROVIDER  
OF VALUE AND  
DURABLE FAÇADE  
SOLUTIONS THAT  
TURN YOUR  
CONCEPTS INTO  
BUILDINGS OF  
EXCELLENCE"**

DAVID HAYES  
CEO THERMOSASH



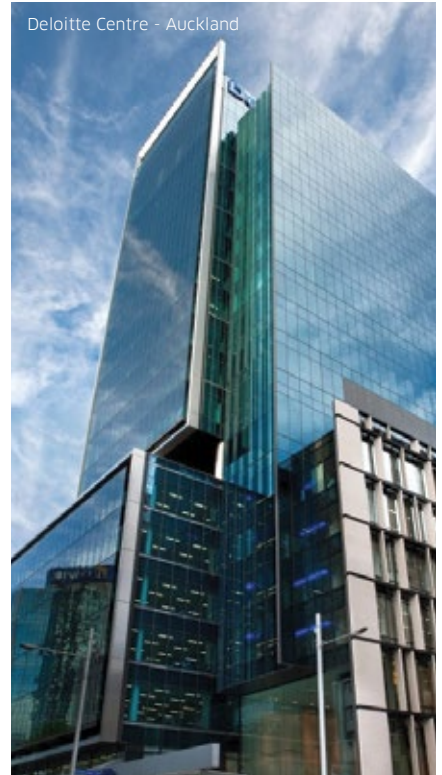




Wellington International Airport - South Terminal Expansion



Deloitte Centre - Auckland



Telstra Clear Building - Smales Farm, Auckland



# OUR PRODUCTS

“THE FAÇADE  
SOUND-PROOFING  
IS SO WHISPER  
QUIET, I COULDN'T  
EVEN HEAR AN  
AIRBUS A380 TAKE  
OFF ONLY A FEW  
HUNDRED METRES  
AWAY”

PAUL COLUMBUS  
GENERAL MANAGER, NOVOTEL,  
AUCKLAND AIRPORT

## Custom Unitised Façades

Thermosash Low and Highrise unitised or Panel Wall (PW 400/600/800/1000) systems offer a total cladding package, which is flexible and versatile. The design options for architects are almost limitless given the options to integrate numerous rainscreen material options and colours available, providing an infinite number of façade product solutions.

Due to our high quality factory controlled manufacturing and assembly, on-site erection is highly efficient with minimal labour and plant required, offering reduction in programme and the ability for internal fit-out works to begin sooner.

The independently laboratory certified weathering design of these suites follows recognised international curtainwall design principles of rainscreen pressure equalisation and system drainage.

### Product Features

- ▶ Ideal for large spans or large panes of glass requiring higher strength systems
- ▶ Proven in New Zealand and our export markets since 1985
- ▶ Accommodates building movements - both vertical and horizontal (seismic)
- ▶ Each project is independently engineered
- ▶ Engineered integration of glazing system to ensure compliance with glass warranties
- ▶ Systems designed to integrate and support solarshade solutions, louvres, venetians and building signage
- ▶ Accommodates opening sashes suitable for highrise installations
- ▶ Available in 60mm-225mm suites, depending on span/centre/windloading

## Commercial Windows / Doors

The Delta Commercial Suite was designed and introduced to the New Zealand market by Thermosash in the mid 1980s. Today, whilst it has undergone some aesthetic upgrades, it is still regarded as a market leader.

Sierra apartment suite has been developed from the Delta pedigree and offers a tested high performance modern appearance suite for the mid-high rise apartment market.

### Product Features

- ▶ Arguably the highest wind zone rated commercial window on the market
- ▶ Outer frame construction manufactured to provide a very strong twist-free connection
- ▶ A range which integrates with awning, casement, hopper, spinner (i.e. reversible) sliding sashes and doors
- ▶ Sash construction provides superior large sash torsional strength
- ▶ Sashes have an integral drainage channel in the web of the section eliminating the need for externally applied weather bars
- ▶ Glazed with high quality Santoprene gaskets
- ▶ Glazing rebates for high performance architectural glass products (i.e. insulated glass units). An important design requirement to obtain glass warranties
- ▶ Seismic frame available where required to meet specified vertical or horizontal building movements (internally or externally glazed). Enabling installation of the product in highrise applications from within the building, removing the need for costly external scaffolding
- ▶ Specifically designed extruded sill trays are provided on all products



Pipitea Plaza - Wellington



## Overhead / Roof Glazing

The Thermosash range of capped, skylight and atrium glazing bar systems utilise an aluminium extrusion that encapsulates a minimum of two edges that are then connected back to the primary structure. The Alpha Glazing Suite can be used externally for canopies or internally for skylights, including ceramic fritting to provide an element of solar shading or corporate motif, as well as providing an economical solution for factories, warehouses, hangars and grandstands.

