THERMOSASH

Rooflights & Atriums

THERMOSASH ALPHA GLAZING SYSTEM

Thermosash
BUILDING ENVELOPE SOLUTIONS™

Thermosash Commercial Ltd

158 Central Park Drive, Henderson
Auckland 0610, New Zealand

www.thermosash.co.nz

Combine the benefits of offsite production and modern construction techniques - **Unitised Facades** offer near **limitless design possibilities**

bringing your boldest architectural visions to life while enjoying the practical benefits of speed of installation, just-in-time site delivery, and single point warranty.

Shape the future of urban design and aesthetics with a high performance Thermosash Unitised Facade solution.

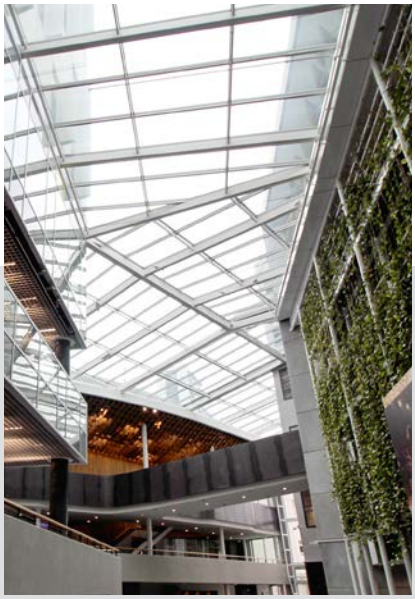
Our Aluminium is **green** to the core.

Thermosash is partnered with a NZ-owned extruder providing the lowest embodied carbon aluminium readily available in New Zealand*. The combination of high recycled content and low carbon virgin material forms the high quality extrusion that Thermosash uses.

*Achieving Toitū Carbonreduce certification which far out performs the global average. (Independent audits to stringent European standard PAS 2050 are regularly undertaken, please contact us for the most up to date carbonreduce CO2e/kg of aluminium figures).

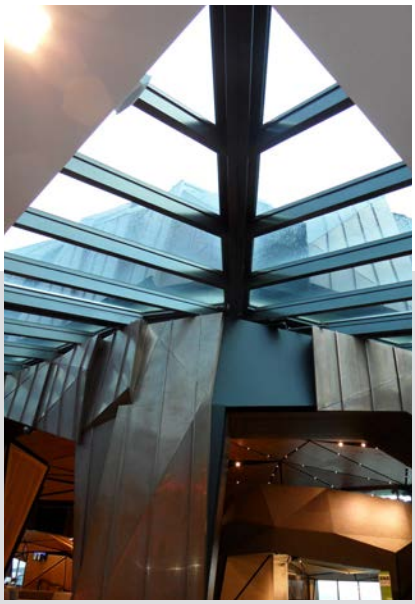
Thermosash recycles 100% of all metal waste products produced during manufacturing operations.

We exclusively use local powder coaters who have stringent chemical handling processes and reuse or responsibly dispose of all waste powder.



Auckland University of Technology
SIR PAUL REEVES BUILDING

ANZ Triangle Building
CHRISTCHURCH



Wellington International Airport - THE ROCK

OVERVIEW
ALPHA GLAZING SYSTEM

The Thermosash Alpha Glazing System is a sophisticated and high performance solution for all high end skylight and sloped glazing applications such as external canopies or internal skylight and atrium glazing, as well as an economical solution for factories, warehouses, hangers and grandstands. This design style of overhead glazing employs an aluminium extrusion that encapsulates a minimum of two edges that are then connected back to the primary structure.

Due to potential exposure to high wind, seismic, snow, and other live loads it is necessary for these types of systems to be specifically designed and engineered.

PRODUCT SPECIFICATION

MASTERSPEC

We recommend using Masterspec 4251T Commercial Windows when specifying this system type.

