GSD ENGINEERS PTY. LTD.

GEOTECHNICAL & STRUCTURAL ENGINEERING

GSD Engineers Pty. Ltd.
ABN 48 166 563 159
E: steve**@gsdengineers.com.au**
P: 0497 839 711
PO Box 742, Nerang Qld 4211

ENGINEER'S DESIGN / CHECK / INTENT TO INSPECT CERTIFICATE

DATE: 01.06.2026
REF. NO: L15041

SITE ADDRESS: AREAS WITH N2, N3, N4, C2, C3 & C4 WIND CLASSIFICATIONS
PROJECT DESCRIPTION: ROOF BRACKETS
THE EXTENT OF WORK COVERED BY THIS CERTIFICATE:
The roof brackets as shown in the structural plans Decke-A01 are designed and approved by a chartered engineer to take the nominated wind loads to current Australian Standards.

I hereby certify that all the structural work covered by this certificate would comply with the requirements of the Building Code of Australia and the current Australian Standards, in particular:

- AS 1170.0 Structural design actions - General principles
- AS 1170.1 Permanent, Imposed and Other Actions
- AS 1170.2 Structural Design Actions - Wind Actions
- AS 1170.4 Structural Design Actions – Earthquake
- AS 4100 Steel structures
- AS 4600 Cold Formed Steel Structures

With Reference:

- Pull out test on Thermal spacer reports No. LW25-1673-02 General and LW25-1673-03 General by LMATS.

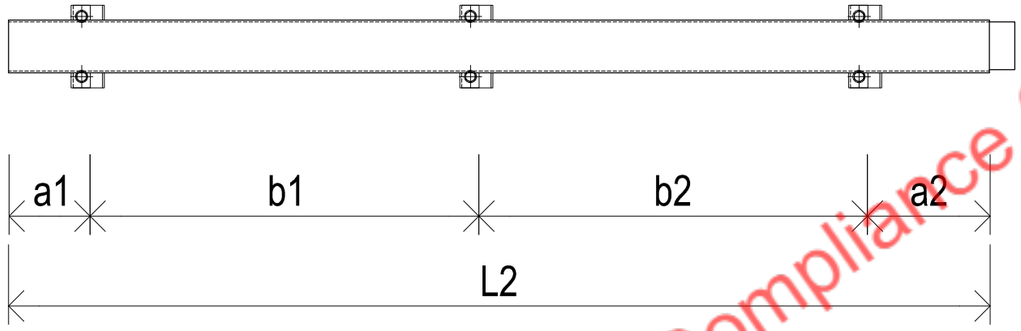
I hereby certify the structural adequacy of the designed structural members subject to the engineers' inspections during construction with site instructions to be issued by the engineers.

Signed:
Steve (Duong) Nguyen
National Registered NPER 3653285
NSW Registered PRE0001748
Queensland Registered RPEQ 14370
Victoria Registered PE0002518

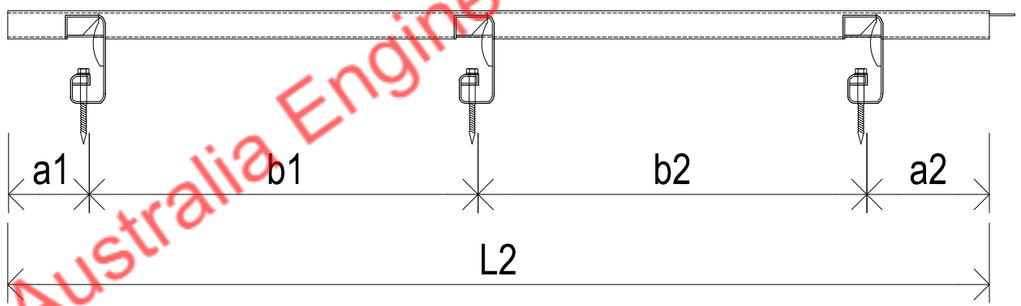
For and behalf of GSD Engineers Pty Ltd

R - THERMAL SPACER FOR UP TO N4 AND C3 WIND REGIONS						
NUMBER OF LEGS	LENGTH OF BRACKET	WIND RATE (DOWNWARD)	WIND RATE (MAX. UPLIFT)	PURLIN OR RAFTER OR ROOF TRUSS AT	PERMANENT DEAD LOAD PER BRACKET	MAXIMUM ROOF PITCH (IF NOT SPECIFIED)
03 LEGS AT 400mm	1200mm LONG	3.3 kN	2.6 kN	2400mm	200kg	25°
03 LEGS AT 400mm	1200mm LONG	5.4 kN	3.55 kN	1500mm		
03 LEGS AT 400mm	1200mm LONG	6.75 kN	5.35 kN	1200mm		
03 LEGS AT 400mm	1200mm LONG	9 kN	5.83 kN	900mm		
03 LEGS AT 400mm	1200mm LONG	13.5 kN	8.83 kN	600mm		

