ecotek panel

ARCPANEL

Roof Systems

Design & Detailing Manual
Ecotek Roof Panel

Version 2015.02

A fully customised and complete roofing solution that is quick to install with superior span and cantilever capabilities.

CODEMARK™ CMA-CM40091

UP TO 25 YEARS 25 YEAR WARRANTY

CYCLONE RATED

GROUP 1 FIRE RATED BAL 29

HIGH THERMAL RATING

SUPERIOR SPAN & CANTILEVERS

CORROSIVE SOLUTION

www.arcpanel.com.au 1300 200 004 info@arcpanel.com.au

ARCPANEL ecotek panel Contents

Design and Detailing Manual Version 2015.02

ARCPANEL ecotek roof panel Design and Detailing Manual - publishing and version details

VERSION'S ISSUED AND AMENDMENTS		
Version	Date issued	Comments
2010.01	01.06.10	First published
2015.01	01.06.15	Updated colour selection
2015.02	01.11.17	Updated logo within document

This manual is subject to regular updates, please ensure that you are working with the latest version.
Contact **ARC**PANEL to receive the latest version on 1300 200 004 or email info@arcpanel.com.au

ARCPANEL ecotek panel **Overview**

Fully Integrated Roof System

ARCPANEL ecotek roof panel combines aesthetic, innovative design, with high strength, durability and excellent thermal insulation. **ARC**PANEL panels can also be curved to produce an outstanding architectural feature and provide increased interior space. The **ARC**PANEL ecotek roof panel can achieve significant cantilevers, in some applications up to 40% of the actual back span and this unique system eliminates the need for complex, expensive roof structures. The lightweight **ARC**PANEL panels are easily handled on site, achieving faster, lower cost installation.

Unique Design & Construction

ARCPANEL pre-fabrication starts with Trimdek topside and Corrugated COLORBOND® sheeting underside, bonded to both sides of profiled EPS. The panel yields high strength resulting in large spans & cantilevers along with a high insulation value. Standard ratings from R1.7 to R6.1 can easily be achieved. The strength of this construction means that the **ARC**PANEL ecotek roof panel is suitable for use in cyclonic conditions. After the panels are fixed in place, there is virtually no maintenance required other than the occasional wash down of soffits.

On site time spent fitting trusses, eave linings, plasterboard, battens, insulation lining, roof sheeting and painting, is eliminated when using **ARC**PANEL ecotek roof panel.

Key Features and Benefits

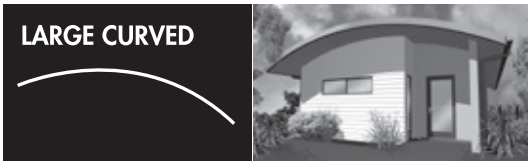
- ☑ Achieve up to 12.3m unsupported spans - reduce expensive support structures e.g. roof trusses & support beams
- ☑ Superior low pitch (2 Degrees) capability
- ☑ Pre-finished top and bottom sheet - extensive range of COLORBOND® colours available
- ☑ Straight or large curve configurations, suitable for most architectural designs
- ☑ Dependant on the design, cantilevers of up to 40% the actual backspan can be achieved
- ☑ Suitable for use in cyclonic wind conditions
- ☑ **ARC**PANEL ecotek roof panel is available in COLORBOND® Ultra, Stainless Steel, ZINCALUME® & Xtreme
- ☑ Rapid installation makes the **ARC**PANEL ecotek roof panel a clear winner over traditional roof construction
- ☑ Fire Rated to Group 1 - Roof and wall lining material
- ☑ Superior standard thermal ratings up to R6.1 are achieved using the **ARC**PANEL ecotek roof panel

ARCPANEL ecotek panel Applications

Roof Types

Straight panels can be manufactured up to 24 metres in length, suitable for housing, awnings, patios, commercial and industrial projects.

Straight & large curved panels can be manufactured using XRW, Ultra, Stainless Steel, ZINCALUME® and Xtreme. A range of COLORBOND® colours are available, with limited colour ranges in Stainless Steel and Xtreme.



Curved panels can be manufactured to radii greater than 60 metres. **50m radius also available contact **ARC**PANEL for further information.*

Curved panels can be manufactured in lengths up to 24 metres, panels can be joined to achieve longer runs.

Material Selection

Due to the extreme weather conditions and geographic locations in Australia and its coastal areas, care should be taken when selecting the material type that will be used in constructing the **ARC**PANEL Ecotek roof panel. Technical Bulletins developed by Bluescope Steel are available from **ARC**PANEL, or visit www.bluescopesteel.com.au.

An **ARC**PANEL insulated roof system with COLORBOND® steel plays a major part in the design of a thermally efficient building. COLORBOND® steel now includes Thermatech® solar reflectance technology to reflect more of the sun's heat, especially in summer. In hot weather, COLORBOND® steel with Thermatech® can help reduce peak roof temperatures by up to 11°C.

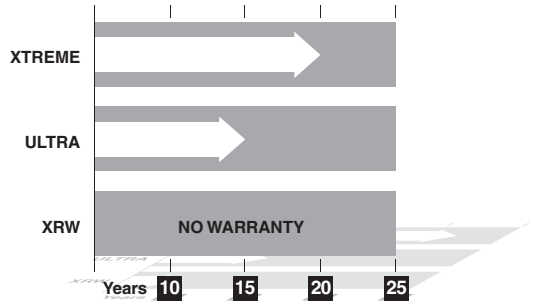
For a superior thermally efficient building, if you select COLORBOND® Coolmax® steel in Whitehaven®, you could help reduce the annual cooling energy costs of your building by up to 7.5%[1] compared to COLORBOND® steel

ARCPANEL Ecotek Roof Panel - Xtreme Material Specification

An ideal alternative solution for your roof system in coastal, aquatic, industrial or harsh chemical environments.

XTREME ecotek panel

WARRANTY PERIOD EXAMPLE
SEVERE MARINE (ISO CAT.4)



Ecotek Xtreme Roofing Solution
Ecotek Xtreme is an insulated roof solution suitable for corrosive environments especially those that are in close proximity to coastal areas, aquatic centres, industrial or chemical environments. The weather side of the sheet has an advanced exterior coat paint system containing at least 70% PVF2 resin in the dry paint film. The Xtreme material finish can be applied to one or both sides of the panel.

Key Features and Benefits

- ✓ Ideal for open and enclosed applications
- ✓ Corrosion Warranties up to 25 years (depending on location)
- ✓ No flaking or peeling of the paint film for up to 20 years*
- ✓ Outstanding colour and gloss retention suitable for roofing, cladding, and rainwater goods
- ✓ Suitable for severe marine and industrial sites with a high risk of

Warranty Information
Historically, to obtain a significant warranty in severe marine, coastal, aquatic centres, industrial or harsh chemical environments stainless steel products are generally specified. However, using **ARC**PANEL Ecotek Xtreme Roof Panel™ will provide warranties up to 25 years.

ARCPANEL ecotek panel

ARCPANEL ecotek panel Material and Colour Selection

BLUESCOPE STEEL - COLORBOND MATERIAL AND COLOUR SELECTION CHART								
Colour	Classification	Solar Absorbance	Availability		Suitable for use to		Curving Grade	NSW Basix Sustainability Index
			XRW	Ultra Steel	Roof Side	Ceiling Side		
COLORBOND								
Basalt™	Dark	0.69	✓		✓	✓		M
Classic Cream ™	Very Light	0.31*	✓		✓	✓	✓	L
Cottage Green	Dark	0.75	✓			✓	✓	D
Cove™	Light	0.54	✓		✓	✓		L
Deep Ocean®	Dark	0.749	✓			✓	✓	D
Dune®	Light	0.466	✓	✓	✓	✓	✓	L
Evening Haze®	Light	0.427	✓		✓	✓	✓	L
Gully™	Dark	0.63	✓		✓	✓		M
Ironstone®	Dark	0.74	✓			✓	✓	D
Jasper®	Dark	0.682	✓		✓	✓	✓	M
Mangrove™	Dark	0.64	✓		✓	✓		M
Manor Red®	Dark	0.688	✓		✓	✓	✓	M
Monument®	Dark	0.73	✓	✓		✓	✓	D
Night Sky®	Dark	0.96	✓			✓		D
Pale Eucalypt®	Dark	0.597	✓		✓	✓	✓	M
Paperbark®	Light	0.421	✓		✓	✓	✓	L
Surfmist®	Very Light	0.318*	✓	✓	✓	✓	✓	L
Terrain™	Dark	0.69	✓		✓	✓		M
Wallaby™	Dark	0.69	✓	✓	✓	✓		M
Whitehaven®	Very Light	0.23	✓		✓	✓		L
Windspray®	Dark	0.584	✓	✓	✓	✓	✓	M
Woodland Grey®	Dark	0.706	✓	✓		✓		D
Zincalume	Very Light	≤0.35*			✓		✓	L
STAINLESS STEEL								
Surfmist®	Very Light	0.318*			✓	✓		L
ARCPANEL XTREME								
XTREME ecotek panel PROTECT YOUR ROOF FROM HARSH CORROSIVE ENVIRONMENTS								
Off White	Very Light	0.318*			✓	✓		L

*Greater deemed to satisfy insulation concessions apply to these colours when used for Class 5 to 8, 9a and 9b buildings.

General Disclaimer: Colours and availability are subject to change, please contact **ARC**PANEL to confirm colours and availability prior to specification.

Notes: 1) Some colours listed above may require longer manufacturing lead times. Please contact **ARC**PANEL for further information.
2) COLORBOND® and colour names are registered trade marks of Bluescope Steel LimitedTM.

Refer to Page 43 for Colour Swatches.

ARCPANEL ecotek panel General Specifications

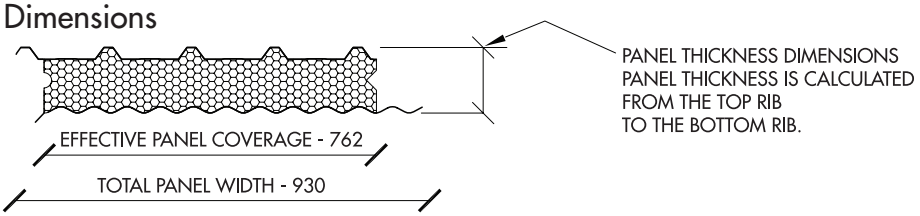
Panel Sizes
Eight standard panel thicknesses are available (*other panel thicknesses are available upon request*):
90mm - 110mm - 130mm - 150mm - 175mm - 200mm - 210mm - 250mm

Panel Lengths
Generally straight and large curved panels can be supplied up to 24 metres in length. Longer lengths can be supplied, please contact **ARC**PANEL for details.

Panel Configurations
Panels can be manufactured in straight and large curved configurations. Refer to roof type guide on page 4 for further information.

Panel Finish
The **ARC**PANEL ecotek panel is only available in a Trimdek topside profile and a custom orb (corrugated) underside profile. Please refer to table 1 on page 5 for further information on colours and material types. Base metal thickness of 0.420mm and a total coated thickness of 0.470mm is used as standard, unless otherwise stated (other steel thickness are available on request).

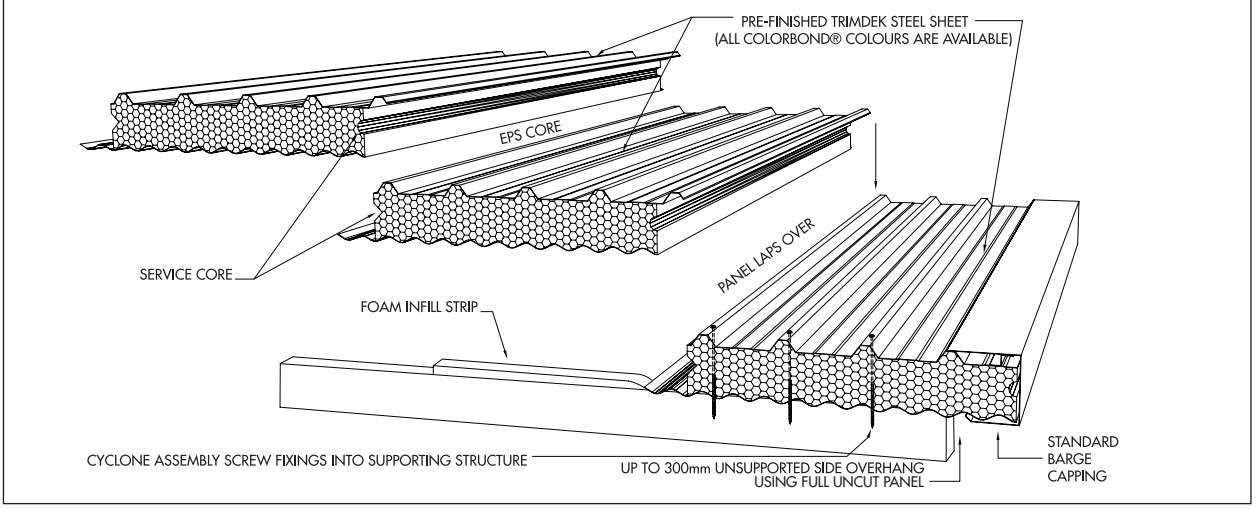
Panel Dimensions



ARCPANEL **ECOTEK PANEL SPECIFICATIONS** — **TABLE 2**

Cover Width	Core Material	Length	Thermal Conductivity	Top Sheet Finish	Bottom Sheet Finish	Sheet Material	Typical Panel Weight
762mm	Expanded Polystyrene	Ordered to Size	0.038 W/mK	COLORBOND® XRW COLORBOND® ULTRA ZINCALUME® Xtreme Stainless Steel	COLORBOND® XRW COLORBOND® ULTRA ZINCALUME® Xtreme Stainless Steel	0.42BMT G550 Steel	90mm = 9.6kg/m^2 110mm = 9.9kg/m^2 130mm = 10.2kg/m^2 150mm = 10.5kg/m^2 175mm = 10.8kg/m^2 200mm = 11.1kg/m^2 210mm = 11.4kg/m^2 250mm = 12.0kg/m^2

ecotek panel **ROOF PANEL COMPONENT ELEMENTS** — **FIGURE 1**

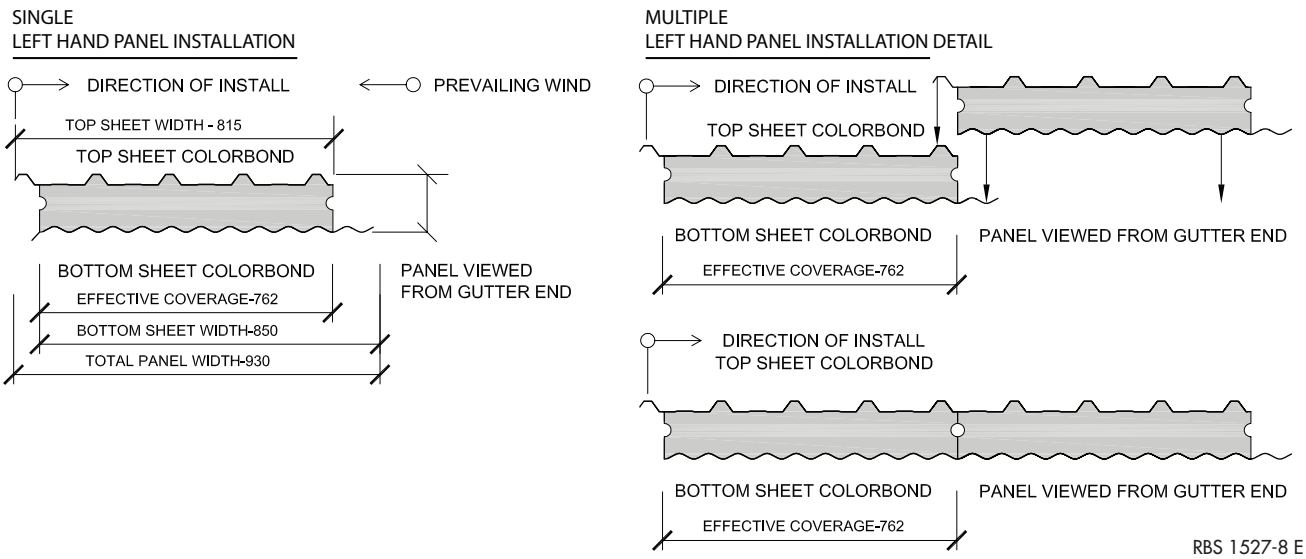


ARCPANEL ecotek panel

ARCPANEL ecotek panel Lapping Details

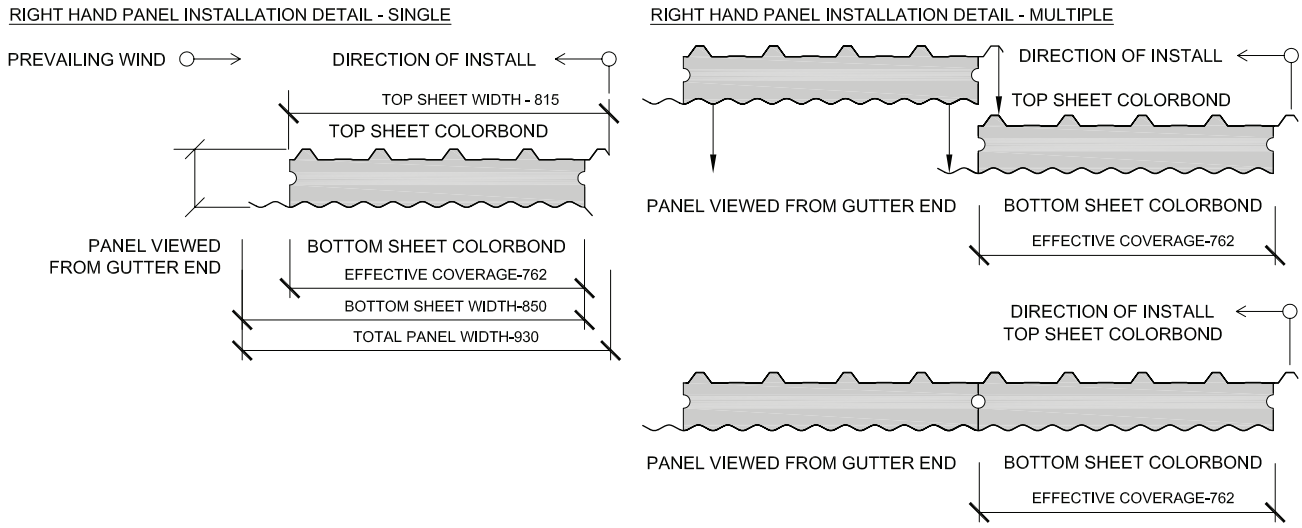
As shown in the following details (figures 1 -2), the **ARC**PANEL ecotek roof panel can be installed from left to right (left hand) or right to left (right hand), this is normally determined prior to undertaking of the workshop drawings. Should a specific installation direction be required please advise **ARC**PANEL at time of order. Direction of lap is determined by looking from the gutter end of the roof panel.

ECOTEK PANEL LAPPING DETAIL (LEFT HAND) — FIGURE 2A



RBS 1527-8 E

ECOTEK PANEL LAPPING DETAIL (RIGHT HAND) — FIGURE 2B



RBS 1527-9 E

ARCPANEL ecotek panel Accessory Information

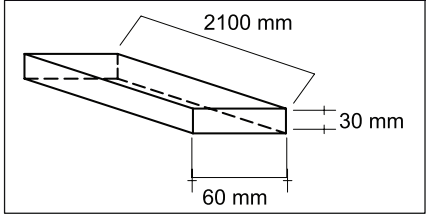
Foam Infill Strip

Details: 2100mm x 60mm x 30mm compressible grey foam.

Used: On all external and internal support points as required. It is fitted to the top of the wall frame or supporting member prior to the installation of the panel. It is used to fill up the void left between the support member and the roof corrugations.

Note: For aquatic applications, closed cell foam infill strip of 6mm purlin tape is recommended.

FOAM INFILL STRIP FIGURE 3



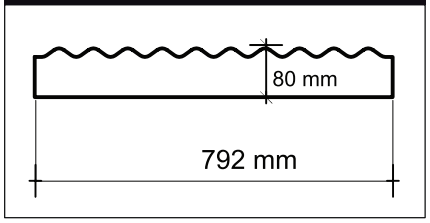
Corrugated Infill

(The use of Corrugated Infill is recommended to fully seal wall/soffit junctions. Refer to page 32 for further details).

Details: 792mm x 80mm x 0.42mm COLORBOND Surfmist®.

Used: On internal or external walls or both.
It is attached to the wall prior to installing the lining. It is used as a permanent barrier between the inside and outside. It is used on walls that run at 90 degrees to the run of the roof panels.

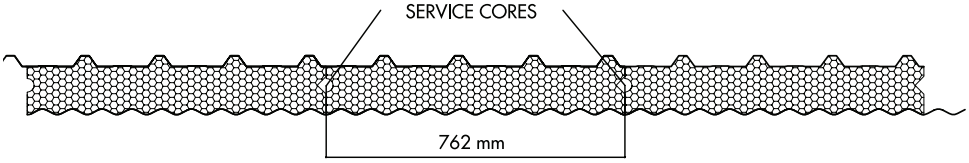
CORRUGATED INFILL FIGURE 4



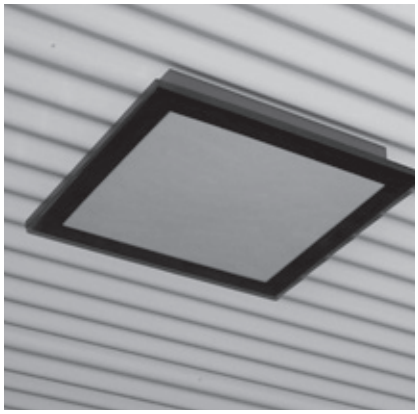
Services

The **ARC**PANEL roof panels incorporate a service duct at panel joints ie. @ 762 mm approx c/c. The duct is 30 mm in diameter and runs the full length of the panel.

Electrical fixtures are best placed on panel joins where possible, but can be positioned in any location. It is advisable that the electrical contractor is present during the installation of the **ARC**PANEL roof panels.



- The electrical contractor can run wiring from supporting walls through service ducts to the required outlets.
- The underside sheet of the **ARC**PANEL roof panels can be drilled or a circular opening cut for inlet or outlet of wiring.
- Electrical fixtures that are not on the panel joints can be wired by drilling an opening or by pushing a heated rod sideways or use a long auger bit and drill into the polystyrene core to the required outlet.