### Product Features

- ▶ Integral drainage condensation cavities
- ▶ Engineered engagements to cope with higher wind loads
- ▶ Condensation control (where specified)
- ▶ Thermally broken system
- ▶ Can incorporate opening sashes or banks of louvres (BMS operated if required)
- ▶ Human loading for maintenance access
- ▶ Dry glazed unless aesthetically otherwise required
- ▶ Installed to a minimum slope of 5°

## Aluminium Composite Panels

Also known as ACM and ACP, the Thermosash WS1000 (wet seal) and RS1000 (rainscreen) suites are engineered cavity rainscreen cladding systems, a hook on system incorporating a unique cavity creating bracketing system. The suite most commonly utilises ACP (Aluminium Composite Panel) as the rainscreen material, but equally can incorporate almost any other folded metal material such as zinc, copper and stainless steel.

The system joints can be flush sealed with silicone or open with a pressure equalised cavity thus providing the opportunity to refurbish a building by over-cladding or delivering a modern sophisticated appearance to your façade for a relatively low cost.

Novotel - Auckland Airport



## OUR PRODUCTS CONTINUED



### Curtain Walling CW400/600

Our curtainwalling is a high quality American stickwall product which provides either a flush glazed aesthetic or is mechanically entrapped to provide the desired look.

#### Product Features

- ▶ 100mm and 150mm sections
- ▶ Internal aluminium elements are thermally broken from external aluminium
- ▶ Enables the cladding of the building to keep pace with fast primary structure erection
- ▶ CW900 can accommodate granite and composite panels
- ▶ Allows integration of external accessories
- ▶ Independently laboratory tested to meet New Zealand and International standards

### Solar Shading Systems

Aluminium louvres and glass fins provide many opportunities for solar shading, whether they are applied vertically, horizontally or as an operable roof. They can significantly reduce solar gain on a façade, thereby reducing heat or sun glare management internally. Our systems can be passive or integrated and are supported seamlessly by our commercial window and curtainwall products so that often no additional structure is required to support it – all engineered in-house.

### Acoustic System Solutions

Thermosash have been engineering façade systems that meet or exceed high performance acoustic conditions for many years. Our most recognisable suites are our Stick System curtainwall (which is also fully thermally isolated), our Delta Commercial Suite (which is ideal for lowrise and highrise apartment buildings) and our Twinwall Engineered Systems combined with almost any of our suites.

### Structural Glass Assemblies

Structural glass assemblies or total vision systems are a specifically engineered solution. The freedom in design using solely glass and minimal supplementary structure and structural sealant offers a lightweight appearance that can showcase a project. By incorporating high performing glass, a reduction in solar gain can be achieved whilst creating an aesthetically pleasing highly transparent effect.

### Shop Fronts / Entrances / Doors

Commercial channel glazing, shopfronts, automatic doors and fully glazed foyer entrances are generally employed in low wind exposed applications and allow for acceptable compliant thresholds. Incorporation of automated doors in glass wind lobbies and revolving doors can add significant comfort and energy efficiencies to a commercial building entrance.

Duncan Cotterill Plaza - 148 Victoria St - Christchurch









## OUR PRODUCTS CONTINUED

ANZ Triangle Atrium - Christchurch

“OUR ABILITY TO  
ENGINEER AND  
MANUFACTURE  
CUSTOMISABLE  
FAÇADES RIGHT  
HERE IN NEW  
ZEALAND SETS  
US APART FROM  
OTHERS”

DAVE ROOKER  
WELLINGTON AREA MANAGER  
THERMOSASH DIRECTOR



### Sustainable Green Façade Solutions

Green or sustainable building is a method of creating healthier and more resource-efficient buildings where specific design façade solutions play a crucial role. Research and experience increasingly demonstrates that buildings designed and operated with lifecycle impacts in mind can provide substantial environmental, economic and social benefits by:

- ▶ Reducing operating costs
- ▶ Improving office productivity
- ▶ Optimising life-cycle economic performance
- ▶ Improving occupant comfort and health
- ▶ Heightening aesthetic qualities
- ▶ Improving overall quality of life for occupants
- ▶ Improving air and water quality
- ▶ Conserving and restoring natural resources

### Integrated Total Clad Building Envelope Solutions

The key advantage in using a Thermosash engineered suite is the ability to integrate elements seamlessly, reducing junctions between trades which significantly increases on site productivity, enabling buildings to be closed in faster, reducing construction programme risk.

Integrated Façades additionally allow for the brackets required for solar shading, signage, downpipes or other ancillary projections in almost all cases to be fixed to the façade, with no additional structure and without compromising weathertightness.

### Specific Design Mechanical Performance Solutions

Leveraging our vertical integration; incorporating specific glass procurement and in-house engineers and technical staff, we can assist in designing a façade that can meet or exceed the building's mechanical performance needs, often at the same cost as an off-the-shelf solution.