CAD DOWNLOADS

Alpha Glazing CAD downloads are available on our website:

https://www.thermosash.co.nz/downloads-resources/cad-downloads/rooflight-downloads/rooflight-alpha-glazing/alpha-atria-downloads/

CAPABILITIES

SECTION SIZES

The system is adaptable to fit a range of 55mm - 80mm

MAXIMUM SPANNING ABILITY

Glass size and primary structure support is your only limitation. We can source your specific glass requirements to meet your projects needs.

Thermosash specifically engineers the best suite option for your project taking into consideration span, structural system, load imposed by glass thickness, seismic, wind & snow loading. The spanning ability will vary depending on the above.

OVERHEAD GLAZING APPLICATIONS

- Lean-to skylights
- Ridge skylights
- Double pitch skylights
- Pyramid skylights
- Multi-faceted pyramids
- Hip ridge skylights
- Segmented barrel vault skylights
- Curved barrel vault skylights
- Vertical glazing

INTEGRATED ELEMENTS

- Alpha Glazing System integrates with the Thermosash Delta Suite
- The Alpha range can incorporate opening sashes or banks of louvres - BMS operated if required
- Almost any type of glass can be incorporated including ceramic fritting to provide an element of solar shading or decorative motif

PRODUCT PERFORMANCE

KEY PERFORMANCE FEATURES

- Can be installed to a minimum slope of 5 degrees
- Integral drainage cavities
- Commercial glazing engagements to cope with higher wind loads
- Condensation control (where specified)
- Thermally broken
- Ability to provide a different colour from inside to outside
- Can accommodate all recognized glass thicknesses used in commercial glazing
- Special splicing and connection features critical for weathering
- The Alpha systems are dry-glazed unless aesthetically otherwise required
- Bars are designed to accommodate co-extruded backing gaskets to minimise long-term shrinkage problems
- Glass is retained with gaskets fitted inside and out, primarily as a weather seal, but also to cushion against vibration and potential glass breakage
- Minimum construction R-value values as relevant to product selection

BUILDING CODE PERFORMANCE

Thermosash engineers to the design and performance requirements of each individual project in accordance with the relevant codes - view the table Building Code - Demonstration of Compliance on page 5 & 6.

INTENDED USE

CLASSIFICATION

Internal Skylight and External Canopy for Commercial, Industrial and Residential use in accordance with the A1 Building Use Classification and A3 building importance levels 1-5.

BUILDING TYPE

- High-rise
- Low-rise
- Specific design

BUILDING LOCATION

Overhead glazing products require a high level of sophistication which is often overlooked; special design features are required to cope with considerably higher water loadings, heat gain or loss (which introduces condensation) and in particular the risk associated with accommodating costly higher specification products (e.g. high

performance laminated and insulated glass units) used to overcome these particular problems without compromising their product warranties.

Thermosash provides custom design solutions taking into consideration wind zones, climate zones, corrosion zones, seismic risk areas and building importance levels for each project.

CONDITIONS OF USE

The Alpha Glazing System must be installed by an approved Thermosash installer. The architect, engineer or specifier must confirm all of the project requirements prior to fabrication, including but not limited to climate conditions, glass selections, structural differential movement reports, performance requirements for glass and acoustics, surface finishes and hardware.

MATERIALS

MATERIAL COMPOSITION

Each project will have specific engineered and designed component solutions, fabricated in New Zealand and provided as a complete custom system, which incorporates common materials such as:

Aluminium, Steel, VM Zinc Cladding, Glass, Structural Silicone, Gaskets, Neoprene Rubber, Nylon, Molybdenum Disulfide, and PVB Polyvinal Butyral.

MATERIAL GRADE

Alloy designation to comply with AS/NZS 1866. Extruded for anodising or powder coating. Aluminium extrusions from 6060 grade and with a Temper T6 alloy.

