BPIR – CLASS 2

W40 GLAZING SYSTEM

Building Product Information Sheet

Product Name	W40 Steel Glazing System
Product Line	W40 Steel Glazing System
Product Identifier	W40 Steel Glazing System
Place of manufacture	New Zealand
Legal and trading name of the manufacturer	Steelguard Ltd.
Address for service	50 Porana Road, Wairu Valley, Auckland. 0627
Website	www.steelguard.co.nz
Enail	sales@steelguard.co.nz
Phone	+64 (0)9 443 2722
NZBN	4146498
	This system is not subject to a warning or ban under section 26

Product Description

W40 is a suite of rolled steel sections that are fabricated by welding the section into frames and lights. These can be glazed with various types of glass depending on the architectural and technical requirements of the project. This system is typically installed and glazed on site using either glazing tapes, beads or silicone. The frames can either be powder coated, wet painted or patinated depending on client choice and suitability of finish.

Intended Use

A1 Building Use Classification

- Housing
- Communal residential
- Communal non-residential
- Commercial
- Industrial
- Ancillary

A3 Building Importance Levels

- Importance level 1
- Importance level 2
- Importance level 3
- Importance level 4
- Importance level 5

Building Type

- High-rise (internal only)
- Mid-rise (internal only)
- Low-rise (internal only)
- Specific design

Building Part

- Internal partitions and doors
- Shopfronts
- Suitable for areas requiring safety glass

Other Properties

Application and Functionality

- Resistance to wind actions
- Seismic resilience
- Thermal and acoustic insulation
- Internal partitioning
- Privacy
- Light transmission modification
- Thermal performance

Other Properties

- Can be incorporated with pivoting, sliding and automatic doors
- Can create either an elegant architectural look or a sleek and elegant minimalist aesthetic
- Frames and glazing are site installed
- Can be designed to be modular
- Can be broken down into modules to enable site access in high rise buildings via goods lifts etc.
- None of the components support combustion and are designed with non-combustible materials

Building Locations

Suitable for the following zones / areas in New Zealand

- Wind zones *
- Climate zones *
- Corrosion zones *
- Seismic risk areas *

* Will be subject to specific design, compliance and test requirements

FRAME SIZES

W40 section size can vary but is commonly 25-40mm (or engineered to be
greater at the head in order to allow for seismic movement by using movement accommodating channels).

MAXIMUM SPANNING ABILITY

Steelguard 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.
Generally, where large glass panes are employed, they are integrated with
an engineered strong-back system or similar.

Steelguard Suites are recognised as having some of the largest spanning systems on the market due to our specific engineering capability and the customised nature of the work we complete.

INTEGRATED ELEMENTS

Seamless incorporation of auto sliders, frameless glass doors,
revolving doors, access and escape doors etc. Steelguard can engineer a solution to suit project requirements.

Composition

SYSTEM - TYPICAL COMPONENTS

Each product/project is a fully specific design and engineered solution,
utilising common components, such as hot rolled mild steel sections, sheet
metal, fixings, sealants, insulation, and glass, fabricated in New Zealand
and sold as a complete system.

<u>No part or parts sold individually /separately, for wholesale or retail.</u>

Hot rolled mild steel sections
Mild steel
Stainless Steel (304/316)
Stainless Steel Bolts, Screws & Studs
Galvanized Steel Bolts

Glass: Generally, number of glazing units (e.g. single, double) and
safety factors (e.g. safety glass)
Structural Silicone
Glazing sealant silicone
PVB, Polyvinyl butyral glass inter-layer or SGP, Sentry Glass Plus inter-layer

Limitations of Use

Installation Requirements

Must be installed by an approved Steelguard installer. Installation must follow the project specific design and using the project specific workshop and fabrications drawings.

Fixed lights without doors or opening sashes we have weathering test reports. Details will be included in engineering report provided for project.

W40 is not a weather sealed system, there are no gaskets or seals included within the system, it is for internal use only

Design Requirements

W40 steel glazing systems are glazed on site, to the requirements of each project. Prior to fabrication, the following project selections must be confirmed by the project architect, engineer or specifier:

Opening panel size(s) and type(s), and configuration of fixed and opening
panels, including any specific requirements for doors that are on access routes or escape routes.

