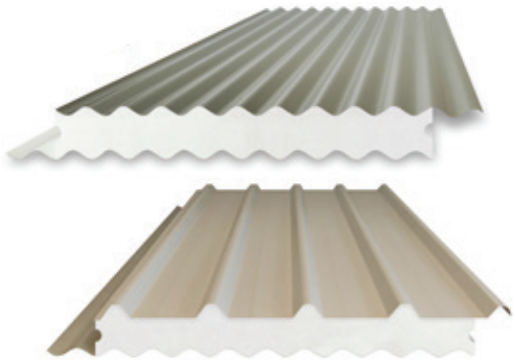
Aquatek® panel

ARCPANEL

Roof Systems

Design & Detailing Manual
Aquatek Roof Panel

Version 2015.02



The ultimate roofing system for highly corrosive, industrial and aquatic environments. With large spanning capabilities and a range of panel thicknesses to suit your project.

UP TO 30 YEAR WARRANTY

GROUP 2 FIRE RATED

HIGH THERMAL RATING

SUPERIOR SPAN & CANTILEVERS

CORROSIVE SOLUTION

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

ARCPANEL Aquatek Roof Panel - **Contents**

Design and Detailing Manual Version 2015.02

1 DESIGN DETAIL

2 DETAILING AND FIXING

3 CERTIFICATION

4 TECHNICAL SUPPORT DOCUMENTATION

AQUATEK PANEL DESIGN AND DETAILING MANUAL - VERSION'S ISSUED AND AMENDMENTS

Version	Date issued	Comments
2014.01	08.07.14	First published
2015.01	19.05.15	Colour selection updated
2015.02	01.11.17	Logo updated

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

Trimdek® is a registered trade mark of BlueScope Steel.

ARCPANEL Aquatek Roof Panel - **Overview**

FULLY INTEGRATED ROOF SYSTEM

ARCPANEL Aquatek 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 Aquatek roof panel can achieve significant cantilevers, in some applications up to 40% 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 high quality BlueScope COLORBOND® steel on the top sheet with Corrugated Aluminium on the bottom sheet, both bonded to a profiled EPS core. The panel yields high strength resulting in large spans and cantilevers along with a high insulation value. Standard ratings from R1.7 to R6.5 can easily be achieved. After the panels are fixed in place, there is virtually no maintenance required other than the occasional wash down.

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

KEY FEATURES AND BENEFITS

- ☑ Achieve up to 8.8m unsupported spans
- ☑ Designed for Aquatic Centres, Marine and other severe environments
- ☑ Pre-finished top and bottom sheet, reducing the need for ceilings and internal painting
- ☑ Extensive range of colours available
- ☑ Straight, curved or multi-curved configurations, suitable for most architectural designs
- ☑ Top Sheet is available in COLORBOND® XRW, Ultra, Xtreme, Stainless Steel and Zincalume
- ☑ Bottom Sheet available in Aluminium sheeting with a range of colours and PVdF coating system
- ☑ Rapid installation makes the **ARC**PANEL Aquatek roof panel a clear winner over traditional roof construction
- ☑ Fire rated to Group 2 - roof and wall lining material to comply with the BCA
- ☑ Superior standard thermal ratings up to R6.5 are achieved using the **ARC**PANEL Aquatek roof panel

ARCPANEL Aquatek Roof Panel - **Applications**

ROOF TYPES

STRAIGHT

Straight panels can be manufactured up top 24 metres in length, suitable for aquatic centres, commercial and industrial projects.

Straight, Curved & Multi-curved panels can be manufactured using XRW, Ultra, Stainless Steel, Zincalume® on the top sheet and aluminium on the bottom sheet in a range of colours.

CURVED

Curved panels can be manufactured to a minimum radius of 3m for the corrugated profile and 60m for the Trimdek® profile.

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

MULTI CURVED

Multi-curved panels can be manufactured to a minimum radius of 3m for the corrugated profile.

Multi-curved panels can be manufactured in lengths up to 24 metres long. Panels can be joined to achieve longer runs.

BULLNOSE

Corrugated panels can be manufactured to suit a Bull nose radii of 600mm, 750mm and 900mm.

Bullnose panels can be manufactured in lengths up to 24 metres.

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 Aquatek roof panel. Technical Bulletins developed by Bluescope Steel are available from **ARC**PANEL, or visit www.bluescopesteel.com.

COLORBOND®

A **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.

ARCPANEL Aquatek Roof Panel - **Xtreme Material Specification**

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

Aquatek 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 the top side with aluminum on the bottom side of the panel.

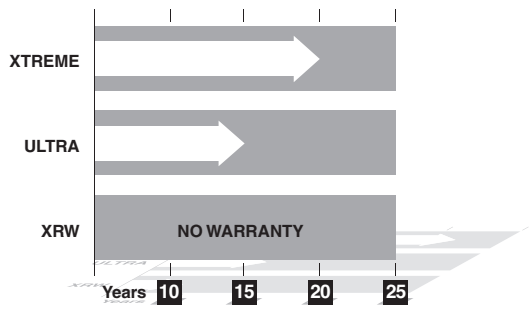
Key Features and Benefits

- ✓ Ideal for open and enclosed applications
- ✓ 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 deterioration from corrosive elements
- ✓ Corrosion Warranties up to 25 years (depending on location)

XTREME Aquatek® panel

TOP SHEET WARRANTY PERIOD EXAMPLE

SEVERE MARINE (ISO CAT.4)



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 Aquatek Xtreme Roof Panel™ will provide warranties up to 25 years.

