

THERMOSASH

Delta 40 Commercial

UNITISED WINDOW AND DOOR SUITE



Thermosash
BUILDING ENVELOPE SOLUTIONS™

Thermosash Commercial Ltd

158 Central Park Drive, Henderson
Auckland 0610, New Zealand

www.thermosash.co.nz



Our Unitised Facades offer the benefits of local off-site fabrication, modern construction techniques, and near limitless design possibilities...

bringing your boldest architectural visions to life whilst delivering practical benefits such as speed of installation, reduced risk, 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. We have five decades of building envelope experience to bring to your table.

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.



Sylvia Park Office Tower
AUCKLAND



ENT Southern Cross
CHRISTCHURCH



Christchurch City Hotel
CHRISTCHURCH

HEAVY DUTY COMMERCIAL DELTA SUITE

The Delta Commercial Suite has been specified and incorporated on a great majority of New Zealand's noteworthy projects where product quality and long term high performance levels are required. Originally designed in the 1970s and further developed over the years, the Delta Suite has become a market leader.

It is an extremely versatile suite with an outer frame construction - tenoned in a unique manner to provide a very strong and twist-free connection which removes the reliance on assembly screws for strength and small joint sealant for weathering of fabricated joints.

The Delta Suite is robust and adaptable and includes Doors, Sliders, Windows and Sashes.



PRODUCT SPECIFICATION

MASTERSPEC

We recommend using Masterspec 4251TS Commercial Windows when specifying Delta Commercial Suite.

CAD DOWNLOADS

Delta 40 Commercial Suite downloads are available from our website:

Windows:

<https://www.thermosash.co.nz/downloads-resources/cad-downloads/windows-downloads/commercial-windows/delta-40-commercial-window-downloads/>

Doors:

<https://www.thermosash.co.nz/downloads-resources/cad-downloads/doors-sliders-downloads/doors/delta-40-commercial-door-downloads/>

Sliders:

<https://www.thermosash.co.nz/downloads-resources/cad-downloads/doors-sliders-downloads/sliders/delta-40-commercial-slider-downloads/>

PRODUCT PERFORMANCE

KEY DESIGN FEATURES

- Adaptable system, easily configured.
- Uniquely tenoned for strength
- Specifically engineered sashes
- Can accommodate varying thickness of glass, DGU, or panel combination from 4mm to 28mm.
- Integrates with seismic frames or transoms
- Specifically designed sill trays on all products ensures weathering lines are not penetrated by fixings

The outer frame construction is tenoned in a unique manner to provide a very strong and twist-free connection, which removes the reliance on assembly screws for strength and small joint sealant for weathering of fabricated joints.

Delta Suite sashes are mitred and crimped or cleated to provide superior torsional strength, enabling large sashes to be provided and which are capable of large spans.

Sashes are designed with pressure seals internally (rear airseal) and externally to the heads and jambs to provide high performance rainscreen pressure equalised weathering.

Sashes have an integral drainage channel in the web of the section, eliminating the need for externally applied weather bars.

The system is generally dry glazed with high quality Santoprene gaskets.

Glazing rebates of 22mm comply with minimum required commercial glass engagements and edge clearances for sophisticated high performance architectural glass products (particularly insulated glass units). An important design requirement to obtain glass warranties.

Delta windows can accommodate varying thickness of glass or panel from 4mm to 28mm.

Delta windows integrate with perimeter seismic frames and (where required) seismic transoms to meet specified vertical or horizontal building movements (internally or externally glazed). This generally enables 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 to ensure rainscreen pressure equalised drainage principles are maintained. This design feature ensures fixings do not penetrate critical weathering lines and is particularly important with long-run coupled strip window units, a common feature on commercial window projects.

PERFORMANCE TESTING

Independently laboratory tested to IANZ (International Accreditation New Zealand)

B1/VM1 AS/NZS1170

Structural Design Actions

B2/AS1 Durability [based on in-service history]

F2 NZS4223

Glazing in Buildings

E2 NZS/AS4284:2008

Water / Air Pressure/ Air Leakage - exceeds minimum requirements

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 6 & 7.

INTENDED USE

CLASSIFICATION

- Clause A1 Building Use Classification:
 - Housing, Communal residential, Communal non-residential, Commercial and Industrial
- Clause A3 Building Importance Levels from 1-5

BUILDING TYPE

- High-rise
- Low-rise
- Specific design

BUILDING LOCATION

Thermosash provides custom specific 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 Delta Suite 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.

