LYSAGHT

LYSAGHT SUPABRIDGE®

BRIDGING AND INSULATION SYSTEM FOR LYSAGHT SUPAPURLIN® STRUCTURES

INSPIRATION TO BUILD BETTER

INTRODUCING THE

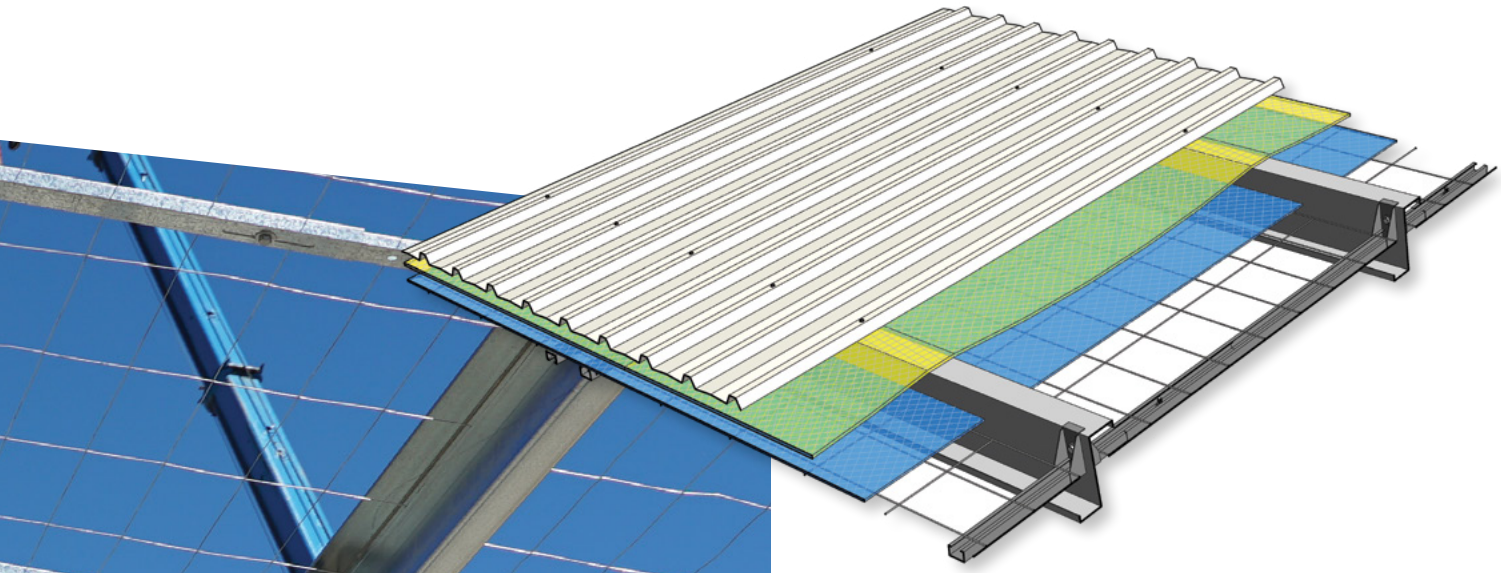
LYSAGHT SUPABRIDGE®

INSPIRATION TO BUILD BETTER

The LYSAGHT SUPABRIDGE® roofing system provides an innovative and safe alternate solution for compliance to Section J requirements of the National Construction Code (NCC). Section J is applicable to class 2 – 9 buildings.

The integrated LYSAGHT SUPABRIDGE® system replaces the need for the separate purlin bridging and roof raisers used in traditional commercial and industrial metal roof installation.

The system utilises the structural purlin depth to safely accommodate uncompressed blanket insulation and roof safety wire, thereby maintaining roof heights, and full sheeting (uplift) capacities by enabling direct fixing to purlin members



KEY BENEFITS:

- Thermal Insulation performance to meet and exceed NCC Section J requirements resulting in more efficient buildings reducing energy costs.
- Cost effective use of existing building cavities for insulation.
- Improved structural performance via direct fixing of LYSAGHT® roof cladding to building structure.
- Installation connection methodologies that align with industry practice reducing installation effort and cost.
- Performance tested and backed by industry leaders, Lysaght, Australia's steel people.

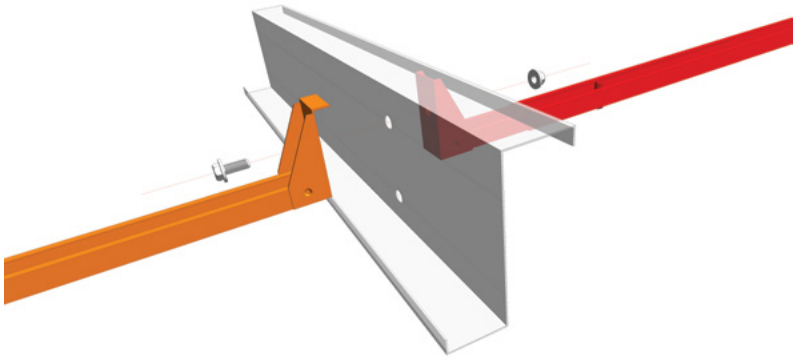
THE LYSAGHT SUPABRIDGE®

SYSTEM ADVANTAGE

The SUPABRIDGE™ system provides a number of benefits when compared to alternative Section J solutions:

COST:

- The SUPABRIDGE™ system eliminates the need and costs for additional roof spacer components and their installation.
- The SUPABRIDGE™ system replaces traditional bridging systems and utilises standard purlin bolt connections eliminating the need for additional tools.