ARCPANEL Aquatek® panel

ARCPANEL Aquatek Roof Panel - **Material and Colour Selection**

BLUESCOPE STEEL - COLORBOND MATERIAL AND COLOUR SELECTION CHART						
Colour	Classification	Solar Absorbance	Availability		Curving Grade	NSW Basix Sustainability Index
			XRW	Ultra Steel		
TOP STEEL SHEET						
Basalt™	Dark	0.69	✓			M
Classic Cream™	Very Light	0.31*	✓		✓	L
Cove™	Light	0.54	✓			L
Dune®	Light	0.466	✓	✓	✓	L
Evening Haze®	Light	0.427	✓		✓	L
Gully™	Dark	0.63	✓			M
Jasper®	Dark	0.682	✓		✓	M
Mangrove™	Dark	0.64	✓			M
Manor Red®	Dark	0.688	✓		✓	M
Pale Eucalypt®	Dark	0.597	✓		✓	M
Paperbark®	Light	0.421	✓		✓	L
Shale Grey®	Light	0.433	✓		✓	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
Zincalume	Very Light	≤0.35			✓	L
TOP SHEET - STAINLESS STEEL						
Surfmist®	Very Light	0.318*				L
TOP SHEET - ARCPANEL XTREME						
XTREME Aquatek® panel — PROTECT YOUR ROOF FROM HARSH CORROSIVE ENVIRONMENTS						
Off White	Very Light	0.318*				L
BOTTOM SHEET						
Aquatek White	Very Light	N/A	ALUMINIUM		✓	L
Aquatek Light Grey	Dark	N/A			✓	M
Aquatek Dark Grey	Dark	N/A			✓	D

MATERIAL AND COLOUR SELECTION

*Greater deemed to satisfy insluation concessions apply to these colours when used for Class 5 to 8, 9a and 9b buildings.
Other COLORBOND® colours are available, please contact **ARC**PANEL for further information.
General Disclaimer: Colours and availability are subject to change, please contact **ARC**PANEL to confirm colours and availablity 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 trademarks of Bluescope Steel Limited™.

Refer to Page 43 for colour swatches.

ARCPANEL Aquatek Roof Panel - **Corrugated Profile General Specifications**

Panel Sizes

Standard panel thicknesses are available:
75mm – 85mm – 100mm – 125mm – 140mm – 160mm – 175mm – 200mm – 250mm
(other panel thicknesses are available upon request).

Panel Lengths

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

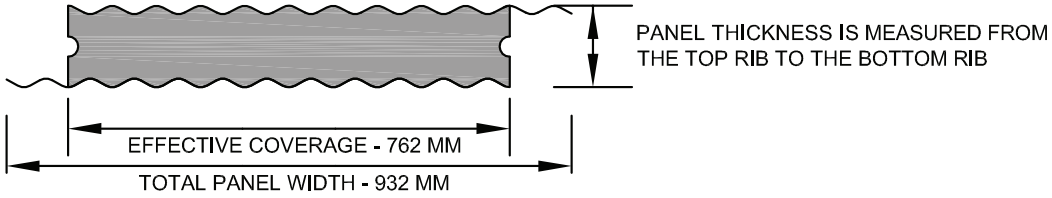
Panel Configurations

Panels can be manufactured in straight, curved or multi-curved configurations. Refer to roof type guide on page 4 for further information

Panel Finish

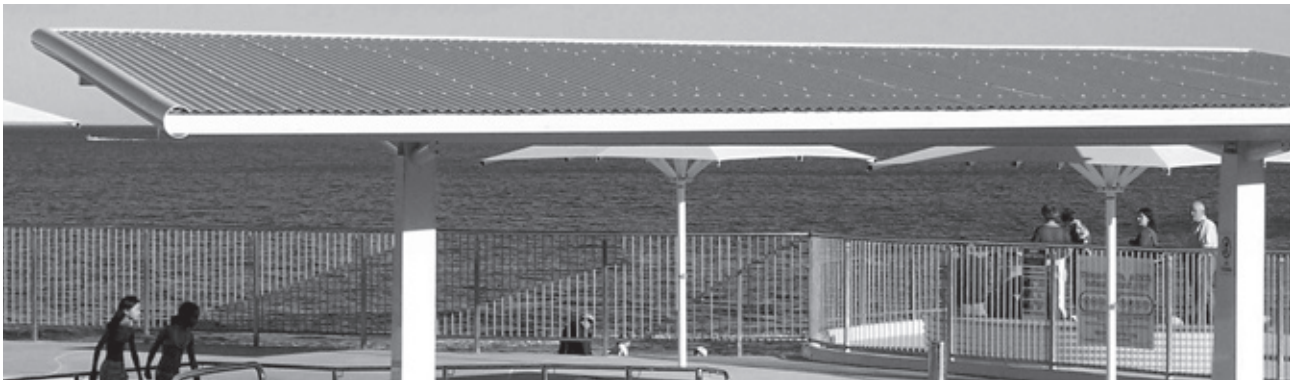
The **ARC**PANEL Corrugated Aquatek Panel is only available in a corrugated finish to both the inside and outside linings. Base metal thickness for top XRW Steel sheet 0.420mm and a total coated thickness of 0.470mm as standard, unless otherwise stated. Thickness of Aluminium bottom sheet is 0.8mm with PVdF coating, unless otherwise stated.