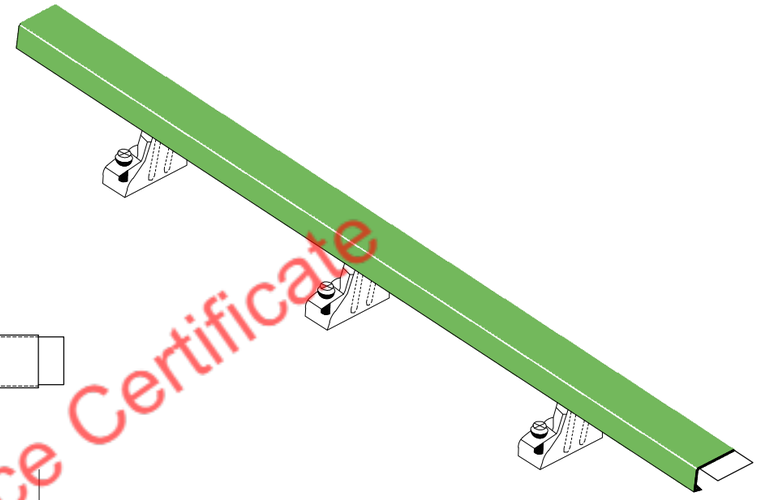
1200mm LONG R - THERMAL SPACER	
MEMBER MARK	MAXIMUM LENGTH
a1	100mm
a2	200mm
b1, b2	450mm
h2	60mm / 80mm / 120mm / 150mm
L2	1200mm
ROOF SPACER	ROOF BRACKET SHALL COVER ALL ROOF PURLINS, RAFTERS AND TRUSSES
WIND	MAXIMUM REGIONAL WIND SPEED IS 74m/s FOR CYCLONIC AREA (C2, C3)
	MAXIMUM REGIONAL WIND SPEED IS 64m/s FOR NON-CYCLONIC AREA (N2, N3, N4)
ROOF BRACKET	1.2mm THICK BRACKET WITH MINIMUM 350MPa YIELD STRENGTH
	MINIMUM 3 LEGS WITH MINIMUM 6 No. 14 GAUGE STRUCTURAL SCREWS (BUT EXTRA SCREWS FIXED THROUGH PURLINS FOR C3 AND C4 AREA). FOR C4 REGION WITH 5kPa UPLIFT WIND PRESSURE, 14 GAUGE STRUCTURAL SCREWS SHALL BE USED EXTERNALLY TO JOIN CLADDING, SPACER AND PURLIN AT 400MM CENTERS. SCREW LENGTH SHALL BE h2 (mm) WITH EXTRA MINIMUM 15mm.



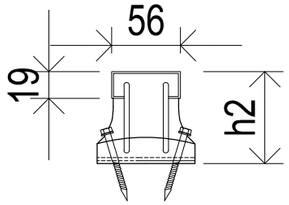
TOP VIEW. 1:5



FRONT VIEW. 1:5



ISOMETRIC VIEW. 1:5



SIDE VIEW. 1:5

Published: 6/19/2026 10:21:40 AM

Client:

Client Address:

Client Ph: | Client Fax:

GSD ENGINEERS PTY. LTD.
Civil • Structural • Geotechnical Engineers
PO Box 205, Kingston, Qld 4114
Mob: 0497 839 711
Email: steve@gsdengineers.com.au

Contact: Steve M. N.
Site Address:
Drawing File Name:

Drawn by: B.A
Checked by: A.M. / S.N.
NPER, RPEQ 14370
Approved by: S.N.M.
NPER, RPEQ 14370

Date:	Comment:	Revision:
01.06.2026	FOR CONSTRUCTION	A

Project: R - THERMAL SPACER
Scale: 1:5
Amend: A
Title: DETAIL AND LOAD TABLE FOR R - THERMAL SPACER
Page No: 01
Drawing No: DECKE-A01
A3