STRUCTURAL PERFORMANCE:

- The SUPABRIDGE™ system comprising SUPAPURLIN® structural purlins and the SUPABRIDGE™ connector bridge has been fully tested to Australian Standards to determine the systems structural capacity.
- The SUPABRIDGE™ system allows direct fixing of sheeting or sheeting clips directly to the structural SUPAPURLIN® thus ensuring full sheeting uplift capacities are achieved.
- Flexibility with a number of insulation configurations to achieve superior R values in accordance with NCC 2019 Section J requirements.
- Certified R values for a variety of building configurations from R3.6 to R6.22.
- Component fire performance testing to AS/NZS 1530.3.
- Lightweight and compact enabling easier handling and installation.
- The system provides for "blanket free" insulation solutions, providing a fibre-free, non-allergenic solution that is also easy to install.

DESIGN:

The SUPABRIDGE™ system provides an optimal way to achieve building insulation / energy efficiency requirements without complication to structural design and roof sheet installation and finishing

The system utilises the purlin depth to provide required insulation and thus lowers the roof height as compared to roof spacer systems.

CONSTRUCTION:

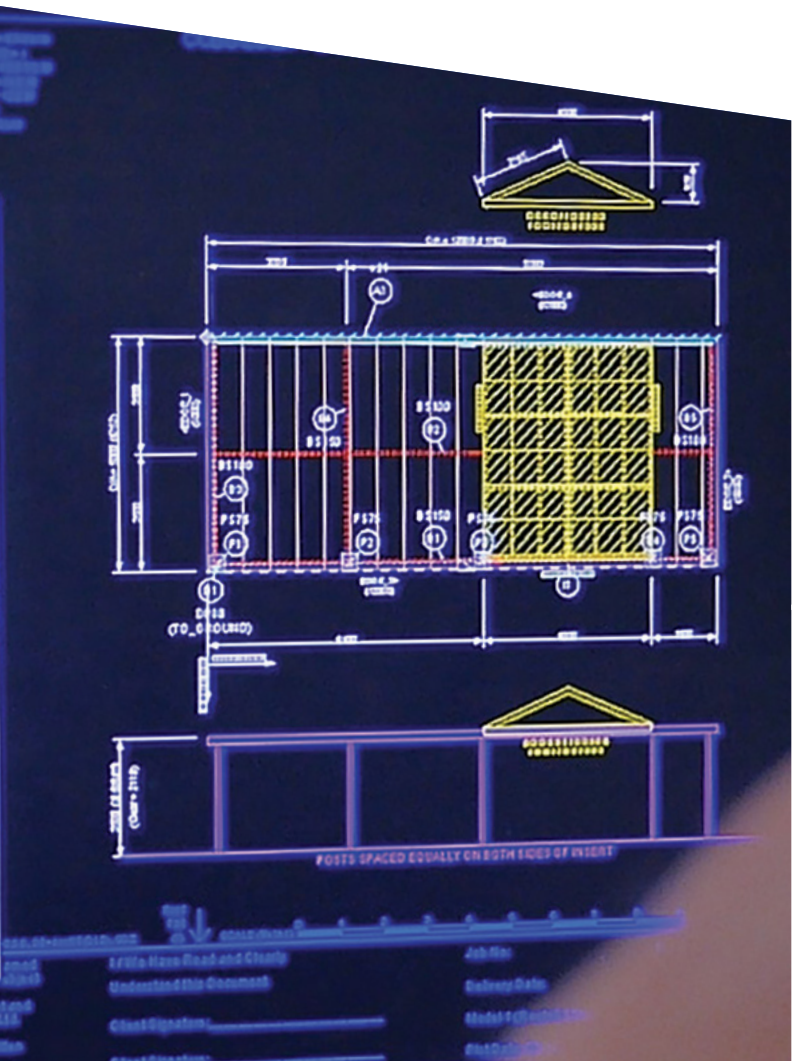
The SUPABRIDGE™ system utilises existing traditional trades for integrated bridging, safety wire, insulation and roofing installation.

The SUPABRIDGE™ system utilises fewer components than roof spacer systems reducing installation time and costs.

SUPABRIDGE™ components are delivered preassembled and readily adjustable on site using traditional purlin bolts significantly reducing installation time and costs.

SAFETY:

- The SUPABRIDGE™ system incorporates Roof Safety wire tested to AS/NZS 4389 and has been tested at UNSW and independently certified as a suitable fall restraint system for commercial/industrial roofing applications.
- The SUPABRIDGE™ system provides clear vision of the roof purlins, providing easy visualisation for roof fastener affixing.
- Eliminates potential for roof spacer "roll over" during sheeting installation
- The SUPATHERMIC™ thermo cellular flame-retardant bubble core insulation system does not use glass wool fibres removing the need for specialist PPE for installation.



THE LYSAGHT SUPABRIDGE®

COMPONENTS

The SUPABRIDGE™ system is applicable to the LYSAGHT SUPAPURLIN® range of Cee's and Zed's between 150mm and 350mm depth

PURLINS & BRIDGING

SUPABRIDGE™ bridging members are available in 2 depths and 4 telescoping sizes with both fixed (standard purlin to purlin connections) and adjustable end brackets (for ridge and fascia purlin connections). The four telescoping sizes cater for various purlin spacings between 300mm to 1300mm with 1300mm spacing providing the most economic utilisation of the system.