ARCPANEL ecotek panel

Timber Mounting Blocks

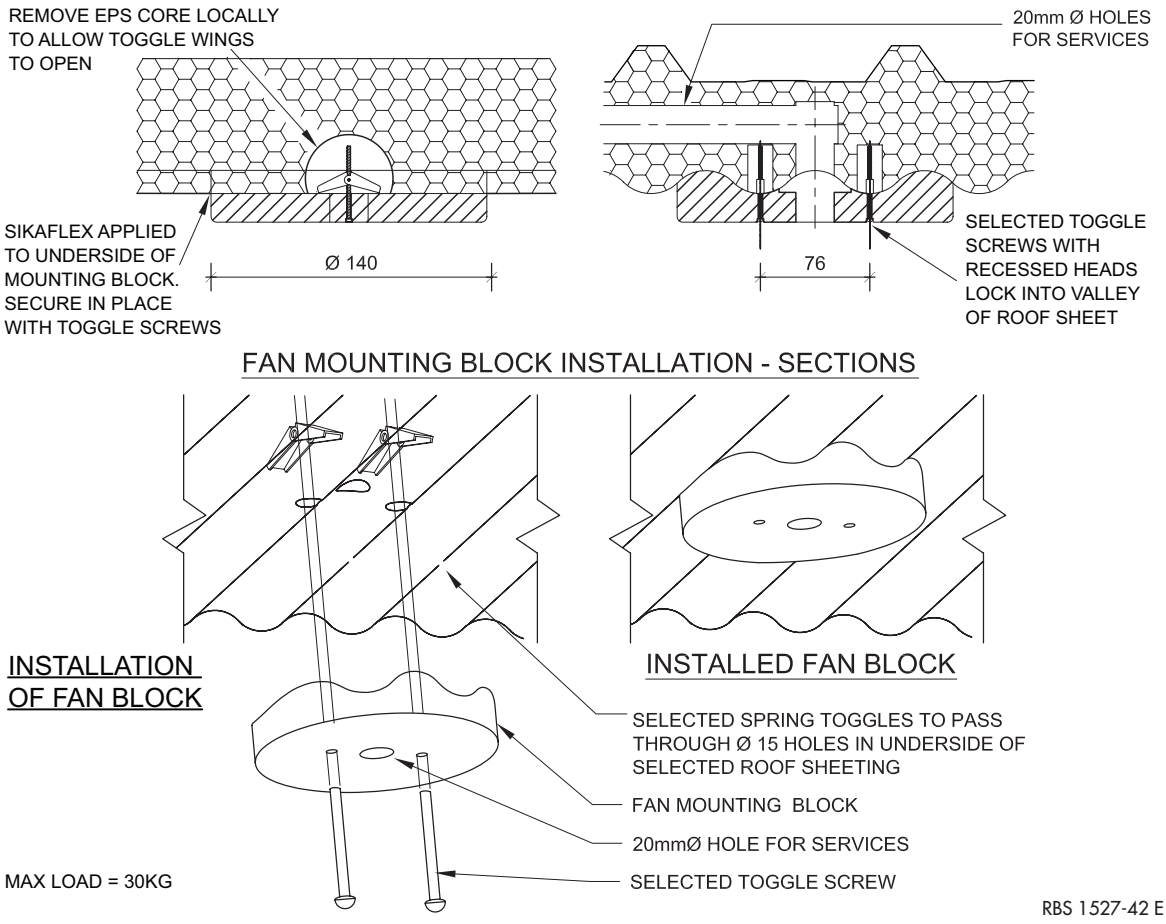
A profiled circular timber block is available to mount low voltage lights, pendant lights, ceiling fans etc. The timber block is supplied natural (unpainted), it will need to be painted or oiled on site to suit the ceiling colour.

The mounting of the timber block is to be undertaken in the following method: for light weight lighting and fans, two toggle bolts are used to secure the mounting block to the underside of the ceiling.

For heavier items such as large ceiling fans and large pendant lighting the block is to be bolted through the panel, using a standard bolt fitted with a cyclone plate, washer and seal.

The dimensions of the block are approximately 140mm in diameter (170mm also available) and will sit proud of the ceiling lining by approximately 16mm. The maximum recommended load is 30kg.

TIMBER MOUNTING BLOCK INSTALLATION **FIGURE 5**

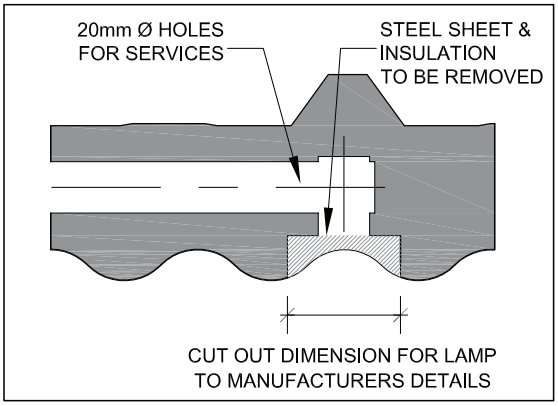


ARCPANEL ecotek panel Accessory Information

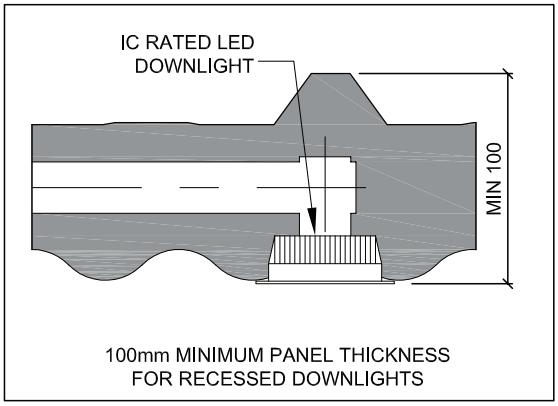
LED down lights can be installed directly into **ARC**PANEL panels with a thickness of 100mm or more. For panels less than 100mm, down lights can be surface mounted using the timber mounting block.

LED DOWNLIGHTS INSTALLATION **FIGURE 5.1**

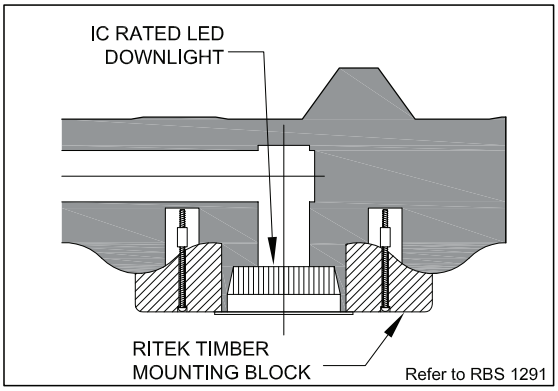
ARCPANEL ROOF PANEL - LED DOWNLIGHT INSTALLATION DETAILS



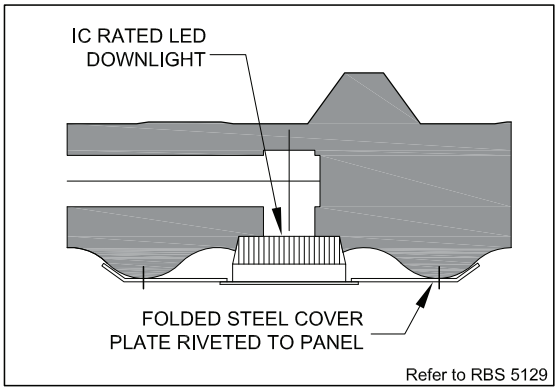
PREPARATION OF PANEL FOR INSTALLATION OF IC RATED LED DOWNLIGHTS



IC RATED LED DOWNLIGHT INSTALLED DIRECTLY INTO PANEL



IC RATED LED DOWNLIGHT INSTALLED IN TIMBER MOUNTING BLOCK ATTACHED TO PANEL



IC RATED LED DOWNLIGHT INSTALLED IN STEEL COVER PLATE ATTACHED TO PANEL

ALL ELECTRICAL WORK TO BE CARRIED OUT BY A LICENSED ELECTRICIAN TO RELEVANT AUSTRALIAN STANDARDS

LED DOWNLIGHTS TO BE IC CLASS - ABUTTED & COVERED.

CUT OUT DIMENSIONS TO LIGHT MANUFACTURERS SPECIFICATIONS

RECOMMENDED DOWNLIGHTS:

SUNNY AUSTRALIA LIGHTING
PREMIER MODELS S9071, S9072, S9073
FIXED HEAD RECESSED LED DOWNLIGHT KITS

REFER TO DESIGN & DETAILING MANUAL FOR INSTALLATION OF ELECTRICAL SERVICES AND TIMBER MOUNTING BLOCKS

SPECIFIED LIGHTS RECOMMENDED AND SUPPLIED BY

NOOSA LIGHTING
www.noosalighting.com.au

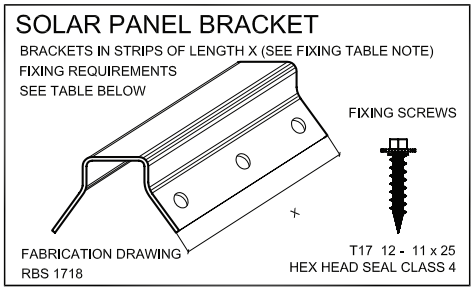
S9071 Model shown

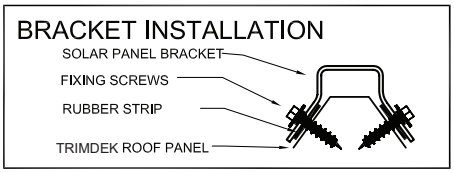
FOR FURTHER INFORMATION VISIT
www.sunnylighting.com.au/downlights/led-downlights/premier

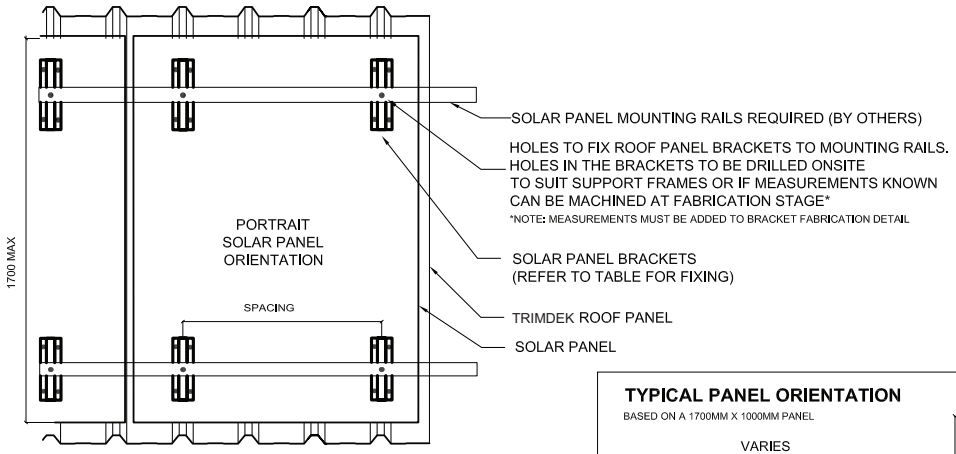
RBS 5128-2 A

SOLAR PANEL BRACKET - TRIMDEK®

FIGURE 6







FIXING REQUIREMENTS

USING TYPE 17 12-11-25 CLASS 4 WITH SEAL

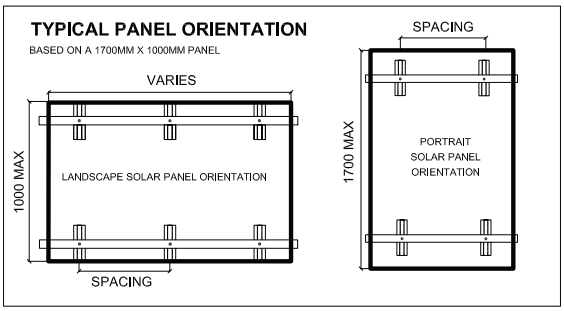
PORTRAIT SOLAR PANEL ORIENTATION

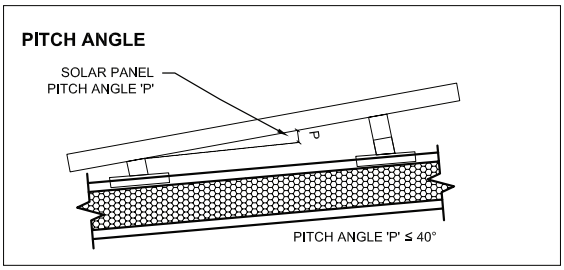
SOLAR PANEL PITCH < 5°				SOLAR PANEL PITCH ≥ 5°			
WIND CLASS	LIMIT STATE DESIGN PRESSURE (kPa)	SPACING OF BRACKETS (mm)	SCREWS PER BRACKET	WIND CLASS	LIMIT STATE DESIGN PRESSURE (kPa)	SPACING OF BRACKETS (mm)	SCREWS PER BRACKET
N2-W33	1.52	570	4	N2-W33	2.16	570	6
N3-W41	2.34	570	6	N3-W41	3.32	380	6
N4-W50	3.50	380	6	N4-W50	4.97	380	8
N5-W60	5.03	380	8	N5-W60	7.14	190	6
C1-W41	3.11	380	6	C1-W41	3.79	380	6
C2-W50	4.62	380	8	C2-W50	5.64	380	10
C3-W60	6.65	190	6	C3-W60	8.11	190	8
C4-W70	9.05	190	8	C4-W70	11.04	190	10

LANDSCAPE SOLAR PANEL ORIENTATION

SOLAR PANEL PITCH P < 5°				SOLAR PANEL PITCH P ≥ 5°			
WIND CLASS	LIMIT STATE DESIGN PRESSURE (kPa)	SPACING OF BRACKETS (mm)	SCREWS PER BRACKET	WIND CLASS	LIMIT STATE DESIGN PRESSURE (kPa)	SPACING OF BRACKETS (mm)	SCREWS PER BRACKET
N2-W33	1.52	570	4	N2-W33	2.16	570	4
N3-W41	2.34	570	4	N3-W41	3.32	570	6
N4-W50	3.50	380	4	N4-W50	4.97	380	6
N5-W60	5.03	380	6	N5-W60	7.14	380	8
C1-W41	3.11	570	6	C1-W41	3.79	570	6
C2-W50	4.62	380	6	C2-W50	5.64	380	6
C3-W60	6.65	380	6	C3-W60	8.11	380	8
C4-W70	9.05	380	8	C4-W70	11.04	190	6

NOTE: 4/6/8 SCREW BRACKET = 200MM LONG, 10 SCREW BRACKET = 250MM LONG





NOTES

IF BRACKETS TO BE USED IN A COASTAL AREA WE RECOMMEND POWDER COATING THE BRACKETS FOR CORROSION RESISTANCE.

TYPE 17 12-11-25 CLASS 4 WITH SEAL
TYPICAL PULLOUT PER SCREW 260N

LOCATE PANELS AWAY FROM ROOF EDGES AND RIDGE

FIXING TABLE APPLIES TO SOLAR PANELS UP TO 1700MM X 1000MM INSTALLED WITH RAILS DISTRIBUTING THE LOAD ACROSS NUMEROUS BRACKETS. FOR PANELS OUTSIDE THIS SPEC AND INSTALLATION METHOD, PROFESSIONAL CONSULTANTS ARE REQUIRED AND JOB SPECIFIC FIXING REQUIREMENTS SHOULD BE CALCULATED USING THE PULL OUT VALUE OF 260WSCREW.

NOTE: THE DESIGN OF THE ROOF BRACKET SYSTEM FOR A SOLAR PANEL MOUNTING APPUCATION REQUIRES THE SERVICES OF PROFESSIONAL CONSULTANTS. THIS INFORMATION HAS BEEN PREPARED AS A SOURCE OF INFORMATION TO PROVIDE GENERAL GUIDANCE TO PROFESSIONAL CONSULTANTS AND NO WAY REPLACES THE SERVICES OF PROFESSIONAL CONSULTANTS. NO UABIUTY CAN THEREFORE BE ACCEPTED BY ARCHITECTURAL PANELS PTY LTD FOR ITS USE. WHEN PLACING OBJECTS ON ROOF: MAXIMUM DISTRIBUTED LIVE LOAD IS 0.25kPa AND REFER TO MAX ALLOWABLE DEAD LOADS ON PAGE 24.

CERTIFIED BY TOD CONSULTING ENGINEERS 21/06/13

ARCPANEL @cotek panel Span Tables & Thermal Ratings

SPAN TABLE - NON CYCLONIC - SINGLE SPAN

Midspan deflection up to span/120 at serviceability limit state; Self weight deflection up to span/600. Maximum unsupported Spans (mm)

TABLE 3A

Wind Class (Permissible)	Ultimate Limit State Design Wind Pressure (P) (kPa)	Total R Value		Total R Value		Total R Value		Total R Value		Total R Value		Total R Value		Total R Value		Total R Value	
		R1.7		R2.3		R2.8		R3.4		R4.0		R4.7		R5.0		R6.1	
		90mm Panel		110mm Panel		130mm Panel		150mm Panel		175mm Panel		200mm Panel		210mm Panel		250mm Panel	
		Max Span	Max Cantilever	Max Span	Max Cantilever	Max Span	Max Cantilever	Max Span	Max Cantilever	Max Span	Max Cantilever	Max Span	Max Cantilever	Max Span	Max Cantilever	Max Span	Max Cantilever
N2-W33	**1.52**	**4900**	**1715**	**6200**	**2170**	**7500**	**2625**	**8100**	**2835**	**8500**	**2975**	**9500**	**3325**	**10500**	**3675**	**11400**	**3990**
	1.68	4720	1650	5980	2090	7220	2525	7820	2735	8200	2870	9200	3220	10160	3555	11020	3855
	1.85	4540	1585	5760	2015	6940	2425	7540	2635	7900	2765	8900	3115	9820	3435	10640	3720
	2.01	4360	1525	5540	1935	6660	2330	7260	2540	7600	2660	8600	3010	9480	3315	10260	3590
	2.18	4180	1460	5320	1860	6380	2230	6980	2440	7300	2555	8300	2905	9140	3195	9880	3455
N3-W41	**2.34**	**4000**	**1400**	**5100**	**1785**	**6100**	**2135**	**6700**	**2345**	**7000**	**2450**	**8000**	**2800**	**8800**	**3080**	**9500**	**3325**
	2.57	3840	1310	4910	1675	5880	2005	6460	2205	6760	2305	7720	2635	8500	2900	9200	3140
	2.80	3680	1220	4720	1565	5660	1880	6220	2065	6520	2165	7440	2470	8200	2720	8900	2955
	3.03	3520	1135	4530	1460	5440	1750	5980	1925	6280	2020	7160	2305	7900	2545	8600	2770
	3.26	3360	1045	4340	1350	5220	1625	5740	1785	6040	1880	6880	2140	7600	2365	8300	2585
N4-W50	**3.50**	**3200**	**960**	**4150**	**1245**	**5000**	**1500**	**5500**	**1650**	**5800**	**1740**	**6600**	**1980**	**7300**	**2190**	**8000**	**2400**
	3.80	3040	885	3980	1160	4820	1405	5300	1545	5600	1630	6360	1850	6980	2035	7540	2205
	4.11	2880	815	3810	1075	4640	1310	5100	1440	5400	1520	6120	1725	6660	1880	7080	2010
	4.41	2720	740	3640	990	4460	1215	4900	1335	5200	1415	5880	1600	6340	1730	6620	1815
	4.72	2560	670	3470	905	4280	1120	4700	1230	5000	1305	5640	1475	6020	1575	6160	1620
N5-W60	**5.03**	**2400**	**600**	**3300**	**825**	**4100**	**1025**	**4500**	**1125**	**4800**	**1200**	**5400**	**1350**	**5700**	**1425**	**5700**	**1425**

SPAN TABLE - NON CYCLONIC - CONTINUOUS (DOUBLE) SPAN [Y SPAN MUST = (0.3X TO 0.7X]

Midspan deflection up to span/120 at serviceability limit state; Self weight deflection up to span/600. Maximum unsupported Spans (mm)

TABLE 3B

Wind Class (Permissible)	Ultimate Limit State Design Wind Pressure (P) (kPa)	Total R Value		Total R Value		Total R Value		Total R Value		Total R Value		Total R Value		Total R Value		Total R Value	
		R1.7		R2.3		R2.8		R3.4		R4.0		R4.7		R5.0		R6.1	
		90mm Panel		110mm Panel		130mm Panel		150mm Panel		175mm Panel		200mm Panel		210mm Panel		250mm Panel	
		Max Span	Max Cantilever	Max Span	Max Cantilever	Max Span	Max Cantilever	Max Span	Max Cantilever	Max Span	Max Cantilever	Max Span	Max Cantilever	Max Span	Max Cantilever	Max Span	Max Cantilever
N2-W33	**1.52**	**5390**	**1615**	**6820**	**2045**	**8250**	**2475**	**8910**	**2670**	**9350**	**2805**	**9975**	**2990**	**11025**	**3305**	**12000**	**3600**
	1.68	5190	1555	6575	1970	7940	2380	8600	2575	9020	2705	9660	2895	10665	3195	11600	3480
	1.85	4990	1495	6335	1895	7630	2285	8290	2485	8690	2605	9345	2800	10310	3090	11200	3360
	2.01	4795	1435	6090	1825	7325	2195	7985	2390	8360	2505	9030	2705	9950	2980	10800	3240
	2.18	4595	1375	5850	1750	7015	2100	7675	2300	8030	2405	8715	2610	9595	2875	10400	3120
N3-W41	**2.34**	**4400**	**1320**	**5610**	**1680**	**6710**	**2010**	**7370**	**2210**	**7700**	**2310**	**8400**	**2520**	**9240**	**2770**	**10000**	**3000**
	2.57	4220	1230	5400	1570	6465	1880	7105	2070	7435	2165	8105	2360	8925	2595	9680	2820
	2.80	4045	1140	5190	1460	6225	1755	6840	1930	7170	2020	7810	2200	8610	2425	9360	2640
	3.03	3870	1055	4980	1355	5980	1625	6575	1790	6905	1880	7515	2045	8295	2255	9040	2460
	3.26	3695	965	4770	1245	5740	1500	6310	1650	6640	1735	7220	1885	7980	2085	8720	2280
N4-W50	**3.50**	**3520**	**880**	**4565**	**1140**	**5500**	**1375**	**6050**	**1510**	**6380**	**1595**	**6930**	**1730**	**7665**	**1915**	**8400**	**2100**
	3.80	3340	805	4375	1055	5300	1280	5830	1405	6160	1485	6675	1610	7325	1770	7980	1930
	4.11	3165	735	4190	970	5100	1185	5610	1300	5940	1375	6425	1490	6990	1625	7560	1760
	4.41	2990	665	4000	890	4905	1090	5390	1195	5720	1270	6170	1370	6655	1480	7140	1595
	4.72	2815	595	3815	805	4705	995	5170	1090	5500	1160	5920	1250	6320	1335	6720	1425
N5-W60	**5.03**	**2640**	**525**	**3630**	**725**	**4510**	**900**	**4950**	**990**	**5280**	**1055**	**5670**	**1130**	**5985**	**1195**	**6300**	**1260**

Span Selection Notes (Non Cyclonic Areas)