Pullout test on Thermal spacer report

Report number	LW25-1673-02 General
Customer name	Decke Australia
Address	10 William Anglis Dr, Laverton North, Vic 3026
Requested by	Amit J Tikoo
Purchase Order	COD
Accredited laboratory	LMATS Melbourne Laboratory
Test date	28/10/2025
Job address	LMATS Melbourne Laboratory
Job description	Load Testing on Thermal spacer .
Identification	Refer to Table below
Material grade	Carbon steel
Test specification	Client's Requirements - Report Results
Test method	Tensile load of products-Load test
Test procedure	MTS TP2.2 (I1,R0) (R2025)
Specimen type	Sheet metal Bracket (Refer photo 1)
Surface condition	As assembled
Test area	pull out test to determine force needed to dislodge leg from rail.
Equipment	L002830 (UTM), L1226 (Caliper)
Approved personnel	Prakash Salian (AINDT MT PT L2)
Test results	Refer to Table 1 for test area identification and results

LMATS Pty Ltd
ABN: 41 107 100 925
www.lmats.com.au
admin@lmats.com.au
1300 707 365

Melbourne — 6 Techno Park Drive, Williamstown VIC 3016
Sydney — 1C/137 Silverwater Road, Silverwater NSW 2128
Brisbane — 14/121 Kerry Road, Archerfield QLD 4108
Albury — 4/856 Leslie Drive, Albury NSW 2640
Newcastle — 2/22 Ironbark Close, Warabrook NSW 2304
Kalgoorlie — 82 Brookman-Hay St, Kalgoorlie WA 6430
Perth — 3/52 Cocos Drive, Bibra Lake WA 6163

Table 1: Test items identification (provided by the client) and results (All dimensions in mm unless stated otherwise)

Identification	Description	Ultimate Load (kN)	Result	Test date
Bracket sample 1	Thermal spacer Bracket load test	6.8	RP	23/10/25

Test restrictions

Nil

Normative general notes

1. Test and inspection items may be discarded after 6 weeks, unless alternative arrangements are made with LMATS.

2. Samples, identification of samples and all job specific details were supplied by the client. The test results relate only to the items tested or sampled.

3. Any stated nominal pipe sizes and nominal thickness of the material were provided by the client.

4. Where applicable, the Measurement Uncertainty (MU) applies to the test results as per LMATS procedure. MU can be obtained by contacting one of LMATS ISO 17025 accredited laboratories.

5. Acceptance criteria is applied from the test specification. If the test specification does not include acceptance criteria, then the test or inspection results should be referred to a competent authority for further action.

6. Refer to the attached revision notes if this report has been revised. This report shall not be reproduced except in full without approval of the issuing laboratory to ensure that parts of a report are not taken out of context. The client or their representatives shall not edit this report.

7. LMATS or its professional indemnity insurance provider do not indemnify the contents within this report or the conformity of a tested product unless the invoice for the reported work is paid in full within the agreed credit terms. Reports will be revoked if the invoice for the completed work is not paid in full.

Abbreviations used in this report

A - No discontinuities detected
BT - Burn (melt) Through
C - Comply
CP - Crater Pipe
DNC - Does Not Comply
EC - Elongated Cavity (hollow bead)
F - Failed
GP - Gas Pore
HiLo - Linear misalignment
IC - Copper Inclusion
IL - Linear Inclusion (slag line)
IN - Inclusion
IO - Oxide Inclusion (wagon tracks)
IT - Tungsten Inclusion
KC - Crater crack
KL - Longitudinal crack
KT - Transverse crack
LI - lack of Inter-run fusion
LP - Incomplete root Penetration
LR - lack of Root fusion (missed edge)
LS - lack of Side fusion
NRRD - No Recordable Reflections Detected
NUSID - No unacceptable Surface Indications Detected
P - Passed
p.d. - Processing / film Defects
PG - Localized Porosity
PL - Linear Porosity
PU - Uniform Porosity
RP - Report findings
SED - Excessive Dressing (underflushing)
SGI - Incompletely filled Groove
SGS - Shrinkage Groove
SMG - Grinding Mark
SMH - Hammer Mark
SMT - Tool Mark (chipping mark)
SRC - Root Concavity (Suck back)
SSP - Spatter
SUC(e) - Undercut External
SUC(i) - Undercut Internal
SXP - Excessive Penetration
WH - Worm Hole

Test observations and results

Objective:The objective of this test was to determine the pull-out strength of the supplied thermal spacer by measuring the maximum force required to dislodge the spacer leg from the associated rail under tensile loading.