- Safety fittings and hardware
- Finish requirements and colour for steel components IGU performance selections, including R-value, solar heat gain (SHGC), VLT, and safety glazing requirements
- Project Wind Zone
- Project Exposure Zone

Structural

Differential Movement Report generated by the Structural Engineer identifying:

- Max vertical movements “total” at interfaces with

façade/window/curtainwall/building structure
- Beam defections live load, creep, column shortening etc.
- Precast joints in window openings. Nominate differential movements at corners of the precast panel
- ULS and SLS maximum inter-storey horizontal structure movements
- c(o) the site hazard coefficient
- Max unsupported spans between supports
- Barrier loadings on glazing to be nominated
- Floor usage to be nominated
- Wind Loads (ULS and SLS)
- Snow Loads
- Earthquake Loads
- Roof / Skylight / Canopy / Façade load - Maintenance Load (0.5 / 1.1 kN) / Trafficable Load (1.8kN)

Mechanical

Glass performance required

- SC, LT, LR

Acoustic performance

- STL/STC

Is heat soaking required for any glazing

Architectural

- Colour of tint aesthetics included any digital print or applied design / manifestations
- Defection limitation on glass
- Minimum Code L/90 annealed, or L/60 heat treated short span or higher
- RAB behind composite panels as air seal (not Tyvec type building wrap)
- Surface finish of joinery / composite panel
- Architectural Sheetmetal required for non- that may form part of our scope
- Provision of Producer Statements Design (PS1) and Construction (PS3) B1, B2, E2, F2 Building Code Compliance

Relevant Building Code clauses

B1 Structure

B1.3.1, B1.3.2 and B1.3.3 (g), (h) and (j), B1.3.4 PS1 for B1 Structure

B2 Durability

- B2.3.1 (b) and (c)
- PS1 for B2 Durability

C3 Fire affecting areas beyond the source

Whilst we are not fire engineers and do not engage in the fire design of buildings, our products can be tailored to support compliance with Clause C3. We recommend collaborating with a fire engineer to ensure proper customisation and adherence to fire safety requirements.

- We can provide a PS3 - Construction

E2 External Moisture – non-applicable

- E2.3.1 and E2.3.2
- PS1 for E2 External Moisture

F2 Hazardous Building Materials

- F2.3.1. and F2.3.3 (a)
- PS1 for F2 Hazardous Materials

F4 Safety from falling

- F4.3.1

G4 Ventilation

While we do not assume responsibility for the design of fenestration and ventilation within buildings, we offer fenestration advice for compliance with code requirements and have the capacity to customise our products to aid in achieving compliance with Clause G4 standards.

G7 Natural Light

While we do not assume responsibility for fenestration and lighting design within buildings, we have the capacity to customise our products to aid in achieving compliance with Clause G4 standards.

H1 Energy Efficiency

- H1.3.1 and H1.3.2E

We do not assume responsibility for overall building envelope H1 compliance – we are able to provide average R-Value for our system solutions along with fenestration and material options to improve our system's H1 performance, which would include options for Thermally Insulated and Thermally Broken solutions from our other suites.

Key New Zealand Standards

Below is a list of some key New Zealand standards parts and clauses that can apply to steel windows in building projects. Please note that this list is not exhaustive, and you should consult with professionals and relevant authorities to ensure compliance with all applicable codes and standards for your specific project:

- NZS 4211:2008 – Performance of Windows
- NZS 4218:2019 – Thermal Insulation – Housing and Small Buildings
- NZS 4223.1:2008 – Glass selection and glazing
- NZS 4223.2:2016 – Glazing in Buildings
- NZS 4223.3:2016 – Human impact safety requirements
- NZS 4223.4:2008 – Wind, dead, snow, and live actions
- NZS 4223 Supp. 1:2008 – Supplement 1 to NZS 4223.1:2008 and NZS 4223.4:2008
- AS/NZS 1170.0:2002 – Structural Design Actions – Part 0: General Principles

- AS/NZS 1170.0:2002 – Structural Design Actions – Part 1: Permanent, imposed and other actions
- AS/NZS 1170.2:2011 – Structural Design Actions – Part 2: Wind Actions
- AS/NZS 1170.3:2011 – Structural Design Actions – Part 3: Snow and Ice Actions
- AS/NZS 1170.5:2011 – Structural Design Actions – Part 5: Earthquake Actions

- AS/NZS 4284:2008 – Testing of Building Façades: Relevant for testing methods and performance standards for building façades, including windows. (Water / Air Pressure/ Air Leakage - Meets and exceeds minimum requirements)

- AS/NZS 4666:2012 – Insulating glass units: Requirements and guidelines for the long-term type testing, glazing, and periodic manufacturing testing of insulating glass units intended for use in buildings.

- ISO 12567-1:2020 – Thermal Performance of Windows, Doors and Shutters – Calculation of Thermal Transmittance – Part 1: General: Relevant for thermal transmittance calculations of windows.

- ISO 140-3:1995 – Acoustics – Measurement of Sound Insulation in Buildings and of Building Elements – Part 3: Laboratory Measurement of Airborne Sound Insulation of Building Elements: Relevant for laboratory measurements of airborne sound insulation of windows.

Compliance

STEELGUARD COMPLIANCE STATEMENT

Steelguard expertly engineers and designs each bespoke façade 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 a PS1, PS3 and PS4 where required, as well as a submitted compliance pathway. Depending on the documentation and/or project specific testing, there may be a charge for this service.