CAPABILITIES

FRAME SIZE

Single and Double Glazed options available

Fixed window frames	61mm Seismic 41mm Non Seismic
Awning / Sliding Hopper / Spinner window inserts	30mm
Hinged Doors	47mm Heavy Duty
Bifold Doors	47mm Heavy Duty
Glazing Pocket	4mm - 28mm

MAXIMUM SPANNING ABILITY

Thermosash specifically engineers the best suite option for your project taking into consideration span, structural system, and environmental loads (e.g. wind). The spanning ability will vary depending on the above.

ADAPTABILITY & INTEGRATION

The Delta Commercial Suite is a robust adaptable system which can be easily configured according to practical design parameters within the same perimeter frame, or seismic frame (if required).

- Adaptability includes various window sash configurations;
 - sliding windows
 - doors
 - awning
 - casement
 - hopper and spinner (i.e. reversible) sliding sashes. All sashes can be glazed either internally or externally
- All windows and doors can be integrated - refer drawing details
- Single Bank 40mm Mechanical Air Louvres can be integrated into doors.

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, Glass, Structural Silicone, Gaskets, Neoprene Rubber, Nylon, Molybdenum Disulfide, and PVB Polyvinyl 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 314 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. Design Producer Statement.

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.

It is recommended by almost all material suppliers that building washing should occur every 3-6 months to prevent staining to glass and prevent environmental pollutants from corroding metals and to maintain the material warranties.

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.

LOW CARBON ALUMINIUM EXTRUSIONS

Thermosash DecarbAL™ delivers a super low sustainable embodied carbon footprint per kilogram of aluminium. 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. Our aluminium supplier is audited annually, for up to date carbon figures please contact us.

LOW CARBON GLASS

Thermosash's commitment to sustainability also extends to our glass selection. With access to worldwide low-carbon glass suppliers, we ensure that our projects benefit from environmentally friendly and high performance glazing options, further reducing the carbon footprint

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.

BENEFITS

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
- ongoing trust within the industry
- high performance solutions
- durability of systems and longevity of product lifespan
- totally integrated service with ECI /ECE - engineering, producer statement generation, full shop drawings, manufacture and installation.
- design and detail to accommodate seismic loads and inter-storey differential movement, as well as wind loads
- Risk mitigation through one provider construction methodology and one warranty.

UNITISED SYSTEM ADVANTAGES

- Off-site fabrication and glazing
- Quality assurance controlled within a factory environment
- Speeds up site installation process due to modular construction - enclosing buildings rapidly and reducing onsite programme time
- Reduces on-site delays related to inclement weather - fabrication can continue even if site falls behind Unitised panels can be stored on completed floors in loading crates ready for installation
- Dramatically reduces scaffold and crane requirements
- Specifically engineered to accommodate environmental conditions and design constraints of the project
- Can incorporate a variety of cladding materials and integrated elements

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 energy and maintenance over the lifespan of the building.



Barclays Building C, Auckland

DELTA SUITE FACADE STRIP AND INSERT WINDOWS

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 no 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.
C3 FIRE affecting areas beyond the source	COMPLIANCE IF APPLICABLE In the event that the incorporation of an element into our facade 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 Compliance of E2 Alternative solution testing to AS/NZS4284 and good practice detailing as shown by way of testing, and test results are attached to every compliance pathway submission. Any complex/high-risk details that arise will be checked specifically for weather tightness by our in-house Producer Statement Author following best practice design principles, making use of pressure-equalised drained cavities and specialist expertise and experience. 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 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.
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.

BUILDING CODE	DEMONSTRATION OF COMPLIANCE
G4 VENTILATIONS	COMPLIANCE IF APPLICABLE While we do not assume responsibility for fenestration and ventilation design within buildings, we offer fenestration advice and have the capacity to customize our products to aid in achieving compliance with Clause G4 standards if applicable, by providing an engineered solution along with a comprehensive compliance pathway for approval.
G7 NATURAL LIGHT	COMPLIANCE IF APPLICABLE While we do not assume responsibility for fenestration and lighting design within buildings, Thermosash will provide an engineered solution along with a comprehensive compliance pathway for approval if compliance to this clause is applicable.
H1 ENERGY EFFICIENCY	COMPLIANCE IF APPLICABLE In the event that our facade solution is required to comply with Building Code H1 Energy Efficiency, compliance will be shown by way of Engineer's report, Acceptable Solution H1/AS2 or Verification Method H1/VM2 where applicable, or an alternative solution should this be necessary, and include test results attached to a compliance pathway submission, including a PS3 Construction Producer Statement for our product solution.