FINISH

Polyester powdercoat - both standard and special colours available. (Polyester powder organic coating in accordance with WGANZ PQAS and AS 3715, and AAMA 2604).
Anodised - all anodised colours available - commercial grade 20 Micron finish recommended
PVF2 Fluorocarbon finishes - available on request

FIXINGS

Fixings and fastenings exposed to the weather are type 316 or 304 stainless steel typically but other suitable fixings back to structure may be designed for specific project requirements complying with AS/NZS 4680.

Fixing gauge and length in accordance with Thermosash PS1.

MAINTENANCE REQUIREMENTS

A maintenance manual is provided on completion of a project for all the elements integrated within a project. Compliance to a maintenance schedule is essential to maintaining the quality of the installed product over time. Using Thermosash-approved facade maintenance contractor/personnel ensures the highest standards are met.

WARRANTY

The standard warranty is 10 years from the date of practical completion for these products. This covers workmanship and weather tightness, providing the subcontract includes fabrication, installation and glazing of all components. All warranties are subject to service and maintenance requirements.

SUSTAINABILITY

SUSTAINABLE MANUFACTURING

Thermosash manufactures all system components in New Zealand, and primarily source materials where available from the New Zealand market. Our precision machinery ensures optimised material usage with 100% of all metal waste products recycled in the factory, saving on-site waste. We recycle 100% uncontaminated soft plastics, timber, cardboard, paper and 99.5% commercial float glass and IGUs.

ALUMINIUM EXTRUSIONS

At the heart of Thermosash's sustainability journey is a partnership with a local New Zealand owned remelt facility producing extrusions with 80% recycled content and low carbon virgin material, that has resulted in a super low sustainable embodied carbon footprint per kilogram of Aluminium. Our aluminium supplier is audited annually, for up to date figures please contact us.

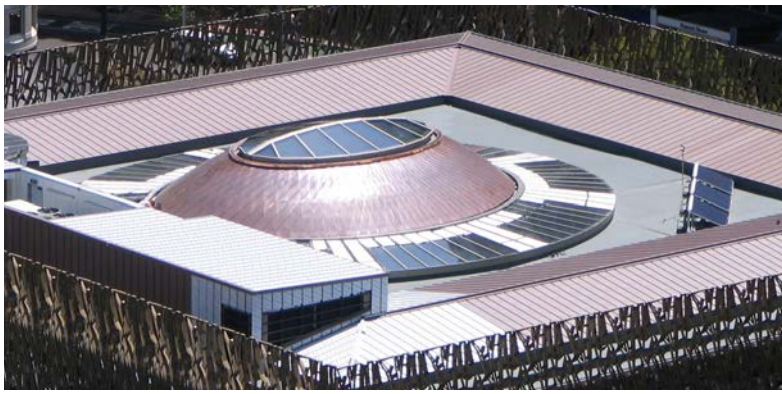
FACADE OPTIMISATION STRATEGIES

To achieve optimised high performance outcomes we offer our clients the option of a Project Sustainability Analysis that covers different aspects of the full sustainability cycle. When specifying our facade systems, clients can engage us to implement one or several of our Facade Optimisation Strategies to achieve their project sustainability goals. To gain the most from our strategies, talk to us early on in the design phase of your project.

Our Thermosash Sustainability Team can assess and provide analysis reports on embodied and operational carbon engineering optimisation and costs, energy and comfort optimisation and costs, as well as assistance with Green Star credits - these strategies help to guide material selection, shape a more efficient design and provide clarity on ROI payback periods.

REDUCTION OF OPERATIONAL EMISSIONS

Through a full measurement and target reductions audit undertaken by Toitū Envirocare, Thermosash Commercial Ltd achieved Carbonreduce Certification. This provides a baseline for subsequent emission reduction targets going forwards. Please contact us for up to date certification figures.