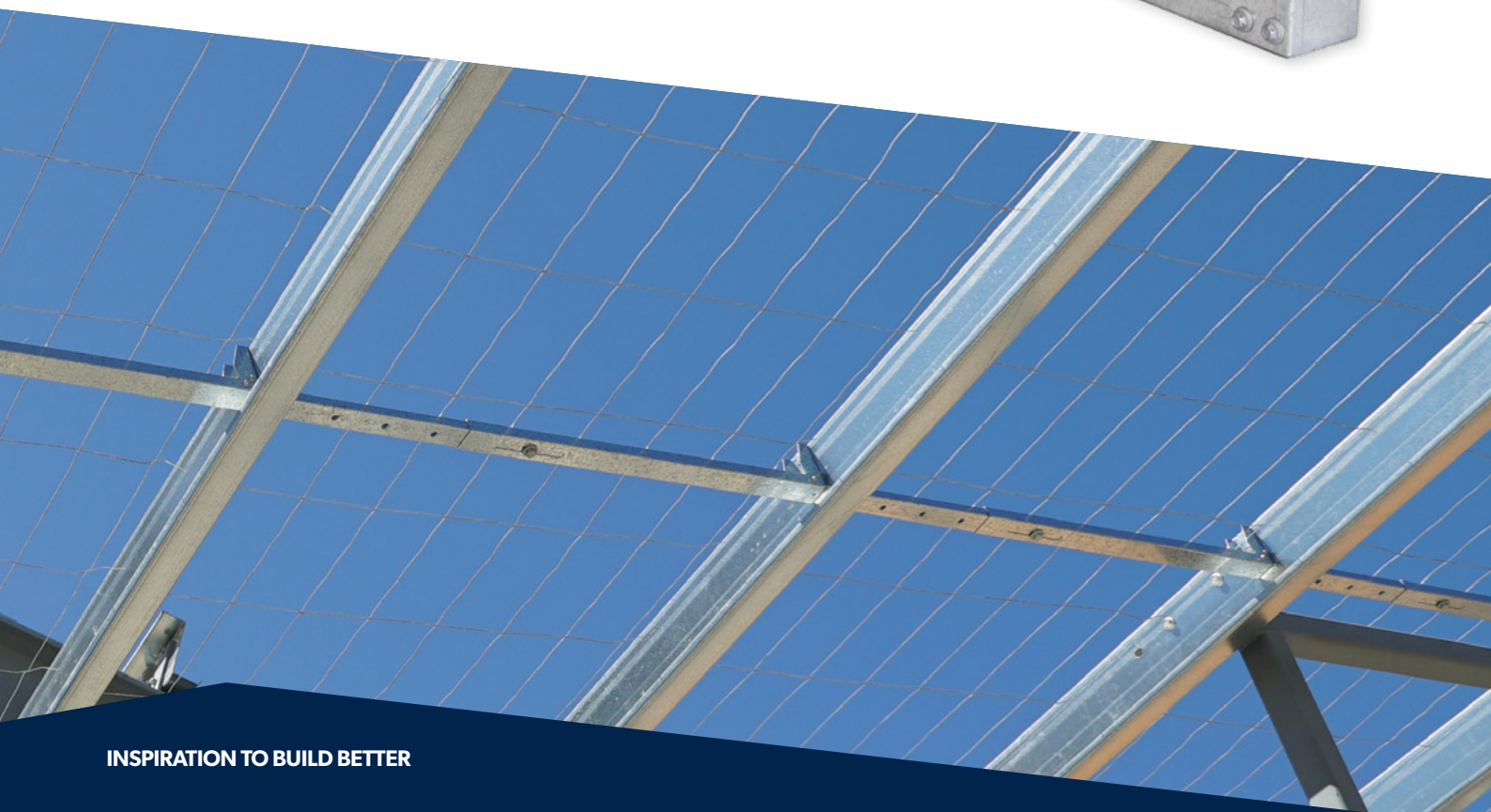
- **300mm – 400mm**
- **400mm – 550mm**
- **550mm – 850mm**
- **850mm – 1300mm***

The standard 110mm deep SUPABRIDGE™ brackets (SB110) are used for all projects utilising a ceiling space. The 170mm deep SUPABRIDGE™ bracket (SB170) is required for open shed applications without a ceiling space when an R-Value >R3.7 is required.

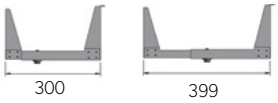
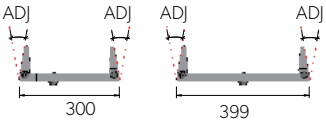
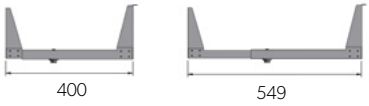
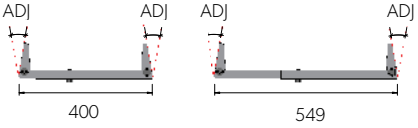
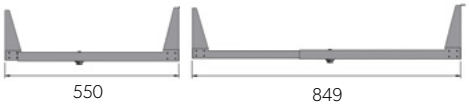
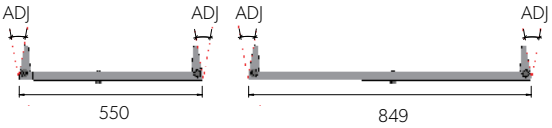
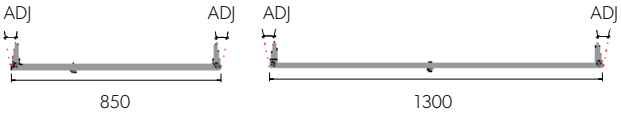
* The SUPABRIDGE™ system is not suitable for purlin spacings greater than 1300mm. SUPABRIDGE™ brackets will however expand to a maximum of 1350mm to cater for minor onsite spacing inconsistencies.

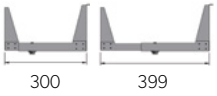
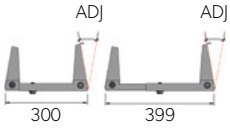
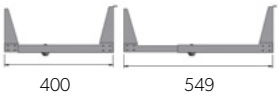
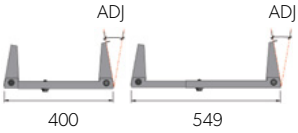
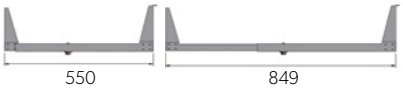
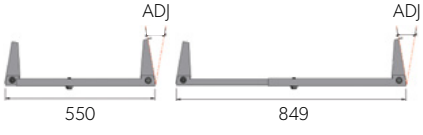
The optimal purlin spacing for the system is 1300mm as this aligns with both roofing safety wire and insulation widths. For spacings below 1300mm roofing safety wire and insulation may be readily cut onsite to accommodate purlin spacings.

