

YTR260701

Subject: Yale Frame Bracket: Load to failure test YFBR75 brackets (without additional bracket on timber) to determine the maximum load capacity.

Requested By: Steve Hall

Testing Date: 12/06/2026

Test Engineer: Philip Swinfield

Report By: Philip Swinfield

For Test pictures please see Appendix

Whilst every care is taken in ensuring that the results stated are accurate at the time of testing, they should be regarded as a screen test only and should not be relied upon for legal purposes. The test results apply only to the item tested and do not infer compliance of other items of the same description whether from the same batch or otherwise.

Sample Information

Profile:	Buildline
Size (mm):	1200 x 1200
Window Type:	Dummy Vent
Weight:	37kg
Window Bracket:	6 of YFBR75
Fixings to window:	4.8mm x 19mm Pan Head
Fixings to timber:	4.5mm 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.
- For single bracket load Increase the load gradually until the window bracket fails
- For central load increase load until glass deforms to a point that it threatens structural integrity.
- Note the maximum load sustained by the window bracket before failure/ glass at maximum deformation.
- 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 2050N, 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 below in the appendix.

Appendix

Test Setup



Figure 1: Central load preload being applied.

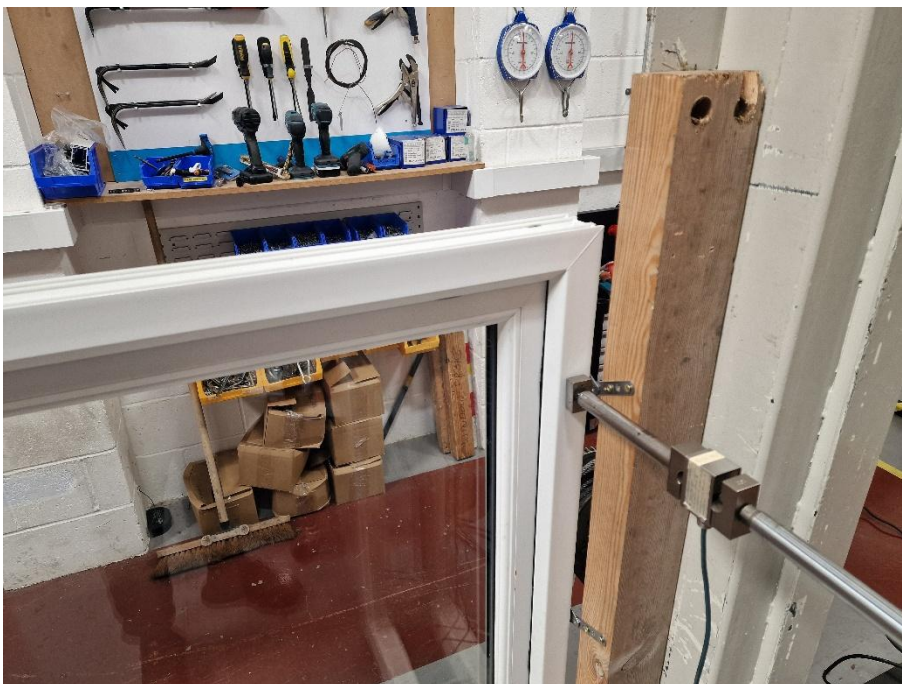
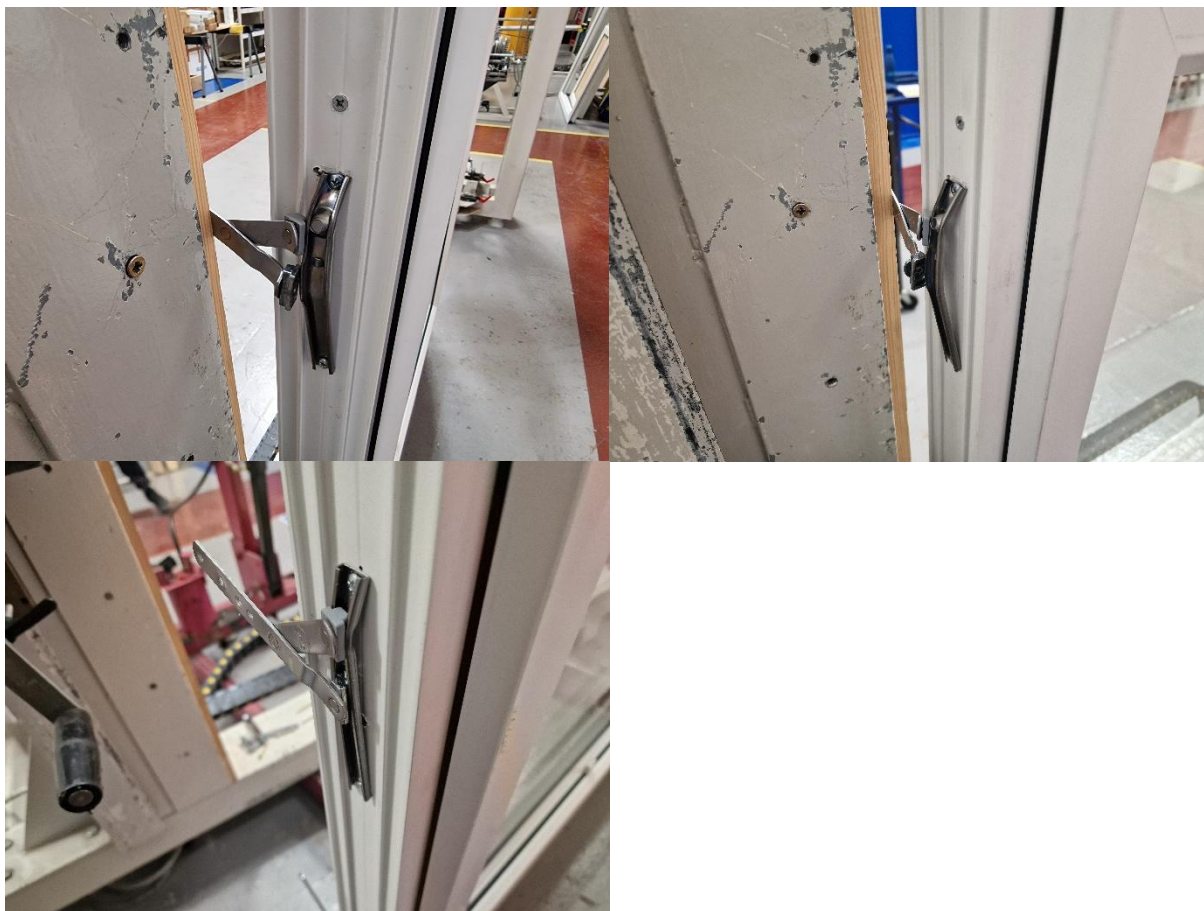


Figure 2: Single bracket load to be taken to failure.

Post test result images.



Figures 3,4 &5: Bracket after single bracket load failure at 4150N