Wellington Supreme Court - double glazed high performance rooflights

BENEFITS OF A THERMOSASH SOLUTION

Thermosash is a New Zealand based business and has been engineering and manufacturing specific design facade solutions across the country since 1973. We deliver solutions using our trusted and proven systems, offering increased value in terms of;

- +50 years of experience and expertise in the facade solutions industry in New Zealand, with ongoing trust within the industry
- In-house expertise across the entire process
- Proven experience in complex project delivery
- Totally integrated service with ECI /ECE - engineering, producer statement generation, full shop drawings, manufacture and installation.
- Custom engineered high performance solutions tailored to architectural, environmental and structural requirements - design and detail to accommodate seismic loads and inter-storey differential movement, as well as wind and other live loads
- Proven durability of systems and longevity of product lifespan
- Responsible procurement and waste managementt
- Risk mitigation through one provider and one warranty - no multiple trades required
- Local precision manufacturing and site delivery logistics
- Expert installation with well-considered strategies and safety methodologies

PREFABRICATED UNITISED SYSTEM ADVANTAGES

- Off-site fabrication and glazing reduces on-site waste and clutter
- Unitised panels can seamlessly incorporate a variety of cladding materials and integrated elements
- Engineered to accommodate project specific environmental conditions and design constraints for high performance outcomes
- Quality assurance and control is implemented across the fabrication process and during on-site installation
- Site installation is quicker due to the modular construction - enclosing buildings rapidly and reducing on-site programme time
- On-site delays are reduced during inclement weather - fabrication can continue even if site falls behind and Unitised panels can be placed on completed floors in loading crates ready for installation on a just-in-time basis.
- Scaffold and crane requirements are dramatically reduced

COST SAVINGS

- Reduced number of junctions with other trades if Thermosash engineers, manufactures and installs the building envelope elements such as curtainwall, glazed and non-vision unitised panels, rainscreen, skylights, mechanical air louvres, solar shading and integrated elements, architectural metal folding, canopies, balustrades, flashings etc.
- Reduced number of council inspections during construction and possible delays, saving on compliance costs
- Specifically designed and engineered facade solutions that offer high performance and durability which contribute to cost savings on operational energy and maintenance over the lifespan of the building, and maximises ROI
- possible delays, saving on compliance costs
- Specifically designed and engineered facade solutions that offer high performance and durability which contribute to cost savings on energy and maintenance over the lifespan of the building.
- flashings etc.

BUILDING CODE - DEMONSTRATION OF COMPLIANCE

Thermosash expertly engineers and designs each bespoke facade to the design and performance requirements of the individual project. We ensure that all compliance claims are backed by a comprehensive set of documents, including PS1 Design and PS3 Construction Producer Statements as a compliance pathway.

BUILDING CODE	DEMONSTRATION OF COMPLIANCE
B1 STRUCTURE	**COMPLIANCE BY B1/VM1** Compliance with B1 is shown by way of engineering calculations and/or testing, and reports are attached to the compliance pathway submission.
B2 DURABILITY	**ACCEPTABLE SOLUTIONS B2/AS1** There are not Acceptable Solutions available for aluminium and steel, and protection is provided through surface treatment in accordance with: • AS/NZS 2312:2014 - Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings. • AAMA 2605-05 - Voluntary specification, performance requirements and test procedures for superior performing organic coatings on aluminium extrusions and panels. • AS 37155:2002 - Metal finishing thermoset powder coatings for architectural applications of aluminium and aluminium alloys. • AS 1231:2000 - Aluminium and aluminium alloys - anodic oxidation coatings. • WANZ - Specification for powder coatings on architectural aluminium products. • SNZ TS 3404:2018 - Durability requirements for steel structures and components **COMPLIANCE BY B2/VM1** All elements of the Thermosash product/system are specified by Thermosash to (with only normal maintenance) satisfy the performance requirements of the Building Code for 5 years (Surface Finish), 15 years (System), 50 years (Fixings/Connections) as appropriate. Generally, all elements are designed from aluminium. Where engineering requirements demand stronger materials stainless steel (304 or 316 as appropriate), or steel (coated to SNZ TS 3404:2018) will be used.