1. Tables 3A, 3B and 3C apply to typical enclosed buildings built on the ground, less than 20m high with sealed doors and windows capable of resisting the applied wind pressures
2. Roof pressure coefficients: Cpe = 1.5 X -0.9 = -1.35, Cpi = +0.2 [Cpi = +0.7 at cantilever]
3. The building designer must take into account any application where the Cpi would exceed > 0.2 in open or partly open structures
4. Maximum cantilever for N1-W28, N2-W33 & N3-W41 is up to 40% actual backspan no greater than max length shown
5. Maximum cantilever for N4-W50 & N5-W60 is up to 30% actual backspan no greater than max length shown (Maximum cantilever lengths cannot be exceeded)
   Choose a thicker panel to achieve the required cantilever (Minimum width of cantilevered roof is 1.5 x cantilever)
6. Wind Load Serviceability Criteria based on AS 4055, Vs=0.64 x Vu
7. Oversized gutters may affect the cantilever capability, please contact **ARC**PANEL for advice
8. Limited racking, diaphragm action and lateral restraint capacity
9. 300mm maximum side cantilever using full uncut panel
10. Thermal R-Values are Total R-Values (Winter - Tested conductivity 0.038W/m.K at 23˚C)
11. Spans shown are for XRW, ULTRA materials. For Xtreme material, spans reduce by 5% for each use of the Xtreme material (top/bottom sheet) for ULS Design Wind Pressures less than 2.34kPa.
12. In locations where the roof panels are not fixed to the parallel raked external walls (due to glazing and the like), the engineer shall select the panels using the max wind pressure calculated with upwind local pressure coefficients in accordance with AS1170.2

ARCPANEL @cotek panel

SPAN TABLE - CYCLONIC - SINGLE SPAN

TABLE 3C

Midspan deflection up to span/120 at serviceability limit state; Self weight deflection up to span/700. Maximum unsupported Spans (mm)

Wind Class (Permissible)	Ultimate Limit State Design Wind Pressure (P) (kPa)	Total R Value		Total R Value		Total R Value		Total R Value		Total R Value		Total R Value		Total R Value		Total R Value	
		R1.7		R2.3		R2.8		R3.4		R4.0		R4.7		R5.0		R6.1	
		90mm Panel		110mm Panel		130mm Panel		150mm Panel		175mm Panel		200mm Panel		210mm Panel		250mm Panel	
		Max Span	Max Cantilever	Max Span	Max Cantilever	Max Span	Max Cantilever	Max Span	Max Cantilever	Max Span	Max Cantilever	Max Span	Max Cantilever	Max Span	Max Cantilever	Max Span	Max Cantilever
C1-W41	**3.11**	**3000**	**840**	**3800**	**1080**	**4600**	**1310**	**5000**	**1425**	**5500**	**1565**	**6100**	**1735**	**6500**	**1850**	**8000**	**2250**
	3.41	2840	780	3640	1010	4440	1235	4840	1350	5320	1480	5880	1635	6280	1750	7640	2110
	3.71	2680	720	3480	945	4280	1165	4680	1275	5140	1395	5660	1540	6060	1650	7280	1970
	4.02	2520	665	3320	880	4120	1090	4520	1200	4960	1315	5440	1440	5840	1550	6920	1830
	4.32	2360	605	3160	815	3960	1020	4360	1125	4780	1230	5220	1345	5620	1450	6560	1690
C2-W50	**4.62**	**2200**	**550**	**3000**	**750**	**3800**	**950**	**4200**	**1050**	**4600**	**1150**	**5000**	**1250**	**5400**	**1350**	**6200**	**1550**
	5.03	2090	505	2840	685	3580	865	4010	970	4400	1060	4840	1165	5180	1250	5820	1410
	5.43	1980	460	2680	625	3360	785	3820	890	4200	975	4680	1085	4960	1150	5440	1270
	5.84	1870	415	2520	560	3140	700	3630	810	4000	890	4520	1000	4740	1055	5060	1135
	6.24	1760	370	2360	500	2920	620	3440	730	3800	805	4360	920	4520	955	4680	995
C3-W60	**6.65**	**1650**	**330**	**2200**	**440**	**2700**	**540**	**3250**	**650**	**3600**	**720**	**4200**	**840**	**4300**	**860**	**4300**	**860**
	7.13	1580	315	2100	420	2560	510	3040	605	3380	675	3960	790	4060	810	4060	810
	7.61	1510	300	2000	400	2420	480	2830	565	3160	630	3720	740	3820	760	3820	760
	8.09	1440	285	1900	380	2280	455	2620	525	2940	585	3480	695	3580	715	3580	715
	8.57	1370	270	1800	360	2140	425	2410	485	2720	540	3240	645	3340	665	3340	665
C4-W70	**9.05**	**1300**	**260**	**1700**	**340**	**2000**	**400**	**2200**	**445**	**2500**	**500**	**3000**	**600**	**3100**	**620**	**3100**	**620**

Span Selection Notes (Cyclonic Areas)

1. Tables 3A, 3B and 3C apply to typical enclosed buildings built on the ground, less than 20m high with sealed doors and windows capable of resisting the applied wind pressures.
2. Roof pressure coefficients: Cpe = 1.5 X -0.9 = -1.35, Cpi =+0.7
3. Maximum cantilever for all cyclonic areas is up to 30% actual backspan Maximum cantilever lengths cannot be exceeded. Choose a thicker panel to achieve the required cantilever Minimum width of cantilevered roof is 1.5 x cantilever
4. Wind Load Serviceability Criteria based on AS 4055, Vs=0.64 x Vu
5. Oversized gutters may affect the cantilever capability, please contact **ARC**PANEL for advice
6. Limited racking, diaphragm action and lateral restraint capacity
7. 300mm maximum side cantilever using full uncut panel
8. Thermal R-Values are Total R-Values (Winter - Tested conductivity 0.038W/m.K at 23˚C)
9. In locations where the roof panels are not fixed to the parallel raked external walls (due to glazing of the like), the engineer shall select the panels using the max wind pressure calculated with upwind local pressure coefficients in accordance with AS1170.2

NOTE: ABOVE SPAN TABLES ARE APPLICABLE TO **ARC**PANEL ECOTEK ROOF PANELS ONLY AND ARE ACHIEVABLE BY USING PROVEN MANUFACTURING METHODS AND PRODUCT TESTING. STRUCTURAL ADEQUACY OF THE PANEL IS CERTIFIED BY
Tod Consulting Engineers, Noosaville QLD.

General Span Selection Notes

Live Loads:
Maximum distributed live load 0.25kPa.

Roofs in Alpine Areas:
Designer must refer to **ARC**PANEL for engineering advice regarding snow loadings.

Deflection Limits:
The **ARC**PANEL span tables have been provided with specific deflection limits indicated for serviceability wind speeds. The building designer must take all necessary care to select an appropriate panel thickness for their specific situation, taking into account the amount of potential roof panel movement relative to any attached non-structural elements, such as internal wall partitions and window frames etc. The building designer must also make allowance for deflections which can exceed those in the tables when the wind speeds are occasionally above the designated serviceability wind speed during extreme weather conditions.

Cantilever Deflections:
Note that cantilever deflections will depend on the backspan, rigidity of supports, building geometry and building permeability. Cantilever deflection can be up to (cantilever length) / 50 at serviceability wind speeds. The building designer must take all necessary care to select an appropriate panel thickness for their specific situation taking into account the amount of potential roof panel movement at the ends of and along the sides of cantilevered sections of the roof, relative to any adjacent attached flashings, downpipes, screen partitions and walls. The building designer must also make allowance for cantilever deflections which can exceed (cantilever length) / 50 when wind speeds occasionally exceed serviceability wind speeds during extreme weather conditions. Cantilever deflections due to self weight can be up to (cantilever length) / 500.

MAXIMUM ALLOWABLE DISTRIBUTED DEAD LOAD

TABLE 4

KG/M^2 FOR INTERNAL SPANS (DEFLECTION < SPAN/300)

	PANEL THICKNESS - ECOTEK PANEL							
Span	**90**	**110**	**130**	**150**	**175**	**200**	**210**	**250**
<3M	**15**	**20**	**25**	**25**	**25**	**30**	**35**	**50**
3M - 6M	**-**	**15**	**20**	**20**	**20**	**25**	**25**	**35**
6M - 8M	**-**	**-**	**10**	**15**	**15**	**20**	**20**	**20**
8M - 10M	**-**	**-**	**-**	**-**	**-**	**10**	**15**	**15**

NOTES:
1) For dead load requirements that exceed the above criteria, refer to **ARC**PANEL for specific engineering advice.
2) No dead load is permitted on cantilevers without specific written approval from **ARC**PANEL.
3) The above loads are unfactored.

ARCPANEL ecotek panel Attached Canopy Span Tables

ARCPANEL ECOTEK PANEL
SPAN TABLE - ATTACHED CANOPY (NON CYCLONIC)

TABLE 5

*SPAN TABLES FOR CANOPIES, AWNINGS & CARPORTS **ATTACHED TO BUILDINGS***

		ATTACHED					FREE STANDING		ALL
		3 Sides Open Case A	2 Sides Open Case B	1 Side Open Case C	Enclosed Case D	Attached Fly-over Roof	Free Roof Blockage <75%	Free Roof Blockage >75%	
Wind Class	Panel Thickness	Max Span	Max Span	Max Span	Max Span	Max Span	Max Span	Max Span	Max Cantilever
N2-W33	90	5250	5100	4900	4900	5100	5250	5100	1615
	110	6400	6350	6200	6200	6350	6550	6350	2045
	130	7500	7500	7500	7500	7500	7600	7500	2475
	150	8450	8350	8100	8100	8350	8600	8350	2670
	175	9600	9500	8500	8500	9500	9750	9500	2805
	200	10700	10600	9500	9500	10600	10760	10600	2990
	210	10900	10900	10500	10500	10900	10940	10900	3305
	250	12500	12500	11400	11400	12300	12300	12300	3600
N3-W41	90	5000	4600	4000	4000	4600	5250	4600	1320
	110	6000	5550	5100	5100	5550	6550	5550	1680
	130	7000	6450	6100	6100	6450	7550	6450	2010
	150	7950	7300	6700	6700	7300	8550	7300	2210
	175	9050	8350	7000	7000	8350	9750	8350	2310
	200	10100	9350	8000	8000	9350	10760	9350	2520
	210	10500	9700	8800	8800	9700	10940	9700	2770
	250	12100	11200	9500	9500	11200	12300	11200	3000
N4-W50	90	4150	3800	3200	3200	3800	4500	3800	880
	110	5000	4550	4150	4150	4550	5450	4550	1140
	130	5800	5300	5000	5000	5300	6325	5300	1925
	150	6600	6050	5500	5500	6050	7175	6050	1510
	175	7550	6900	5800	5800	6900	8200	6900	1595
	200	8450	7750	6600	6600	7750	9175	7750	1730
	210	8800	8050	7300	7300	8050	9425	8050	1915
	250	10150	9300	8000	8000	9300	10875	9300	2100
N5-W60	90	3250	2850	2400	2400	2850	3800	2850	525
	110	4150	3700	3300	3300	3700	4575	3700	725
	130	4850	4400	4100	4100	4400	5325	4400	900
	150	5550	5000	4500	4500	5000	6050	5000	990
	175	6350	5750	4800	4800	5750	6925	5750	1055
	200	7100	6450	5400	5400	6450	7750	6450	1130
	210	7400	6750	5700	5700	6750	7975	6750	1195
	250	8100	6800	5700	5700	6800	9225	6800	1300

Span Selection Notes (Non Cyclonic Areas)

1. Spans selected in accordance with the above maximum limits are certified to be structurally adequate in accordance with AS1170.2-2011
2. Refer to ecotek panel span notes for cyclonic and non cyclonic spans on page 11 and 12
   Refer to ecotek panel fixing information on page 24 and 25
3. Max deflections at midspan are L/70 at permissable design wind pressures
   Max deflections at midspan are L/250 for 0.25kPa Live Load
4. Max dead Load deflections are L/500 (N2-W33)
5. The slope of an attached canopy, fly-over roof, or free roof with a monoslope (single skillion) roof must be less than or equal to 10 degrees. The slope of an attached canopy, fly-over roof, or free roof with a pitched (gable, double skillion) roof must be less than or equal to 22.5 degrees

APPLICATION EXAMPLES

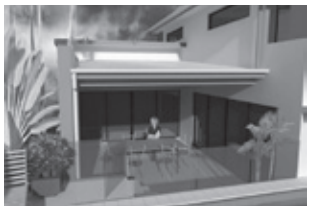
Attached canopy span tables apply to panels used for canopies, awnings, patio and building roofs that are attached to another building.

Case A, B ,C, and D attached canopies must be lower than the building eaves.

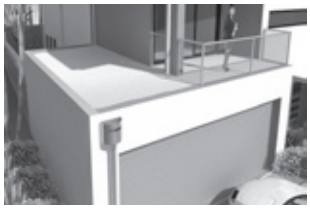
The height of the fly-over roof must not be more than the ridge of the building it is attached to.

3 SIDES OPEN (CASE A)

2 SIDES OPEN (CASE B)



1 SIDE OPEN (CASE C)



FULLY ENCLOSED (CASE D)

Version 2015.02 - Design & Detailing Manual. Always refer to local state building regulations and current safety requirements.

ARCPANEL ecotek panel Attached Canopy Span Tables

ARCPANEL ECOTEK PANEL
SPAN TABLE - ATTACHED CANOPY (CYCLONIC)

TABLE 6

SPAN TABLES FOR CANOPIES, AWNINGS & CARPORTS ***ATTACHED TO BUILDINGS***

		ATTACHED					FREE STANDING		ALL
		3 Sides Open Case A	2 Sides Open Case B	1 Side Open Case C	Enclosed Case D	Attached Fly-over Roof	Free Roof Blockage <75%	Free Roof Blockage >75%	
Wind Class	Panel Thickness	Max Span	Max Span	Max Span	Max Span	Max Span	Max Span	Max Span	Max Cantilever
C1-W41	90	5000	4450	3800	2790	4450	5250	4450	840
	110	6000	5550	5100	3600	5550	6500	5550	1080
	130	7000	6450	5950	4140	6450	7550	6450	1310
	150	7950	7300	6750	4680	7300	8550	7300	1425
	175	9050	8350	7700	4770	8350	9750	8350	1565
	200	10100	9350	8650	5310	9350	10760	9350	1735
	210	10500	9700	9000	5760	9700	10940	9700	1850
	250	12100	11200	10350	8000	11200	12300	11200	2250
C2-W50	90	3650	3150	2750	2160	3150	4325	3150	550
	110	4900	4150	3600	2880	4150	5450	4150	750
	130	5800	5200	4450	3420	5200	6325	5200	950
	150	6600	6050	5350	3780	6050	7175	6050	1050
	175	7550	6900	6350	3870	6900	8200	6900	1150
	200	8450	7750	7150	4320	7750	9175	7750	1250
	210	8800	8050	7450	4770	8050	9425	8050	1350
	250	10100	9300	8200	6200	9300	10875	9300	1550
C3-W60	90	2700	2300	2050	1620	2300	3150	2300	330
	110	3550	3000	2650	2160	3000	4200	3000	440
	130	4400	3750	3200	2700	3750	5250	3750	540
	150	5300	4450	3850	2970	4450	6050	4450	650
	175	6350	5400	4600	3060	5400	6925	5400	720
	200	7100	6300	5400	3510	6300	7750	6300	840
	210	7400	6600	5700	3780	6600	7975	6600	860
	250	8050	6600	5700	4300	6600	9225	6600	860
C4-W70	90	2100	1850	1650	1260	1850	2450	1850	260
	110	2700	2350	2050	1620	2350	3200	2350	340
	130	3350	2850	2500	1980	2850	3950	2850	400
	150	4000	3350	2900	2160	3350	4750	3350	445
	175	4800	4050	3500	2250	4050	5725	4050	500
	200	5600	4700	4050	2700	4700	6650	4700	600
	210	5950	5000	4200	3060	5000	6850	5000	620
	250	6000	5000	4200	3100	5000	7200	5000	620

APPLICATION EXAMPLES

Free roof and attached fly-over span tables apply to panels used for canopies, patio and building roofs that are not enclosed by walls underneath.

'Roof Blockage >75%' implies that items stored under the roof block more than 75% of the cross section exposed to the wind.

ATTACHED FLY OVER

FREE ROOF BLOCKAGE < 75%

FREE ROOF BLOCKAGE > 75%

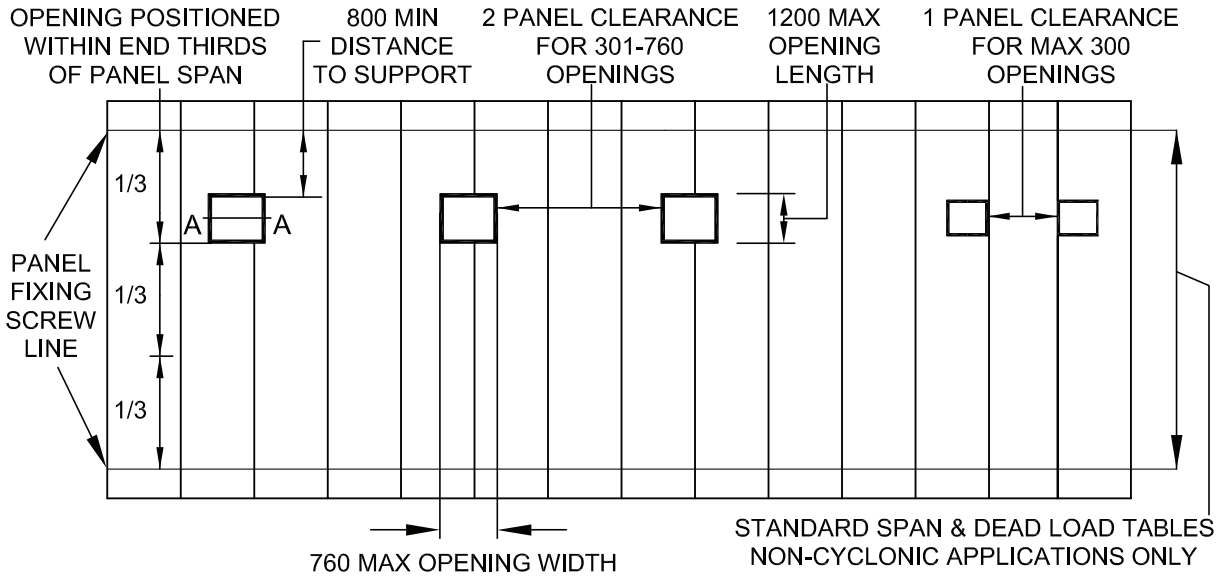
Span Selection Notes (Cyclonic Areas)

1. Spans selected in accordance with the above maximum limits are certified to be structurally adequate in accordance with AS1170.2-2011
2. Refer to ecotek panel span notes for cyclonic and non cyclonic spans on page 10 and 11
   Refer to ecotek panel fixing information on page 24 and 25
3. Max deflections at midspan are L/70 at permissable design wind pressures
   Max deflections at midspan are L/250 for 0.25kPa Live Load
4. Max Dead Load deflections are L/500 (N2-W33)
5. The slope of an attached canopy, fly-over roof, or free roof with a monoslope (single skillion) roof must be less than or equal to 10 degrees. The slope of an attached canopy, fly-over roof, or free roof with a pitched (gable, double skillion) roof must be less than or equal to 22.5 degrees

ARCPANEL ecotek panel Roof Penetrations

ROOF PENETRATIONS **FIGURE 7**

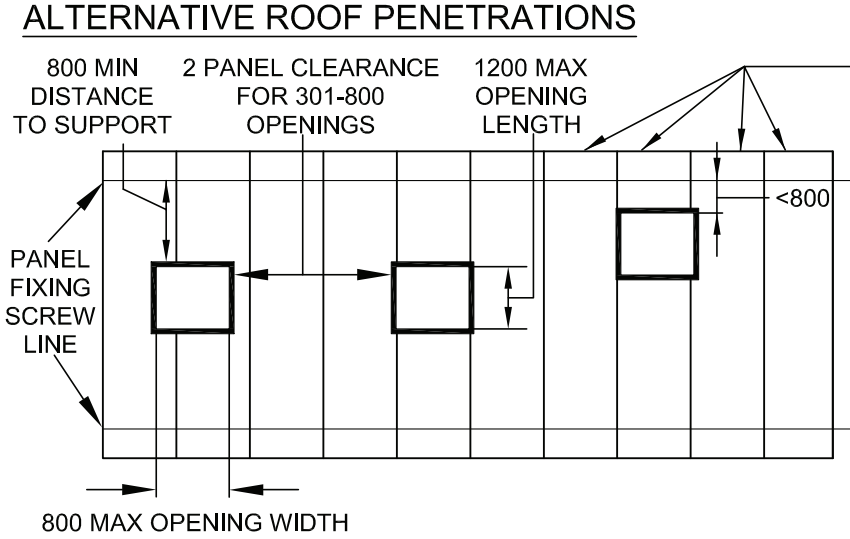
STANDARD ROOF PENETRATIONS - NON CYCLONIC ONLY



STANDARD ROOF PENETRATIONS - NOTE

If the (non-cyclonic) roof penetration is a maximum of 760mm wide by 1200mm long, and is positioned within the first third of the panel span, is 800mm minimum from the support, and has the continuous fully welded 2mm thick C-Channel, then the standard span tables apply.

ALTERNATIVE ROOF PENETRATIONS



REDUCED SPANS FOR ALTERNATIVE PENETRATIONS OVER 300 WIDE

OPENING WIDTH	% OF SPAN & DEAD LOAD TABLES
UP TO 300	100%
301 TO 600	90%
601 TO 760	80%
761 TO 800	75%

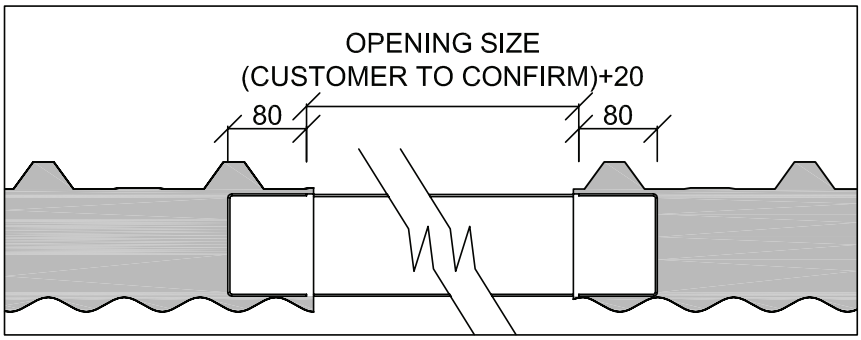
ALTERNATIVE ROOF PENETRATIONS - NOTES

1. Openings up to 300mm wide - full span tables
2. Openings 301mm to 600mm wide - 90% of span tables
3. Openings 601mm to 760mm wide - 80% of span tables
4. Openings 761mm to 800mm wide - 75% of span tables
5. Superimposed dead load capacity is reduced by the equivalent percentages as above
6. Maximum length of openings to be 1200mm
7. Continuous welded 2mm C-Channel to be provided to perimeter of openings greater than 300mm width
8. Penetrations to be at least 800mm from the support OR where support fixing situation requires one fixing every crest; penetration can be within 800mm of support provided the adjacent whole panels each side to the penetration are provided with two fixings to every crest
9. A minimum of 2 whole panels to be provided between roof penetrations greater than 300mm;1 whole panel for openings of 300mm or less
10. When considering the racking capacity of the roof diaphragm; the project design engineer is to allow that roof penetrations with length more than 800mm will divide up the length of roof sections
11. Refer to **ARC**PANEL for any proposed penetrations outside the rules stated.

