THERMOSASH

DeltaGuard™

LOW TO MEDIUM SECURITY WINDOW SYSTEM

Thermosash
BUILDING ENVELOPE SOLUTIONS™

Thermosash Commercial Ltd

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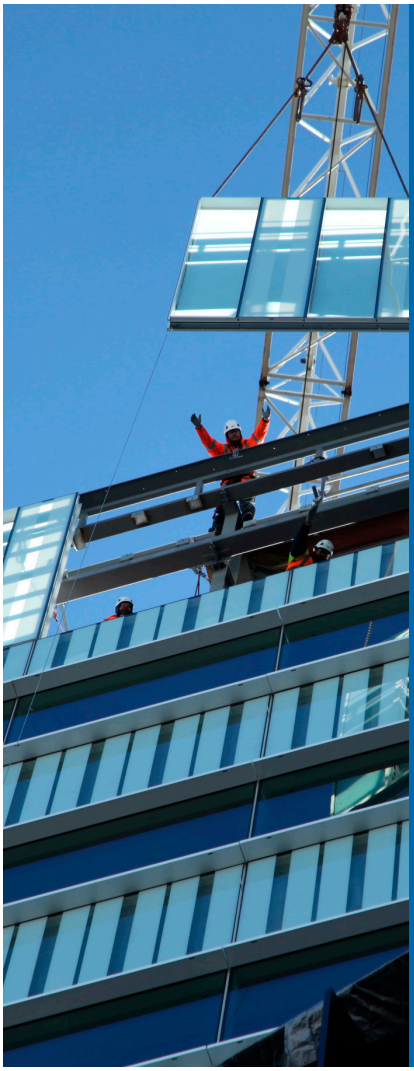
Auckland 0610, New Zealand

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.

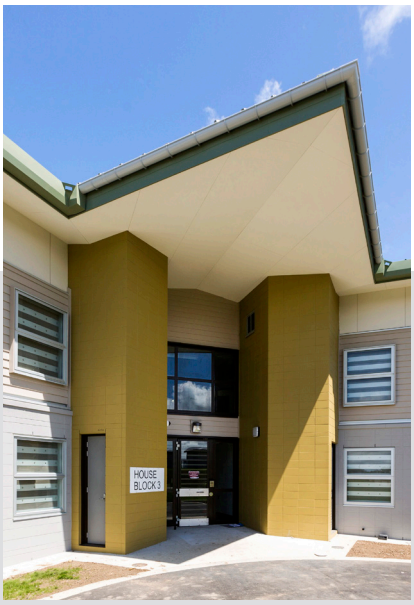
Thermosash is partnered with a NZ-owned extruder providing the lowest embodied carbon aluminium readily available in New Zealand*. The combination of high recycled content and low carbon virgin material forms the high quality extrusion that Thermosash uses.

*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.

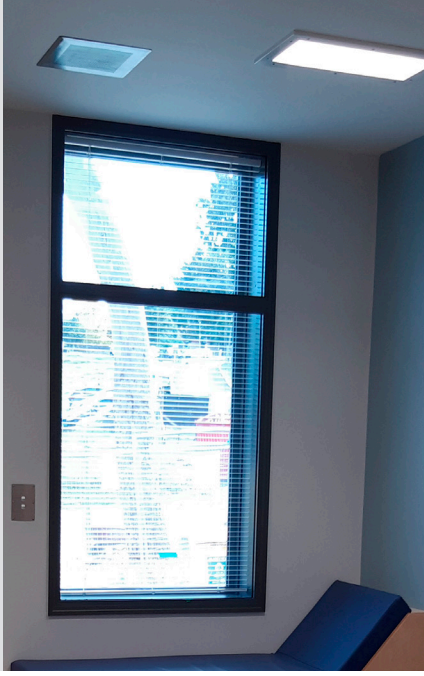
Mason Clinic WDHB
AUCKLAND



Wiri Prison
AUCKLAND

Youth Justice
CHRISTCHURCH

LOW TO MEDIUM SECURITY WINDOWS
DELTAGUARD™



Thermosash DelatGuard™ is a security window system developed for low to medium security human and physical structural impact project requirements. A specifically engineered frame and combined glass suite offering correctional facilities, youth detention, acute and forensic mental health facilities and data centre projects the peace of mind on entry and exit restriction and ballistic and blast control - offering protection to those in the building.