Panel Dimensions



CORRUGATED PROFILE 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	Aluminium PVdF	Top Sheet 0.42 BMT G550 Steel Bottom Sheet 0.8mm Aluminium	75mm = 7.5kg/m^2 85mm = 7.6kg/m^2 100mm = 7.8kg/m^2 125mm = 8.1kg/m^2 140mm = 8.3kg/m^2 160mm = 8.6kg/m^2 175mm = 8.8kg/m^2 200mm = 9.1kg/m^2 250mm = 9.8kg/m^2



ARCPANEL Aquatek® panel

ARCPANEL Aquatek Roof Panel - **Trimdek® Profile General Specifications**

Panel Sizes

Standard panel thicknesses are available:

90mm – 110mm – 130mm – 150mm –175mm – 200mm – 250mm

(other panel thicknesses are available upon request)

Panel Lengths

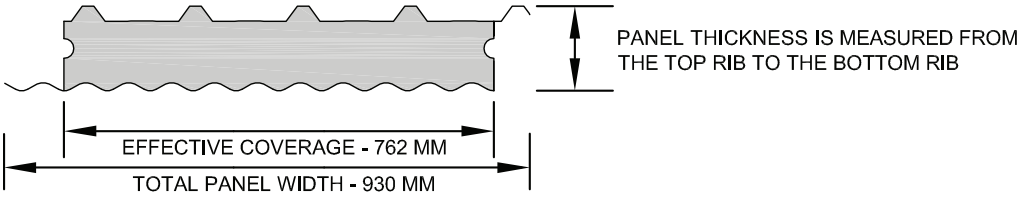
Generally straight and curved panels can be supplied up to 24 metres in lengths. Longer lengths can be supplied, please contact **ARC**PANEL for details.

Panel Configurations

Panels can be manufactured in straight or large curve configurations. Refer to roof type guide on page 4 for further information

Panel Finish

The **ARC**PANEL Trimdek® Aquatek Panel is only available in a corrugated finish to the inside linings, and a Trimdek® (trapezoidal) finish to the outside lining. Base metal thickness for top XRW Steel sheet 0.420mm and a total coated thickness of 0.470mm, is used as standard, unless otherwise stated. Thickness of Aluminium bottom sheet is 0.8mm with PVdF coating, unless otherwise stated.



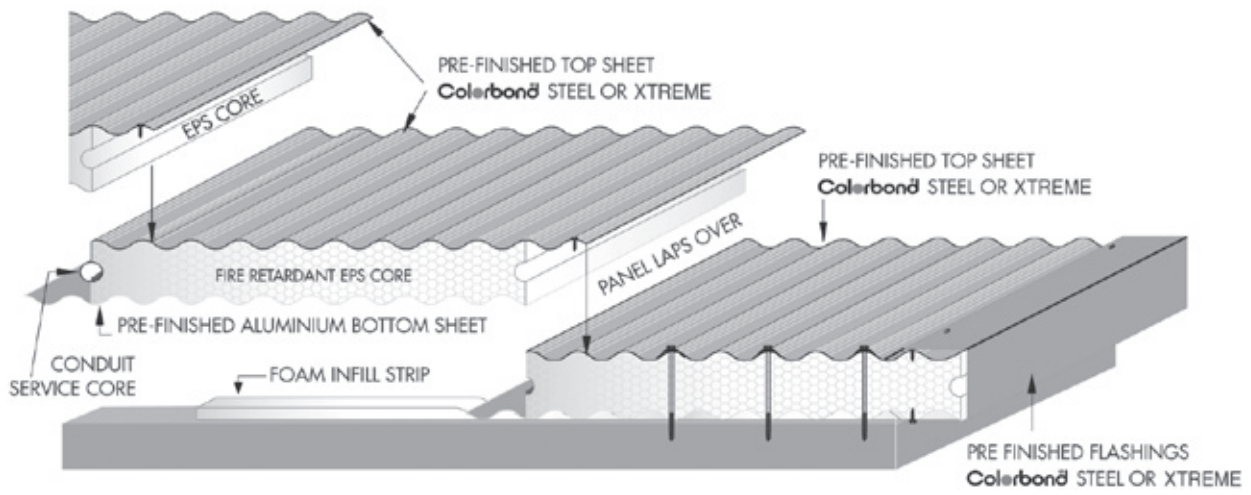
TRIMDEK® PROFILE PANEL SPECIFICATIONS — **TABLE 3**

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	Aluminium PVdF	Top Sheet 0.42 BMT G550 Steel Bottom Sheet 0.8mm Aluminium	90mm = 7.5kg/m^2 110mm = 7.7kg/m^2 130mm = 8.0kg/m^2 150mm = 8.3kg/m^2 175mm = 8.6kg/m^2 200mm = 9.0kg/m^2 250mm = 9.7kg/m^2

ARCPANEL Aquatek Roof Panel - **Lapping Details**

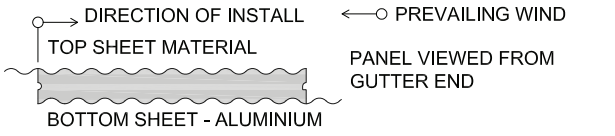
As shown in the following details (figures 1-3), the **ARC**PANEL Aquatek Roof Panel can be installed from left to right (left hand) or right to left (right hand), this is normally determined prior to the undertaking of the workshop drawings. Should a specific installation direction be required please advise **ARC**PANEL at time of order. Direction of lap is determined by looking from the gutter end of the roof panel.