### Consultancy-Façade Inspections and Reports

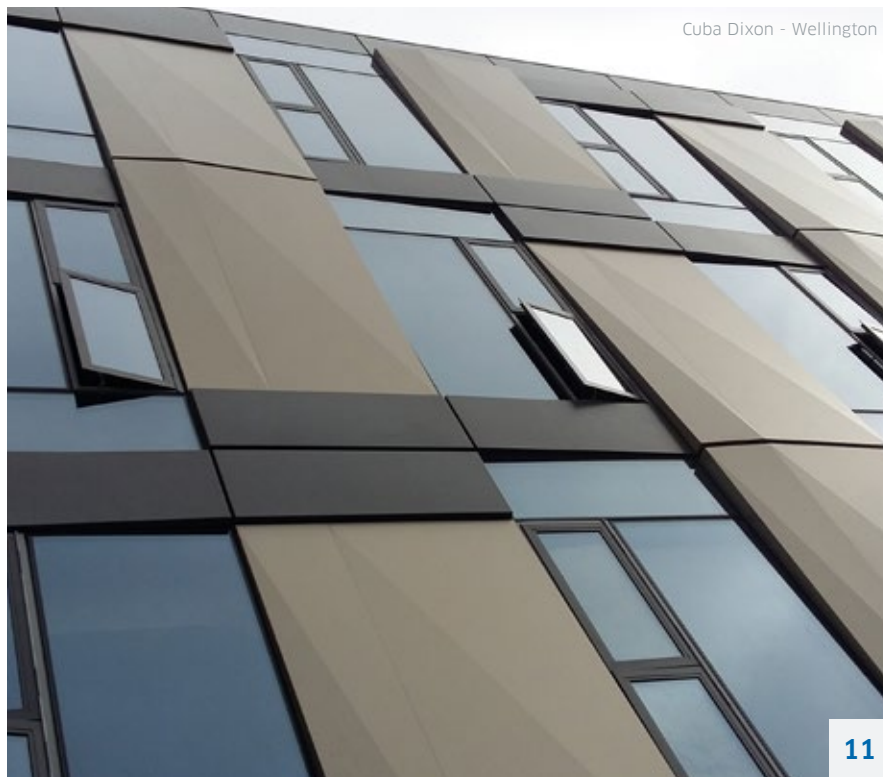
Having registered Façade Engineers and Structural Engineers in-house, we can undertake due diligence with commercial façade inspections and reporting to cover: evaluation of remaining service life, leak investigations, structural integrity and seismic capability assessments.

### Refurbishment

There are lots of reasons why a building may be refurbished including;

- ▶ Remediating leaky building issues
- ▶ Upgrading seismic façade capability
- ▶ Creating more net lettable area
- ▶ Improving façade thermal, acoustic, fire/smoke seal performance
- ▶ Obtaining Green Star certification
- ▶ Modernising the building's appearance

Thermosash has completed many façade refurbishments from the exterior using our specialist building access equipment, whilst allowing the building to remain occupied with minimum tenant impact.



Cuba Dixon - Wellington

Stranges Building - Christchurch



Victoria University - Wellington





India Dabur



## International / Export

Thermosash designs, fabricates and exports façades throughout the Asia Pacific region from our three manufacturing bases in New Zealand.

Some examples of International projects:

- ▶ ExxonMobil PNG
- ▶ Office Building, CHM Corporate Park, PNG
- ▶ NZ Expo Pavilion Seville, Spain
- ▶ Marshall Island Parliamentary Buildings
- ▶ NZ Embassy Building, Samoa
- ▶ Including projects in the Antarctic, Taiwan, Marshall Islands, and the UAE

Our façade suite technology and engineering is recognised as world leading and is sought by many leading façade manufacturers around the world, including South Africa, India and Thailand.

ExxonMobil - Papua New Guinea



CHM Building - Papua New Guinea

















ASB Te Whero Lane - Auckland



Anderson Lloyd Building - Christchurch





UOC ICT Innovative Centre - Christchurch



ASB North Wharf - Auckland





# OUR SERVICES

## Consultation and Design

From concept to completion, our design team work alongside the client, architects and engineers providing critical technical specialist expertise. This methodology facilitates a working, buildable and warrantable façade whilst also taking into account budgetary requirements, aesthetics and unique site and access conditions.

Thermosash can offer a wide choice of rainscreens and integrated cladding options, ranging from glass, ceramics, copper, titanium, stainless steel, aluminium, terracotta tiles and stone – all to meet the increasingly sophisticated requests for customised cladding solutions.

## Engineering

Our in-house professional Structural and Façade Engineers specifically assess each façade design and environmental loading to ensure that the system is code compliant. We have designed several thousand extrusions to meet design and engineering requirements. These are supplied locally by quality assured architectural extruders with surface finishes to ensure only the highest quality materials are used in our products.

## Technology

Thermosash employs the most sophisticated computer aided drawing programmes, providing engineering analysis and CAD/CAM manufacturing packages to assist our teams of dedicated engineers.

## Manufacturing

Our world leading CAD/CAM equipment enables extrusions, sheet and plate metal to be cut to the highest level of precision allowing complex manufacturing to incredibly small tolerances. Our experienced fabrication teams undertake the prefabrication assembly with strict quality control guide lines assessing performance fit and quality; processes independently audited regularly by key suppliers.