In addition to the fixed angle SUPABRIDGE™ sizes, SUPABRIDGE™ brackets are available with adjustable end brackets to facilitate connections at fascia purlins and or ridge purlins. The adjustable end brackets can accommodate roof pitches up to 20 degrees.



SUPABRIDGE™ BRACKET CONFIGURATIONS

SUPABRIDGE™ Bracket sizes	Standard 110 Bracket (Buildings with Ceilings)	Adjustable angle (both side) 110 Bracket (Buildings with Ceilings)
Length adjustable between 300mm - 400mm		
Length adjustable between 400mm - 550mm		
Length adjustable between 550mm - 850mm		
Length adjustable between 850mm - 1300*mm		

	Standard 170 Bracket (Open Warehouse Buildings without Ceilings)	Adjustable angle (both side) 170 Bracket (Open Warehouse Buildings without Ceilings)
Length adjustable between 300mm - 400mm		
Length adjustable between 400mm - 550mm		
Length adjustable between 550mm - 850mm		
Length adjustable between 850mm - 1300*mm		

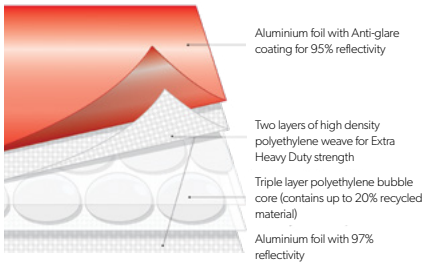
The optimal purlin spacing for the system is 1300mm as this aligns with both roofing safety wire and insulation widths.
For spacings below 1300mm roofing safety wire and insulation may be readily cut onsite to accommodate purlin spacings.

In addition to the fixed angle SUPABRIDGE™ sizes, SUPABRIDGE™ is available with adjustable end brackets to facilitate connections at fascia purlins and or ridge purlins. The adjustable end brackets can accommodate roof pitches up to 20 degrees (20° range adjustment outboard - 20° range adjustment inboard).

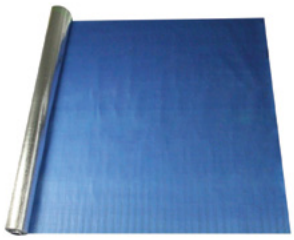
* The SUPABRIDGE™ system is not suitable for purlin spacings greater than 1300mm. SUPABRIDGE™ brackets will however expand to a maximum of 1350mm to cater for minor onsite spacing inconsistencies.

INSULATIVE COMPONENTS

The LYSAGHT SUPATHERMIC® range incorporates both tradition blanket and sarking products as well as the primary aluminium foil lined bubble core insulation products. The SUPATHERMIC™ range has been tested and complies with relevant Australian Standards with the range classified as Non-Combustible.



SUPATHERMIC™ 11



SUPATHERMIC™ MR Sarking

SUPATHERMIC™ 80/100

PRODUCT	USES	AUSTRALIAN STANDARD COMPLIANCE		TESTED IN ACCORDANCE WITH											
		AS/NZS 4859.1 MATERIALS FOR THE THERMAL INSULATION OF BUILDINGS	AS 4200.1 PLIABLE BUILDING MEMBRANES AND UNDER-LAYS	ATSM-408	AS/NZS 4859.1 APP-1	ATSM 1530.2	ATSM 1530.3	AS/ISO 9705-AS5637.1	AS 1301.448	TAPPI T470	AS 4201.2	AS 4201.4	AS 4201.5	ASTM E-96	AS/NZS 3100
SUPATHERMIC™ 11	Thermal break, Vapour barrier, Radiant heat barrier	Compliant	Compliant	✓	✓	✓	✓	N/A	✓	✓	✓	✓	N/A	✓	✓
SUPATHERMIC™ MR Sarking	Vapour barrier, Radiant heat barrier	Compliant	Compliant	N/A	✓	✓	✓	N/A	✓	✓	✓	✓	✓	✓	✓
SUPATHERMIC™ 80/100	Radiant heat barrier	Compliant	Compliant	N/A	✓	✓	✓	✓	N/A	✓	✓	✓	✓	N/A	✓
SUPATHERMIC™ TBS 4410	Thermal break	Compliant	Compliant	N/A	✓	✓	✓	✓	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SAFETY

The SUPABRIDGE™ system incorporates Roof Safety wire tested to AS/NZS 4389 and has been tested at UNSW and independently certified as a suitable fall restraint system for commercial roofing applications.

INSULATIVE PERFORMANCE

THE SUPABRIDGE™ SYSTEM COMPRISING:

- LYSAGHT® roof sheeting
- SUPAPURLIN® Z and C purlins
- SUPABRIDGE™ bridging members
- SUPATHERMIC™ insulation
- Safety wire

Can be optimised to suit a range of building applications providing summer Rv values from between R3.7 m2 x K/W to R5.17m2 x K/W in accordance with the NCC2019 Section J calculation regime.

Higher R values are achievable via a mixture of insulation material for bespoke building solutions and advise should be sought from Lysaght for projects seeking higher thermal R values.