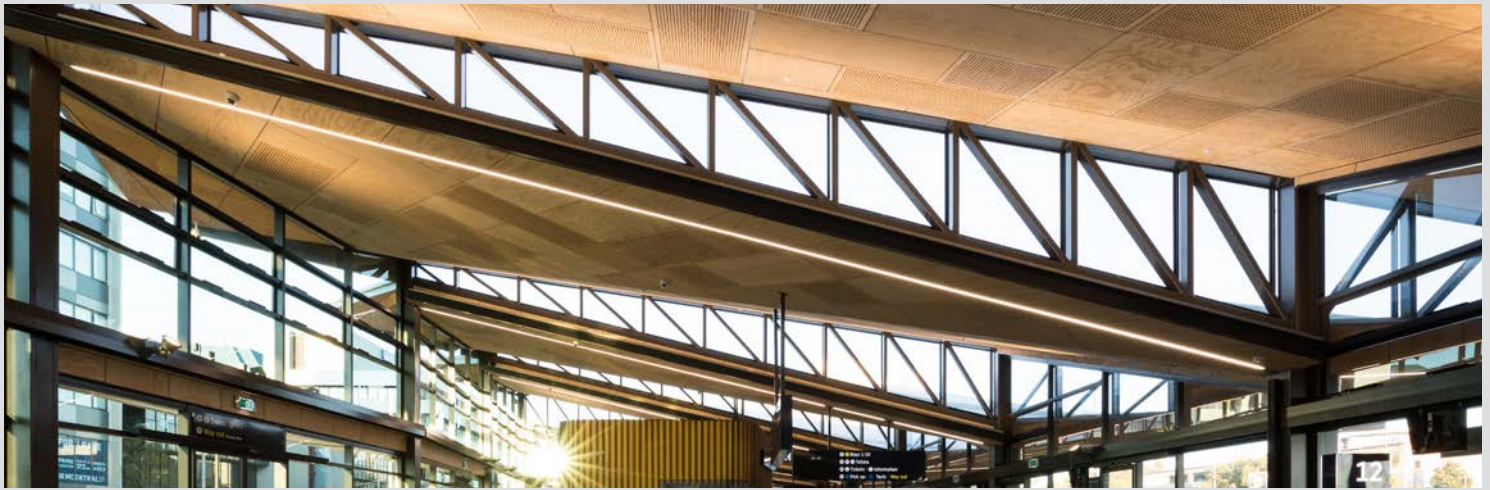
NOTE: THIS BROCHURE CONTAINS A SUMMARISED VERSION OF BUILDING PRODUCT INFORMATION REQUIREMENTS (BPIR) CLASS 2 DISCLOSURE INFORMATION - OUR COMPREHENSIVE DOCUMENTS CAN BE DOWNLOADED FROM:
[HTTPS://WWW.THERMOSASH.CO.NZ/DOWNLOADS-RESOURCES/BPIR-DOCUMENTS/](https://www.thermosash.co.nz/downloads-resources/bpir-documents/)



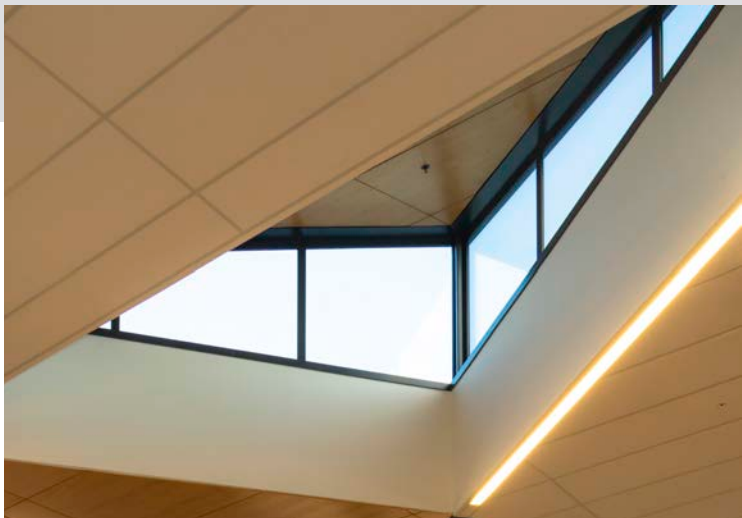
Ara Institute of Canterbury
DELTA SUITE PUNCH WINDOWS



