

Tension test results for post rafter purlin connection system. See photo 1.



Photo 1 – showing the position of the connection within the final structure

Three tests were conducted on your connections, one for the 100x100mm Square box-section stainless steel post, one on a 80x80mm Square box-section stainless steel post and the third on a 75x75mm Square box-section stainless steel post, all connected to the same dimension rafter and purlin.

Testing was conducted by clamping the purlin down to the bed of the scion Weidemann grade 1 universal testing machine. The square stainless steel post was then connected to the testing machines movable crosshead.

Two displacement transducers were mounted on either side of the post measuring the average movement between the post and the purlin during the test

See photo 2. Test speed was set at 4mm/min. Load displacement during the test was recorded, along with maximum load and failure mode.



Photo 2. Specimen No. 278134 in test rig after failure had occurred.

The observed failure mode for all three specimens was deformation of the bracket connecting the purlin to the rafter. There appeared to be no significant deformation of any of the rafter post connections. see Photo 3

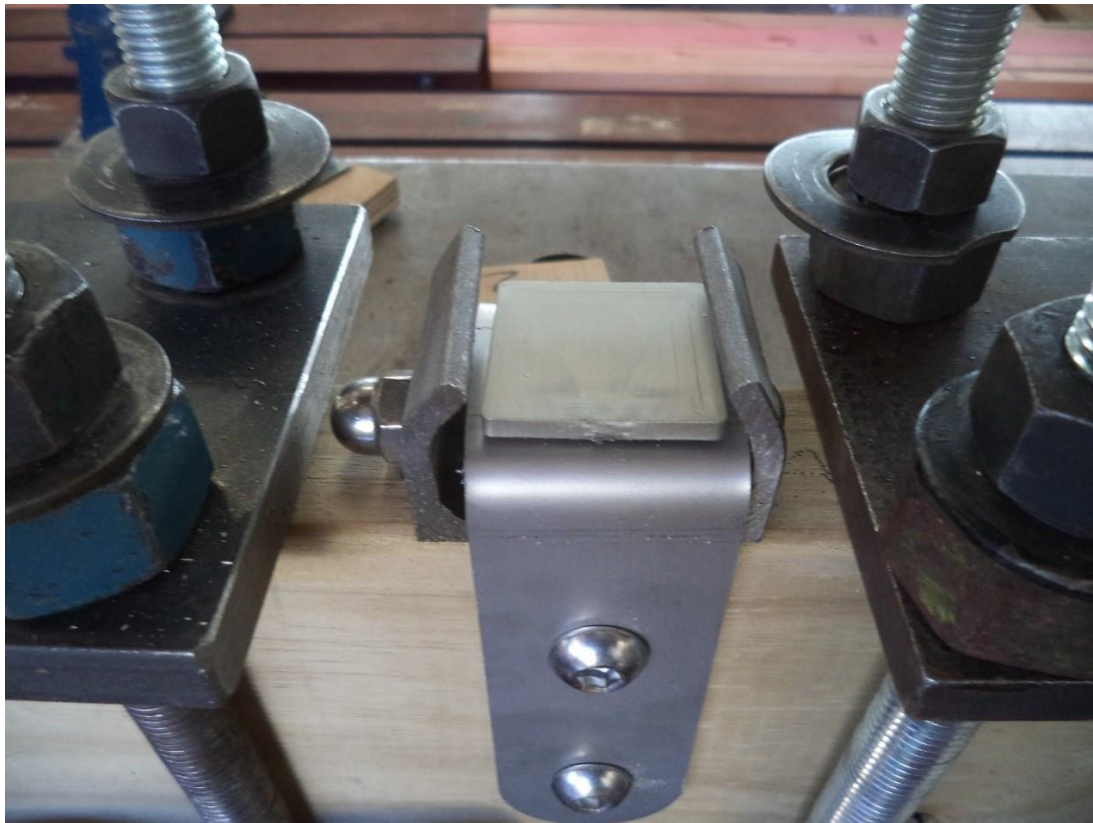


Photo 3. Specimen No. 278134 Rafter / Purlin connection bracket in test rig after failure had occurred.

Results

Table 1 provides a summary of the test results for the three specimens tested. Figures 1, 2, & 3 show the load and average displacement plots generated.

Test No:	Description	Max Load	Deflection at Max load	Slope	Load at Deflection of mm 2	Load at Deflection of mm 4	Load at Deflection of mm 6	Load at Deflection of mm 7
		kN	mm	N/mm	kN	kN	kN	kN
278134	100x100 Post	7.245	7.55	4217	4.04	5.73	6.93	7.06
278135	80x80 post	7.270	7.34	6391	4.30	5.93	6.98	7.14
278136	75x75 Post	6.972	6.29	4989	4.80	6.42	6.86	6.40

Table 1. Summary of the Rotobrac tension test results.

