

TESTING AND COMPLIANCE

Testing:

Metro Frameless Glass conduct a comprehensive testing program, utilising independent testing laboratories and/or independent witnesses from experienced third-party consulting engineers.

Why Conduct Physical Testing?

Mandatory industry standards and regulations must be met for any barrier design before installation to prove the integrity/compliance of the balustrade system. As a balustrade is often an integral element intended to protect persons from various hazards, primarily safety from falling, it is imperative the specified system is within the design limits of the glass and hardware. Physical testing simulates real user scenarios & compliance is normally demonstrated by inspection and load/displacement testing of the barrier's structural elements and infill panels. Extensive physical testing is conducted to provide an ultimate assurance that the product selected is fit for purpose and exceeds the NZ Building Code requirements.

Types of Testing Conducted:

Barriers are required to resist a range of minimum "design loads" as specified in AS/NZS 1170.1:2002, Table 3.3 Minimum Imposed Actions for Barriers.

Load testing is carried out referring to Department of Building & Housing - B1 Guidance on Barrier Design, & AS/NZS1170.0. Specialised equipment is required to provide uniformly distributed loads along the required number of panels and to monitor the deflection as the load is applied and gradually removed.

Barrier testing/inspection would typically cover the following:

- Horizontal point load deflection.
- Horizontal line load deflection.
- Horizontal line load to failure.
- Balustrade system post failure testing:
 - deflection of rigid interlayer after single panel failure.
 - interlinking rail deflection after single glass panel failure.
 - handrail deflection after single glass panel failure.
- Dimensional survey & condition assessment following each test.

Experience:

With over 20 years' expertise in glass design and balustrade & handrail load testing, Metro's engineers have comprehensive practical experience in barrier system testing.

Our bespoke barrier load testing rig allows us to quickly load test any barrier to validate design calculations, demonstrate and confirm the safety and suitability of our barrier systems.



Uniformly distributed horizontal line load



Post failure testing



Testing to destruction



Link Rail Testing



BakerCranes

METRO

ABUS 6.31



PRODUCT COMPLIANCE

Overview of Producer Statements:

The producer statement system is intended to provide Building Consent Authorities (BCA's) with reasonable grounds for the issue of a Building Consent or a Code Compliance Certificate, without having to duplicate design or construction checking undertaken by others.

There are two categories of producer statement, **design and construction**.

Within the design category there are two types of statement issued; producer statement **design** and producer statement **design review**. These statements are issued by design professionals confirming that in their professional view, part, or all of the building work as described on nominated plans and specifications has been designed in accordance with the performance requirements of the NZBC. Note the design professional can be either the designer or a design reviewer.

(a) Producer statement design (PS1) these statements are issued by design professionals as confirmation that the building work as designed and documented complies with the NZBC.

(b) Producer statement design review (PS2) these statements are issued by design professionals who have reviewed the work of the designer (sometimes on behalf of the Council) as confirmation that the building work that they have reviewed complies with the NZBC.

Within the construction category, there are two types of statement issued; producer statement **construction** and producer statement **construction review**. These statements are issued by contractors or design professionals stating in their view that part, or all of the building work as described on the consented plans and specifications has been constructed and meets certain performance requirements of the NZBC and or conditions of building consent.

(c) Producer statement construction (PS3) this statement is issued by the contractor who has performed the building work as confirmation that the building work is in accordance with the consented plans and the NZBC and is issued when Council have had limited or no involvement with specific elements of construction, such as pile driving, application of waterproofing membranes, specialist coating and cladding systems, etc

(d) Producer statement construction review (PS4) this statement is issued by the design professional¹ who has reviewed the work of the contractor as confirmation that the building work has been carried out in accordance with the consented plans and the NZBC and is issued where the design professional or Council has requested involvement or supervision by a suitably qualified person² for building work, such as pile driving, compaction of fill, placement of steel, etc.

Producer Statements

All PS1's must be made specific to the project address with a cover sheet and relevant drawings (where required), marked up and included in the PS1.

MPG offer design tables and associated drawings to assist with sales & quoting. The documents are available for download at www.metroglass.co.nz or online from www.masterspec.co.nz.

To request a generic balustrade or pool fence PS1:

Metro Glass offer a range of "generic" balustrade system solutions.

PS1 documents for these systems can be requested from the design and technical centre within our website - www.metroglass.co.nz.

You will need to register your details and complete a balustrade or pool fence generic PS1 request (there is a guidance document within the website to assist in completing this process).

Please note: It is the responsibility of the designer to ensure that the design installation details exactly match the PS1 installation details.

Alternatively e-mail your project details to technical@metroglass.co.nz and one of our team will assist with your balustrade or pool fence PS1 request.

To request a specific engineering design (SED) PS1:

Not all PS1 requests have "generic" solutions available at this time. Metro Glass has a team of experienced engineers dedicated to providing solutions for your glass and glazing projects.

You can request SED from the design and technical centre within our website - www.metroglass.co.nz. There are a selection of RFI forms which contain the minimum required details for and most common SED projects. Please submit the completed RFI form and required drawings to technical@metroglass.co.nz

Alternatively e-mail your project details to technical@metroglass.co.nz and one of our team will assist with your SED PS1 request. SED requests may incur engineering design and documentation fees.

Please Note:

A PS1 is not required for fully framed, partly framed or infill balustrade glazing protecting a fall of 1m or more, when the scope of the work complies EXACTLY with the terms of the latest amendment of B1 & NZS4222.3 amd 1, as per one of the tables in NZS4223.3 (table 7-12). Also ensure you comply with the 5m height above FFL requirements noted in NZS4223.1 amd 1, clause 3.8.3.2 (laminated glass that is prevented from disengaging from the perimeter frame when glazing more than 5m above an occupied space).

A PS1 is not required for fully framed or partly framed windbreaks that do NOT protect a fall of 1m or more. They shall be safety glass – Thickness in accordance with NZS4223 Part 4 (check wind) & NZS4223.3 amd 1, table 1 square metreage limitations apply. Point fixed wind breaks will require specific engineering design & enquiries for such should be requested via our website or emailed to technical@metroglass.co.nz

Ensure the proposed system is in the consented documents (or seek a building consent amendment) using our site specific PS1 **before** the system is installed.

Summary:

MPG PS1: MPG do not issue PS1s retrospectively. Site specific PS1s are required to be obtained from MPG prior to commencement of installation work.

MPG PS3 & MPG Installation: A PS3 can be issued to confirm glazing complies with the Building Code. MPG does not have to issue a PS1 or a design statement for a PS3 to be issued. However, when a PS1 (or other design documentation) has been issued, the installation and hence the PS3 must be in accordance with the issued PS1 (or other design documentation).

MPG PS3 & Third Party Installation: Where MPG do not undertake installation work, MPG will not issue a PS3. The PS3 will be the responsibility of the relevant third party undertaking installation who will need to certify compliance to the relevant PS1.



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