# OUR SERVICES CONTINUED



## Laboratory Testing

Window Engineering Consultants, a division of Thermosash, operates a state-of-the-art IANZ certified, independently accredited window / curtainwall testing facility. The facility allows us to undertake research and development with new concepts and materials proving that our products are indeed tested systems. All our testing complies with New Zealand, Australian and American testing standards and is capable of reporting on full scale project specific testing for;

- ▶ Structural adequacy
- ▶ Weathering (static and dynamic testing)
- ▶ Air permeability (infiltration, exfiltration)
- ▶ Building movement testing (seismic, vertical movements)

Testing can be carried out to the following standards:

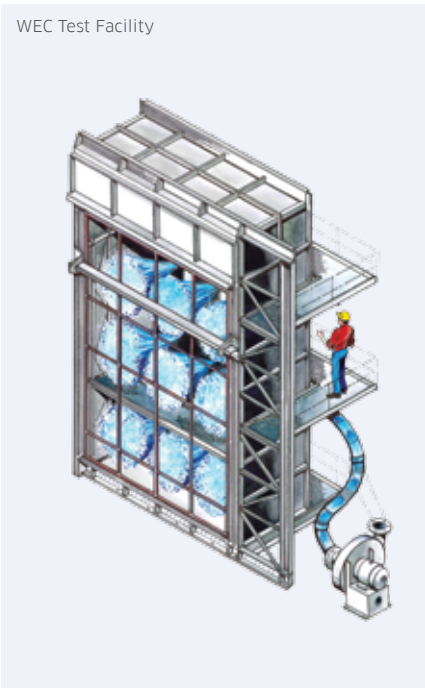
<b>Australia/NZ</b>	AS/NZ 4284:2008 AS/NZS 1170.2:2011 AS/NZS 1170.5:2004 AS/NZS 4420.1:2016
<b>New Zealand</b>	NZS 4211:2008
<b>Australia</b>	AS 4420:1996 AS 2047:2014
<b>American</b>	ASTM E283, E330, E331, E597
<b>Singapore</b>	SS 212:1979
<b>British</b>	BS EN 12179:2000 BS EN 12153:2001 BS EN 12155:2000 DD ENV 13050:2001

## Installation

As buildings become more complex and adventurous in shape and form, so does the challenge for the installation of the façade. Having a single point of control from concept design to installation of the end product on-site becomes increasingly more important. Thermosash believe that the successful completion of projects within scheduled requirements demands innovative solutions on-site. To facilitate this, we constantly reinvest in our machinery and plant and have a wide range of the latest equipment to assist with the installation of façades to tight tolerances.

By integrating our own direct employ installation crews into the Thermosash Group, we are able to invest in our own GPS-based 3D site surveying by Registered Surveyor, unique lifting, launching and handling equipment. Through this constant development and learning from international best practices, we are able to minimise time that a tower crane is required for installation of a façade. On some projects we do away with the need altogether.

With all work supervised by experienced site managers, who complete regular QA inspections, ensures the completed project performs long term, backed by Thermosash quality warranties.