ARCPANEL **AQUATEK PANEL SPECIFICATIONS** **FIGURE 1**

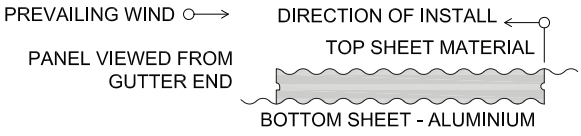


ARCPANEL Aquatek Roof Panel - **Installation Details**

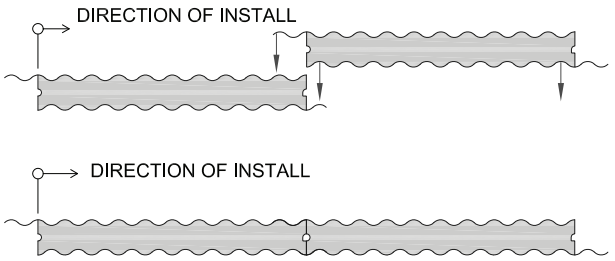
CORRUGATED PROFILE INSTALLATION DETAIL — FIGURE 2



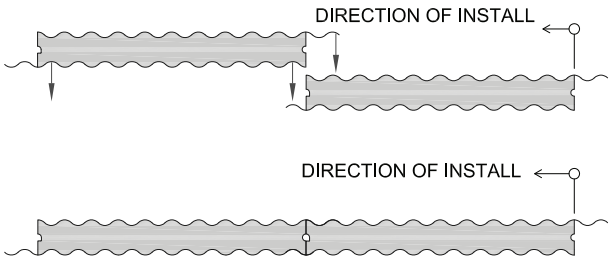
LEFT HAND CORRO PANEL INSTALLATION DETAIL - SINGLE



RIGHT HAND CORRO PANEL INSTALLATION DETAIL - SINGLE



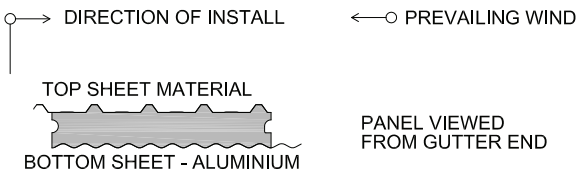
LEFT HAND CORRO PANEL INSTALLATION DETAIL - MULTIPLE



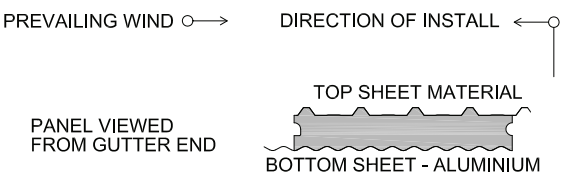
RIGHT HAND CORRO PANEL INSTALLATION DETAIL - MULTIPLE

RBS 1996-2 F — RBS 1996-3 F

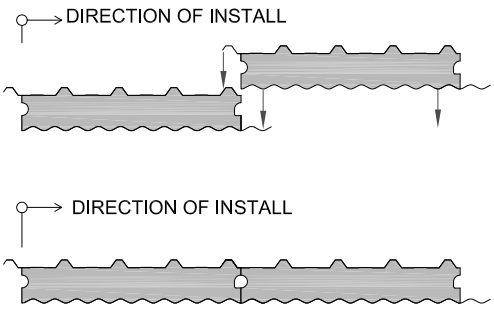
TRIMDEK® PROFILE INSTALLATION DETAILS — FIGURE 3



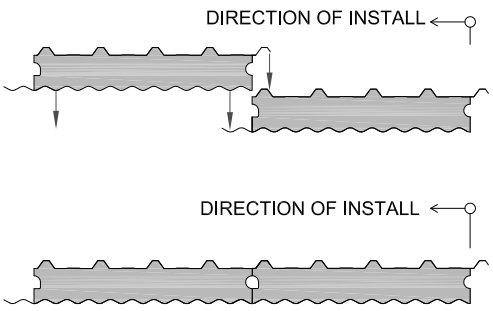
LEFT HAND TRIMDEK PANEL INSTALLATION DETAIL - SINGLE



LEFT HAND TRIMDEK PANEL INSTALLATION DETAIL - SINGLE



LEFT HAND TRIMDEK PANEL INSTALLATION DETAIL - MULTIPLE



LEFT HAND TRIMDEK PANEL INSTALLATION DETAIL - MULTIPLE

RBS 1996-36 F — RBS 1996-37 F

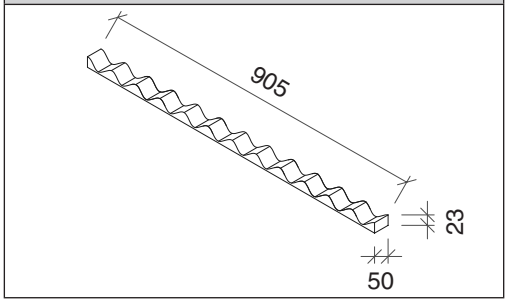
ARCPANEL Aquatek Roof Panel - **Accessory Information**

Closed Cell Foam Infill Strip

Details: 905mm x 50mm x 23mm thick compressible foam.
Available in black or white.

- **Suitable for all external and internal support points**
- Fit to the top of the wall frame or supporting member prior to the installation of the panel
- Will fill any void between the support members and the roof corrugations.