ACCEPTABLE SOLUTIONS AND VERIFICATION METHODS

NZBC Clause B1 Structure

COMPLIANCE BY B1/VM1 (project-specific design)
Compliance with B1 is shown by way of engineering calculations and/or testing, and reports are attached to the compliance pathway submission.

NZBC Clause 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 37155:2002 - Metal fishing 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
- AS/NZS 2312:2014 - Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings.

COMPLIANCE BY B2/VM1

All elements of the Steelguard product/system are specified by Steelguard 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.

NZBC Clause C3 Fire affecting areas beyond the source

COMPLIANCE – IF APPLICABLE

In the event that the incorporation of an element into our façade solution is necessary to adhere to Building Code C3 Fire affecting areas beyond the source, Steelguard will provide an engineered solution along with a comprehensive compliance pathway for approval. While we are not fire engineers and do not engage in the fire design of buildings, our products can be tailored to support compliance with Clause C3. We recommend collaborating with a fire engineer to ensure proper customisation and adherence to fire safety requirements.

NZBC Clause E2 External Moisture

COMPLIANCE BY E2 ALTERNATIVE SOLUTION

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 specialist consultants or Producer Statement Author following best practice design principles, making use of specialist expertise and experience.

If required Steelguard 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).

- CWCT Technical Notice 41 (TN41)

Engineer's report, using calculation methods contained in NZBC

NZBC Clause F2 Hazardous Materials

COMPLIANCE BY F2/AS1 NZS4223.3

Steelguard can confirm 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.

NZBC Clause F4 Safety from falling

COMPLIANCE BY NZS/AS 1170.1

Steelguard 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. Steelguard's responsibility is limited to the door/window/curtainwall.

NZBC Clause G4 Ventilation

COMPLIANCE – IF APPLICABLE

In the event that the incorporation of an element into our façade solution is necessary to adhere to Building Code G4 Ventilation for natural or mechanical ventilation, Steelguard will provide an engineered solution along with a comprehensive compliance pathway for approval.

NZBC Clause G7 Natural Light

COMPLIANCE – IF APPLICABLE

In the event that the incorporation of an element into our façade solution is necessary to adhere to Building Code G7 Natural Light, Steelguard will provide an engineered solution along with a comprehensive compliance pathway for approval.

NZBC Clause H1 Energy Efficiency

COMPLIANCE BY H1/AS2 – IF APPLICABLE
COMPLIANCE BY H1/VM2 – IF APPLICABLE

In the event that our façade solution is required to comply with Building Code H1 Energy Efficiency, compliance will be shown by way of Acceptable Solution H1/AS1 or H1/AS2 or the modelling methods contained in NZBC Verification methods H1/VM1 or H1/VM2 and include test results attached to a compliance pathway submission.

Warranty

The standard warranty is 5 years from the date of practical completion for these products. This covers workmanship, providing the subcontract includes fabrication, installation and glazing of all components.

- Structural integrity (framing, brackets, fixings) - 50 years
- Material and components life to first maintenance - 10 years. Laminated glass and fire glass material warranty 5 years.
- Surface finish / seals / hardware - 5 years

The care and maintenance regime must be followed and be recorded and documented for the warranty to be valid.

Steelguard
fire + security + architectural

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Care and Maintenance of your Fire Rated & Other Steel Joinery & Glass

Care of Powder Coat Finish

- To comply with warranty requirements and to extend the effective life of steel coatings, a very simple regular maintenance programme should be implemented. For beach-front/marine and heavy industrial locations, the joinery should be inspected quarterly and washed every 3-6 months, and for other locations every 6-12 months.
- Carefully remove any loose deposits with a wet sponge from the steel joinery.
- Use a soft brush (non-abrasive) and a solution of warm water and non-abrasive, pH neutral detergent solution to remove dust, salt and other deposits as they occur.
- Surfaces should be thoroughly rinsed after cleaning to remove all residues.
- Mask windows, if painting. Use only methylated spirits, mineral turpentine or water to remove fresh paint splashes, making sure to remove any residue left on the joinery or glass with a wet sponge.
- **DO NOT** use abrasive-steel wool, scrapers, scouring liquids or powders to remove paint splatter. These will damage your powder coating.
- **DO NOT** use aggressive solvent-thinners, petrol etc. these solvents will attack gloss levels and reduce the powder coatings life expectancy.
- **DO NOT** expose your joinery to excessive heat, heaters or hot air guns. These may damage the powder coating or paint finish.

Repairs to Powder Coat Finish

If through some misadventure your powder coated **steel** joinery is scratched or damaged, colour repair kits are available from the powder coatings manufacturer. Please contact us for details on your steel joinery colour, quoting the job number from the invoice.