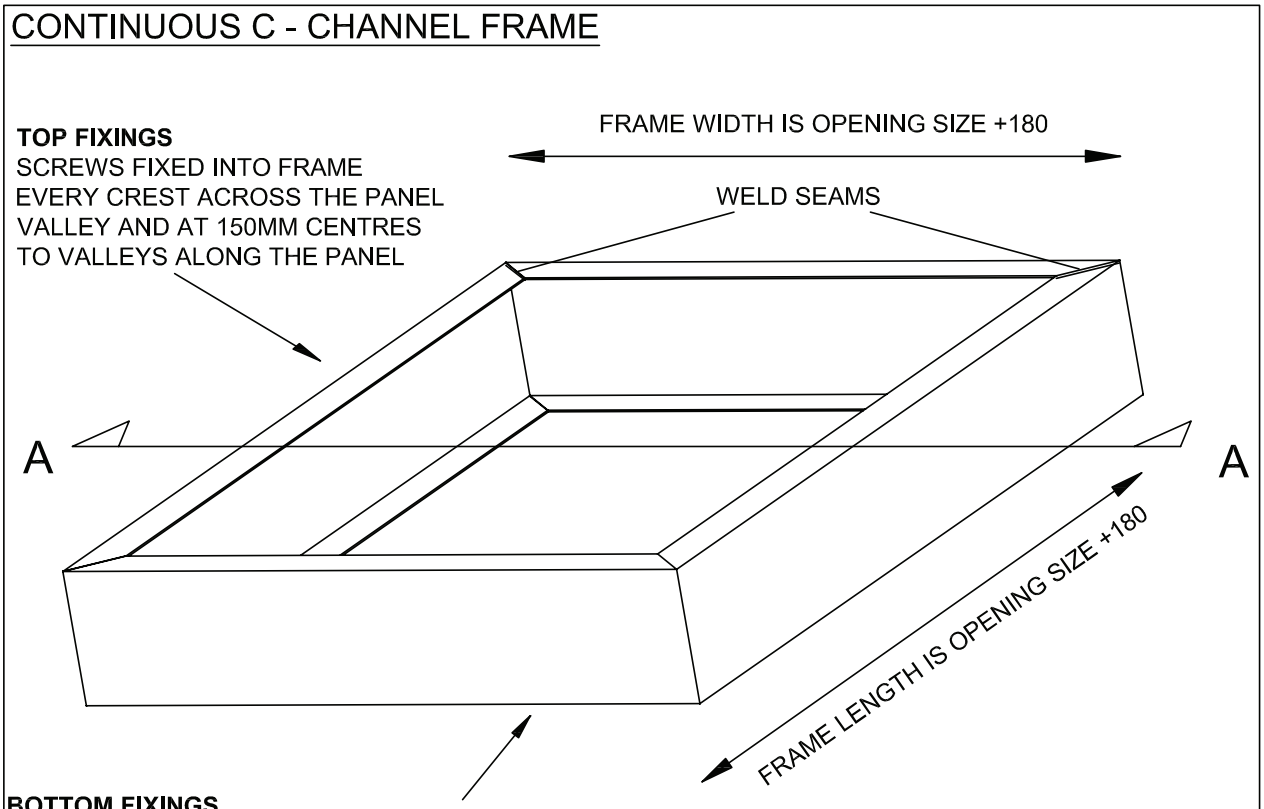
RBS 1527-39-1 A

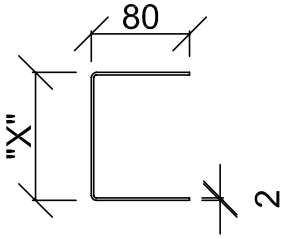
ROOF PENETRATIONS **FIGURE 8**

SECTION A-A



CONTINUOUS C - CHANNEL FRAME





CONTINUOUS C CHANNEL	
PANEL THICKNESS	DIMENSION 'X'
90mm	35mm
110mm	55mm
130mm	75mm
150mm	95mm
175mm	139mm
200mm	145mm
250mm	195mm

CONTINUOUS C-CHANNEL ONLY REQUIRED FOR OPENINGS GREATER THAN 300mm WIDE

RBS 1527-39-2 B

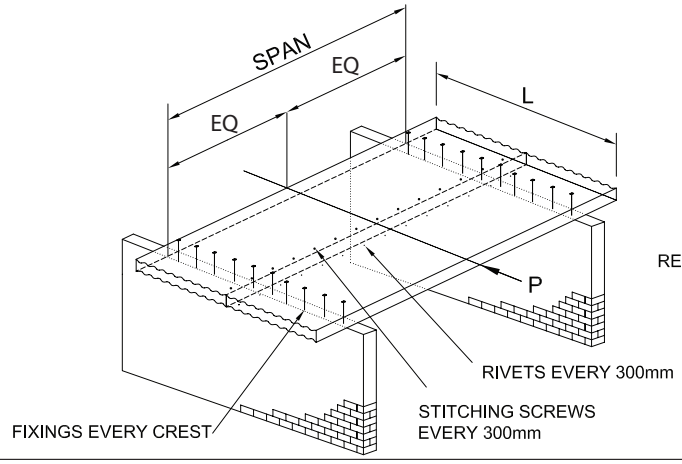
ARCPANEL ecotek panel Technical Properties

RACKING CAPACITY KN (LIMIT STATE) (P) TABLE 7

PANEL THICKNESS 90 - 250mm	Panel Span (H) mm								
	4800	5400	6000	6600	7200	7800	8400	9000	12500
1 Panel (L=762mm)	2	1.8	1.6	1.5	1.35	1.25	1.1	0.95	0.55
2 Panels (L=1524mm)	4.1	3.6	3.3	3	2.7	2.5	2.3	2.1	1.65
kN per m	2.7	2.4	2.1	1.95	1.8	1.6	1.5	1.45	1.2

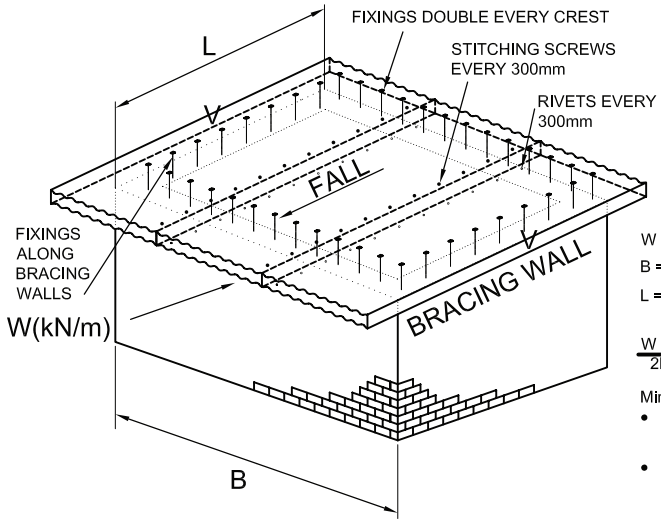
Allowable lateral load (kN) Min length 762mm * Note: For straight and curved panels

RACKING CAPACITY TEST METHOD FIGURE 9



RBS 1527-73 C

ROOF DIAPHRAGM ACTION CAPACITY FIGURE 10



REFER TO FIXING INFORMATION FOR SPECIFICATIONS

W = Limit state horizontal wind load applied by top of wall onto edge of roof

B = Length of wall between bracing walls (as per plan) in metres

L = Length of Ecotek roof panel (in direction of horizontal force) which will transfer the shear force into the bracing walls - in metres

$\frac{W \times B}{2L}$ < 1.5 kN/m (Limit State)

Minimum Fixings to Bracing Wall Structure

- Double every crest at load bearing supports (where panel is 90° to bracing wall)
- At 200mm centres along side edges of panel (where panel is parallel to bracing wall)

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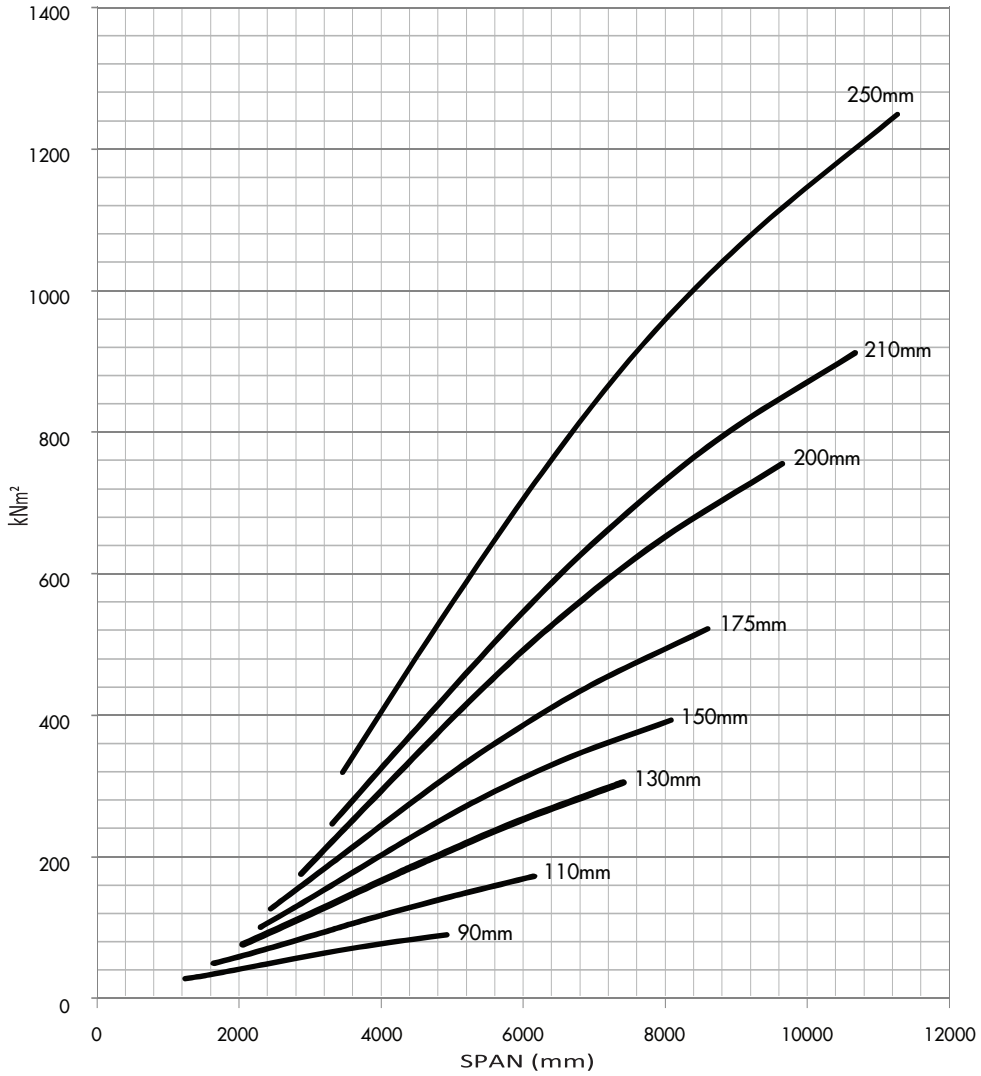
ARCPANEL roof diaphragm action assumes there is adequate structural connection through the full length of the building along supporting walls and beams, capable of resisting the resulting overall tension and compressive loads caused by any **ARC**PANEL roof diaphragm action, as would be normally required in a traditionally braced roof.

ARCPANEL ecotek panel

ECOTEK STIFFNESS (PER 762mm WIDE PANEL) Vs SPAN FOR VARYING PANEL THICKNESS (x mm)



ECOTEK PANEL THICKNESS Vs STIFFNESS FOR VARYING SPANS (EI) - PER 762mm WIDE PANEL **TABLE 8**

90mm		110mm		130mm		150mm		175mm		200mm		210mm		250mm	
Span (mm)	EI	Span (mm)	EI	Span (mm)	EI	Span (mm)	EI	Span (m)	EI	Span (m)	EI	Span (mm)	EI	Span (mm)	EI
1300	22	1700	40	2100	67	2350	91	2500	107	2950	190	3400	242	3500	309
1600	27	2150	54	2700	97	3100	136	3300	162	3900	285	4500	366	4300	425
2400	43	2900	80	3750	151	4500	223	4800	266	5400	430	6050	536	6200	701
3200	59	3300	94	4100	168	5500	280	5800	329	6600	530	7350	661	8000	932
4000	73	4150	121	5000	211	6700	337	7000	394	8000	628	8850	783	9500	1090
4900	86	5100	148	6100	256	8100	390	8600	462	9650	724	10700	899	11400	1250

Note: In accordance with AS1562.1 1992, AS4040 1992

ARCPANEL ecotek panel Acoustic Properties

PKA ACOUSTIC CONSULTING

We have investigated the likely performance of the Ecotek panel compared to the acoustic laboratory tested Custom panel as manufactured by Ritek Building Solutions. To determine the possible changes that the profile of the metal cladding, together with the thickness of steel in the metal cladding, may have on the acoustic performance of various thicknesses of the insulation core, we have carried out a survey of other laboratory tests together with published test results of similar insulated panels. The investigation has clearly shown that the rigid centre core dominates the acoustic performance of the composite panel. Changes in profile and thickness of the steel sheet have very little influence. There were minor differences between the results of tests carried out elsewhere in the world. These differences were more likely to be normal experimental error that can occur between acoustic laboratories rather than actual differences in acoustic performance.

Our investigation has also shown that even lightweight concrete panels have the acoustic performance dominated by the rigid insulating core.

Our prediction of the likely acoustic performance for either the Custom panel or the Ecotek panel is that they will reflect similarity of performance.

Predicted Performance

The following predictions are based on determination of Sound Transmission Loss carried out at the acoustic laboratories of Lorient Australia Pty Ltd, Banyo, Qld, on Monday, 25 February and Tuesday, 26 February 2008. The results are covered in our report no. 207 141 R01 dated April 2008.

Ecotek Roof Panel Thickness	90mm and 110mm		130mm, 150mm and 175mm		200mm – 250mm	
Description	Rw	Rw + Ctr	Rw	Rw + Ctr	Rw	Rw + Ctr
Ecotek Panel	22dB	20dB	24dB	21dB	24dB	21dB
Ecotek Panel with Rondo 303 furring channels directly fixed to the panel with a ceiling comprising one layer of 13mm CSR Soundchek plasterboard.	32dB	27dB	33dB	28dB	34dB	29dB
As above with an additional layer of 13mm CSR Soundchek plasterboard.	35dB	30dB	36dB	31dB	37dB	32dB
As above with the addition of Tontine HSB2 polyester insulation in the cavity. The intention was to use Tontine TSB2 polyester insulation but the HSB2 was supplied in lieu of the TSB2.	38dB	32dB	39dB	33dB	40dB	34dB
Ecotek Panel with 96mm top hat sections resiliently mounted to the Ecotek Panel. The ceiling comprising one layer of 13mm CSR Soundchek plasterboard.	43dB	33dB	44dB	34dB	45dB	35dB
As above with the addition of R2.0 105mm glasswool batt placed in the cavity so that there was mild compression of the insulation by the plasterboard panel.	52dB	40dB	53dB	41dB	54dB	42dB
Ecotek Panel with 96mm top hat sections resiliently mounted to the Ecotek Panel, a 64mm top hat section was then fixed at right angles to the 96mm top hat section. The cavity was filled with R2.0 glasswool insulation batts so that the addition of the single layer of 13mm CSR Soundchek caused a mild compression of the glasswool insulation.	56dB	46dB	57dB	47dB	58dB	48dB

Yours faithfully,

Peter Knowland
PKA Acoustic Consulting

Peter R Knowland and Associates Pty Ltd T/A PKA Acoustic Consulting ABN. 73 001 594 583 ACN. 001 594 583
PO Box 345, Lane Cove, NSW, 1595 Tel: (612) 9460 6824 Fax: (612) 9460 6823 Email: admin@pka.com.au
Suite 12, 401 Pacific Highway, Artarmon, NSW, 2064
Member Firm of the Australian Association of Acoustical Consultants

ARCPANEL ecotek panel Fire Properties

EARLY FIRE HAZARD PROPERTIES		AS/NZS 1530.3	TABLE 9
Ignitability Index	=	0	
Spread of flame	=	0	
Heat evolved index	=	0	
Smoke produced index	=	4	

RITEK ECOTEK ROOF PANEL - GROUP 1 MATERIAL

in accordance with BCA specifications C1.10a

FIRE RATING AS ISO 9705 - 2003 — TABLE 10

TABLE 1
WALL AND CEILING LINING MATERIALS (Materials Groups Permitted)

BCA Building	Fire Isolated Exits	Public Corridors		Specific Areas		Other Areas
Class	Wall/Ceiling	Wall	Ceiling	Wall	Ceiling	Wall/Ceiling
Class 2 & 3 Excluding accommodation for the aged, people with disabilities and children						
Unsprinklered	1	1, 2	1, 2	1, 2, 3	1, 2, 3	1, 2, 3
Sprinklered	1	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3
Class 3& 9a Accommodation for the aged, people with disabilities and children, health-care buildings						
Unsprinklered	1	1	1	1, 2	1, 2	1, 2, 3
Sprinklered	1	1, 2	1, 2	1, 2, 3	1, 2, 3	1, 2, 3
Class 5, 6, 7, 8 & 9b Schools						
Unsprinklered	1	1, 2	1, 2	1, 2, 3	1, 2	1, 2, 3
Sprinklered	1	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3
Class 9b - other than schools						
Unsprinklered	1	1,	1	1, 2	1, 2	1, 2, 3
Sprinklered	1	1, 2	1, 2	1, 2, 3	1, 2, 3	1, 2, 3
Class 9c						
Sprinklered	1	1, 2	1, 2	1, 2, 3	1, 2, 3	1, 2, 3

CONSTRUCTION OF BUILDINGS IN BUSHFIRE PRONE AREAS

ARCPANEL ECOTEK PANEL MEETS THE REQUIREMENTS FOR BUILDINGS ASSESSED IN BUSHFIRE PRONE AREAS IN ACCORDANCE WITH SECTION 2 AS 3959 - 2009 AS BAL - 29

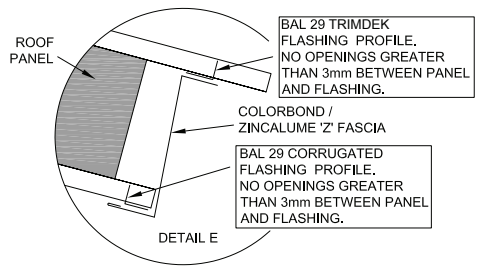
Designated bushfire prone area means land which has been designated under a power in legislation as being subject, or likely to be subject to bushfires.

AS 3959-2009 determines that any residence situated less than 100m from unmanaged vegetation (including forests, woodlands, scrub, rainforests and shrubland) over one hectare in size, is deemed to be in a bushfire prone area and all new houses or alterations and additions must meet the Bushfire Attack Level (BAL) requirements.

A full range of BAL 29 Flashings are available, please contact **ARC**PANEL for further details.

Note.
73 AS 5-8 rivets required to fix BAL 29 flashing profile in to place.