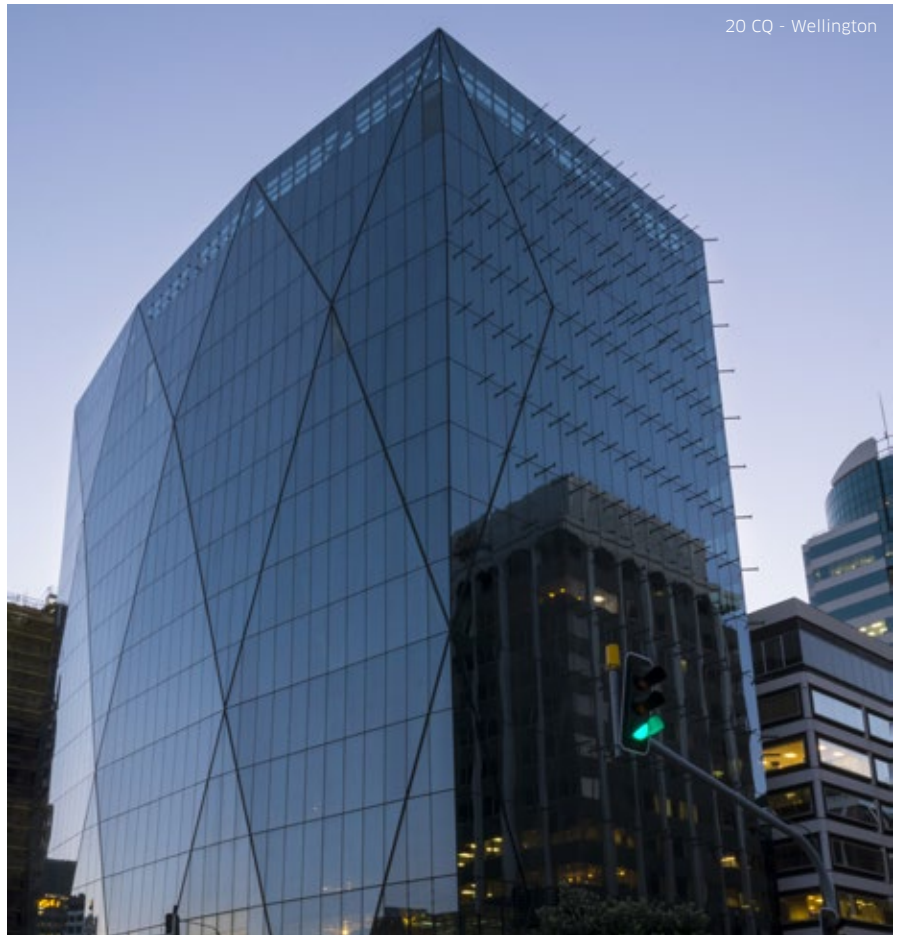


On-site Glaslift-machinery





Britomart Glass House - Auckland



41 Shortland St (2017) - Auckland



41 Shortland St (refurb 1998) - Auckland





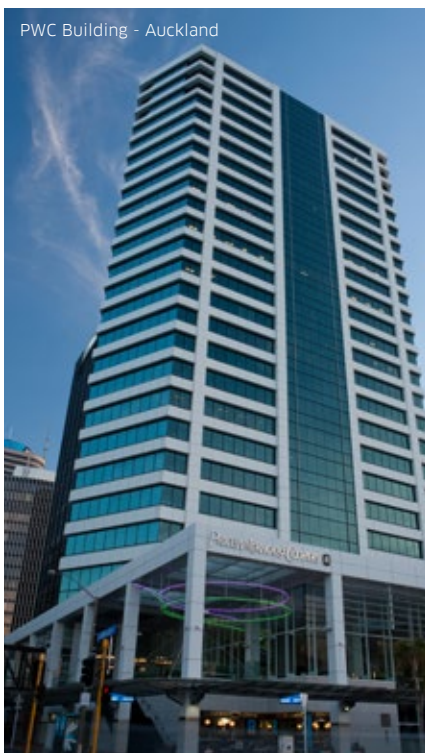
Shangri-La - Auckland



“FOR AN EXTREMELY EXPOSED SITE, CURVED ON PLAN, WITH RELATIVELY HIGH BUILDING MOVEMENTS - AN INTEGRATED TOTAL CLAD CURTAIN WALL SOLUTION TO MANAGE WEATHERING RISK WAS THE ONLY SENSIBLY SOLUTION FOR OUR CLIENTS”

BRIAN AITKEN  
PEDDLE THORP ARCHITECTS

PWC Building - Auckland



NZI Building - Auckland



# Stile

ALUMINIUM SOLUTIONS

## Light Commercial and Architectural Residential

Stile Aluminium Solutions Ltd has been providing architectural window solutions in Christchurch and greater Canterbury since 2004. In 2013 they were acquired by Thermosash Commercial Limited to focus on the architectural residential and the light commercial architectural window market. The business remains managed by Brent and Monique Hudson and their loyal team of in-house estimators, manufacturers, project managers and installers.

Being part of the Thermosash Group has given Stile access to the extensive Thermosash systems and suites as well as the Omega suite. This unique ability to

apply the most appropriate product from a franchise suite to the comprehensive engineered Thermosash offerings is not available through any other aluminium window manufacturer in New Zealand.

Stile has grown with Christchurch in recent years and has the resource, plant and manufacturing capacity capable to deliver complex residential projects and commercial internal and external projects New Zealand wide with representation in Auckland, Wellington and Christchurch.

Stile is a full service business, providing design assistance to the architect / designer, engineering the suite to ensure it is suitable for its application, manufacture and installation using our own in-house installation crews who know the product,

therefore ensuring a full system warranty.

Working with the leading glass suppliers and commercial glaziers in New Zealand, Stile offer some of the most technical solutions available, all included in their single source solution for architectural residential or commercial aluminium window and door build trade.

**Please contact Stile on the following numbers for any enquiries -**

**Stile Auckland:** 09 980 0500

**Stile Wellington:** 04 896 0670

**Stile Christchurch:** 03 365 9021

St Andrew's College - Christchurch (Stile)





Sistema - Auckland



Fonterra - Auckland





Giltrap Audi - Auckland



Wellington Hospital





University of Auckland Business School



Giltrap Prestige - Auckland



Emerson's Brewery - Dunedin



# OUR HISTORY

“IT HAS ALWAYS BEEN ABOUT PROVIDING SOLUTIONS TO ARCHITECTS AND SHOWING THEM WHAT IS POSSIBLE”

DAVID HAYES  
CEO THERMOSASH

Thermosash Commercial Limited commenced operations in Auckland, New Zealand in June 1973 under the direction of five founding Engineers who, through their senior positions with Crittall Metal Windows, accumulated over 120 years of expertise in the Commercial Window Industry.

Under its founder, Mr Laurie Hayes, Thermosash quickly developed a reputation for innovation and expertise.

By 1990, Thermosash was the largest commercial window and curtainwall designer, manufacturer and contracting company in New Zealand. The company, today, owns Window Engineering Consultants (a façade testing laboratory), Woods Glass (NZ) Ltd (Specialist Commercial Glazing Operations), Insite Façades (Specialist Commercial Façade installation Operation), Stile Aluminium Solutions (Light Commercial and Architectural Residential) and Sunblade Louvre Solutions (Commercial Louvre Operations).

Working closely with some leading American cladding companies, we have shared technology since the early 1980s, consciously focusing on a commitment in the specialist commercial total cladding market.

Over the past few decades, with the recognition of our earthquake risk in New Zealand, architectural fashion technological development of sophisticated, maintenance free materials, there has been a distinct move towards the use of light-weight, fully integrated metal/glass cladding systems to lighten dead-loads on the structure.