Please Note: DeltaGuard™ is not intended for high security protection where we recommend to use SÄLZER for medium to high end security, ballistic, intruder and blast protection. These exceptional security products are made in Germany by SÄLZER and installed by Thermosash in New Zealand. Please contact us to discuss your project so that we can offer the best solutions for your requirements.

PRODUCT SPECIFICATION

Each system is custom engineered for the intended use, span, and building construction. Please contact us to discuss so that we can provide the best security solution for your project.

The DeltaGuard™ suite has undergone continual development over the last 25 years - originally developed for youth detention facilities it has been further utilised in New Zealand Government buildings, consulates, biocontainment facilities, correctional facilities and forensic and acute mental health facilities – designed to protect the users within the building, as much as the public, by having no accessible parts that can be used for weapons and self-harm, and by our blast systems that can absorb and mitigate the potential for shrapnel damage internally.

PRODUCT PERFORMANCE

KEY DESIGN FEATURES

- Reinforced frame to take high impact internal loading, external loading or both.
- Designed to mitigate frame parts converting to weapons
- Ability to quickly switch out primary glass if damaged to reduce time a room is unoccupied where necessary
- Glazing pocket designed to accommodate varying glass thickness to meet projects needs
- Glazing options include; polycarbonate, Glass or IGU
- Anti-ligature internal design
- Domestic / residential non-institutional aesthetic.
- Tested for tool damage / destruction – intrusion resistance.
- Each system is specifically engineered for your project's needs
- Options available to provide security to restrict transfer of contraband

DeltaGuard™ can accommodate up to 41mm size IGU made up of toughed laminate. Although not thermally broken, Thermosash can offer thermal design calculations to support your project. Each project is custom engineered for the intended use, span, and building construction.

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

CAPABILITIES

FRAME SIZE

Sizing of units is subject to project security needs, and limitations may apply pending application and structural load intent - please contact us to discuss details / engineering requirements for your project.

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 DeltGuard™ window system can accommodate for:

- **Anti-ligature** - Suite is fixed in place but potential for ligature is minimised
- **High impact resistance** - Glass Design and Suite Frame are designed for containment / de-escalation areas
- **Weaponry deterrent** - Suites are designed to reduce the risk of being used as a weapon
- **Anti-Contraband** - Suites can be designed to eliminate contraband transfer
- **Quick replacement** - Should a glass pane be broken during an event; our suite can offer a quick replacement to ensure the room is operational in the shortest amount of time
- **Interstitial Systems** - options to allow for user or a master control of blinds, anti-ligature mitigation or microbial cleaning separation. Thermosash suite covers internal and external weathertight units.
- **Passive Ventilation** options available.

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 DeltaGuard™ window 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.

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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 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 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.

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.

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 NZGBC 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:

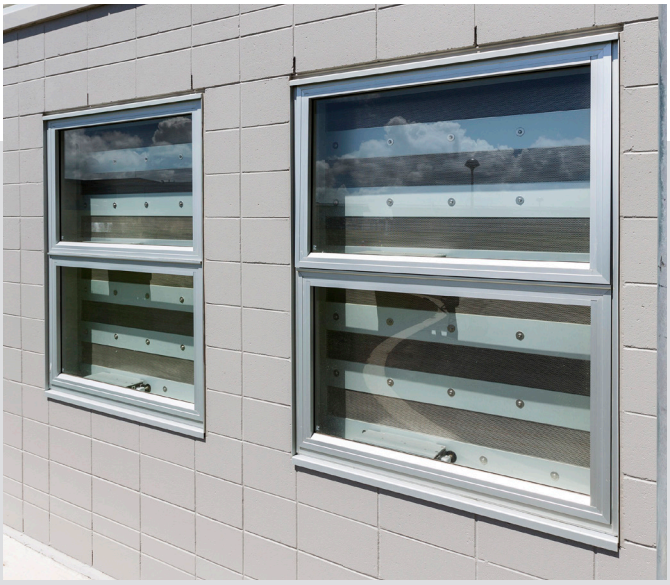
- +50 years of experience and expertise in the facade solutions industry in New Zealand
- In-house expertise across the entire process
- Ongoing trust within the industry
- Proven experience in complex project delivery
- Custom engineered high performance solutions tailored to architectural, environmental and structural requirements
- Durability of systems and longevity of product lifespan
- Responsible procurement and waste management
- 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
- 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
- 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.