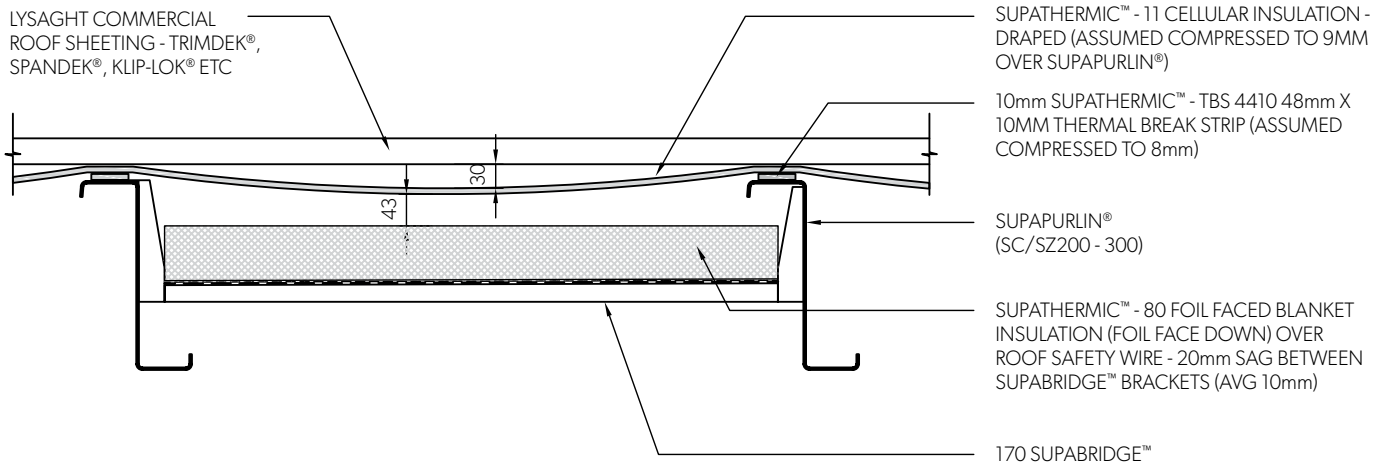
THE SYSTEM CATERS FOR:

- OPEN WAREHOUSE BUILDINGS WITHOUT CEILING
- CLOSED BUILDINGS WITH CEILINGS
  (with values for both flat and raked ceiling options).

A summary of the SUPABRIDGE™ systems and applicable R-Values are presented over the following pages. For the full range of insulation systems, please refer to the SUPABRIDGE™ Design and Installation Manual for Design and Installation Professionals.

OPEN WAREHOUSE

Suitable for SUPAPURLIN® Sizes between 200mm and 250mm.
The SUPABRIDGE™ system open warehouse solution below combines insulation layers and airspaces to achieve superior and cost effective insulative performance. For solutions using deeper purlin sizes, or higher insulative values, please refer to full range of solutions contained in the SUPABRIDGE™ Design and Installation Manual for Design and Installation Professionals.



Values are calculated for each project based on the project combination of purlin size / spacing and roof pitch.

SUPABRIDGE™ SUMMER THERMAL PERFORMANCE
(With R0.2 thermal break)

OPEN WAREHOUSE BUILDING - SUPABRIDGE™ SB 170 / SUPATHERMIC™–80 / SUPATHERMIC™–TBS 4410 / SUPATHERMIC™–11. (OB OPTION 1*)

R-values for roof pitch			0° - 4°		5° - 9°		10° - 14°		15° - 22°		22.5°	
Purlin spacing (mm)			900	1300	900	1300	900	1300	900	1300	900	1300
Ceiling	Purlin size											
(no ceiling) R0.20 TB	SC/Z	20012	3.81	4.07	3.81	4.07	3.78	4.05	3.73	3.98	3.68	3.92
		20024	3.65	3.94	3.65	3.94	3.63	3.92	3.58	3.86	3.53	3.80
		25015	3.81	4.07	3.81	4.07	3.78	4.05	3.73	3.98	3.68	3.92
		25024	3.69	3.98	3.69	3.98	3.67	3.96	3.62	3.89	3.57	3.83
		30019	3.79	4.06	3.79	4.06	3.77	4.04	3.71	3.97	3.66	3.91
		30030	3.68	3.97	3.68	3.97	3.66	3.95	3.61	3.88	3.56	3.83

Calculations based on AS/NZS 4859.1 and AS/NZS 4859.2 Thermal insulation materials for buildings, and NCC 2019 Section J.
For other purlin spacing or purlin base metal thickness, thermal bridging will change and alter Total R.
Assumes safety wire sags 20mm between SUPABRIDGE™ members to provide a 10mm average sag. Total R-Values (m^2.K/W) include indoor and outdoor air films.

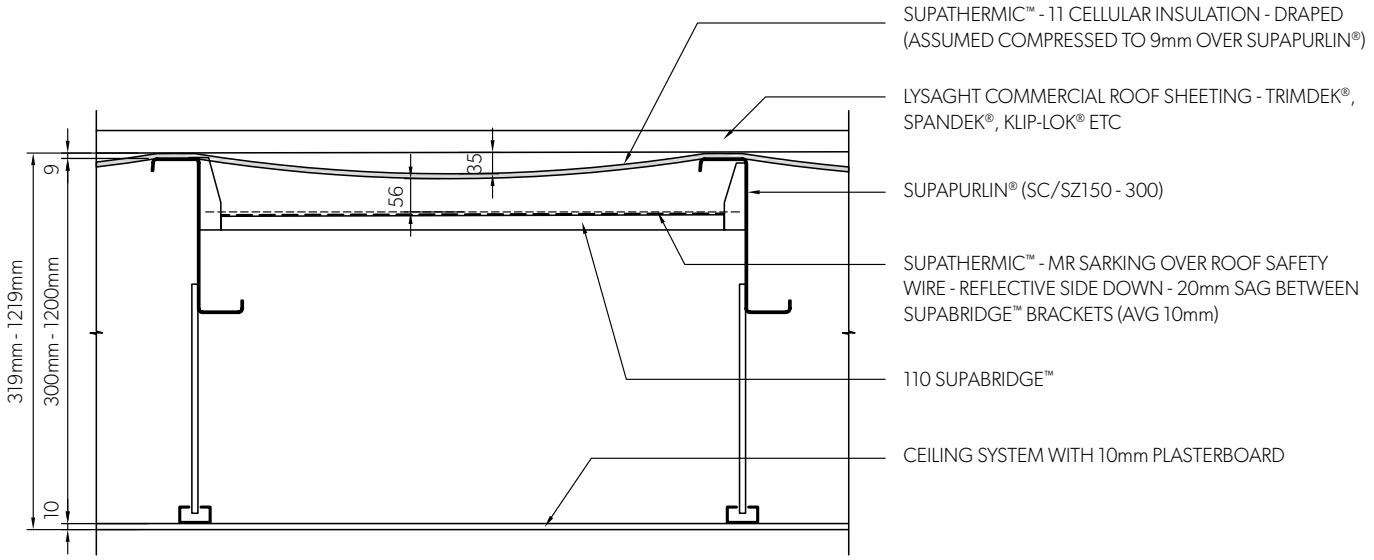
Calculated by James Fricker, F.AIRAH F.IEAust CPEng NER APEC Engineer IntPE(Aus).