Thus it became apparent for the designers, façade consultants and main contractors that their responsibility could be limited to the construction of a structural frame, with larger allowable construction tolerances than the forming of traditional window openings; along with the resultant reduction of junctions between trades. The delivery of the fast track prefabricated 'total cladding package' was born.

Thermosash has continued to make significant advances within the industry

by bringing new technologies to the New Zealand market, such as;

- ▶ Building a world-class façade testing facility to enable specialist testing of the custom designed products
- ▶ Gaining extensive surface finishing expertise, having installed one of the most sophisticated PVF 2 paint and powder coating operations in New Zealand
- ▶ Constantly reinvesting in research and development into suites and cladding systems to meet the needs of both the designers and contractors
- ▶ Obtaining agencies and technology agreements for:
  - Oktalok space frames and permanent fabric architectural membrane systems
  - Reynobond® - ACP
  - Dasolas International for their solar shading systems
  - Jakob – Swiss engineered green wall wire rope systems
  - Hella – German manufactured external venetian blind systems
  - Argeton – German terracotta façade tiles
  - Glaslift agency for robotic material handling
  - Magni agency for robotic telehandler

Today, we have three regional offices and manufacturing facilities, our head office and main manufacturing unit operates from Auckland's North Shore - one of the most modern operations in Australasia with state-of-the-art imported automated machinery.





**1973**  
Thermosash founded by Laurie Hayes



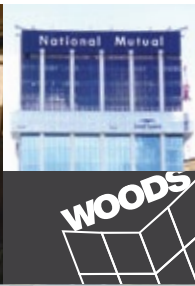
**1976**  
Thermosash Delta system manufactured in Malaysia by KRIS Metals under licence



**1983**  
Delta system manufactured in Africa by WISPECO Metals under licence



**1983**  
Thermosash buys Valley Aluminium, establishes Thermosash Wellington



**1986**  
Thermosash establishes Woods Glass



**1986**  
Designed & Built Façade Testing Facility



**1988**  
Reynobond agency for Australasia secured



**1989**  
Thermosash is NZ's largest façade company



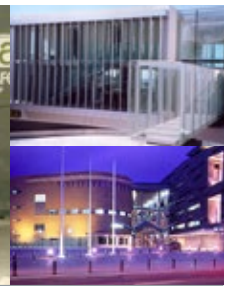
**1990**  
Euroasia Thailand signs technology agreement with Thermosash



**1993**  
New headquarters at Glenfield, Auckland



**1995**  
Technology agreement with Dasolas of Denmark for solar shading



**1998**  
New facility purchased for Thermosash Wellington



**2003**  
Thermosash buys Custom Aluminium Christchurch



**2004**  
New facility built for Thermosash Christchurch



**2012**  
Thermosash rebrand - committed to building quality envelope solutions



**2013**  
Thermosash acquires Stile Aluminium



**2014**  
Thermosash acquires Insite Façades (Installation and Rain Screen)

**2015**  
Thermosash installs first automated façade conveyor productions line in New Zealand



Les Mills - Auckland



Ironbank - Auckland





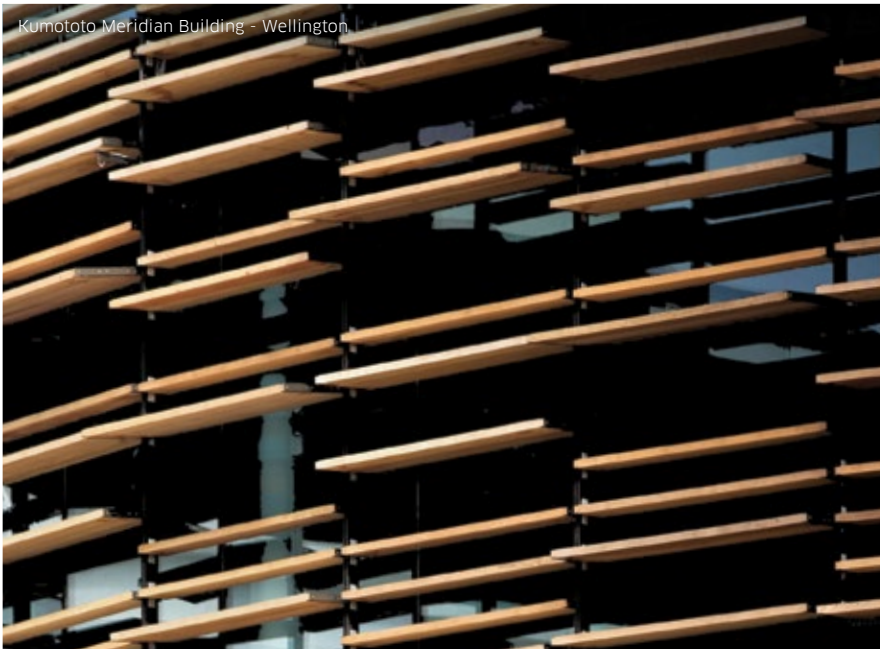
Control Tower - Christchurch Airport



“WE NEEDED A PROVEN HIGH PERFORMING ENGINEERED SYSTEM WHICH WOULD PROVIDE CERTAINTY, IN ORDER TO PROTECT THE CITY’S INVESTMENT AND STAND THE TEST OF TIME.”