CLOSED CELL FOAM **FIGURE 4**

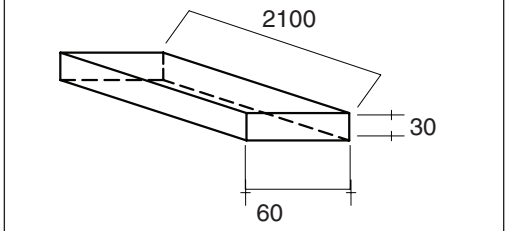


Open Cell Foam Infill Strip

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

- **Suitable for all external and internal support points not exposed to severe marine or aquatic conditions.**
- Fit to the top of the wall frame or supporting member prior to the installation of the panel.
- Will fill any void between the support members and the roof corrugations.

OPEN CELL FOAM **FIGURE 5**



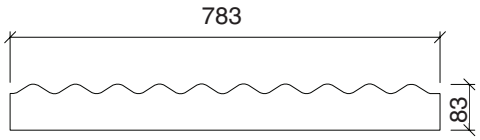
Corrugated Metal Infill

The use of the corrugated infill is recommended to fully seal wall and soffit junctions. Refer to page 34 for further details.

Details: 792mm x 80mm x 0.8mm Aluminium White

- **Suitable for both external and internal walls**
- Attached to the wall prior to installing the lining
- Used as a permanent barrier between the inside and outside on walls perpendicular to the run of the roof panels

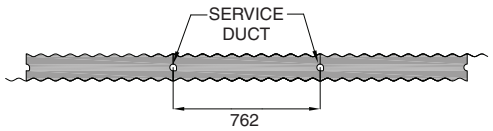
CORRUGATED METAL INFILL **FIGURE 6**



Services

The **ARC**PANEL Aquatek 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. It is advisable that the electrical contractor is present during the installation of the **ARC**PANEL Aquatek roof panels.

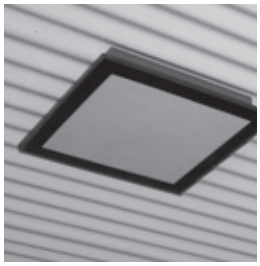
SERVICE CORES **FIGURE 7**



CORRUGATED PANEL SHOWN

Installation of Electrical Fixtures

- The electrical contractor can run wiring from supporting walls through service ducts to the required outlets.
- The underside sheet of the Aquatek 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 Aquatek Roof Panel - **Timber Mounting Blocks**

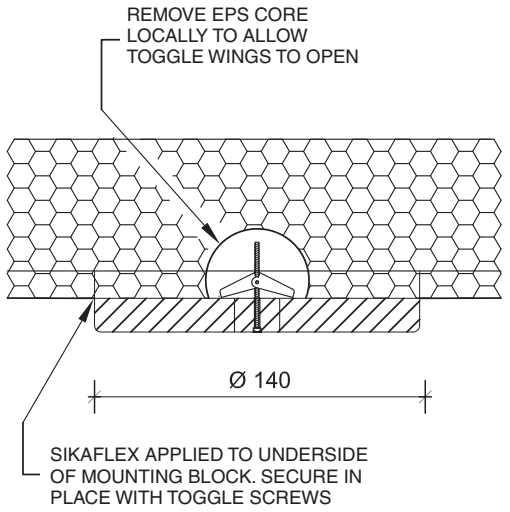
A profiled circular timber block is available to mount low voltage lights, pendant lights, ceiling fans etc. The timber block is supplied natural (unpainted), it will need to be painted or oiled on site to suit the ceiling colour.

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.

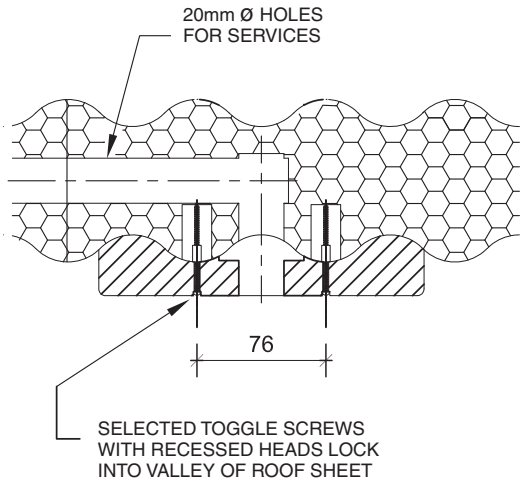
For heavier items such as large ceiling fans and large pendant lighting the block is to be bolted through the panel, using a standard bolt fitted with a cyclone plate, washer and seal.

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 20kg.

