Yale Door and Window Solutions

YTR231113

Subject: Yale Frame Bracket: Load to failure test of YFB50-01 (Slimline Track) to determine the maximum load capacity.

Requested By: Steve Hall

Testing Date: 24/11/2023

Test Engineer: Gary Denley
Calvin Armes

Report By: Calvin Armes

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Sample Information

Profile:	Rehau
Size (mm):	1300 x 1300
Window Type:	Dummy Vent
Weight:	47kg
Window Bracket:	6 off YFB50-01
Fixings to window:	12 off 4.8mm x 19mm Pan Head
Fixings to timber:	12 off 5.0mm x 50mm CSK Woodscrew

6 Brackets were fitted, 3 on each vertical side.
These were fitted 100mm from the corners and centrally.

Procedure

- Initiate the test rig and gradually apply a load using hydraulic ram.
- Continuously monitor and record load, displacement, and any other relevant data during the test.
- Increase the load gradually until the window bracket fails
- Note the maximum load sustained by the window bracket before failure.
- Observe and document the mode of failure (e.g., deformation, cracking, breakage).

Results

Central Load:
A load was applied to the centre of the toughened glass. The toughened glass exhibited flexing at 2010N, indicating a limitation in further load application for safety reasons. No visible damage to any of the brackets or fixings were observed.

Single Bracket Load:
Load applied to a single bracket resulted in failure at 4150N. The failure was attributed to notable deformation observed in the track. This deformation led to the dislodgment of the pivot block, resulting in the complete failure of the bracket assembly.

Pictorial evidence showcasing the test set up, track deformation, pivot block displacement, and subsequent bracket failure is available on the following pages

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Pictorial Evidence

Test Setup





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Photographs

Bracket Failure





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