AUT Student Accommodation
DELTA SUITE WINDOWS



Manukau Bus Interchange, Auckland - Delta Suite sawtooth rooflights



Waitohi Johnsonville Library, Wellington - Delta Suite clerestory windows



MIT Manukau, Auckland - Delta Suite hinged doors



594 - 598 Manukau Rd, mixed use building - Delta Sliders



594 - 598 Manukau Rd, mixed use building - Delta doors with louvres



Quest Hotel Takapuna, Auckland - Delta punch windows at Level 4



Sylvia Park Train Station - Delta Suite windows



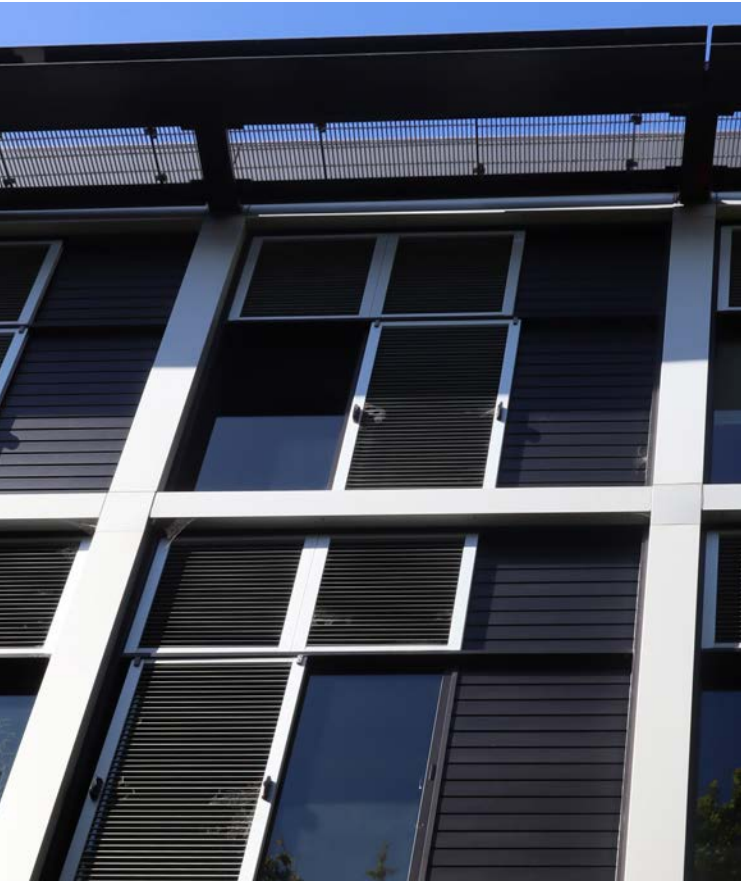
Quest Hotel Takapuna, Auckland - Delta High Performance Sliders at Level 4



Colombia Apartments, Auckland- Integrated Delta Suite windows & slider balconies



Stamford Plaza Apartments, Auckland - Twin Skin Facade with Thermosash PW1000 outer skin and Delta Suite acoustic sliders to the inner skin.



UOA Thomas Building - Integrated Delta Suite windows with sunscreen sliders

OUR BRANCHES

AUCKLAND

158-164 Central Park Drive
Auckland 0610, New Zealand
PO BOX 100-340 North Shore,
Auckland 0745, New Zealand
09 444 4944

WELLINGTON

17-19 Marine Parade, Petone,
Lower Hutt 5012, New Zealand
PO BOX 38-645 Wellington Mail Centre,
Lower Hutt 5045 New Zealand
04 939 4500

LEVIN

13 Enterprise Drive,
Levin 5571, New Zealand
PO BOX 38-645 Wellington Mail Centre,
Lower Hutt 5045 New Zealand
06 949 1717

CHRISTCHURCH

12 Braeburn Drive
Hornby, Christchurch 8042
PO BOX 313, Christchurch 8140
New Zealand
03 348 4004

www.thermosash.co.nz
info@thermosash.co.nz

Thermosash are members of:



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