GORDON MOLLER  
MOLLER ARCHITECTS - AUCKLAND VIADUCT EVENTS CENTRE

Kumototo Meridian Building - Wellington



AMP Entry - Wellington



Viaduct Events Centre - Auckland

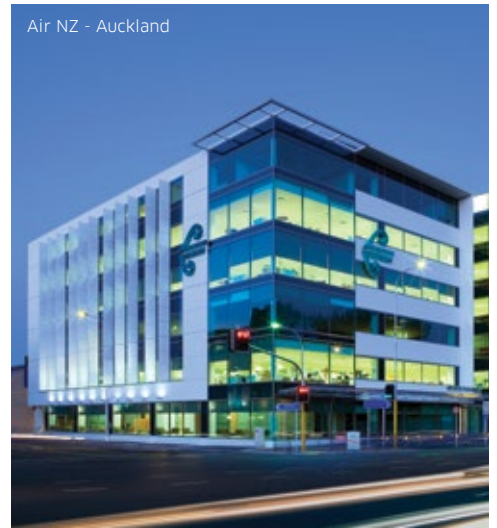




Jagged Edge - Queenstown



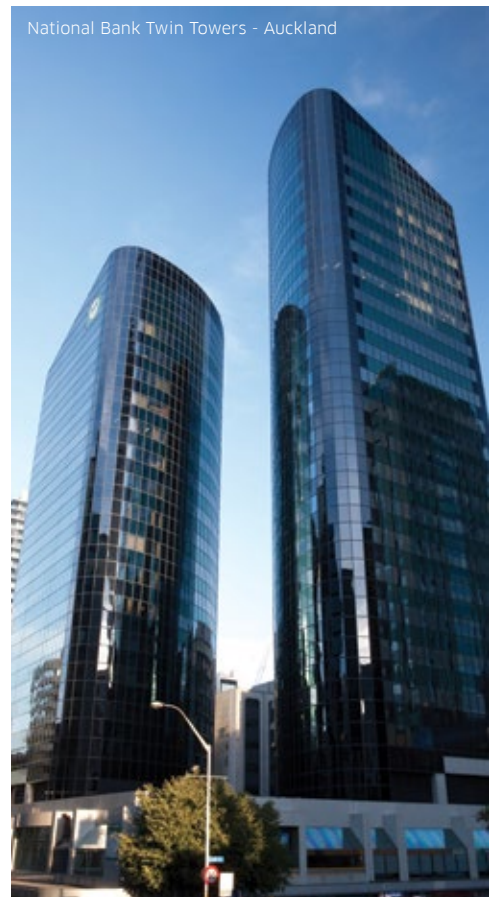
Air NZ - Auckland



Telecom Building - Wellington



National Bank Twin Towers - Auckland





# OUR PROMISE

There are few companies in the construction industry that can proudly state that since incorporation they have been operating under the same single business structure.

Our promise to you is that a Thermosash Building Envelope Solution™ will be the best commercial window envelope solution available. We will achieve this by developing long term relationships with our suppliers, customers and achieving the aspirations of all our people. Customer satisfaction is paramount to ensure repeat business using systems that are tried, tested and proven, enabling us to confidently offer the longest recognised warranties for building envelope solutions available in the New Zealand market.

“WE’RE COMMITTED TO OFFERING THE BEST POSSIBLE PRODUCTS THAT EXCEED NEW ZEALAND’S STRINGENT COMPLIANCE STANDARDS”

DAVID HAYES  
CEO THERMOSASH

AUT Business School - Auckland



Auckland Art Gallery



# SUMMARY OF SYSTEMS

## CURTAIN WALLS

- ▶ CW 400 - Highrise stickwall curtainwall, 4-sided mechanically entrapped, thermally broken
- ▶ CW 600 - Highrise stickwall curtainwall, vertically butt glazed, horizontally entrapped, thermally broken
- ▶ PW 40 - Lowrise unitised curtainwall, 4-sided mechanically entrapped
- ▶ PW 60 - Lowrise unitised curtainwall, vertically butt glazed, horizontally entrapped
- ▶ PW 80 - Lowrise unitised curtainwall, horizontally butt glazed, vertically entrapped
- ▶ PW 100 - Lowrise unitised curtainwall, 4-sided butt glazed
- ▶ PW 400 - Highrise unitised curtainwall, 4-sided mechanically entrapped
- ▶ PW 600 - Highrise unitised curtainwall, vertically butt glazed, horizontally entrapped
- ▶ PW 800 - Highrise unitised curtainwall, horizontally butt glazed, vertically entrapped
- ▶ PW 1000 - Highrise unitised curtainwall, butt glazed or mechanically entrapped in either combination
- ▶ Delta - Lowrise curtainwall, vertically entrapped, either butt glazed or mechanically entrapped horizontally
- ▶ Refurbishment and re-cladding to clients' needs

## WINDOWS

- ▶ Delta Commercial Suite, incorporating casement, awning, and hopper sashes, sliding, swing, stacking and bi-fold doors, punched and strip windows
- ▶ Sierra Apartment Suite, incorporating fixed lites, sliding doors, over lites and awning sashes

