

ECKO T-REX17[®] 8G JoltScrew 316 Stainless Steel for weatherboard applications



Summary of Testing and Engineering Design.

Potius Building Systems has been engaged by ECKO Fastening Systems to assess the withdrawal capacity of their T-REX17[®] 8G JoltScrew 316 Stainless Steel for weatherboard applications. A series of pullout tests were performed with SG8 H1.2 framing (Radiata Pine) and 19mm H3 primed weatherboards (Radiata Pine) in accordance with AS1649 and NZS3603. With 30mm embedment of the screws into framing the following characteristic withdrawal values were obtained:

Fixing type	Withdrawal in pine - 31mm penetration (LPL - kN)	Head pull through in weatherboard - 19mm thick (LPL - kN)
SS 8Gx75mm	3.89	1.48
JH Nail 3.15x75mm	0.66	0.56
JH Nail 2.8x60mm	0.54	0.32

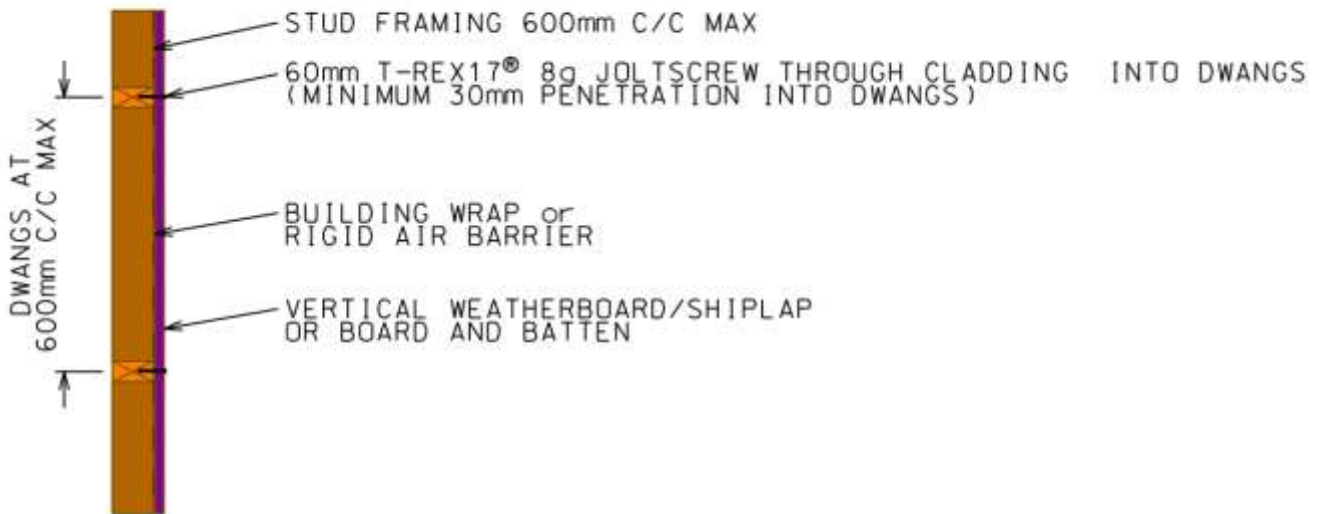
LPL – Lower Proportional Limit as per NZS3603

Note: The Jolt head nails were bright steel used in testing. Testing with Galvanised Jolt head nails may result in slightly higher pullout values.

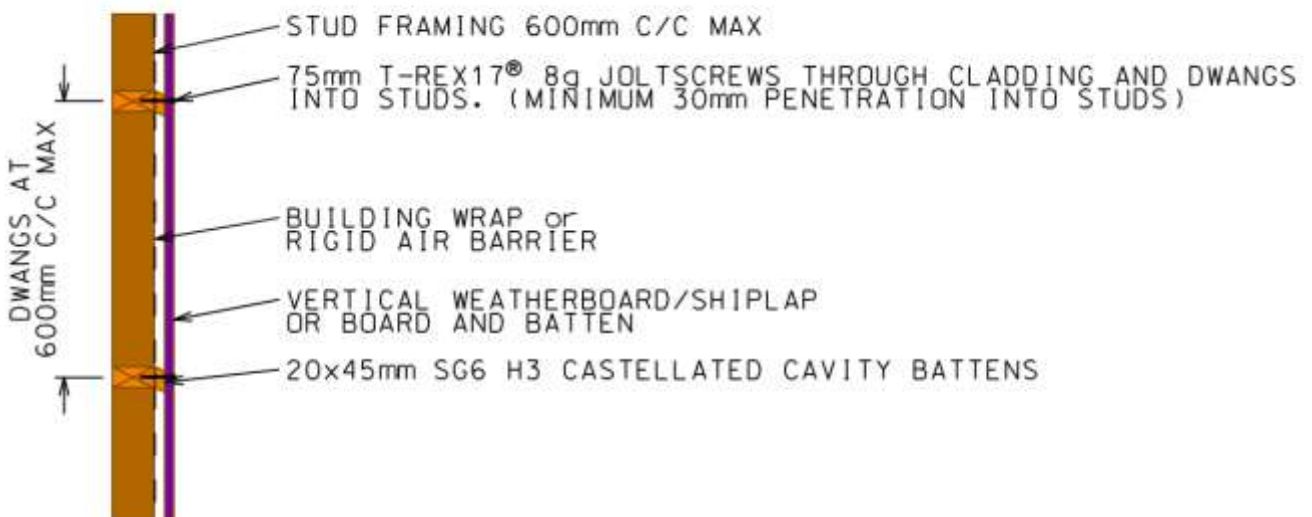
The compliance path for non - structural claddings is by meeting the requirements of NZBC E2 External Moisture. This statement addresses the structural fixing capacity rating of the T-REX17[®] 8G JoltScrew at 600mm c/c structural supports by testing and structural calculation.