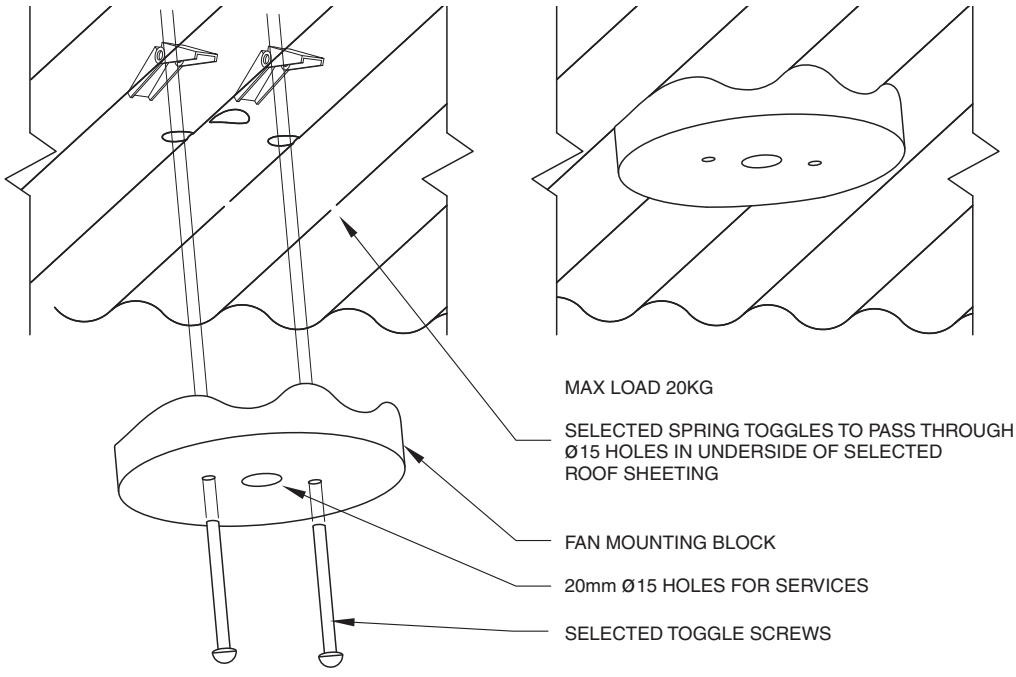
FAN BLOCK INSTALLATION SECTION **FIGURE 8**



FAN BLOCK INSTALLATION SECTION **FIGURE 9**



INSTALLATION OF FAN BLOCK **FIGURE 10**

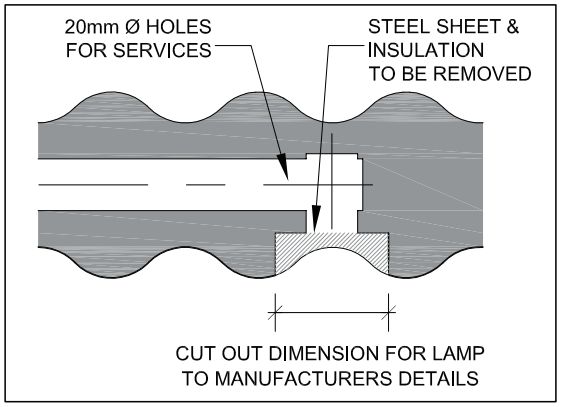


RBS 1996-42A

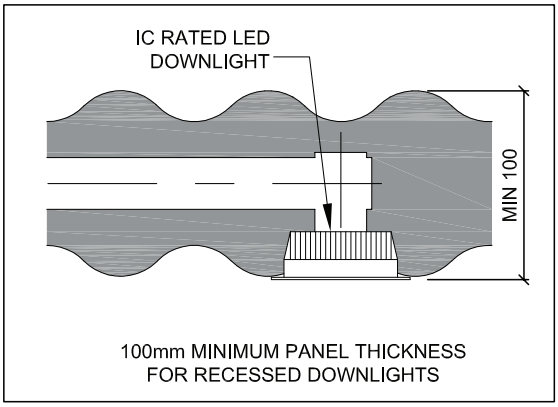
ARCPANEL Aquatek Roof Panel - **Down Light Installation**

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.

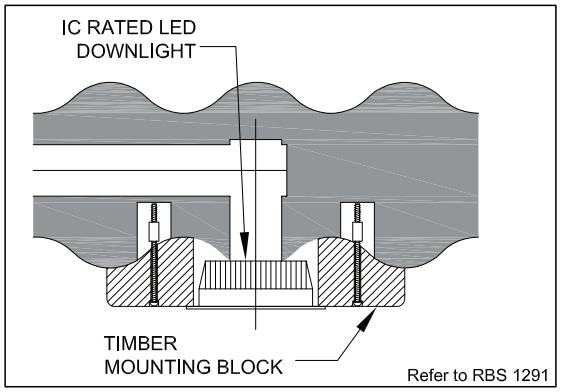
LED DOWNLIGHTS INSTALLATION **FIGURE 10.1**