## SHOP FRONTS

- ▶ Shop-front Suite, incorporating casement, awning, and hopper sashes, sliding, swing, stacking and bi-fold doors, punched and strip windows

## SKYLIGHTS

- ▶ Alpha Glazing Bar system, either mechanically entrapped or butt glazed or combinations of either. Many different profiles available
- ▶ Rooflight system, either mechanically entrapped or butt glazed or combinations of either. Many different profiles available to suit application

## MECHANICAL LOUVRES

- ▶ 100 deep single and double/triple bank
- ▶ 40 deep single bank louvres

## SOLAR SHADING

- ▶ Dasolas solar shading in many different profiles
- ▶ Shadegrate™ and Shadetread™

## CLADDING

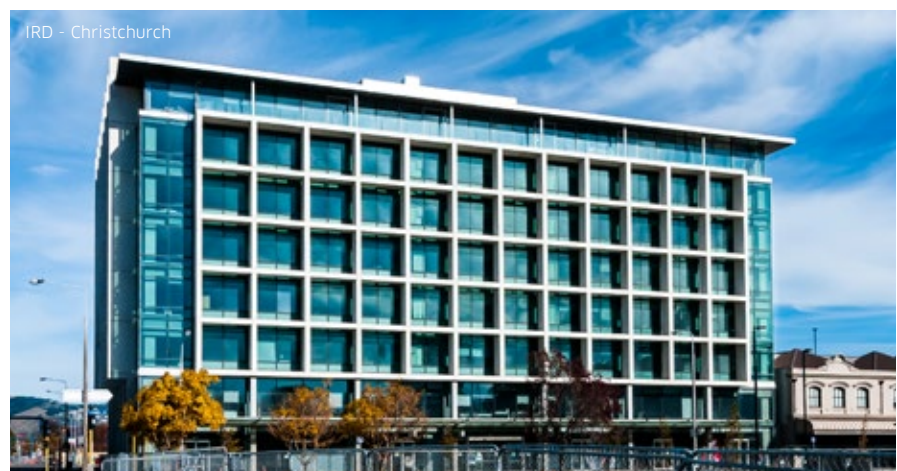
- ▶ RS 1000 - Pressure equalised open joint cladding system
- ▶ WS 1000 - Fully flush sealed joint cladding system

## COMMERCIAL DOUBLE GLAZING

- ▶ Double glazing to reduce noise and control temperature on existing windows

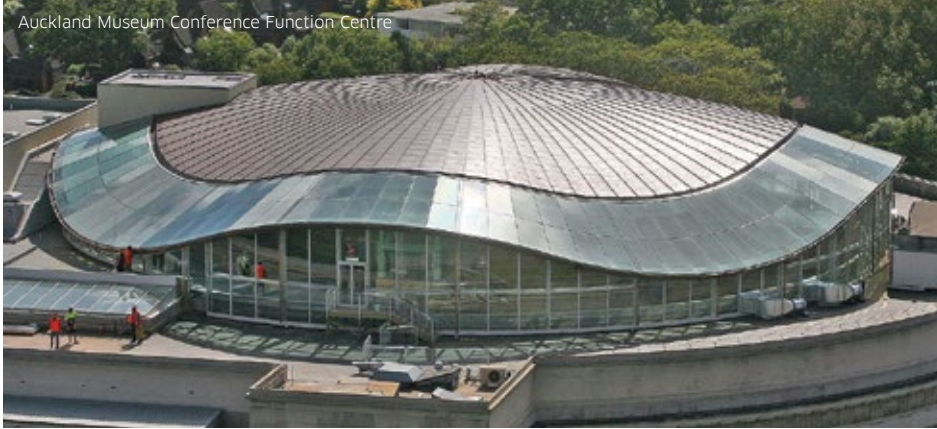
## MAIN ENTRANCES

- ▶ Spider, glass fins, channel glazing, vertical and horizontal trussed systems
- ▶ Canopies
- ▶ Spider fittings, under and top hung systems, glazing bars





Auckland Museum Conference Function Centre



Delegat's Vineyard - Marlborough



PWC Lobby - Auckland



Datacom - Auckland



BNZ/Cashel I - Christchurch

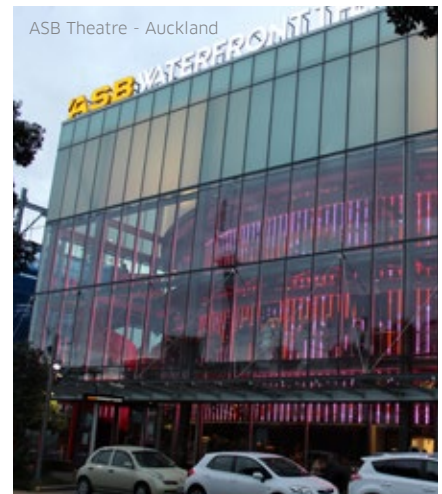




104 Victoria St - Christchurch



ASB Theatre - Auckland



ANZ 45 Queen Street - Auckland



# THERMOSASH GROUP

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