BUILDING CODE	DEMONSTRATION OF COMPLIANCE
C3 **FIRE** affecting areas beyond the source	**COMPLIANCE IF APPLICABLE** In the event that the incorporation of an element into our Alpha Glazing System solution is necessary to adhere to Building Code C3 Fire affecting areas beyond the source, Thermosash will provide an engineered solution along with a comprehensive compliance pathway for approval including a PS3 Construction Producer Statement (PS1 Design by Fire Engineer). We are not fire engineers and do not engage in the fire design of buildings, however, our products can be tailored to support compliance with Clause C3. We recommend collaborating with a fire engineer to ensure proper customization and adherence to fire safety requirements.
E2 **EXTERNAL MOISTURE**	**COMPLIANCE BY E2 ALTERNATIVE SOLUTIONS** Thermosash Alpha Glazing System has no AS/NZS 4284 test report. Site water testing has been completed on previous projects. The skylight system Is built within the floor diaphragm so there are no significant differential seismic movements. Structural adequacy is shown by Engineer's calculation. Compliance with E2 can be supported by in-service history on the projects Thermosash have completed using the Alpha Glazing system. Thermosash has been successfully installing this system for well over 15 years on projects across New Zealand - such as University of Canterbury RRSIC building | ANZ Centre (Triangle Building), Christchurch | Meridian Energy HQ, Wellington | Lambton Square Plaza, Wellington | TVNZ Building, Auckland | Waitakere Civic Centre, Auckland | Lumley Towers, Auckland | ASB North Wharf, Auckland | AUT Sir Paul Reeves Building | Commercial Bay, Auckland and many more. If required by the Client's Peer Reviewer, Thermosash can complete QA/QC site water testing in accordance with the following: • AAMA 501.2 test - Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems (for fixed elements).
F2 **HAZARDOUS MATERIALS**	**COMPLIANCE BY F2/AS1 NZS4223.3** There are no hazardous materials except glass within our systems. Compliance with F2 Hazardous Materials for glass is shown by compliance with NZS4223.3 or specific design.
F4 **SAFETY FROM FALLING**	**COMPLIANCE BY NZ/AS 1170.1** Thermosash follows the safety in design intent on the architectural drawings and designs the doors/windows/ curtainwall for C3 barrier loads where protecting a fall greater than 1 m (NZS/AS 1170.1 Table 3.3). Thermosash's responsibility is limited to the door/window/curtainwall.and balustrading - where integrated into our package.
G4 **VENTILATION**	**COMPLIANCE IF APPLICABLE**
G7 **NATURAL LIGHT**	**COMPLIANCE IF APPLICABLE**
H1 **ENERGY EFFICIENCY**	**COMPLIANCE IF APPLICABLE**

NOTE: THIS BROCHURE CONTAINS A SUMMARISED VERSION OF BUILDING PRODUCT INFORMATION REQUIREMENTS (BPIR) CLASS 2 DISCLOSURE INFORMATION - OUR COMPREHENSIVE DOCUMENTS CAN BE DOWNLOADED FROM:
HTTPS://WWW.THERMOSASH.CO.NZ/DOWNLOADS-RESOURCES/BPIR-DOCUMENTS/

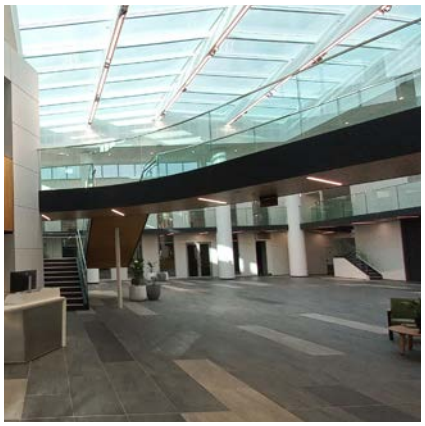
Spark Arena (formely Vector Arena), Auckland - Thermosash Alpha Glazing System installed as a large glazed canopy.