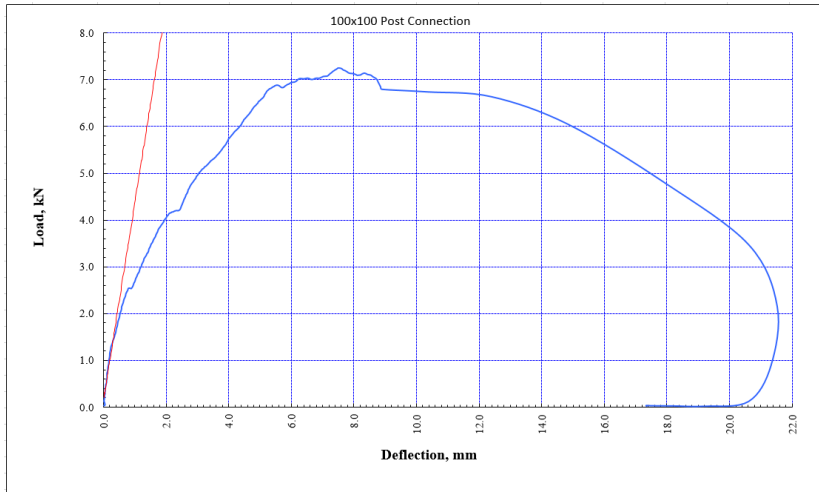


Figure 1. Load displacement plot for Specimen 278134 100x100mm post

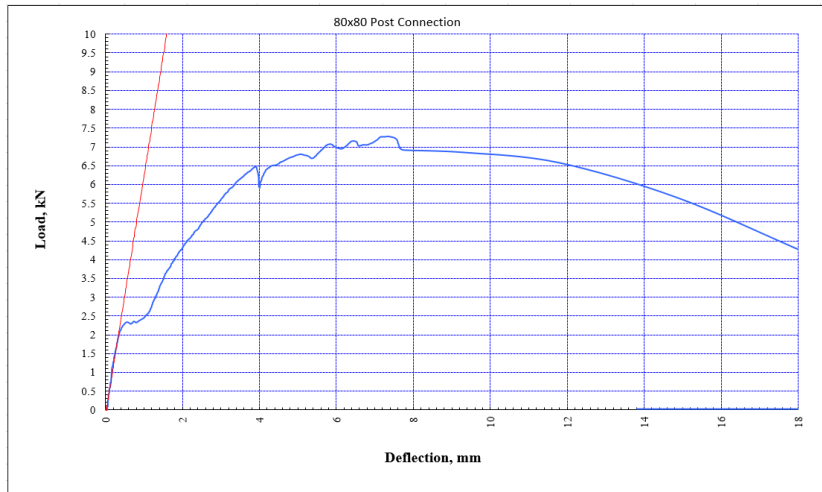


Figure 2. Load displacement plot for Specimen 278135 80x80mm post

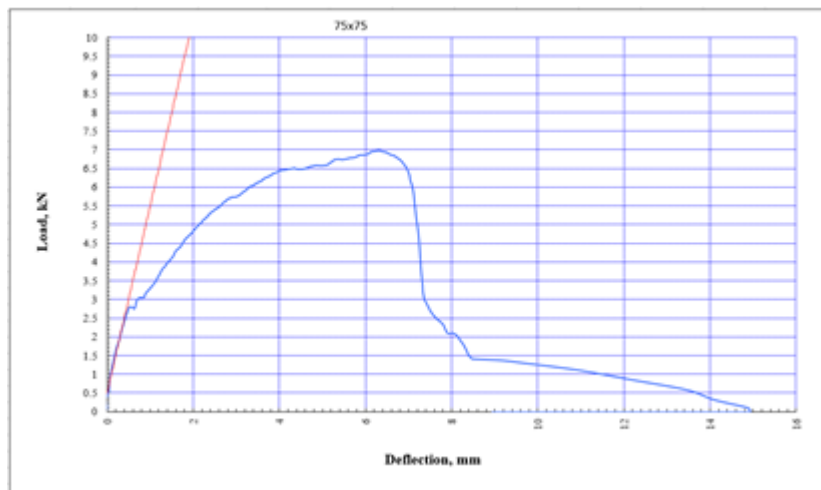


Figure 3. Load displacement plot for Specimen 278136 75x75mm post