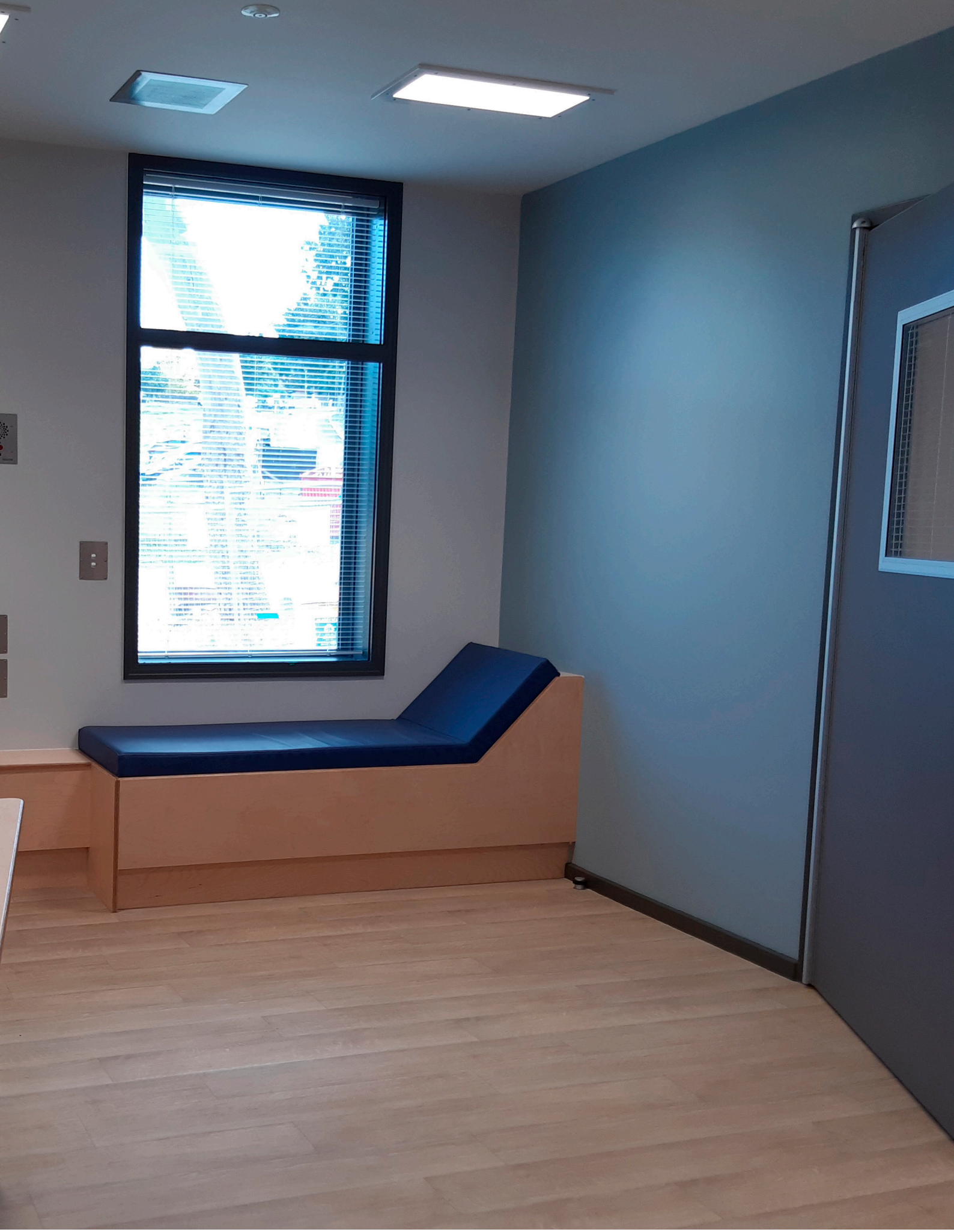


Wiri Prison, Auckland

SECURITY WINDOWS WITH BESPOKE SASH WINDERS

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**
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** 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 (occasionally terracotta tiles or porcelain stone may be integrated).
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/ balustrading 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 VENTILATIONS	**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/



Mason Clinic Te Whatu Ora, Auckland

SECURITY WINDOWS WITH INTEGRATED BLINDS FOR ANTI-LIGATURE MITIGATION

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

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Thermosash are members of:

NZGBC
TE KAUNIHERA HANGANGA TAUTAIAO

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BUILDING ENVELOPE SOLUTIONS™