T.D. & C. PTY LTD

Consulting Engineers & Construction Managers

A. C.N. 005 929 402
A.B.N 30 546 499 669

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Job No. 191191

CERTIFICATE OF TEST – CT191191/1

This is to certify that the air conditioning unit support frame AC-SUPP-RAIL consisting of the base beam AC-SUPP-BASE connected to the top beam AC-SUPP-TOP was load tested by T.D.&C. Pty Ltd Consulting Engineers and Construction Managers on Monday 9th April 2018.

This testing was conducted on behalf of:

Cold Cube Pty Ltd
8/11 Bell Grove
Braeside, Vic 3195

Product

Refer to the following drawing:

Drg No.	Prepared By:	REV	Dated
AC-SUPP-BASE-R0	Form 2000	0	24/10/17
AC-SUPP-TOP-R0	Form 2000	0	24/10/17
AC-SUPP-RAIL_R0	Form 2000	0	11/10/17

Description

The component is to support and fix in place A/C units onto the roof of buildings. It is designed to be adjustable for roof slopes of 0º to 10º. Typically there would be 2 or 3 rails per unit positioned to take equal load. The base beams are to be securely fixed at each end directly over the supporting purlins or other roof framing members. Such members should be designed for the A/C loads by others.

The fixing brackets to suit the various roof profiles are to future detail, but must securely keep the A/C unit in place for wind loads/vibrations and effectively restrain the bottom edges of the base beam to stop the section from opening up at the support points. Once the complete rail is in place and adjusted for the roof slope the overlapping section of the top beam is to be tek-screwed to the base beam at 1/3 spans and to each side.

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Load Test

The client required a load capacity of 200 kg/rail. The A/C unit would be bolted to the rails at the fixed M10 stud and at the adjustable M10 stud welds to AC-SUPP-PLATE and placed through one of the slotted holes.

To allow for the worse case scenario, for our test we supported the base rail on bricks located as close to the ends as possible and placed the test load over the centre 250mm of the top beam. The load applied was the ultimate load calculated as 200 kg/0.6 = 333kg.

The load was applied on the rail for several minutes so that the effects could be visually inspected. The overall deflection of the base rail and top rail were minimal and well within acceptable limits. The base rail at each end was found to be slightly deformed with the vertical legs opening up over the supports. If the bottom edges can be effectively held in position at the support by the fixing bracket then this effect can be neglected. The vertical legs of the top beam were also found to be opened up under the load position. If these legs can be tek screwed to the base rail at say 1/3 spans then this effect can also be neglected.

Conclusion

For the component to be capable of supporting the required 200 kg per rail the following conditions are required.

1) The top beam must be tek screwed to the base beam where they overlap at 1/3 spans and to each side. The tek screws should be installed after the rail is adjusted to accommodate for the roof slope

2) The end support fixing brackets must restrain the bottom edges of the base beam to stop it from opening up under load

3) The end support fixing brackets must be located directly over the supporting purlins or other roof framing members and be securely fixed to take vertical and wind loads into the roof structure.

4) The supporting roof structure must be designed to support the applicable vertical and wind loads.

Test Report Prepared by:

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13/04/2018.