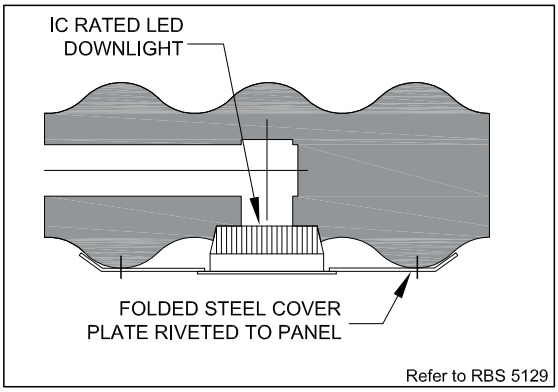
PREPARATION OF PANEL FOR INSTALLATION OF IC RATED LED DOWNLIGHTS



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

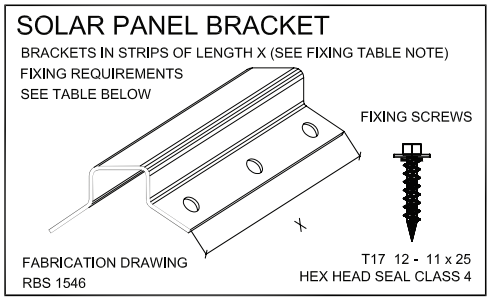
NOOSA LIGHTING
www.noosalighting.com.au

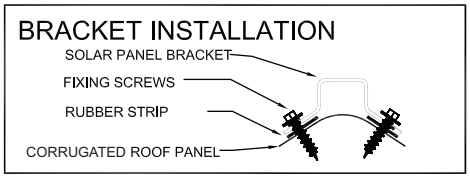
S9071 Model shown

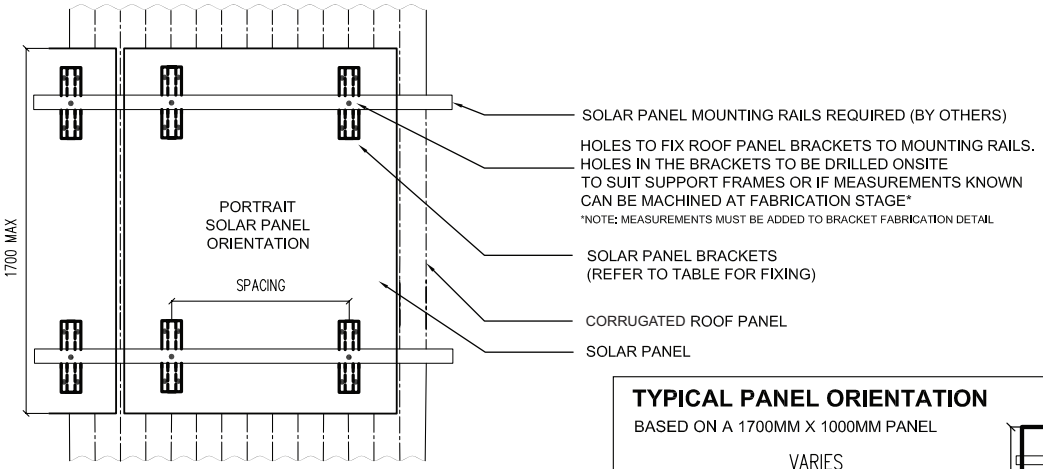
FOR FURTHER INFORMATION VISIT
www.sunnylighting.com.au/downlights/led-downlights/premier

ARCPANEL Aquatek Roof Panel - **Solar Panel Bracket - Corrugated**

SOLAR PANEL BRACKET - CORRUGATED **FIGURE 11**







FIXING REQUIREMENTS

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

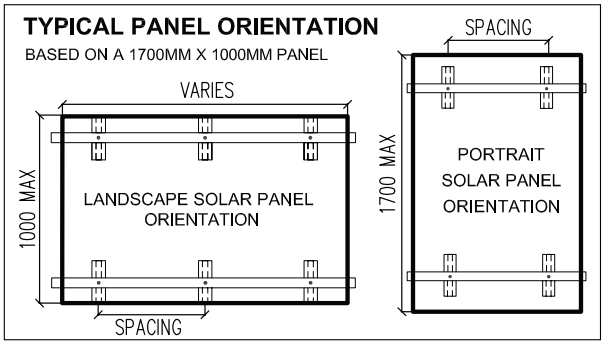
PORTRAIT SOLAR PANEL ORIENTATION

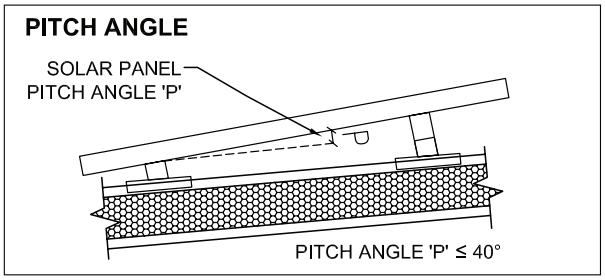
SOLAR PANEL PITCH < 5°				SOLAR PANEL PITCH ≥ 5°			
WIND CLASS	LIMIT STATE DESIGN PRESSURE (kPa)	SPACING OF BRACKETS (mm)	SCREWS PER BRACKET	WIND CLASS	LIMIT STATE DESIGN PRESSURE (kPa)	SPACING OF BRACKETS (mm)	SCREWS PER BRACKET
N2-W33	1.52	600	4	N2-W33	2.16	600	6
N3-W41	2.34	450	6	N3-W41	3.32	450	6
N4-W50	3.50	300	6	N4-W50	4.97	300	6
N5-W60	5.03	300	6	N5-W60	7.14	300	10
C1-W41	3.11	300	4	C1-W41	3.79	300	6
C2-W50	4.62	300	6	C2-W50	5.64	300	8
C3-W60	6.65	225	6	C3-W60	8.11	300	10
C4-W70	9.05	225	10	C4-W70	11.04	225	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	600	4	N2-W33	2.16	600	4
N3-W41	2.34	600	4	N3-W41	3.32	450	4
N4-W50	3.50	450	4	N4-W50	4.97	300	4
N5-W60	5.03	450	6	N5-W60	7.14	300	6
C1-W41	3.11	450	4	C1-W41	3.79	450	4
C2-W50	4.62	300	4	C2-W50	5.64	450	6
C3-W60	6.65	450	8	C3-W60	8.11	450	10
C4-W70	9.05	300	8	C4-W70	11.04	300	8

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 260N/SCREW.