Engineering calculation based on a ULS wind pressure of 2.5kPa (E2/VM1 clause 1.3) has been performed to ensure the T-REX17[®] 8G JoltScrew have sufficient holding power fastened at 600mm c/c both for the weatherboard to battens and withdrawal from the framing timber also at 600mm c/c. For vertically direct-fixed weatherboards E2/AS1 states that dwangs must be at 480mm centers maximum (clause 9.1.8.5 & Table 24), however we have calculated that dwangs or Structural Battens at 600mm c/c also work with the holding force of the T-REX17[®] 8G JoltScrew. Where vertical cladding is fastened through the cladding into the Structural Framing or Structural Cavity Battens, 30mm penetration minimum into the structural framing or structural batten is required, refer to details 1-3 for the structural fixing details below.

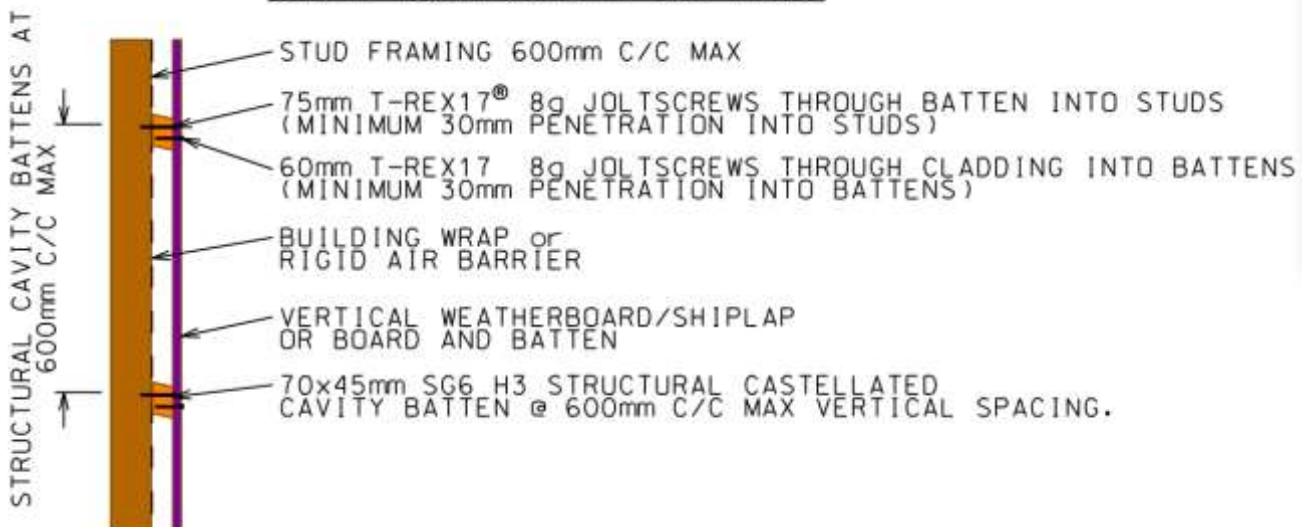
DIRECT FIXED



OVER 20mm CAVITY BATTENS



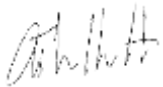
OVER 45mm CAVITY BATTENS



I believe on reasonable grounds that using T-REX17® 8G JoltScrew installed according to the details shown above will meet the requirements of E2 and be able to:

1. Resist the wind pressure causing suction of the weatherboard.
2. Resist movement between the framing and weatherboard that might loosen the fixing.

Regards



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CMengNZ, CPEng, IntPE

Referenced Standards:

MBIE E2/AS1/VM1: External Moisture.

AS1649 Timber. Methods of tests for mechanical fasteners and connectors.

AS/NZS1170.0 B1 Use of test data for design.

NZS3603: Engineered Timber.

NZS3604: Timber Framed Buildings.

NZS3617 Profiles of Weatherboards, Fascia Boards and Flooring.

BRANZ BU411 – Recommended Timber Cladding Profiles.

BRANZ BU582 – Structurally Fixed Cavity Battens.