BAL 29 FLASHING PROFILE

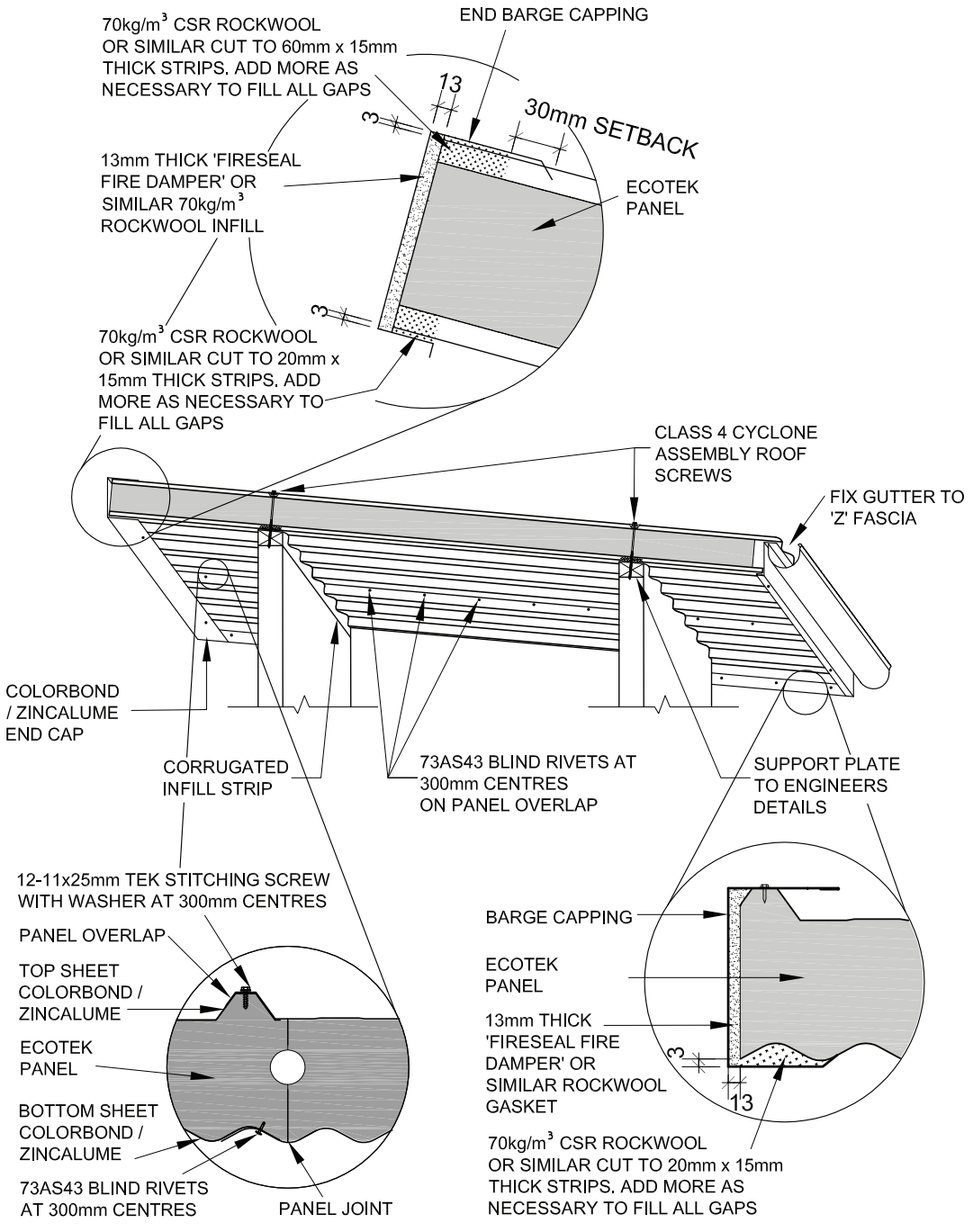


ARCPANEL ecotek panel Fire Properties

Group 1 Fire Rating Installation Detail

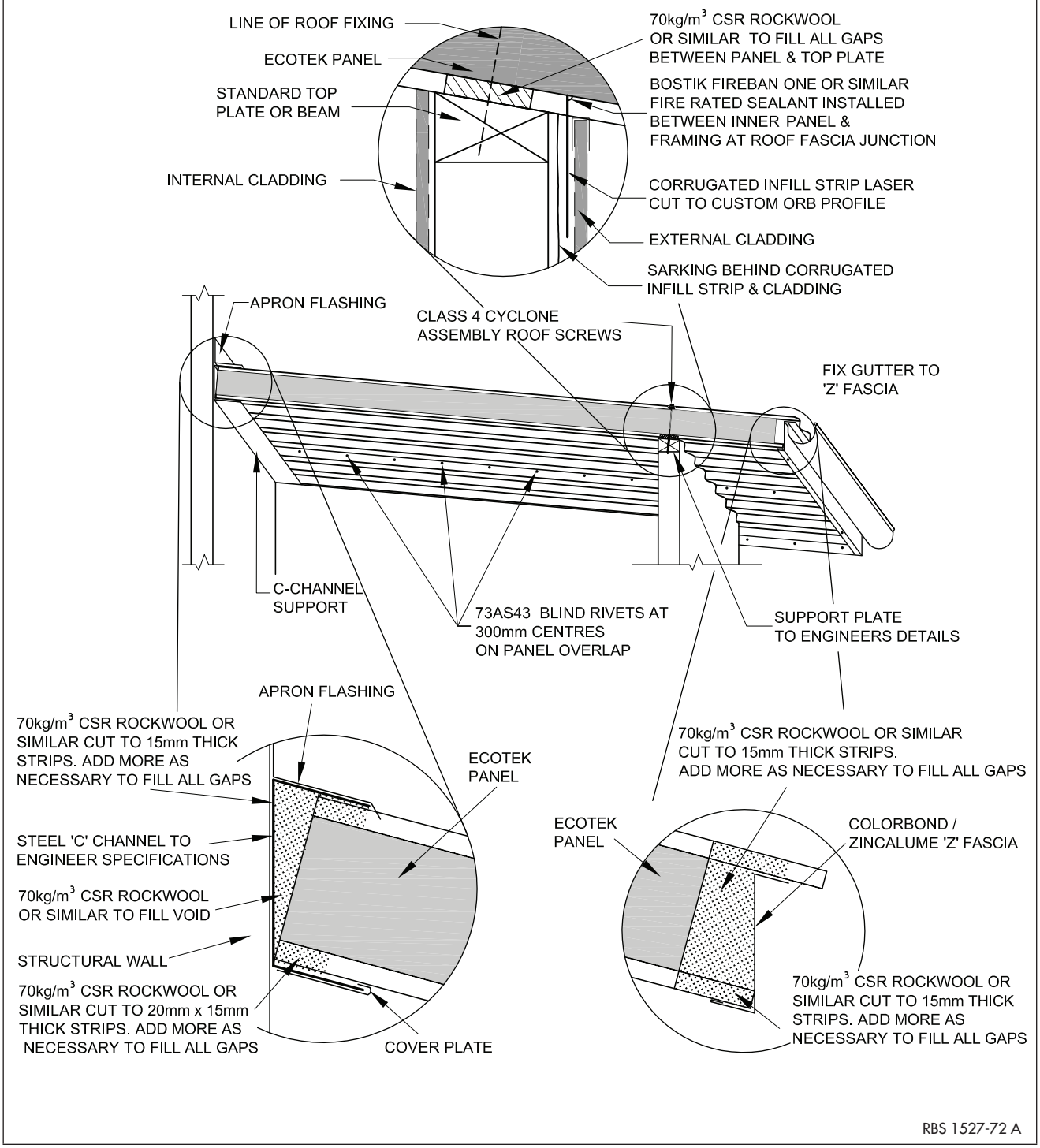
To achieve a 'Group 1' fire rating the **ARC**PANEL ecotek roof panel must be installed in accordance with the following details. All penetrations through the panel also must be suitably sealed with fire retardant products. Please refer to the table and data on page 36 of this manual for further information on the 'Group 1' fire rating.
Should you require any further information please contact **ARC**PANEL for further details.

GROUP 1 FIRE RATING INSTALLATION DETAIL **FIGURE 11**



RBS 1527-72 A

GROUP 1 FIRE RATING INSTALLATION DETAIL **FIGURE 12**



ARCPANEL ecotek panel Maximum Dead Load and Fixing Informa-

ECOTEK PANEL FIXING — FIGURE 13

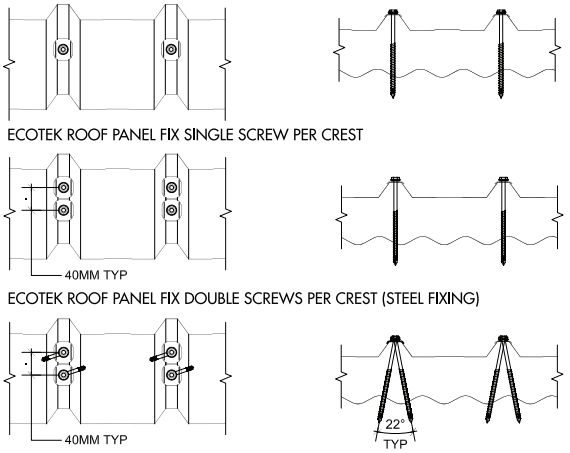
CLASS 4, 14 - (TPI) X (LENGTH) eg 14-10 x 125 MM

TIMBER T17

METAL TEK
(SERIES 500 SHOWN)

SQUARE-LOK CYCLONE ASSEMBLIES

ECOTEK ROOF PANEL FIXING DETAILS — FIGURE 14



ECOTEK ROOF PANEL FIX SINGLE SCREW PER CREST

ECOTEK ROOF PANEL FIX DOUBLE SCREWS PER CREST (STEEL FIXING)

ECOTEK ROOF PANEL FIX DOUBLE SCREWS PER CREST (TIMBER FIXING)

Note: Panel Fixing Screws are offset by 22° to ensure that timber beams do not split. Ensure that screws do not break out through the sides of the beam.

RBS 1527-55 C

FIXING SCREW SELECTION

ECOTEK PANEL FIXING CLASS 4 WITH SQUARE-LOK CYCLONE ASSEMBLY — TABLE 11

	FIXING TO STEEL					FIXING TO TIMBER		
	MINIMUM FIXING SCREW EMBEDMENT 30MM					MINIMUM FIXING SCREW EMBEDMENT 35MM		
PANEL SIZE (MM)	MINIMUM FIXING SCREW LENGTH (MM)	ACTUAL TO ORDER STEEL SCREW STEEL THICKNESS **2.0MM** TO **5.0MM**		ACTUAL TO ORDER STEEL SCREW STEEL THICKNESS **5.1MM** TO **12.0MM**		MINIMUM FIXING SCREW LENGTH (MM)	ACTUAL TO ORDER TIMBER SCREW	
		SCREW TYPE	SIZE	SCREW TYPE	SIZE		SCREW TYPE	SIZE
90	120	METAL TEK	14-14 x 125MM	METAL TEK	14-20 x 150MM Series 500	125	TIMBER T17	14-10 x 125MM
110	140	METAL TEK	14-14 x 150MM	METAL TEK	14-20 x 150MM Series 500	145	TIMBER T17	14-10 x 150MM
130	160	METAL TEK	14-14 x 175MM	METAL TEK	14-20 x 200MM Series 500	165	TIMBER T17	14-10 x 175MM
150	180	METAL TEK	14-14 x 205MM	METAL TEK	14-20 x 200MM Series 500	185	TIMBER T17	14-10 x 200MM
175	205	METAL TEK	14-14 x 205MM	METAL TEK	14-20 x 200MM Series 500	210	TIMBER T17	14-10 x 240MM
200	230	METAL TEK	14 - 10 x 230 MM (*CC1)	METAL TEK	14-20 x 250MM Series 500	235	TIMBER T17	14-10 x 240MM
		METAL TEK	14 - 20 x 250 MM SERIES 500 (3.0mm to 5.0mm)					
210	240	TIMBER T17	14 - 10 x 240 MM (*PD1)	METAL TEK	14-20 x 250MM Series 500	245	TIMBER T17	14-10 x 265MM
		METAL TEK	14 - 20 x 250 MM SERIES 500 (3.0mm to 5.0mm)					

NOTES:
SUFFIX (* PD1) = PRE DRILL AND USE **T17 TIMBER** SCREW, PRE DRILL HOLE SIZE 5.5MM TO 5.7MM DIAMETER **(DRILL BITS TO BE SUPPLIED)**
SUFFIX (* CC1) = 14-10 x "X" CAN BE USED FOR STEEL 4.1MM TO 5MM IF SUITABLE CUTTING COMPOUND IS USED, REFER TO TECHNICAL SERVICES
- 14-10 x 'X' MM SCREWS CAN BE SUBSTITUTED FOR 14-14-'X' MM SCREWS IN STEEL BETWEEN 1.3MM TO 4.0MM
- 14-20 x 150 MM SERIES 500 SCREW CAN BE USED FOR 110MM ECOTEK PANEL INTO 3.0MM to 12.0MM IF THERE IS NO VOID BETWEEN PANEL AND FIXING BEAM / TOP PLATE
- 14-20 x 250 MM SERIES 500 SCREW CAN BE USED FOR 210MM ECOTEK PANEL INTO 3.0MM to 12.0MM IF THERE IS NO VOID BETWEEN PANEL AND FIXING BEAM / TOP PLATE
- CLEARANCE MUST BE CHECKED TO ALLOW FOR PROTRUDING SCREW LENGTH THROUGH FIXING POINT
- FIXING BEAM / TOP PLATE MUST BE PITCHED TO SUIT THE ROOF PANEL PITCH
- FIXING TO OTHER SUBSTRATES (ALUMINIUM, STAINLESS STEEL ETC) MAY BE POSSIBLE, REFER TO TECHNICAL SERVICES
- FIXING TO STEEL SUBSTRATES LESS THAN 2.0mm, REFER TO TECHNICAL SERVICES
- FIXING SCREW TABLE REFLECTS THE RANGE OF SCREWS CURRENTLY AVAILABLE ON THE MARKET FROM BUILDEX AND POWERS FASTENERS
- XTREME PANELS ARE COMPATIBLE WITH STAINLESS STEEL 316/2B & 445M2 AS WELL AS CLASS 4 FIXINGS

ARCPANEL ecotek panel Fixing Information

FIXING SCREW SELECTION NOTES - NON CYCLONIC AREAS	TABLE 12
End Support Fixing, Square-Lok Cyclone Assembly, Class 4	
1. Every crest when pressure [P] x (3/4 backspan + 4/3 cantilever [m]) is not greater than 15 [kN/m]	
2. Double every crest when Pressure [P] x (3/4 backspan + 4/3 cantilever [m]) is greater than 15 [kN/m]	
3. Raked external walls running parallel to the span fixing point at every 200mm c/c	
Internal Support Fixing, Square-Lok Cyclone Assembly, Class 4	
1. Every crest when pressure [P] x (Span1 + Span2 [m]) x 0.625 is not greater than 15 [kN/m]	
2. Double every crest when pressure [P] x (Span1 + Span2 [m]) x 0.625 is greater than 15 [kN/m]	
3. Raked external walls running parallel to the span fixing point at every 200mm c/c	

FIXING SCREW SELECTION NOTES - CYCLONIC AREAS	TABLE 13
End Support Fixing, Square-Lok Cyclone Assembly, Class 4	
1. Every crest when pressure [P] x (3/4 backspan + 4/3 cantilever [m]) is not greater than 15 [kN/m]	
2. Double every crest when pressure [P] x (3/4 bBackspan + 4/3 cantilever [m]) is greater than 15 [kN/m]	
3. Raked external walls running parallel to the span fixing point at every 200mm c/c	
Internal Support Fixing, Square-Lok Cyclone Assembly, Class 4	
1. Every crest when pressure [P] x (Span1 + Span2 [m]) x 0.625 is not greater than 15 [kN/m]	
2. Double every crest when pressure [P] x (Span1 + Span2 [m]) x 0.625 is greater than 15 [kN/m]	
3. Raked external walls running parallel to the span fixing point at every 200mm c/c	

***Note:** Refer to **ARC**PANEL for the use of stainless steel fixing screws

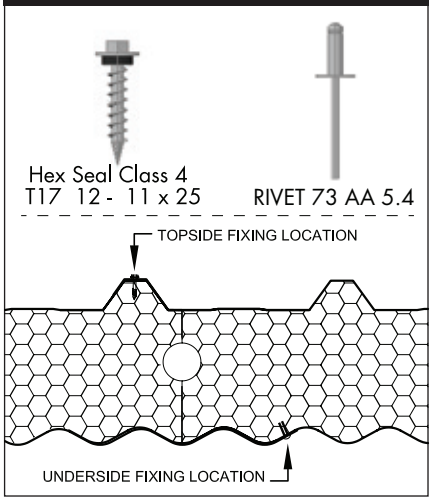
Stitching Screws - Top
Details: Hex Seal Class 4 - 12 - 11 x 25 - Type T17 with seal washer
Spacing: Used at 300mm centres on the top sheet lap and may be used to attach rainwater goods

Stitching Screws - Underside (NT Cyclonic Applications only)
Details: Hex Class 4 - 10 - 12 x 25 - Type T17 no seal washer
Spacing: Used at 300mm centres on the underside of the sheet lap

Rivets - Underside
Details: 73 AA 5-4
Spacing: Used at 300mm centres on the underside sheet lap

Rivets - BAL Flashings
Details: 73 AS 5-8
Spacing: Refer to Table 15

STITCHING FIXINGS **FIGURE 15**



ARCPANEL ROOF PANELS FIXING SCHEDULE				TABLE 14
Fastener	**Fixing Type**	**Fastener Material**	**Accessories**	**Permissible Load**
Ajax	Type 17	Steel	Cyclonic Clip	2.619
Buildex	500 Series	Steel	Cyclonic Clip	2.8
Powers	Metal Tek	Stainless Steel	20mm Bonded Washer	1.88
Note: The worst case Static Load, based on a 150mm panel in W60C conditions with 5 fixings/panel at a continuous support is 1.847KN in accordance with AS1562.1 1992, AS4040 1992				

The above is the recommended fixing schedule for the **ARC**PANEL roof panels, however in some situations additional fixing and/or different spacing may be required due to wind loads, structural requirements etc. The building designer will need to be consulted to confirm that the above fixings will be adequate for the individual project. **ARC**PANEL recommends that an experienced installer is used for fixing and finishing of the **ARC**PANEL roof panels.

ARCPANEL ecotek panel Fixing & Rainwater Lapping Information

FIXING SCHEDULE - RAINWATER GOODS					TABLE 15	
Item	**Topside**		**Underside**		**Vertical Face**	
	Type	**Spacing**	**Type**	**Spacing**	**Type**	**Spacing**
Barge Capping	Stitching Screws	300mm	Rivet	300mm	Rivets	All external corners
Z Batten Support	Stitching Screws	300mm	Stiching Screws	300mm	N/A	
			Add Sealant to underside prior to fixing			
Z Fascia	Rivet	Every Pan	Rivet	Every 2nd Crest	Rivet	All external corners
Apron Flashing	Stitching Screws (End)	Every Crest	N/A		N/A	
	Stitching Screws (Side)	300mm				
C - Channel (Refer to Fixing Detail)	Stitching Screws	Every Crest *1	Rivets attach to cover plate	300mm	No allowance is made for fixings required to attach C - Channel to the wall or frame	
	12 x 35 Metal Tek					
End Cap	Stitching Screws	Every Crest	Rivet	300mm	N/A	

Tables 15 and 16 list the recommended fixing method for the **ARC**PANEL roof panels, however in some situations additional fixing and/or different spacing may be required due to wind loads, structural requirements etc. An engineer should be consulted to confirm that the above fixings will be adequate for the individual project. **ARC**PANEL recommends that an experienced installer is used for fixing and finishing of the **ARC**PANEL roof panels.

*1 Please refer to standard fixing C - Channel details

STANDARD RAINWATER LAPPING ALLOWANCE FOR RAINWATER GOODS				TABLE 16
Wastage Allowance - (Amount added to exact roof dimension, in mm)				
Item	**Length**	**At Joins**	**External Corners (Mitred Joins)**	**90 Degree Returns**
Barge Capping Side & End	150mm	150mm	N/A	250mm
Z Fascia	150mm	150mm	N/A	N/A
Gutter	150mm	150mm	250mm	250mm
Apron Flashing	150mm	150mm	250mm	250mm
C-Channel	100mm	50mm	150mm	150mm

Downpipe Outlets

Details: Supplied to suit gutter chosen.

Used: Are supplied at intervals specified on customer's drawing, failing this they will be typically supplied to suit a spacing of 12.0m, refer to relevant standards.

Downpipes

Downpipes are not supplied by **ARC**PANEL.

Gutter Stop Ends

Supplied in left and right hand, to suit gutter chosen.

Gutter Brackets (Concealed)

Brackets are typically calculated at 900 C / C (mm).

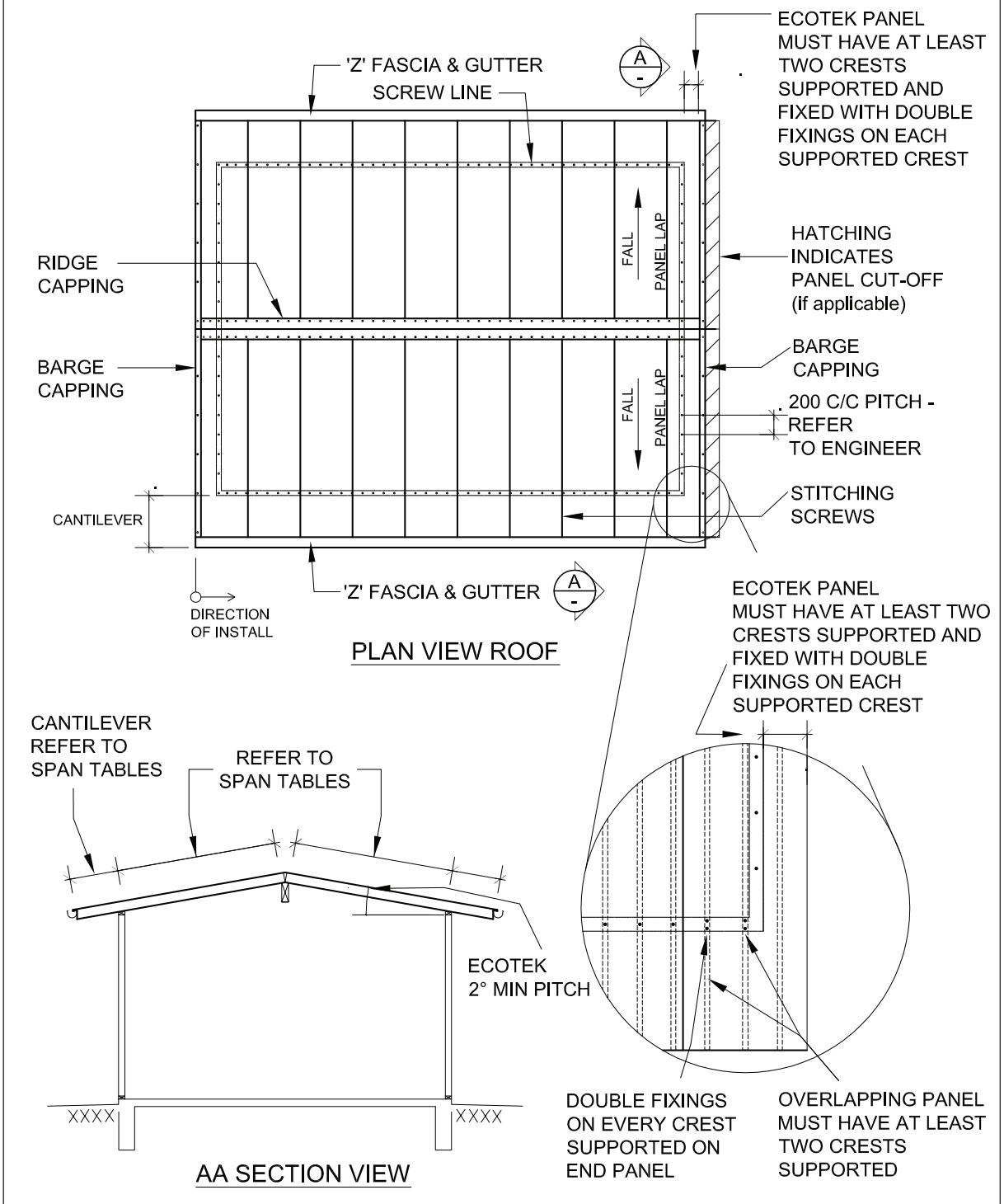
Gutter Brackets (External for Half Round)

Brackets are typically calculated at 900 C / C (mm).

ARCPANEL ecotek panel Typical Roof Plan

Figure 16 shows standard components used in constructing a gable end **ARC**PANEL roof panel, this includes hold down positions, stitching screws and rainwater goods.

TYPICAL GABLE ROOF **FIGURE 16**



ARCPANEL ecotek panel Typical Roof Plan

Figure 17 shows standard components used in constructing a skillion roof using the **ARC**PANEL roof panel, this includes, hold down positions, stitching screws and rainwater goods.

