



DCO Consulting Engineers

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Our ref: HG1018_TC1-SF_Rev 1

Date: Tuesday, 23 May 2023

RE: TESTING CERTIFICATE – ASSESSMENT OF CHANNEL TLSC1217 – SIDE FIXED

STRUCTURAL DESCRIPTION: Structural glass and aluminium balustrade.

CLIENT:

REFERENCE DOCUMENTS:

Drawings:

None provided – refer to description below:

DESCRIPTION:

Cantilevered balustrade assembly with a '1200mm(W) x 1020mm(H) x 12.00mm(T) Toughened Glass panel' fixed at the bottom to a TLSC1217 aluminium channel. Glass height is measured from the top of the channel. Channel is face fixed to slab (200 thick min - 75 min edge) at 300 centres with M12 SS316 screw anchors (HUS4-HR 14x135 or similar).

We, DCO Consulting Engineers, hereby certify that we, being registered Structural Engineers, have assessed the testing of the system outlined above, as above, and have found it to be adequate in accordance with AS1170.0 and AS1288 and based on the following site conditions:

1. Live loading for usage type C3 (0.75kN/m crowd loading) in accordance with AS1170.1
2. Maximum design wind load of 2500Pa (Ultimate) in accordance with AS1170.2 or the wind loading expected in a typical urban setting, up to 7 storeys:
 - a. Structural Importance Factor 2, Region B, Terrain Category 3.0, 20m max height, full shielding.

This assessment is a guide only. Each proposed installation must be reviewed and assessed by a qualified person prior to loading. This assessment is based on the assumptions and limitations outlined below. We, DCO Consulting Engineers, hereby certify that we, being registered Structural Engineers, have made this assessment in accordance with accepted engineering principles and in particular with the following provisions of the Standard Building Regulations and Australian Standards:

- AS1170 - STRUCTURAL DESIGN ACTIONS
 - AS/NZS 1170.0: 2002 STRUCTURAL DESIGN ACTIONS—GENERAL PRINCIPLES
 - AS/NZS 1170.1: 2002 STRUCTURAL DESIGN ACTIONS—PERMANENT,
 - IMPOSED AND OTHER ACTIONS
 - AS/NZS 1170.2: 2002 STRUCTURAL DESIGN ACTIONS—WIND ACTIONS
- AS1288:2021 – GLASS IN BUILDINGS – SELECTION AND INSTALLATION
- AS/NZS 1664.1: 1997 ALUMINIUM STRUCTURES—LIMIT STATE DESIGN

This certificate is limited to the compliance of the structural design with the provisions of the above identified Australian Standards and relevant sections of the Building Regulations. This certificate is

only valid for the above project and can only be relied upon by the addressee. DCO Consulting Engineers accepts no responsibility for information that has not been expressly identified as part of this certification.

Signed

Date



23rd of May, 2023

Damien O'Mara

Director - DCO Consulting Engineer

RPEQ 9199, CPEng, NPER, MIEAust (3474754)

ADDITIONAL SPECIFICATION:

1. If suitable for the type of channel used, thicker glass of the same grade and specification can be used in lieu of the 12mm monolithic toughened used in the testing, without a reduction in capacity. That's is:
 - a. 2x6mm toughened laminated glass (or thicker) with a 1.52 min SGP or PVB can be used in lieu of 12mm monolithic toughened used in the testing.
 - b. 15mm (or thicker) monolithic toughened glass can be used in lieu of the 12mm monolithic toughened used in the testing.

DESIGN CONDITIONS AND LIMITATIONS:

- **THIS IS NOT A SITE SPECIFIC ENGINEERING CERTIFICATE.** This is a statement of capacity. All jobs will required site specific engineering certification.
- Post breakage test does not validate installation of the product in higher temperatures than tested.
- **No assessment of an interlinking handrail, under a failed panel condition,** in accordance with AS1288 – 7.3.1 has been included. This must be assessed on a site-by-site basis.
- All testing to be completed in accordance with the latest versions on AS1170.0 and AS1288 by a NATA accredited tester.
- The use is limited to the loading assumptions, regarding wind load and live load, stated above.
- The handrail to be connected to glass panel in a suitable manner.
- All connections between the product and any supporting structure must be independently verified as capable of providing the necessary structural support. Our analysis assumed connections are fully fixed.
- Product installation shall only be carried out to supporting structures independently verified as capable of providing the necessary structural support.
- This certification does not consider materials safety, site safety or safe work practices in any form.
- This certification does not consider the quality assurance and safe work practice aspects of the manufacturing, transportation and installation processes.
- No representation or warranty is given that your particular application of these products complies with relevant building codes or that the fasteners provided or used are appropriate for your application. Therefore consult with professionals and local building officials before beginning work:
 - (i) to ensure compliance with relevant building codes for your application and for your proposed use of fasteners;
 - (ii) to ensure the integrity of the structural components in connection with which these products are to be used;
 - to identify appropriate safety gear that is to be used during installation such as a safety harness when working above ground;
 - to ensure that the work area is free from utilities, services and hazards; and,
 - to clarify any instructions or warnings that may not be clear.
- Work in a safe manner wearing protective gear such as gloves, eyewear, headwear, footwear and clothing.
- When using tools always comply with operation manuals and instructions.
- Metal and glass may have sharp edges and could fragment or splinter during or as a result of handling or cutting.
- Do not use these products in connection with any substance that is or may be harmful or corrosive to the products.
- Inspect and maintain these products and the structural components that they are used in connection with on a regular basis using professionals when appropriate.
- This report has been prepared for certain standard residential applications. Obtain professional advice for any non-standard or non-residential application.