Care of Paint Finish

To comply with warranty requirements and to extend the effective life of steel coatings, a very simple regular maintenance programme should be implemented. For beach front/marine and heavy industrial locations, the joinery should be inspected quarterly and washed every 3-6 months, and for other locations every 6-12 months.

PAINT MAINTENANCE SYSTEM

Resene Paints Limited recommends the following maintenance scheme.

Every 6 months.

Thoroughly wash down with a 25 % solution of Resene Paint Prep and Housewash and water to remove all dirt, dust, grease, chalk, cobwebs and any other contaminants.

Data Sheet D812

Thoroughly waterblast to remove all **salts** and residue from the Paint Prep and House wash cleaning process. This particularly applies to areas **not naturally washed by rain** where dirt & salts can accumulate.

Every 12 months

If any areas of moss or mold infestation are found then treat them with Resene Moss & Mold Killer, diluted at the rate of 200 grams to 1 litre of clean water. Leave for up to 48 hours to achieve full kill. For heavy infestations more applications may be needed.

Data Sheet D812

Thoroughly wash down with a 25 % solution of Resene Paint Prep & House wash and water to remove all dirt, dust, grease, moss and mold residue, chalk, cobwebs and any other contaminants.

Data Sheet D812

Thoroughly waterblast to remove all salts and residue from the Resene Paint Prep & Housewash cleaning process.

Inspect the paintwork for signs of premature breakdown. Typical causes of this may be areas of physical damage, low film builds on sharp edges etc. Any defects found should be rectified as soon as possible.

Glass Maintenance

Surface grit may be present from the production process, and this should **not** be dragged over the surface, as it **WILL** scratch the glass. **NEVER USE METAL SCRAPERS.**

- Clean glass when dirt and residue appear.
- Soak the glass surface with clean water and soap solution to loosen dirt and debris. **DO NOT** begin to clean without rinsing excessive dirt and debris first.
- Check the sealant, tapes or gaskets for signs to damage or failure, repair or replace as required. Check the drawing for details of products used.
- Use a mild non-abrasive commercial window cleaning solution.
- Use a squeegee to remove all the cleaning solution. Check for dirt and grit on the squeegee **before use** to avoid scratching the glass.
- Completely dry all cleaning solution and water from glass and surrounding steel joinery. Remove any cleaning residue that remains.
- Familiarise with and follow glass supplier's specific cleaning recommendations.
- **DO NOT** use scrapers of any size or type for cleaning the glass.
- **DO NOT** allow dirt or residue to remain on glass for an extended period of time.
- Take care to **not** allow metal parts of cleaning equipment to contact the glass.
- **DO NOT** use abrasive cleaning solutions, materials or solvents.

Window/Door Maintenance

The windows and/or doors should receive quarterly, bi-annual or annual inspections and servicing (depending on location and volume of usage). Steelguard Limited is available to carry out this work and can provide a Service Agreement.

We recommend you refer to the various other manufacturers recommendations (such as glass, sealant and coatings) for maintenance of different window and door components, and the recommendations

provided by BRANZ e.g. https://www.maintainingmyhome.org.nz/assets/Charter/MYH-table-Maintenance-schedule2.pdf by way of example.

Operable Fire rated windows

Every 12 months

Check of fire rated window hardware.

Ensure pins, pivots or hinges move as expected and aren't corroded, apply silicone-based lubricant as required.

General window function.

Notes:

1. When the window is in its open mode, ensure that only the hole provided in the peg stay (only one hole provided) is used to hold the window open at all times.
2. All other times the window is to remain closed and latched on the two nippy catches, thus ensuring that this fire window provides the fire rating that was designed for.

3. If any hardware becomes faulty or needs replacing Steelguard Ltd must be contacted to ensure the correct hardware is replaced and installed. Steelguard Limited, phone +64 (0)9 443 2722.

Fire rated Doors

Every 12 months

Check of fire rated door hardware.

Ensure pins, pivots or hinges move as expected and aren't corroded or seized, apply silicone-based lubricant as required.

General door function.

Notes:

1. Fire doors are not permitted to be mechanically held open at any time.

2. If any hardware becomes faulty or needs replacing Steelguard Ltd must be contacted to ensure the correct hardware is replaced and installed. Steelguard Limited, please phone +64 (0)9 443 2722 or email sales@steelguard.co.nz

Breakages

In the event of a breakage, contact Steelguard Limited, please phone: +64 (0)9 443 2722 or email sales@steelguard.co.nz

Compliance Schedule

All fire doors and windows should be included on the Compliance Schedule for the building and regular inspection and maintenance should be signed off therefore allowing the issuing of the building's Warrant of Fitness.

All periodic inspection must be recorded in a schedule, along with any defects and the steps taken to remedy

Ensure the fire tag is still securely attached to the window.