TYPICAL SKILLION ROOF **FIGURE 17**

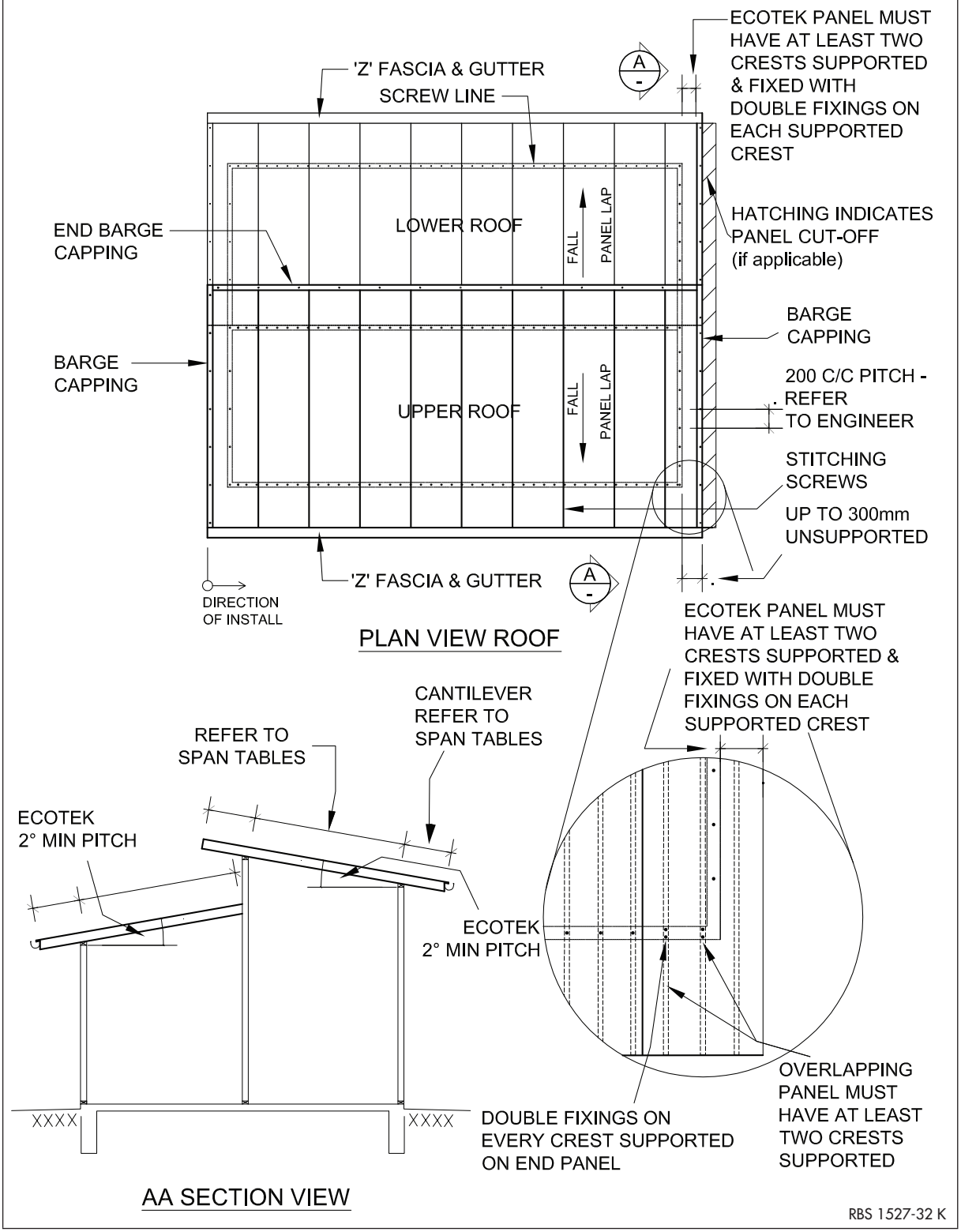
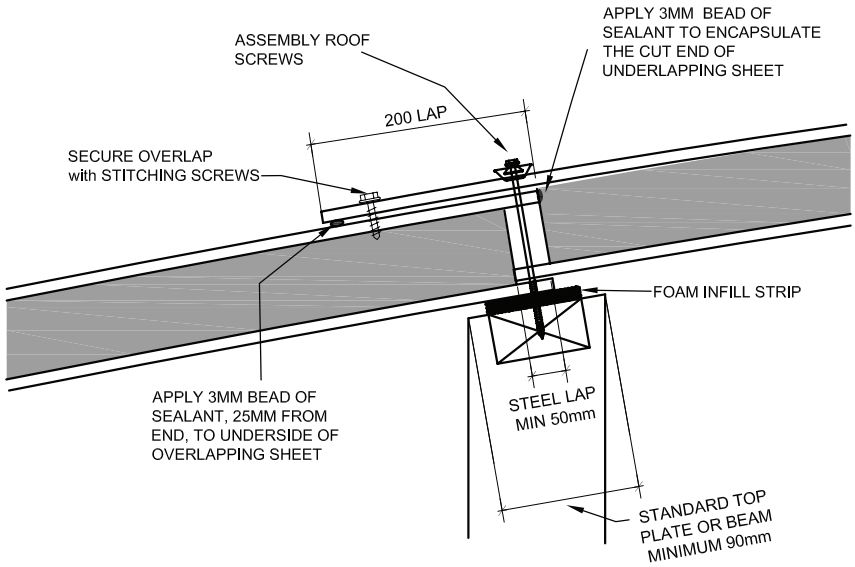


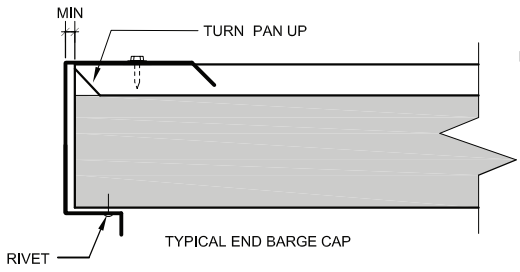
Figure 18 shows some standard **ARC**PANEL ecotek roof panel details. Detail A reflects recommended lapping details, with detail B showing barge detail and detail C showing typical box gutter detail.

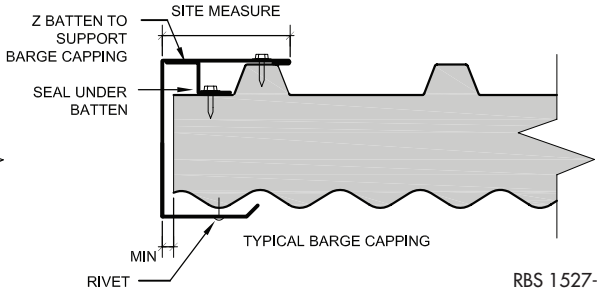
LAPPING, BARGE CAPPING & VALLEY GUTTER DETAILS — FIGURE 18



RBS 1527-38 J

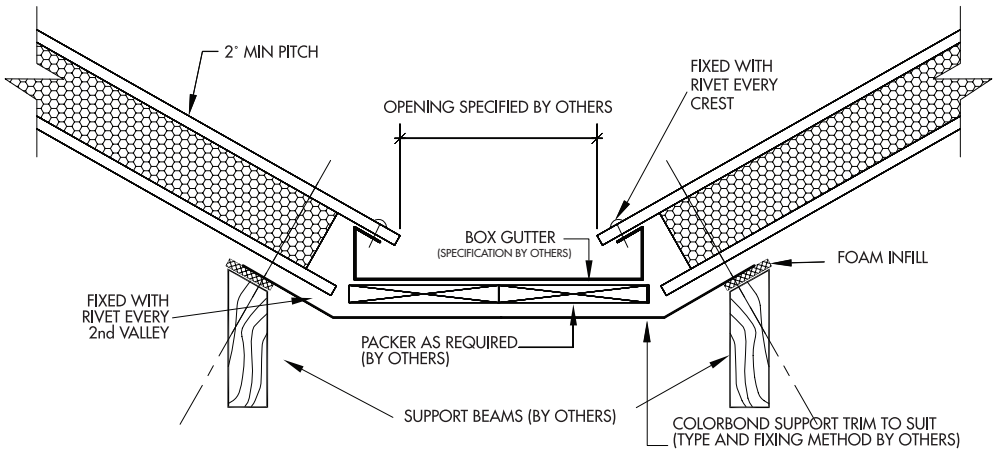
DETAIL A - RECOMMENDED LAPPING DETAIL





RBS 1527-1 G

DETAIL B - ECOTEK BARGE DETAIL



RBS 1527-52 E

DETAIL C - TYPICAL BOX GUTTER DETAIL

ARCPANEL ecotek panel Typical Details

Figure 19 provides details on how the **ARC**PANEL ecotek roof panel is used on hipped roofs, or in the case of a verandah roof, a 90 degree return. In the case of hipped roofs, all panels are to be cut on site, **ARC**PANEL does not pre cut any roof panels. The roof is laid and marked as would be a conventional roof sheet, care is taken to include the lap when measuring and cutting panels.

TYPICAL HIP ROOF JUNCTION — FIGURE 19

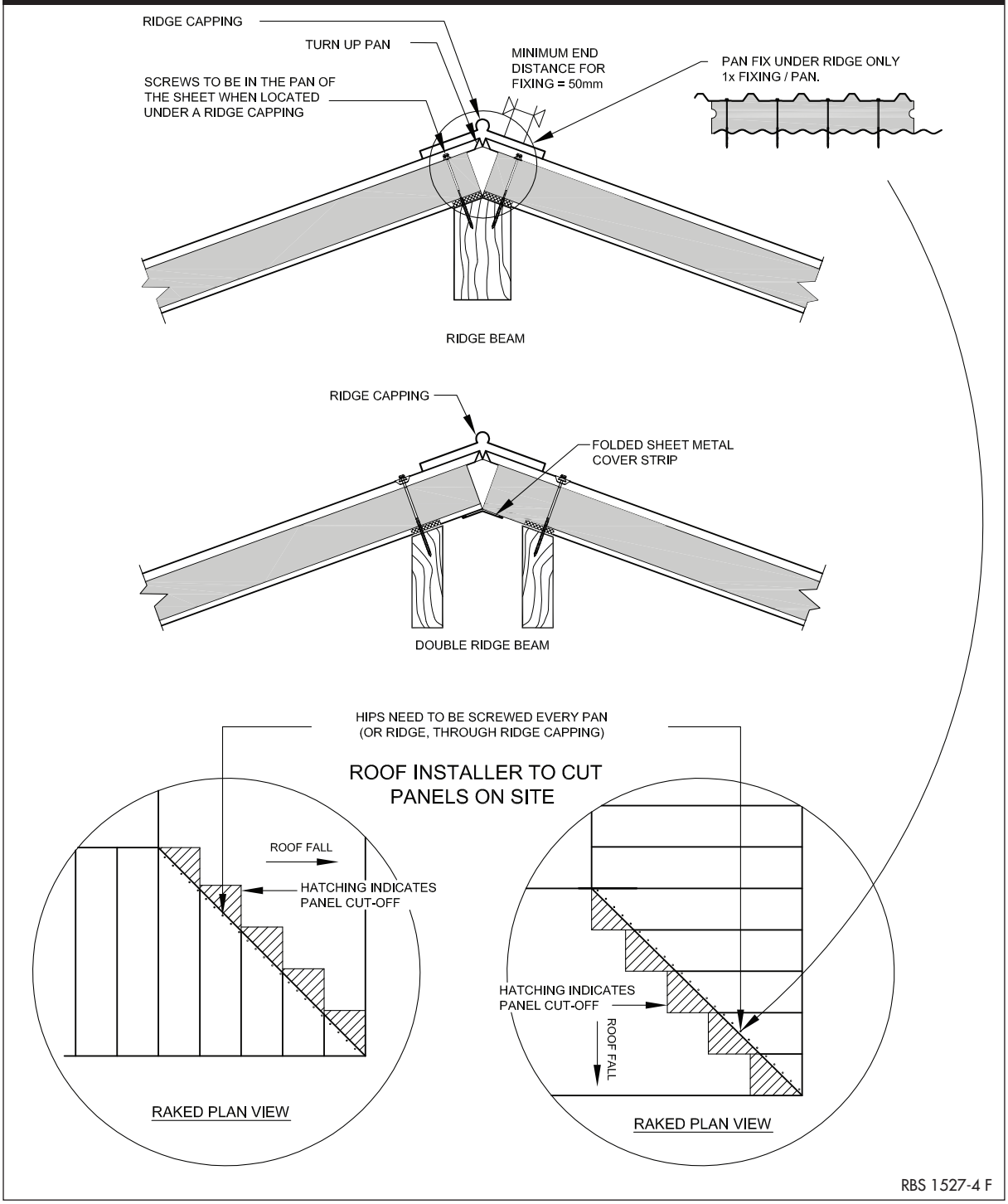
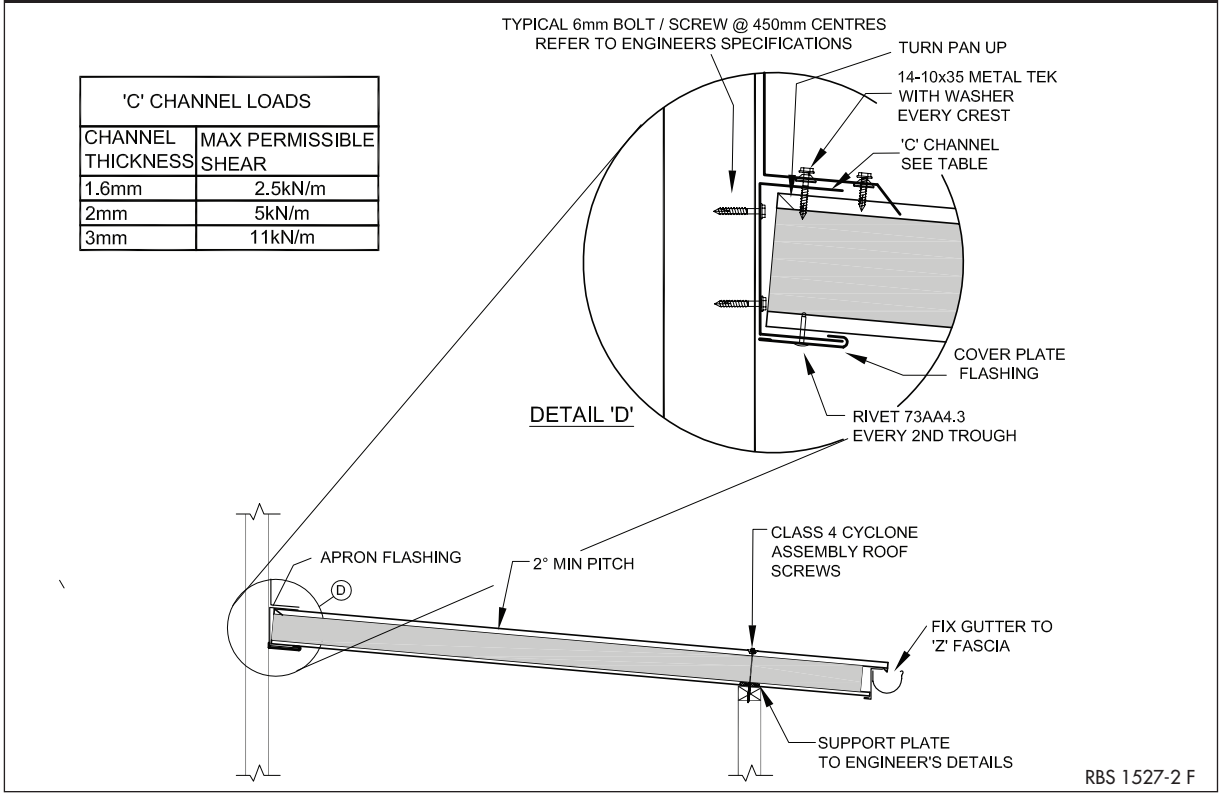


Figure 20 shows a typical skillion roof using the C-Channel to support the panels at one end, also shown is the typical gutter and end capping details.

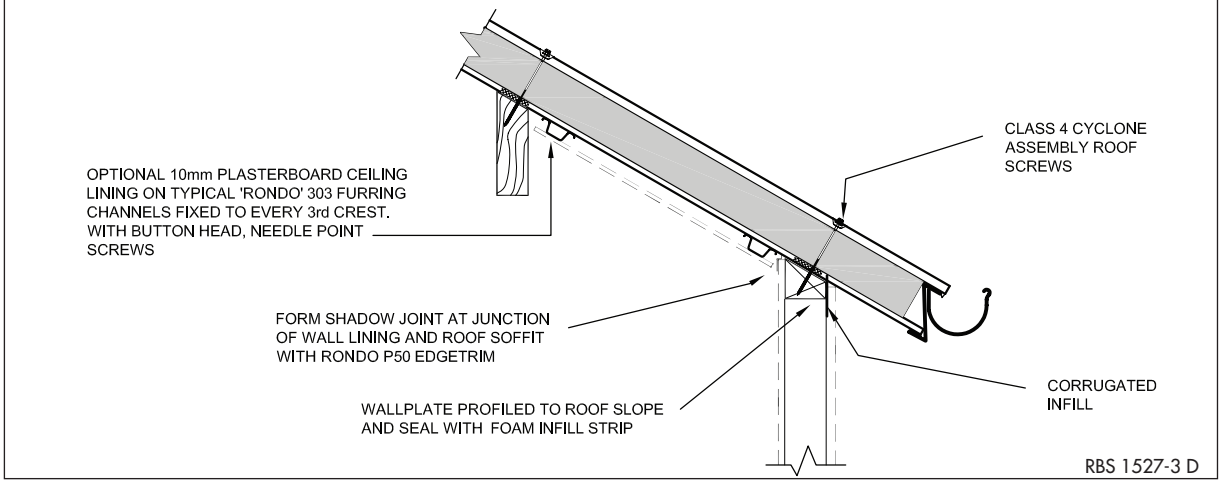
TYPICAL SKILLION ROOF **FIGURE 20**



'C' CHANNEL LOADS	
CHANNEL THICKNESS	MAX PERMISSIBLE SHEAR
1.6mm	2.5kN/m
2mm	5kN/m
3mm	11kN/m

Figure 21 provides details on how to attach a plasterboard lining to the underside of the **ARC**PANEL ecotek panel, by using standard metal furring channel, the plasterboard is attached in the conventional manner. The wall / ceiling junction as shown, does require a shadow joint junction.

OPTIONAL PLASTER LINING WITH WALL JUNCTION DETAIL **FIGURE 21**



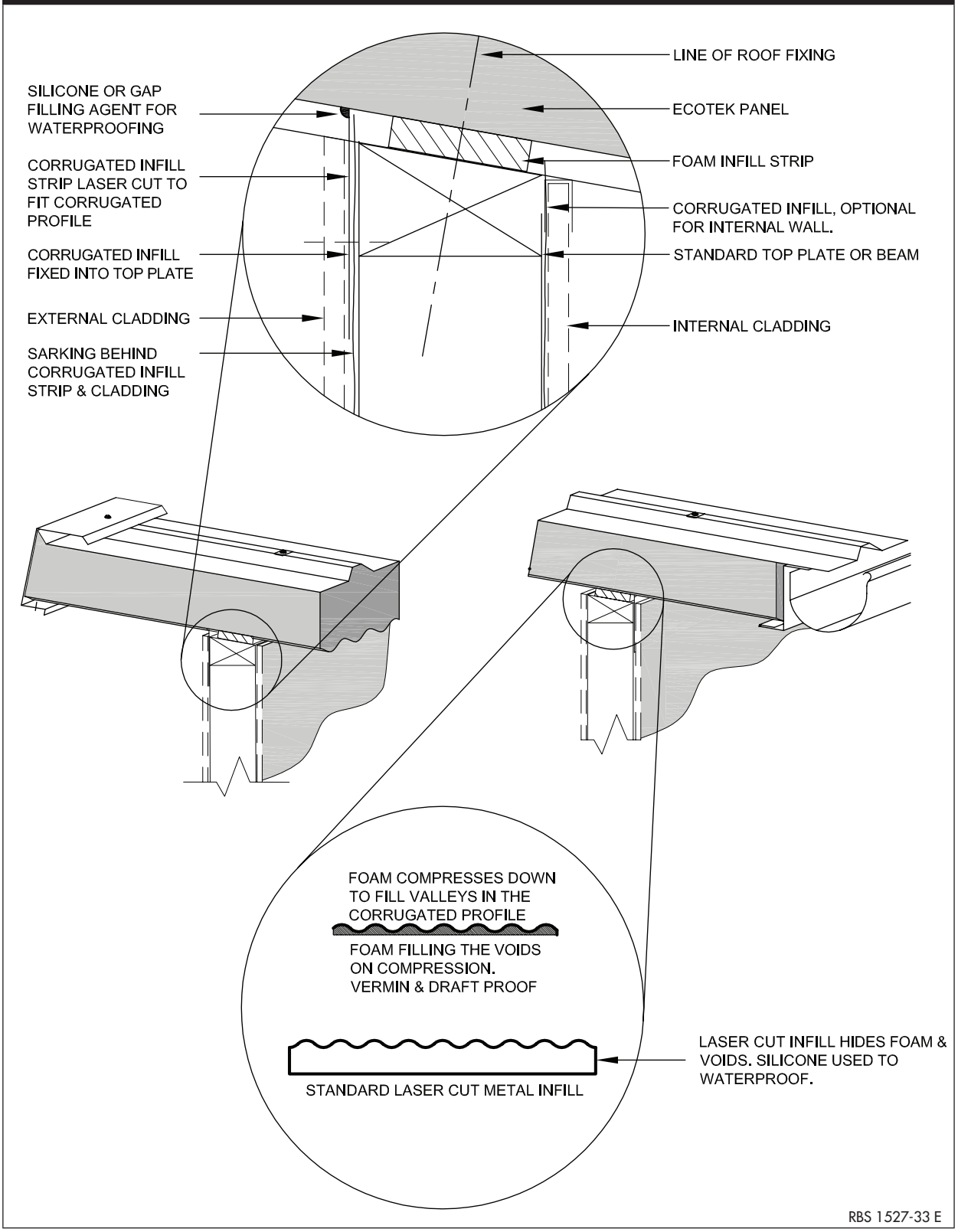
Refer to Maximum allowable distributed dead load table on Page 24.

Suspended ceilings can be used, contact **ARC**PANEL for further information.

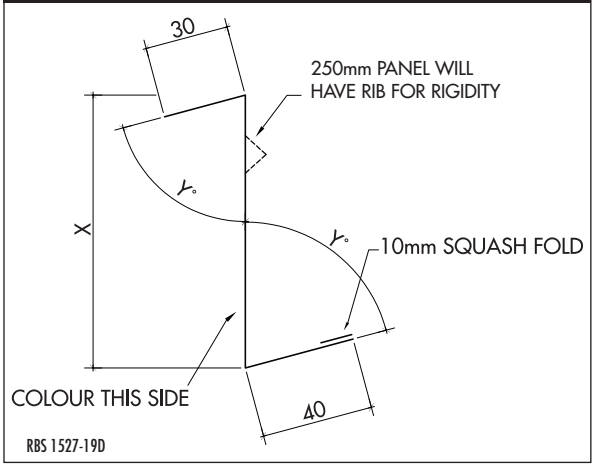
ARCPANEL ecotek panel Corrugated Infill Detail (Optional)

Figure 22 showing typical use of the Corrugated Infill Detail.