*Table 3.1.1.1-2 from SUPABRIDGE™ Design & Installation Manual for Design and Installation Professionals.

CLOSED BUILDINGS - WITHOUT BLANKET

Utilising similar methodologies, the SUPABRIDGE™ system for closed buildings is available in two configurations - without blanket insulation or with blanket insulation - and covers both raked and horizontal ceiling applications with dropped ceiling depth between 300mm and 1200mm.

Presented below is a typical SUPABRIDGE™ – 110 system with a Horizontal ceiling for SUPAPURLIN® sizes between 150mm and 300mm. For the full range of options please refer to the SUPABRIDGE™ Design and Installation Manual for Design and Installation Professionals.



SUPABRIDGE™ SUMMER THERMAL PERFORMANCE
(Without R0.2 thermal break)

CLOSED BUILDING - SUPABRIDGE™ SB 110 / SUPATHERMIC™ - MR / SUPATHERMIC™ - 11 (CB OPTION 2)**

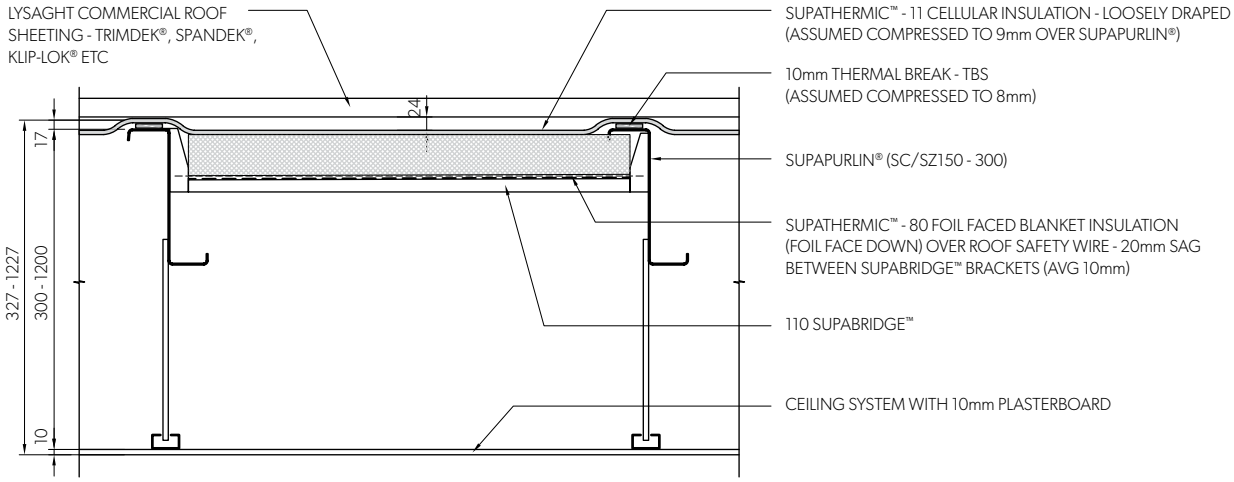
R-values for roof pitch			0° - 4°		5° - 9°		10° - 14°		15° - 22°		22.5°	
Purlin spacing (mm)			900	1300	900	1300	900	1300	900	1300	900	1300
Ceiling min void depth	Purlin size											
Average void depth (mm)			475		914		1363		1973		2371	
300mm dropped below roof sheeting	SC/Z	15012	4.04	4.23	3.89	4.07	3.64	3.80	3.38	3.51	3.32	3.45
		15024	3.98	4.19	3.84	4.03	3.60	3.76	3.34	3.48	3.28	3.42
		20012	4.07	4.25	3.92	4.09	3.67	3.82	3.40	3.53	3.35	3.47
		20024	4.00	4.20	3.86	4.04	3.61	3.77	3.47	3.63	3.30	3.43
		25015	4.06	4.25	3.92	4.09	3.67	3.82	3.40	3.67	3.35	3.32
		25024	4.01	4.21	3.88	4.06	3.63	3.79	3.49	3.50	3.18	3.30
Average void depth (mm)			775		1214		1663		2273		2671	
600mm dropped below roof sheeting	SC/Z	15012	4.13	4.33	3.90	4.08	3.64	3.79	3.37	3.50	3.31	3.45
		15024	4.07	4.29	3.84	4.04	3.59	3.76	3.32	3.61	3.27	3.41
		20012	4.16	4.36	3.93	4.10	3.67	3.82	3.52	3.66	3.34	3.47
		20024	4.09	4.30	3.86	4.05	3.60	3.77	3.46	3.62	3.28	3.43
		25015	4.16	4.36	3.93	4.10	3.67	3.82	3.52	3.66	3.34	3.47
		25024	4.10	4.31	3.88	4.06	3.62	3.78	3.48	3.63	3.30	3.44

Calculations based on AS/NZS 4859.1 and AS/NZS 4859.2 Thermal insulation materials for buildings, and NCC 2020 Section J. Depth of ceiling void calculated for 10m roof width in direction of slope. Total R-Values (m^2.K/W) include indoor and outdoor air films. For other purlin spacing or purlin base metal thickness, thermal bridging will change and alter Total R. Assumes safety wire sags 20mm between SUPABRIDGE™ members to provide a 10mm average sag. This table may not be reproduced except in full. Results may not be quoted without reference to the above notes and drawing. Interpolation within the table is permissible to determine approximate Rv. Calculated by James Fricker, F.AIRAH F.IEAust CPEng NER APEC Engineer IntPE(Aus).