Test Setup and Procedure:

A section of the supplied thermal spacer (refer Photo 1) was mounted on a specially designed fixture to enable secure gripping by the hydraulic jaws of the tensile testing machine (refer Photo 2). The test specimen was aligned to ensure axial loading, and tensile force was gradually applied at a controlled rate until failure occurred. The force and displacement were continuously recorded throughout the test.

Results:

The ultimate load recorded during the pull-out test was 6.8 kN, representing the maximum force required to dislodge the leg of the thermal spacer from the rail. The failure location is shown in Photo 3, which indicates that failure occurred at the interface between the leg and the rail engagement area.

Conclusion:

The pull-out test demonstrated that the thermal spacer exhibited an ultimate pull-out strength of 6.8 kN under the specified test conditions. The failure mode suggests that the primary mechanism of failure was material separation at the leg-rail interface. These results can be used to assess the adequacy of the spacer#s mechanical performance under service conditions.

Test comments

Nil

Image 1 of 4 - Section of the supplied Thermal spacer bracket

Image 2 of 4 - Test sample with fixture

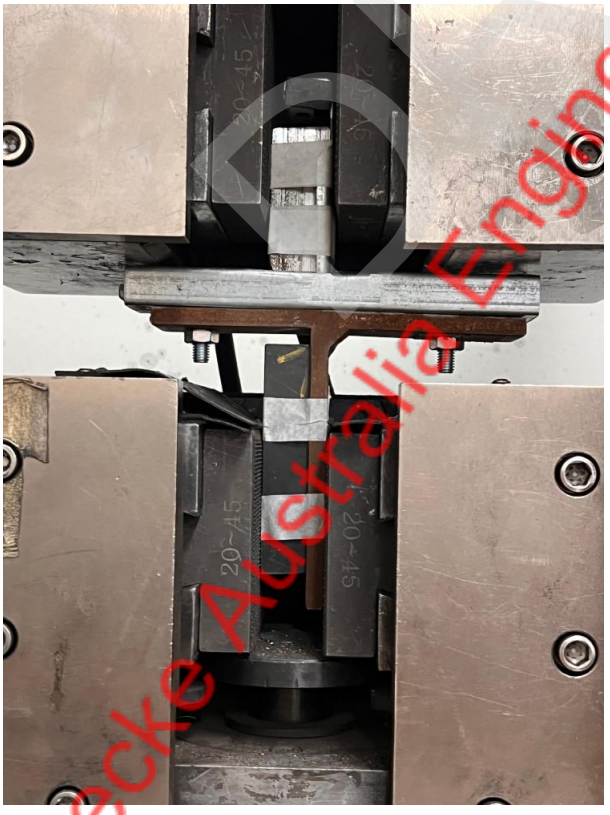


Image 3 of 4 - Test setup o tensile machine

Image 4 of 4 - Failure location at ultimate load

End of this report. The information contained within the subsequent pages (if any), comprises external documents provided by the client.

Pullout test on Thermal spacer report

Report number	LW25-1673-03 General
Customer name	Decke Australia
Address	10 William Anglis Dr, Laverton North, Vic 3026
Requested by	Amit J Tikoo
Purchase Order	COD
Accredited laboratory	LMATS Melbourne Laboratory
Test date	28/10/2025
Job address	LMATS Melbourne Laboratory
Job description	Compression Load Testing on Thermal spacer .
Identification	Refer to Table below
Material grade	Carbon steel
Test specification	Client's Requirements - Report Results
Test method	Tensile load of products-Load test
Test procedure	MTS TP2.2 (I1,R0) (R2025)
Specimen type	Sheet metal Bracket (Refer photo 1)
Surface condition	As assembled
Test area	As nominated by the client
Equipment	L1430 (UTM), L1226 (Caliper)
Approved personnel	Prakash Salian (AINDT MT PT L2)
Test results	Refer to Table 1 for test area identification and results

LMATS Pty Ltd
ABN: 41 107 100 925
www.lmats.com.au
admin@lmats.com.au
1300 707 365