CORRUGATED INFILL DETAIL **FIGURE 22**

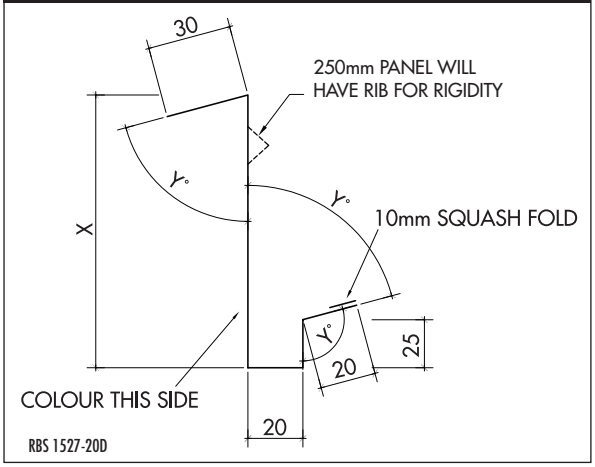


ZF - "Z" FASCIA TYPE 1



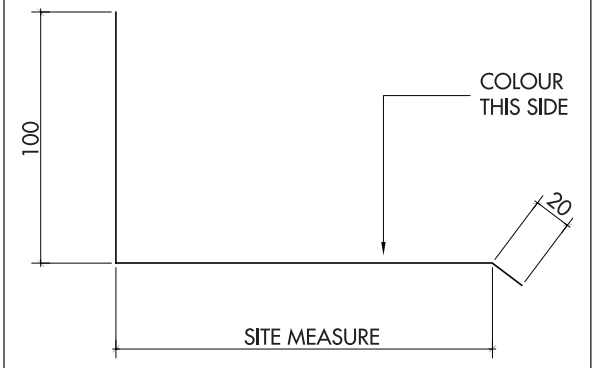
RBS 1527-19D

ZF - "Z" FASCIA TYPE 1



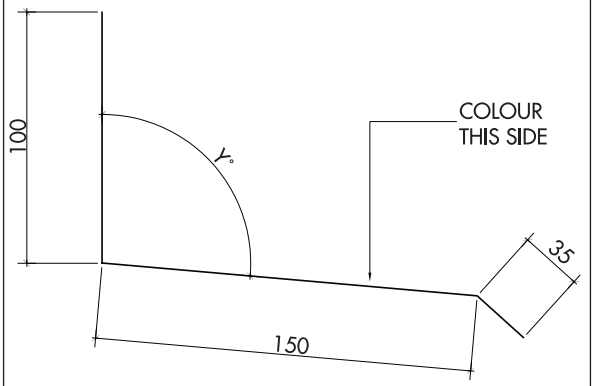
RBS 1527-20D

AF20 - Apron Flashing Side



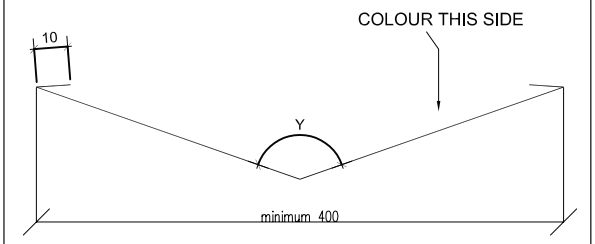
RBS 1527-23C

AF35 - Apron Flashing End



RBS 1527-24C

VG - Valley Gutter

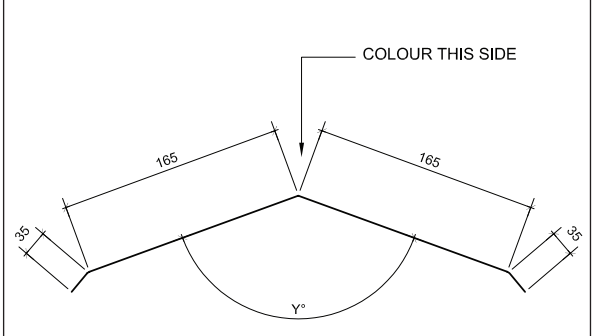


NOTE: FOR VALLEY GUTTER ON A ROOF WITH A PITCH MORE THAN 12.5 DEGREES

VALLEY GUTTERS ON A ROOF WITH A PITCH NOT MORE THAN 12.5 DEGREES MUST BE DESIGNED AS A BOX GUTTER

RBS 1527-30 D

Three Break Ridge Capping



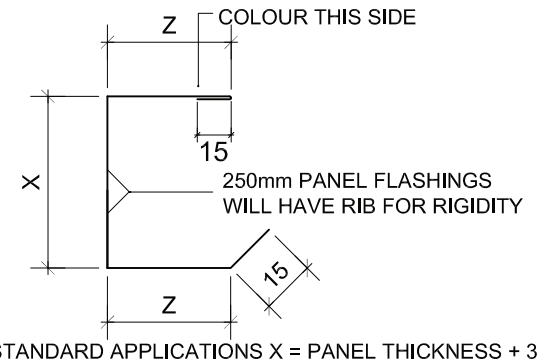
RBS 1527-29 C

X = Panel Thickness, Y = Dependent on roof pitch. Typically BMT = 0.55. Refer to page 24 for fixing details.

Additional Note. *If poly film is supplied on any* ***ARC****PANEL panels, flashings and accessories, it must be removed within one week of manufacture. In the event that any* ***ARC****PANEL panels, flashings and accessories require storage in excess of one week, they must be fully covered and protected from direct sunlight and weathering. Failure to remove the poly film may result in difficulty to remove the film and possible staining.*

ARCPANEL ecotek panel Rainwater Goods

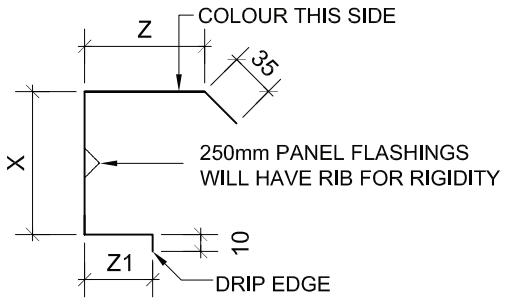
Barge Capping



STANDARD APPLICATIONS X = PANEL THICKNESS + 3
Z = 80
GROUP 1 APPLICATIONS X = PANEL THICKNESS + 6
Z = 93

RBS 1527-10 D

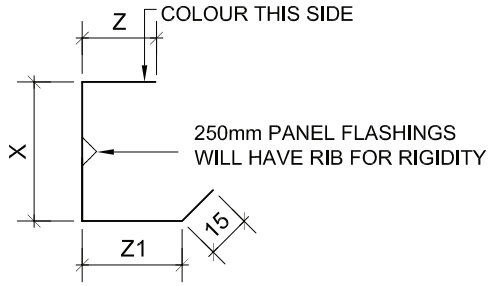
End Barge Capping



STANDARD APPLICATIONS X = PANEL THICKNESS + 3
Z = 80 Z1=40
GROUP 1 APPLICATIONS X = PANEL THICKNESS + 6
Z = 93 Z1=53

RBS 1527-10 D

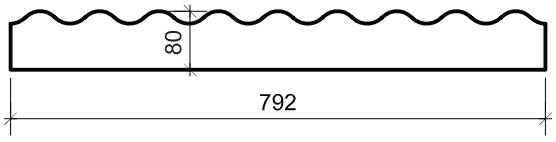
Barge Capping for Sky Light Option



STANDARD APPLICATIONS X = PANEL THICKNESS + 3
Z = 50 Z1=80
GROUP 1 APPLICATIONS X = PANEL THICKNESS + 6
Z = 63 Z1=93

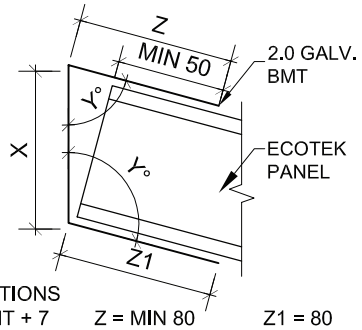
RBS 1527-10 D

Corrugated Infill



RBS 1527-10 D

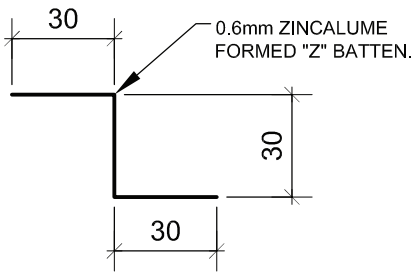
C Channel



STANDARD APPLICATIONS
X = VERTICAL HEIGHT + 7 Z = MIN 80 Z1 = 80
GROUP 1 APPLICATIONS
X = VERTICAL HEIGHT + 10 Z = MIN 93 Z1 = 93

RBS 1527-10 D

Barge Capping Support "Z" Batten



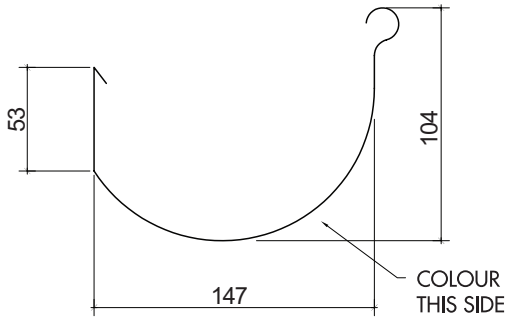
RBS 1527-10 D

X = Panel Thickness, Y = Dependent on roof pitch. Typically BMT = 0.55. Refer to page 24 for fixing details.

Additional Note. *If poly film is supplied on any **ARC**PANEL panels, flashings and accessories, it must be removed within one week of manufacture. In the event that any **ARC**PANEL panels, flashings and accessories require storage in excess of one week, they must be fully covered and protected from direct sunlight and weathering. Failure to remove the poly film may result in difficulty to remove the film and possible staining.*

ARCPANEL ecotek panel

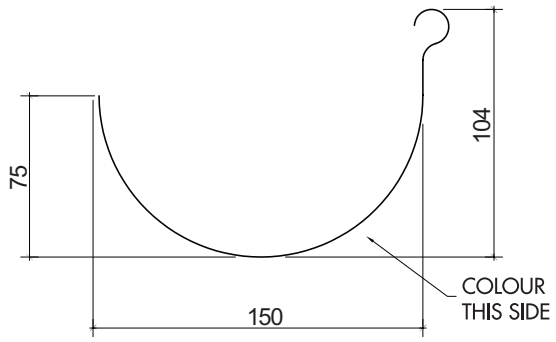
150 Flatback Gutter



RBS 1527-25C

Slotted / Unslotted

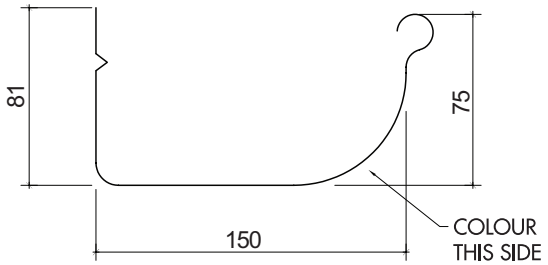
150 Half Round Gutter



RBS 1527-26D

Slotted / Unslotted

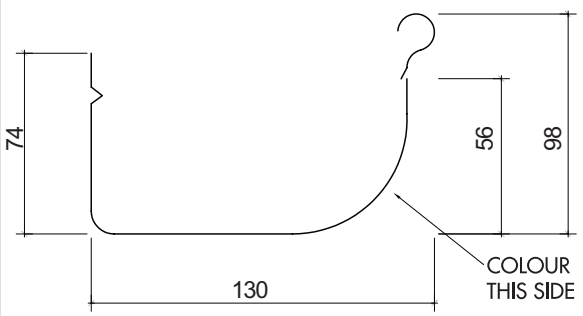
150 Quad Gutter



RBS 1527-27C

Unslotted

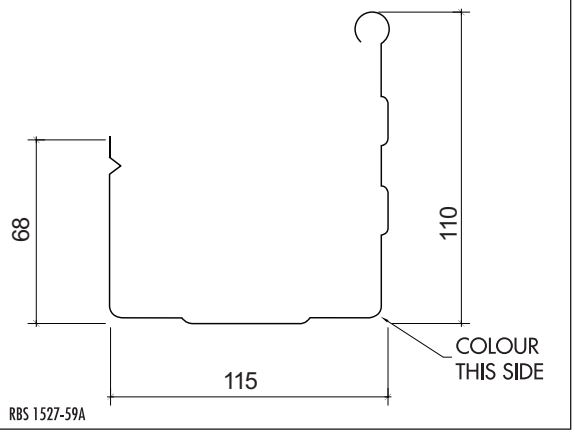
130 Quad Gutter



RBS 1527-28C

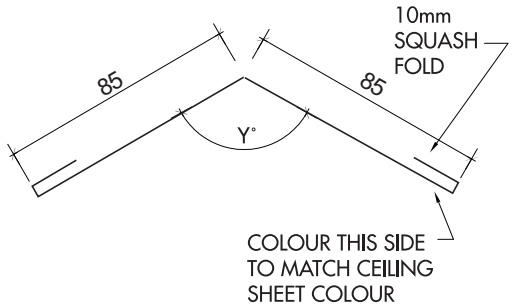
Slotted

Compact Square Slotted Gutter



RBS 1527-59A

Under Ridge Flashing



RBS 1527-49C

X = Panel Thickness, Y = Dependent on roof pitch. Typically BMT = 0.55. Refer to page 24 for fixing details.

* Other gutter's available, 200 half round, 175 (unslotted only) & Quad (unslotted only)

Additional Note. *If poly film is supplied on any **ARC**PANEL panels, flashings and accessories, it must be removed within one week of manufacture. In the event that any **ARC**PANEL panels, flashings and accessories require storage in excess of one week, they must be fully covered and protected from direct sunlight and weathering. Failure to remove the poly film may result in difficulty to remove the film and possible staining.*

ARCPANEL ecotek panel Certification

BRANZ
BUILDING ON KNOWLEDGE

Fire Test Certificate

This is to certify that the specimen described below has been examined by BRANZ Ltd on behalf of

Building Solutions Pty Ltd (trading as Ritek® Building Solutions)
19 Lowermill Road
Cooroy
Queensland 4563
Australia

Test standard: AS ISO 9705

Specimen name: Ritek® Ecotek Panel®

Specimen description: Ritek® Ecotek Panel® polystyrene insulated panel nominally 150 mm thick or less, comprising Class SL expanded polystyrene sandwiched between steel skins of 0.42 BMT Colorbond® Zincalume® Custom Orb sheeting with a "Trimdeck" trapezoidal profile on the exterior face and corrugated profile on the interior face, installed as detailed in the referenced BRANZ Reports FI 3567 and FAR 3268.

Orientation: N/A

Full descriptions of the test specimen and the complete results of the examination are given in the following Test Reports and Assessments:

BRANZ Test Report FI 3567, BRANZ Assessment Report FAR 3268

Conditions of laboratory registration by IANZ do not allow assessments expressed by the Registered Laboratory to be covered by IANZ.

Regulatory authorities are advised to examine test reports and assessments before approving any product.

The assessed results were as follows:

Group Number 1 in accordance with BCA 2008 Specification Cl.10a

Smoke Growth Rate Index ($SMOGRA_{RC}$) < 100.

Test Dates:	30 June 2006	*Test Supervisor(s):*	N/A
This Certificate issued:	18 March 2009	*Certificate Number:*	487

P. Whiting
Fire Testing Supervisor
For BRANZ Limited

ARCPANEL ecotek panel

BRANZ

Fire Test Certificate

This is to certify that the specimen described below has been examined by BRANZ Ltd on behalf of

Ritek Building Solutions Pty Ltd
19 Lower Mill Road
Cooroy, QLD 4563
Australia

Test standard: AS 3959-2009.

Specimen name: Ritek Building Solutions, Custom and Ecotek roofing systems.

Specimen description:

Custom: rounded corrugated style external weather sheet steel profile
Ecotek: trapezoidal style external weather sheet steel profile.

The top surface steel sheet is Colorbond® and the underside is Ritek Custom panel 0.42 mm BMT steel encapsulating a 250 mm thick or less EPS core. There is a steel end cap and Colorbond® 'Z' fascia.

Orientation: External surface exposure to BAL 29 conditions

A full description of the test specimen and the test results are given in the following Test Reports and Assessments:

Assessment report FAR 4228, 25 February 2014

Conditions of laboratory registration by IANZ do not allow assessments by the Registered Laboratory to be covered by IANZ.

Regulatory authorities are advised to examine test reports before approving any product.

The assessed results were as follows:

BAL 29 rating in accordance with AS 3959-2009

This Certificate issued: 25 February 2014 **Certificate Number:** 652

E Soja
Senior Fire Engineer
For BRANZ Limited

Certificate of Test

Quote No.: LP46ANE5714 REPORT No.: FNE9120

AS/NZS 1530.3:1999 SIMULTANEOUS DETERMINATION OF IGNITABILITY, FLAME PROPAGATION, HEAT RELEASE AND SMOKE RELEASE

TRADE NAME: Ritek Custom Roof Panel

SPONSOR: Ritek Building Solutions Pty. Ltd.
19 Lowermill Road
COOROY OLD
AUSTRALIA

DESCRIPTION OF TEST SPECIMEN: The sponsor described the specimen as a pre-fabricated roof panel comprising a profiled expanded polystyrene foam core finished on both sides with sinusoidal profile painted steel. The edges were sealed with painted steel.

Nominal thickness of steel:	0.42 mm
Nominal thickness of foam:	75 mm to 250 mm
Nominal total mass:	9.8 kg/m^2 (75 mm thick panel)
Colours:	various

TEST PROCEDURE: Six samples were tested in accordance with Australian Standard 1530, Method for fire tests on building components and structures, Part 3: Simultaneous determination of ignitability, flame propagation, heat release and smoke release, 1999. For the test, each sample was clamped to the specimen holder in four places.

RESULTS: The following means and standard errors were obtained:

Parameter	Mean	Standard Error
Ignition Time (min)	N/A	N/A
Flame Spread Time (s)	N/A	N/A
Heat Release Integral (kJ/m^2)	N/A	N/A
Smoke Release ($\log_{10}$D)	-1.040	0.115

For regulatory purposes these figures correspond to the following indices:

Ignitability Index (0-20)	Spread of Flame Index (0-10)	Heat Evolved Index (0-10)	Smoke Developed Index (0-10)
0	0	0	4

The results of this fire test may be used to directly assess fire hazard, but it should be recognised that a single test method will not provide a full assessment of fire hazard under all fire conditions.

DATE OF TEST: 11 April 2008
Issued on the 11th day of April 2008 without alterations or additions.

Russell Collins
Testing Officer

Garry E Collins
Manager, Fire Testing and Assessments

This laboratory is accredited (Accreditation No. 165, Corporate Site No.3625) by the National Association of Testing Authorities. Australia. The tests reported herein have been performed in accordance with its scope of accreditation.

CSIRO Manufacturing & Infrastructure Technology
14 Julius Avenue. Riverside Corporate Park. North Ryde NSW 2113 AUSTRALIA
Telephone: 61 2 9490 5444 Facsimile: 61 2 9490 5555

Cyclone Testing Station

Cyclone Testing Station
School of Engineering and Physical Sciences
James Cook University
Townsville QLD 4811 Australia

Telephone (07) 4781 4754
Facsimile (07) 4781 6788
Email: jcu.cts@jcu.edu.au
www. jcu.edu.au/cts

SUMMARY OF TEST RESULTS – TS729

Simulated serviceability and cyclic strength wind load testing was conducted on **130, 150, 175** and **200 mm EcoTek Panels**. The testing was performed with the use of new materials provided by **Ritek Building Solutions**. All tests were NATA accredited.

Description of Panels and Set-Up Tested

Product Name: Ritek EcoTek Panel
Product Details: A 0.42 mm BMT trapezoidal rib/pan profile G550 steel top sheet and a 0.42 mm BMT corrugated G550 steel bottom sheet bonded to a profiled Expanded Polystyrene (EPS) foam core
Panel Thicknesses: 130, 150, 175 and 200 mm
Support Details: 3 mm steel
Fixing Details:

Panel Thickness (mm)	Fasteners	Fixing Pattern
130	14-10 x 150 mm self-drilling metal	Two screws every rib
150	14-14 x 175 mm self-drilling metal	
175, 200	14-10 x 230 mm self-drilling metal	

Note: All panel fasteners were fitted with cyclone washers to form cyclone assemblies.

Stitching Screws: 12-11 x 25 mm Type 17 to top sheets and 10-12 x 25 mm Type 17 to bottom sheets at 300 mm centres

Manufacturer's Details

Name of Manufacturer: Ritek Building Solutions
Address of Manufacturer: PO Box 730, Cooroy, QLD 4563

Report and Test Details

Report Details: Cyclone Testing Station Report No. TS729, dated 20 November 2009
Report Title: Serviceability and Cyclic Strength Wind Load Testing of EcoTek Roof Panel
Wind Load Testing: Serviceability testing to AS4040.2, Low-High-Low cyclic strength testing to BCA 2009

Serviceability and Low-High-Low Cyclic Test Pressures for Successful Tests

Panel Thickness (mm)	Single Span Length (mm)	Serviceability Test Pressure (kPa)	Cyclic Strength Test Pressure (kPa)	No. of Tests	
				Serv	Strength
130	3800	4.19	5.54	1	2
150	4200	4.14	5.54	1	2
150	3250	N/A	7.98	0	2
175	4600	4.75	5.54	1	2
175	3600	N/A	7.98	0	2
200	4200	6.13	7.98	1	2

Conditions of Use

1. Test pressures to be factored down to calculate design wind pressures;
2. Refer to Report No. TS729, (contact Ritek Building Solutions) for full details of the panels, test methods and results.

Signed

Mr. U. Frye
Research Engineer

Dr. R. Castillo
Research Engineer
NATA Signatory

Date 20-11-09 20/11/2009

NATA

ARCPANEL ecotek panel Certification

Choose products that meet Australia's highest level of BCA compliance.

CodeMark is a building product certification scheme which supports the use of new and innovative building products by providing a nationally and internationally accepted process for products to be assessed for compliance with the requirements of the building codes of Australia and New Zealand.

CodeMark strengthens the entire building supply chain and gives users confidence that their building products comply with the Building Code of Australia (or in New Zealand the New Zealand Building Code). CodeMark certificates are accredited from internationally recognised accreditation bodies, offering increased credibility and acceptance of a certificate holder's CodeMark certified products.