**Table 3.1.2.1-2 from SUPABRIDGE™ Design & Installation Manual for Design and Installation Professionals.

CLOSED BUILDINGS - WITH BLANKET

For increased insulative performance a blanket arrangement may be utilised. Presented below is a typical SUPABRIDGE™–110 system with a Horizontal ceiling for SUPAPURLIN® sizes between 150mm and 300mm. For the full range of options please refer to the SUPABRIDGE™ Design and Installation Manual for Design and Installation Professionals.



SUPABRIDGE™ SUMMER THERMAL PERFORMANCE
(With R0.2 thermal break)

CLOSED BUILDING - SUPABRIDGE™ SB 110 / SUPATHERMIC™ - 80 / SUPATHERMIC™ - TBS 4410 / SUPATHERMIC™ - 11 (CB OPTION 3*)**

R-values for roof pitch			0° - 4°		5° - 9°		10° - 14°		15° - 22°		22.5°	
Purlin spacing (mm)			900	1300	900	1300	900	1300	900	1300	900	1300
Ceiling min void depth	Purlin size											
Average void depth (mm)			475		914		1363		1973		2371	
300mm dropped below rood sheeting	SC/Z	15012	4.25	4.43	4.22	4.40	4.07	4.24	3.91	4.06	3.79	3.94
		15024	4.21	4.39	4.18	4.37	4.03	4.20	3.85	4.02	3.74	3.89
		20012	4.28	4.44	4.25	4.42	4.10	4.26	3.93	4.07	3.82	3.95
		20024	4.22	4.40	4.20	4.38	4.04	4.22	3.87	4.03	3.75	3.90
		25015	4.27	4.44	4.25	4.42	4.11	4.26	3.93	4.07	3.82	3.95
		25024	4.23	4.41	4.21	4.39	4.06	4.23	3.88	4.04	3.78	3.93
Average void depth (mm)			775		1214		1663		2273		2671	
600mm dropped below rood sheeting	SC/Z	15012	4.59	4.70	4.48	4.60	4.28	4.39	4.06	4.17	3.92	4.03
		15024	4.55	4.68	4.45	4.58	4.25	4.37	4.03	4.15	3.90	4.01
		20012	4.59	4.71	4.50	4.61	4.29	4.41	4.08	4.18	3.94	4.04
		20024	4.56	4.69	4.46	4.59	4.26	4.38	4.04	4.16	3.91	4.02
		25015	4.59	4.71	4.50	4.61	4.29	4.41	4.08	4.18	3.94	4.04
		25024	4.57	4.69	4.47	4.59	4.27	4.39	4.05	4.17	3.91	4.03

Calculations based on AS/NZS 4859.1 and AS/NZS 4859.2 Thermal insulation materials for buildings, and NCC 2020 Section J. Depth of ceiling void calculated for 10m roof width in direction of slope. Total R-Values ($m^2.K/W$) include indoor and outdoor air films. For other purlin spacing or purlin base metal thickness, thermal bridging will change and alter Total R. Assumes safety wire sags 20mm between SUPABRIDGE™ members to provide a 10mm average sag. This table may not be reproduced except in full. Results may not be quoted without reference to the above notes and drawing. Interpolation within the table is permissible to determine approximate Rv. Calculated by James Fricker, F.AIRAH F.IEAust CPEng NER APEC Engineer IntPE(Aus).

**Table 3.1.2.3-2 from SUPABRIDGE™ Design & Installation Manual for Design and Installation Professionals.

ACOUSTIC PERFORMANCE

The SUPABRIDGE™ system incorporating LYSAGHT SUPATHERMIC™ insulation layers has been independently assessed for acoustic performance.

The SUPABRIDGE™ system incorporating SUPATHERMIC™ insulation layers has been independently assessed for acoustic performance.

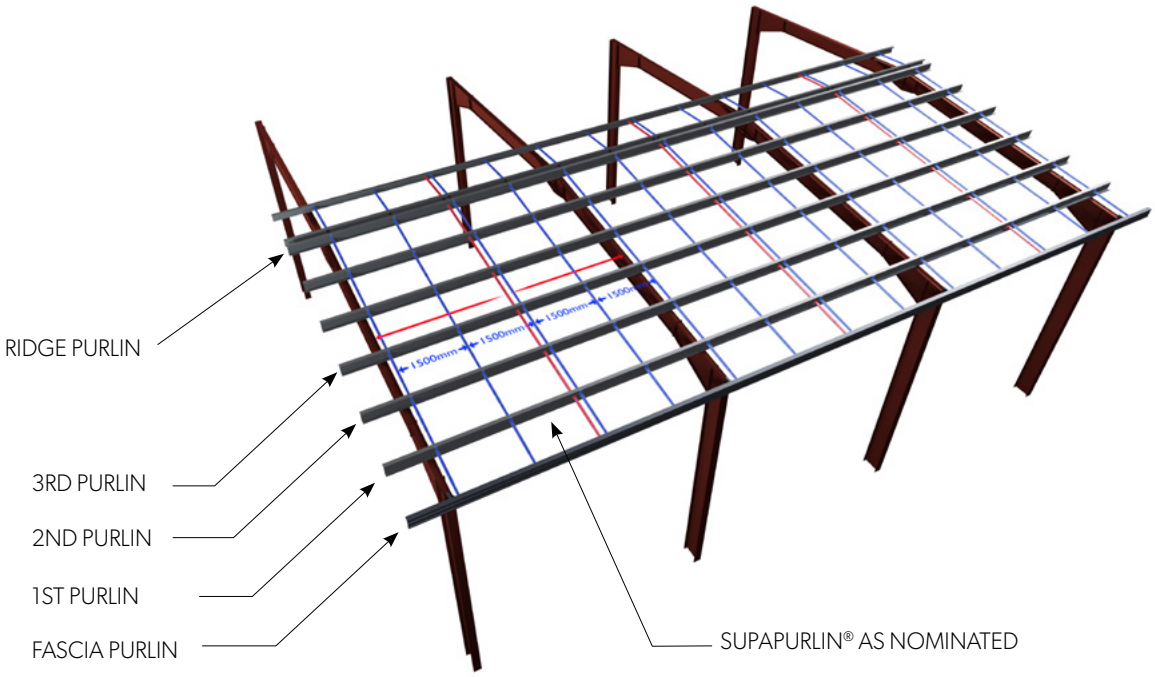
Acoustic (RW, Rw+Ctr and STC) performance data for both Open Warehouse and Buildings with Ceilings using the SUPABRIDGE™ system is set out below