Lumley Tower, Auckland CBD - Thermosash Alpha Glazing System installed to the entire roof

Auckland Museum “The Dome” and rooflights

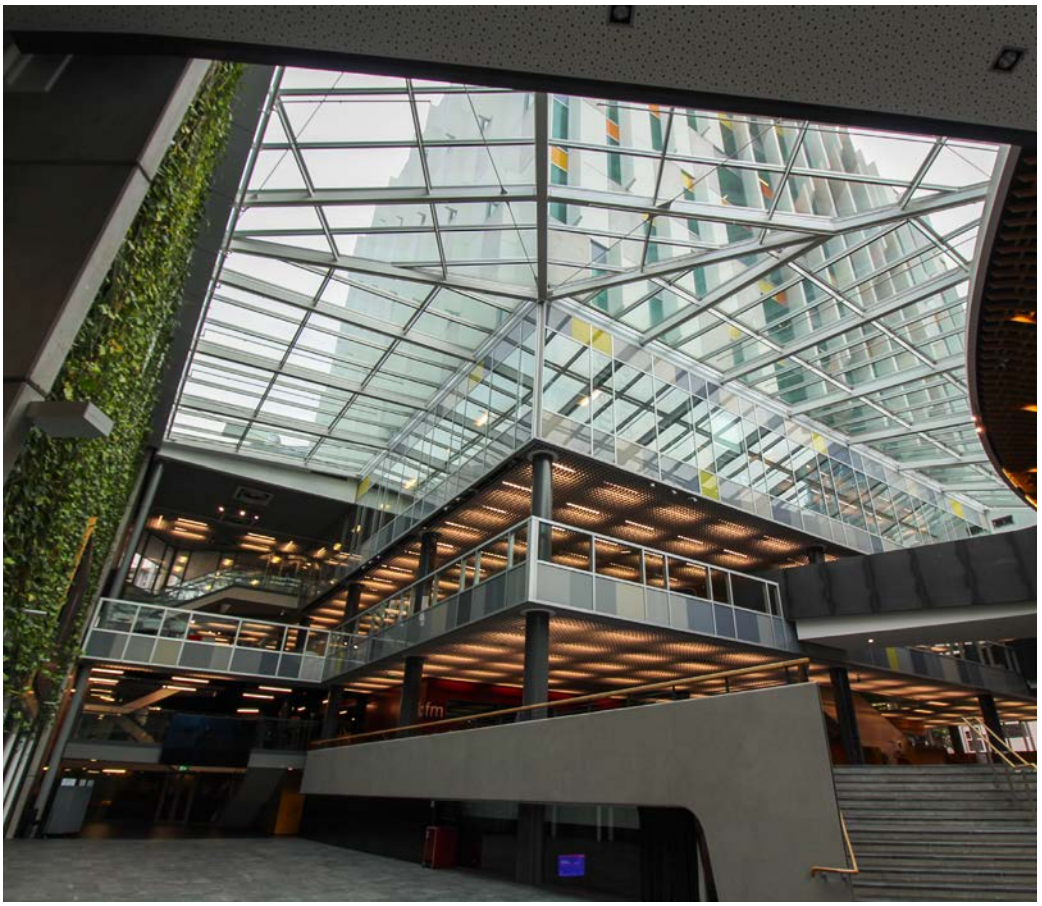
Victoria University, The Hub

Commercial Bay, Auckland CBD



Toyota HQ, Palmerston North

Harvey Norman Centre, Lower Hutt



Auckland University of Technology (AUT) - Sir Paul Reeves Building

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Thermosash are members of:

NZGBC
TE KAUNIHERA HANGANGA TAUTAIAO

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