Melbourne — 6 Techno Park Drive, Williamstown VIC 3016
Sydney — 1C/137 Silverwater Road, Silverwater NSW 2128
Brisbane — 14/121 Kerry Road, Archerfield QLD 4108
Albury — 4/856 Leslie Drive, Albury NSW 2640
Newcastle — 2/22 Ironbark Close, Warabrook NSW 2304
Kalgoorlie — 82 Brookman-Hay St, Kalgoorlie WA 6430
Perth — 3/52 Cocos Drive, Bibra Lake WA 6163

Table 1: Test items identification (provided by the client) and results (All dimensions in mm unless stated otherwise)

Identification	Description	Ultimate Load (kN)	Result	Test date
Bracket sample 1	Thermal spacer Bracket load test	9.4	RP	27/10/25

Test restrictions

Nil

Normative general notes

1. Test and inspection items may be discarded after 6 weeks, unless alternative arrangements are made with LMATS.

2. Samples, identification of samples and all job specific details were supplied by the client. The test results relate only to the items tested or sampled.

3. Any stated nominal pipe sizes and nominal thickness of the material were provided by the client.

4. Where applicable, the Measurement Uncertainty (MU) applies to the test results as per LMATS procedure. MU can be obtained by contacting one of LMATS ISO 17025 accredited laboratories.

5. Acceptance criteria is applied from the test specification. If the test specification does not include acceptance criteria, then the test or inspection results should be referred to a competent authority for further action.

6. Refer to the attached revision notes if this report has been revised. This report shall not be reproduced except in full without approval of the issuing laboratory to ensure that parts of a report are not taken out of context. The client or their representatives shall not edit this report.

7. LMATS or its professional indemnity insurance provider do not indemnify the contents within this report or the conformity of a tested product unless the invoice for the reported work is paid in full within the agreed credit terms. Reports will be revoked if the invoice for the completed work is not paid in full.

Abbreviations used in this report

A - No discontinuities detected
BT - Burn (melt) Through
C - Comply
CP - Crater Pipe
DNC - Does Not Comply
EC - Elongated Cavity (hollow bead)
F - Failed
GP - Gas Pore
HiLo - Linear misalignment
IC - Copper Inclusion
IL - Linear Inclusion (slag line)
IN - Inclusion
IO - Oxide Inclusion (wagon tracks)
IT - Tungsten Inclusion
KC - Crater crack
KL - Longitudinal crack
KT - Transverse crack
LI - lack of Inter-run fusion
LP - Incomplete root Penetration
LR - lack of Root fusion (missed edge)
LS - lack of Side fusion
NRRD - No Recordable Reflections Detected
NUSID - No unacceptable Surface Indications Detected
P - Passed
p.d. - Processing / film Defects
PG - Localized Porosity
PL - Linear Porosity
PU - Uniform Porosity
RP - Report findings
SED - Excessive Dressing (underflushing)
SGI - Incompletely filled Groove
SGS - Shrinkage Groove
SMG - Grinding Mark
SMH - Hammer Mark
SMT - Tool Mark (chipping mark)
SRC - Root Concavity (Suck back)
SSP - Spatter
SUC(e) - Undercut External
SUC(i) - Undercut Internal
SXP - Excessive Penetration
WH - Worm Hole

Test observations and results

Objective: The objective of this test was to determine the compressive failure load of the thermal spacer.Test Setup and Procedure:

The thermal spacer was fixed to the purlin, and a uniformly distributed compressive load was applied to measure the maximum load the spacer could sustain before failure (Photo 1).

Results:

The ultimate compressive load recorded during the test was 9.4 kN, representing the maximum force the thermal spacer could withstand before failure. The location of the failure is shown in (Photo 2, 3).

Conclusion:

The compressive test demonstrated that the thermal spacer exhibited an ultimate compressive strength of 9.4 kN under the specified test conditions. The observed failure mode indicates that failure occurred primarily through material crushing at the point of maximum stress. These results can be used to evaluate the adequacy of the spacer#s mechanical performance under expected service loads.

Test comments

Nil

Image 1 of 3 - General view of the test setup

Image 2 of 3 - After Test - failure location

Image 3 of 3 - After Test - failure location

End of this report. The information contained within the subsequent pages (if any), comprises external documents provided by the client.