No ceiling / open warehouse	metal roof BMT (mm)	R_w	Rw + C_{tr}	STC
Metal roof with SUPATHERMIC™ - 11 Insulation – SUPATHERMIC™ TB (30mm wide thermal break strip along the top of purlin), SUPATHERMIC™ - 80, Safety wire, on SUPABRIDGE™ 170 brackets bolted to SUPAPURLIN® at 1300mm centres	0.42	23	19	23
	0.48	24	20	24

Buildings with ceilings	Underside of roof to top of ceiling cavity (mm)	metal roof BMT (mm)	R_W	Rw + C_{tr}	STC
Metal roof with SUPATHERMIC™ - 11 Insulation – SUPATHERMIC™ MR Sarking, safety wire, on SUPABRIDGE™ - 110 brackets bolted to SUPAPURLIN® at 1300mm centres and 10mm plasterboard meeting	300	0.42	35	29	36
		0.48	36	30	37
	600	0.42	35	31	36
		0.48	37	33	38
	900	0.42	36	33	36
		0.48	38	35	38
	1200	0.42	36	33	36
		0.48	38	35	38

STRUCTURAL PERFORMANCE

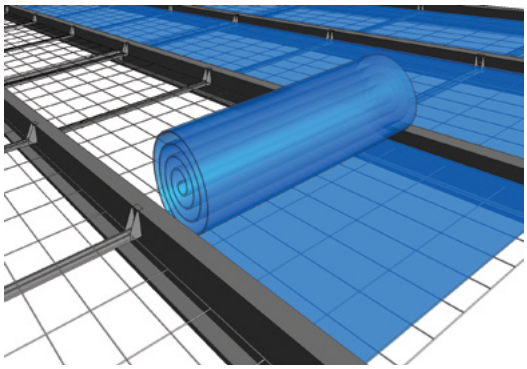
The SUPABRIDGE™ bridging system has tested performance equivalent to 2 rows of bridging, providing optimal structural performance in addition to excellent insulative performance.



SUPABRIDGE™ bridging sections are spaced at a maximum 1500mm centres along the SUPAPURLIN® length.

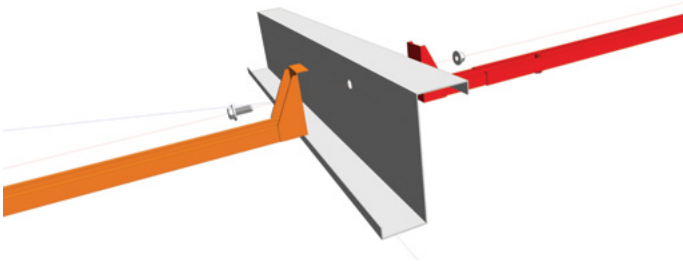
SUPABRIDGE™ sections are designed to align with standard gauge line punching simplifying both detailing and installation of the system.

SUPABRIDGE™ sections are telescoping sections that readily allow for onsite adjustment to cater for straightening of purlins or purlin spacing misalignment. All connections are achieved with standard M12 purlin bolts ensuring simple installation via industry standard practices.



SUPATHERMIC™ - MR Sarking maybe screw fixed to SUPABRIDGE™ members during installation to aid placement.

Purlin bolt connections to purlin and telescoping section.



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AUSTRALIAN STANDARDS

Australian Standard	Definition
AS/NZS 1530.3:1999	Methods for fire tests on building materials, components and structures Part:3 Simultaneous determination of ignitability, flame propagation, heat release and smoke release (Reconfirmed 2016)
AS/NZS 1530.3:1999	Methods for fire tests on building materials, components and structures Part:3 Simultaneous determination of ignitability, flame propagation, heat release and smoke release (Reconfirmed 2016)
AS/NZS 4859.1:2018	Thermal insulation materials for buildings Part 1: General criteria and technical provisions
AS 4200.1:2017	Pliable building membranes and underlays Part 1: Materials
AS 5637.1:2015	Determination of fire hazard properties Part 1: Wall and ceiling linings
AS 1301.448:2019	Method: 448 Methods of test for pulp and paper
AS 4201.2:1994	Pliable building membranes and underlays - Methods of test Method 2: Resistance to wet delamination (Reconfirmed 2020)
AS 4201.4:1994	Pliable building membranes and underlays - Methods of test Method 4: Resistance to water penetration (Reconfirmed 2020)
AS 4201.5:1994	Pliable building membranes and underlays - Methods of test Method 2: Emittance (Reconfirmed 2020)
AS/NZS 3100:2022	Approval and test specification - General requirements for electrical equipment
AS/NZS 4389:2015	Roof safety mesh
AS/NZS 4859.2:2018	Thermal insulation materials for buildings Part 2: Design

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