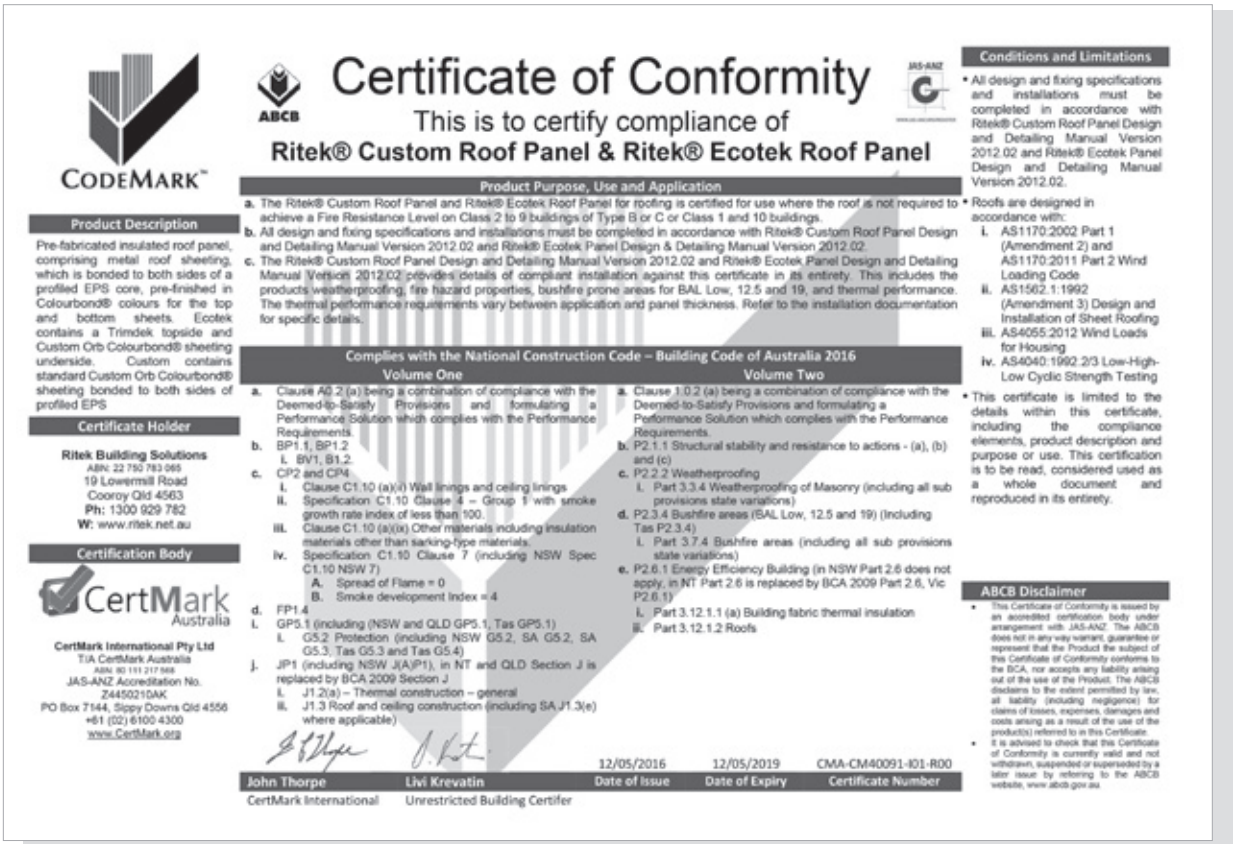
The scheme provides confidence and certainty to regulatory authorities and the market through the issue of a Certificate of Conformity.

How CodeMark Works: Third-party CodeMark certification bodies evaluate and certify products to ensure they meet the specified requirements of the National Construction Code (NCC) and Building Code of Australia (BCA).

Product Certification - The Australian Building Codes Board (ABCB) is committed to ensuring best practice in the building and construction industry. There are two product certification schemes to provide a nationally consistent quality of materials and products; the voluntary CodeMark building product certification scheme which the ABCB owns and jointly manages and the mandatory WaterMark plumbing and drainage product certification scheme which is managed and administered by the ABCB.

A register of CodeMark certified products is maintained by the ABCB and listed on this website. Relevant legislation requires building control authorities to accept CodeMark certified products.

Further information can be found at: http://www.abcb.gov.au/product-certification/codemark



CODEMARK™

Product Description

Pre-fabricated insulated roof panel, comprising metal roof sheeting, which is bonded to both sides of a profiled EPS core, pre-finished in Colourbond® colours for the top and bottom sheets. Ecotek contains a Trimdek topside and Custom Orb Colourbond® sheeting underside. Custom contains standard Custom Orb Colourbond® sheeting bonded to both sides of profiled EPS

Certificate Holder

Ritek Building Solutions
ABN: 22 750 783 065
19 Lowermill Road
Cooroy Qld 4563
Ph: 1300 929 782
W: www.ritek.net.au

Certification Body

CertMark Australia
CertMark International Pty Ltd
T/A CertMark Australia
ABN: 80 151 217 568
JAS-ANZ Accreditation No. Z4450210AK
PO Box 7144, Sippy Downs Qld 4556
+61 (02) 6100 4300
www.CertMark.org

ABCB

Certificate of Conformity

IAS-ANZ

This is to certify compliance of

Ritek® Custom Roof Panel & Ritek® Ecotek Roof Panel

Product Purpose, Use and Application

a. The Ritek® Custom Roof Panel and Ritek® Ecotek Roof Panel for roofing is certified for use where the roof is not required to achieve a Fire Resistance Level on Class 2 to 9 buildings of Type B or C or Class 1 and 10 buildings.
b. All design and fixing specifications and installations must be completed in accordance with Ritek® Custom Roof Panel Design and Detailing Manual Version 2012.02 and Ritek® Ecotek Panel Design & Detailing Manual Version 2012.02.
c. The Ritek® Custom Roof Panel Design and Detailing Manual Version 2012.02 and Ritek® Ecotek Panel Design and Detailing Manual Version 2012.02 provides details of compliant installation against this certificate in its entirety. This includes the products weatherproofing, fire hazard properties, bushfire prone areas for BAL Low, 12.5 and 19, and thermal performance. The thermal performance requirements vary between application and panel thickness. Refer to the installation documentation for specific details.

Complies with the National Construction Code – Building Code of Australia 2016

Volume One

a. Clause A0.2 (a) being a combination of compliance with the Deemed-to-Satisfy Provisions and formulating a Performance Solution which complies with the Performance Requirements.
b. BP1.1, BP1.2
   i. BV1, BI1.2
c. CP2 and CP4
   i. Clause C1.10 (a)(i) Wall linings and ceiling linings
   ii. Specification C1.10 Clause 4 – Group 1 with smoke growth rate index of less than 100.
   iii. Clause C1.10 (a)(ii) Other materials including insulation materials other than sarking-type materials.
   iv. Specification C1.10 Clause 7 (including NSW Spec C1.10 NSW 7)
      A. Spread of Flame = 0
      B. Smoke development Index = 4
d. FP1.4
i. GP5.1 (including (NSW and QLD GP5.1, Tas GP5.1)
   i. G5.2 Protection (including NSW G5.2, SA G5.2, SA G5.3, Tas G5.3 and Tas G5.4)
j. JP1 (including NSW J(A)P1), in NT and QLD Section J is replaced by BCA 2009 Section J
   i. J1.2(a) – Thermal construction – general
   ii. J1.3 Roof and ceiling construction (including SA J1.3(e) where applicable)

Volume Two

a. Clause 1.0.2 (a) being a combination of compliance with the Deemed-to-Satisfy Provisions and formulating a Performance Solution which complies with the Performance Requirements.
b. P2.1.1 Structural stability and resistance to actions - (a), (b) and (c)
c. P2.2.2 Weatherproofing
   i. Part 3.3.4 Weatherproofing of Masonry (including all sub provisions state variations)
d. P2.3.4 Bushfire areas (BAL Low, 12.5 and 19) (Including Tas P2.3.4)
   i. Part 3.7.4 Bushfire areas (including all sub provisions state variations)
e. P2.6.1 Energy Efficiency Building (in NSW Part 2.6 does not apply, in NT Part 2.6 is replaced by BCA 2009 Part 2.6, Vic P2.6.1)
   i. Part 3.12.1.1 (a) Building fabric thermal insulation
   ii. Part 3.12.1.2 Roofs

John Thorpe	Livi Krevatin	12/05/2016	12/05/2019	CMA-CM40091-I01-R00
CertMark International	Unrestricted Building Certifier	Date of Issue	Date of Expiry	Certificate Number

Conditions and Limitations

- All design and fixing specifications and installations must be completed in accordance with Ritek® Custom Roof Panel Design and Detailing Manual Version 2012.02 and Ritek® Ecotek Panel Design and Detailing Manual Version 2012.02.
- Roofs are designed in accordance with:
  i. AS1170:2002 Part 1 (Amendment 2) and AS1170:2011 Part 2 Wind Loading Code
  ii. AS1562.1:1992 (Amendment 3) Design and Installation of Sheet Roofing
  iii. AS4055:2012 Wind Loads for Housing
  iv. AS4040:1992 2/3 Low-High-Low Cyclic Strength Testing
- This certificate is limited to the details within this certificate, including the compliance elements, product description and purpose or use. This certification is to be read, considered used as a whole document and reproduced in its entirety.

ABCB Disclaimer

- This Certificate of Conformity is issued by an accredited certification body under arrangement with JAS-ANZ. The ABCB does not in any way warrant, guarantee or represent that the Product the subject of this Certificate of Conformity conforms to the BCA, nor accepts any liability arising out of the use of the Product. The ABCB disclaims to the extent permitted by law, all liability (including negligence) for claims of losses, expenses, damages and costs arising as a result of the use of the product(s) referred to in this Certificate.
- It is advised to check that this Certificate of Conformity is currently valid and not withdrawn, suspended or superseded by a later issue by referring to the ABCB website, www.abcb.gov.au

Compliance Certificate
for Building Design or Specification

Ritek Building Solutions

TOD CONSULTING JOB NO: 06665-20150409E

RITEK ECOTEK PANEL

1. Description of component/s certified Clearly describe the extent of work covered by this certificate, e.g. all structural aspects of the steel roof beams.	**Ritek Ecotek Roof Panel** Prefabricated roof panel with standard Trimdek roof sheeting bonded to the top side and Custom Orb roof sheeting bonded to the bottom side of a profiled EPS core. Panels fixed into position using the specified screws (Class 4 with Cyclone Assembly Washers) For the range of wind loads, spans and fixing spacings nominated in the Ritek Ecotek Panel design and detailing manual (Version 2015.01) [Contact Ritek 1300 929 782 to design and certify projects with wind loads, spans and fixing spacings beyond the range nominated in the Ritek Ecotek Panel design and detailing manual (Version 2015.01)]
2. Basis of certification Detail the basis for giving the certificate and the extent to which tests, specifications, rules, standards, codes of practice and other publications, were relied upon.	**AS1170** – Parts 1 & 2 Loading Code **AS 1562.1** – Design and Installation of Metal Roofing **AS 4055** – Wind Loads for Housing **BCA 2012** – Low – High – Low cyclonic testing requirements **AS 4040** – Methods of Testing sheet roof and wall cladding
3. Reference documentation Clearly identify any relevant documentation, e.g. numbered structural engineering plans.	Refer to Ritek Ecotek Panel design and detailing manual (Version 2015.01) for technical design and installation specifications.
4. Competent person details A competent person for building work, means a person who is assessed by the building certifier for the work as competent to practise in an aspect of the building and specification design, of the building work because of the individual's skill, experience and qualifications in the aspect. The competent person must also be registered or licensed under a law applying in the State to practice the aspect. If no relevant law requires the individual to be licensed or registered to be able to give the help, the certifier must assess the individual as having appropriate experience, qualifications or skills to be able to give the help. If the chief executive issues any guidelines for assessing a competent person, the building certifier must use the guidelines when assessing the person.	Name (*in full*) Stefan Prystupa – B.E., M.I.E. Aust Company name (*if applicable*) / Contact person Tod Consulting Pty Ltd Phone no. *business hours* / Mobile no. / Fax no. 07 5449 9600 / 07 5449 9494 Email address sp@todconsulting.com Postal address PO Box 61 NOOSAVILLE QLD Postcode 4566 Licence or registration number (*if applicable*) R.P.E.Q. 1137 NPER 97009
5. Signature of competent person This certificate must be signed by the individual assessed by the building certifier as competent.	Signature: S.Prystupa Date: 09.04.2015

ARCPANEL ecotek panel - Warranty Period

Architectural Panels Pty Ltd, (the Company), warrants that **ARC**PANEL Roofing Panels (the "Product") are manufactured from prime materials and further warrants up to a maximum period, dependent on Panel Material type, location and environmental exposure, the following:

ENVIRONMENTAL EXPOSURE - ARCPANEL **PANEL TOP SHEET (ROOF SIDE)**
MAXIMUM WARRANTY PERIOD

Panel Material Top Sheet (Roof Side)	**Non Coastal – Location (ISO Cat. 1)**	**Coastal - Location >1km to 5km (ISO Cat. 2)**	**Marine / Industrial >200m - 1km (ISO Cat. 3)**	**Severe Marine / Industrial >100 - 200m (ISO Cat. 4)**	**Very Severe Marine / Industrial 0<100m (ISO Cat. 5)**	**Aquatic / Chemical / Swimming Pool - Exposure**
XRW COLORBOND / ZINCALUME	**25yrs Corrosion** 20yrs Paint System	**20yrs Corrosion** 20yrs Paint System	**12yrs Corrosion** 10yrs Paint System	**No Warranty**	**No Warranty**	**No Warranty**
ULTRA COLORBOND	**25yrs Corrosion** 20yrs Paint System	**25yrs Corrosion** 20yrs Paint System	**20yrs Corrosion** 18yrs Paint System	**15yrs Corrosion** 10yrs Paint System	**10yrs Corrosion** 10yrs Paint System	**6yrs Corrosion** 6yrs Paint System
ARCPANEL XTREME	**25yrs Corrosion** 20yrs Paint System	**25yrs Corrosion** 20yrs Paint System	**20yrs Corrosion** 18yrs Paint System	**20yrs Corrosion** 15yrs Paint System	**15yrs Corrosion** 10yrs Paint System	**15yrs Corrosion** 10yrs Paint System
COLORBOND STAINLESS	**30yrs Corrosion** 25yrs Paint System	**30yrs Corrosion** 25yrs Paint System	**25yrs Corrosion** 20yrs Paint System	**25yrs Corrosion** 15yrs Paint System	**25yrs Corrosion** 15yrs Paint System	**25yrs Corrosion** 15yrs Paint System

ENVIRONMENTAL EXPOSURE - ARCPANEL **PANEL BOTTOM SHEET (CEILING SIDE)**
MAXIMUM WARRANTY PERIOD

Panel Material Bottom Sheet (Ceiling Side)	**Non Coastal – Location (ISO Cat. 1)**	**Coastal - Location >1km to 5km (ISO Cat. 2)**	**Marine / Industrial >200m - 1km (ISO Cat. 3)**	**Severe Marine / Industrial >100 - 200m (ISO Cat. 4)**	**Very Severe Marine / Industrial 0<100m (ISO Cat. 5)**	**Aquatic / Chemical / Swimming Pool - Exposure**
XRW COLORBOND / ZINCALUME	**25yrs Corrosion** 20yrs Paint System	**20yrs Corrosion** 20yrs Paint System	**12yrs Corrosion** 10yrs Paint System	**No Warranty**	**No Warranty**	**No Warranty**
ULTRA COLORBOND	**25yrs Corrosion** 20yrs Paint System	**25yrs Corrosion** 20yrs Paint System	**20yrs Corrosion** 18yrs Paint System	**15yrs Corrosion** 10yrs Paint System	**10yrs Corrosion** 10yrs Paint System	**6yrs Corrosion** 6yrs Paint System
ARCPANEL XTREME	**25yrs Corrosion** 20yrs Paint System	**25yrs Corrosion** 20yrs Paint System	**20yrs Corrosion** 18yrs Paint System	**20yrs Corrosion** 15yrs Paint System	**15yrs Corrosion** 10yrs Paint System	**15yrs Corrosion** 10yrs Paint System
COLORBOND STAINLESS	**30yrs Corrosion** 25yrs Paint System	**30yrs Corrosion** 25yrs Paint System	**25yrs Corrosion** 20yrs Paint System	**25yrs Corrosion** 15yrs Paint System	**25yrs Corrosion** 15yrs Paint System	**25yrs Corrosion** 15yrs Paint System

Definitions:

- **Warranty Periods** shown in the table are the maximum warranty periods available. A specific project warranty will be determined in consideration of the intended use of the Product and the location at which the Product will be used. Warranty periods for severe / very severe marine applications are conditional and subject to calm, exposed & surf conditions.
- **Corrosion Warranty** is prior to corrosion to perforation by weathering in the natural elements.
- **Paint System Warranty** is that paint system will not flake or peel by weathering in the natural elements.
- **Structural Performance Warranty** is governed by the lowest Corrosion Warranty period of the selected Panel Material.
- **Environmental Exposure** refers to the Panel Material being subject or allowing to be subjected to an action, influence, or condition.
- **Panel Material** refers to the top and bottom sheeting material used to manufacture the Product.

Marine Definition:
Surf: Area exposed to breaking surf and ocean spray

Exposed: Open expanses of salt or brackish water exposed to onshore winds, but not typically prone to breaking surf

Calm: Protected areas of salt or brackish water, including ports, harbours, bays, and river estuaries

Refer to Warranty Full Terms and Conditions

ARCPANEL ecotek panel
Warranty Terms & Conditions

Warranty Full Terms and Conditions
The warranty is subject to the following terms and conditions:

1. The Product is installed in accordance with the Company's published fixing recommendations current at the time of supply and conforms to AS 3566 Class 4.
2. If installation is delayed by more than one month after delivery then packaging must be removed and replaced by a cover which does not apply pressure to the Product but provides full protection from weather and direct sunlight.
3. All flashings, fasteners or components fixed to or used with the product must be manufactured from materials approved by the Company.
4. Installation is made in environments/locations using only recommended materials as listed above.
5. Installed pitch of the roof is equal to or greater than 5 degrees for Product with corrugated top sheet profile and 2 degrees for product with Trimdek top sheet profile above the horizontal.
6. The warranty applies to the product only, all flashings, fasteners or components fixed to the roof are excluded.
7. The Product must not be scratched, abraded, or damaged in any way, or coated with an incompatible material.
8. The warranty does not apply if the defective area comprises less than 10% of the sheet length. Costs of dismantling and re-assembly as well as other costs will not be covered by **ARC**PANEL.
9. Maintenance cleaning of the Product is required wherever the finish is not washed by rain to remove traces of dust, dirt and any build-up of salts or chemicals. Examples of applications requiring maintenance cleaning include, but are not limited to, fascia, soffits, eaves, car ports, patios and internal ceiling / underside of roof areas which are exposed to any build-up of salts or chemicals. Maintenance cleaning must be done six monthly as a minimum, or every three months in coastal areas where marine salt is prevalent and/or in aquatic/swimming pool applications and/or areas where high levels of industrial fallout occur. Maintenance cleaning must be conducted in accordance with the Company's "Maintaining Your **ARC**PANEL Roof System" brochure.
10. Where used as an internal liner in a swimming pool environment the warranty is conditional upon:
    a) No direct splash contact of the underside of roof by water from the pool; Internal RH <50% at all times achieved by effective HVAC; Minimal interstitial condensation (usually temporary overnight super cooling effect) consistent with this level of RH on a correctly installed roof (effective sealing of vapour check);
    b) Avoidance of chlorine deposits, and hence hydrochloric acid, to underside of roof;
    c) All cut edges to be sealed;
    d) Regular ventilation through louvers;
    e) Any mechanical extraction must be sealed; and
    f) Open ceiling line without suspended ceiling below.
11. The design and structural data specified is based on standard details. The successful installation depends on factors outside the control of the Company. For every project, the buyer's Design Engineer must be satisfied that the application of these guidelines will achieve the required level of structural performance and is suited to the environment/location.

This warranty does not cover:

a) Consequential loss or damage, howsoever arising, whether or not it was aware of the possibility of such loss or damage;
b) willful or accidental damage caused by others to goods supplied by the company;
c) erection or structural defects;
d) normal weathering, which includes natural reduction in paint gloss and a natural colour change of the paint finish;
e) "baking of poly film onto materials. If poly film is supplied on any panels, flashings and accessories it must be removed as soon as practical after delivery, but no later than one month after delivery.
f) The Product after any application of post paint treatments or systems.
g) The warranty does not apply if the defective area comprises less than 10% of the sheet length. Costs of dismantling and re-assembly as well as other costs are not covered by the Company.
h) perforations partly or wholly due to the following causes:
    i. mechanical, chemical, corrosion or other damage sustained during transport, handling, storage, erection or subsequent to erection.
    ii. attack from chemical agents, fumes, liquids or solids other than direct rain falling onto the Product under warranty.
    iii. contact with soils, ashes, fertilizers or other moisture retaining substances.
    iv. areas in metallic contact with lead or copper or subject to run off from copper flashings and pipes.
    v. Failure to remove debris and/or failure to provide free drainage of water including internal condensation from all surfaces of the Product.
    vi. deterioration of the Product caused by contact with green or wet timber or treated timber
    vii. installations subject to unusually corrosive environments at any time in the future.
    viii. storm and tempest or other acts of God.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

If it is proven to the reasonable satisfaction of the Company that any goods supplied by the Company or any services performed by the Company are defective, then the Company will (at the option of the Company) rectify the defect by the replacement, repair or payment for the cost of replacement of the affected goods, limited exclusively to the pro-rata share of the goods, as follows:

1. Replacement goods will be supplied at a discount, which bears the same ratio to the then current price as that part of the warranty period not achieved bears to the full warranty period.
2. The Company shall only be liable for:
    (a) The cost of replacing the affected product, or
    (b) The cost of having the product repaired, whichever is the lowest.

All warranties other than those specified by the Company are hereby excluded, and all conditions, obligations and liabilities, however arising, are hereby excluded. Nothing in this warranty, however, shall be construed as affecting any rights the buyer may have under Australian Consumer Law, the Trade Practices Act or any other Legislation which gives the buyer rights which cannot be modified or excluded by agreement.

Due to Architectural Panels Pty Ltd policy of continued improvement to its systems, the specifications and details contained in its publications may change without notice.

Colorbond®

COLOUR RANGE
Basalt™
Classic Cream ™
Cottage Green
Cove™
Deep Ocean®
Dune®
Evening Haze®
Gully™
Ironstone®
Jasper®
Mangrove™
Manor Red®
Monument®
Night Sky®
Pale Eucalypt®
Paperbark®
Shale Grey®
Surfmist®
Terrain™
Wallaby™
Whitehaven®
Windspray®
Woodland Grey®
Zincalume
XTREME
Off White
STAINLESS
Surfmist®

*For further information on COLORBOND® steel, the following technical bulletins are available from **ARC**PANEL.*

- Tb-1a steel roofing products – selection guide
- Tb-4 maintenance of Colorbond® steel and Zincalume® steel
- Tb-8 flashing materials for Zincalume® steel and Colorbond® steel sheet
- Tb-10 cut edge protection of Zinc-coated and Zinc/aluminium alloy-coated steel

"I like the simplicity of the insulated roof system. Architecturally, I was attracted to the incredible cantilevers provided with such a thin elegant profile.
Structurally - it can achieve enormous spans and on an environmental note, it provides terrific thermal comfort and is re-usable."

Scott Carpenter
Scott Carpenter Architect

1300 200 004
www.arcpanel.com.au info@arcpanel.com.au
16 Action Street | PO Box 1197 | Noosaville QLD 4566
20/58 Box Road | PO Box 2086 | Taren Point NSW 2229

ARCPANEL

ROOF SYSTEMS

ARCPANEL Ecotek Roof Panel
Design & Detailing Manual
Version 2015.02