NOTE: THE DESIGN OF THE ROOF BRACKET SYSTEM FOR A SOLAR PANEL MOUNTING APPLICATION 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 LIABILITY CAN THEREFORE BE ACCEPTED BY ARCHITECTURAL PANELS PTY LTD FOR ITS USE.

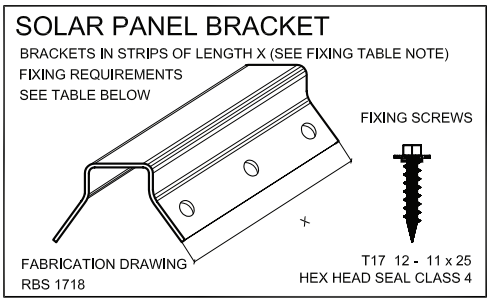
WHEN PLACING OBJECTS ON ROOF: MAXIMUM DISTRIBUTED LIVE LOAD IS 0.25KPA. REFER TO MAX ALLOWABLE DEAD LOADS ON PAGE 19.

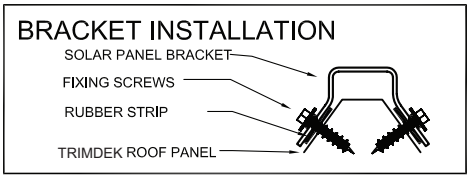
CERTIFIED BY TOD CONSULTING ENGINEERS 21/06/13

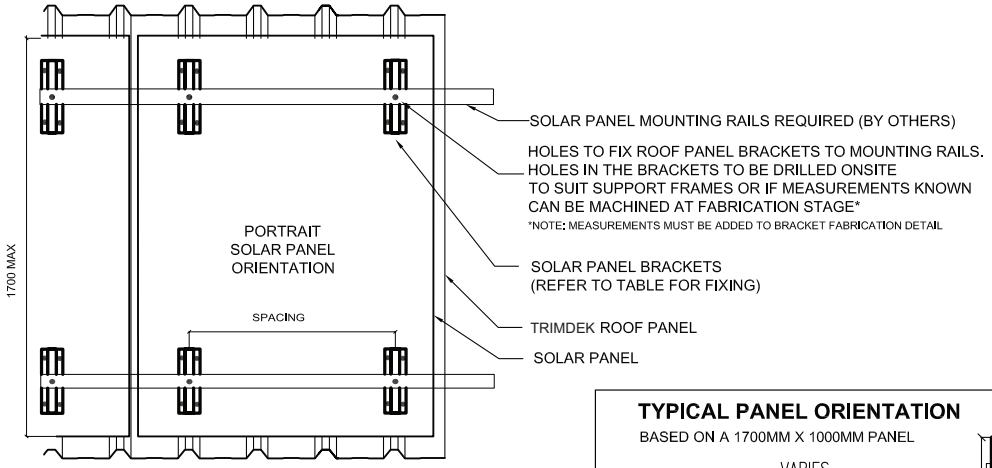
RBS 1546 D

ARCPANEL Aquatek Roof Panel - Solar Panel Bracket - Trimdek®

SOLAR PANEL BRACKET - TRIMDEK® — FIGURE 12







FIXING REQUIREMENTS

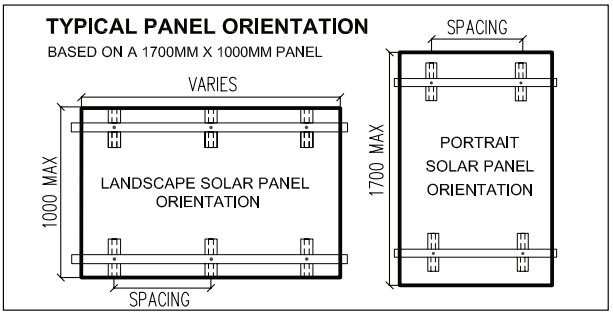
USING TYPE 17 12-11-25 CLASS 4 WITH SEAL

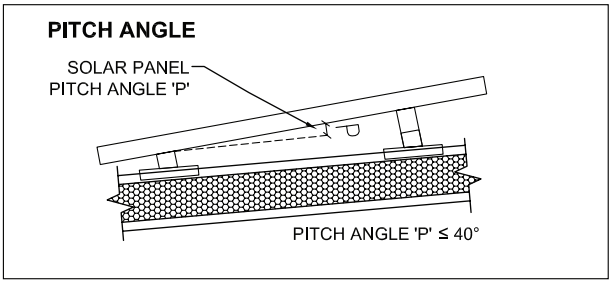
PORTRAIT SOLAR PANEL ORIENTATION

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





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

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

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. REFER TO MAX ALLOWABLE DEAD LOADS ON PAGE 19.

CERTIFIED BY TOD CONSULTING ENGINEERS 21/06/13

RBS 1718 D

ARCPANEL Aquatek Roof Panel - **Corrugated Aquatek Span Table**

AQUATEK ROOF PANEL - SPAN TABLES & THERMAL RATINGS — TABLE 4

Aquatek® panel

NON CYCLONIC - Corrugated top and bottom sheet

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

PANEL TYPE		75mm		85mm		100mm		125mm		140mm		160mm		175mm		200mm		250mm	
R VALUE		R1.7		R2.0		R2.4		R3.1		R3.5		R4.1		R4.5		R5.2		R6.5	
Wind Class (Permissible)	Ultimate Limit State Design Wind Pressure (P) (kPa)	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	MAX SPAN	MAX CANTILEVER
N2-W33	**1.52**	**3900**	**1150**	**4300**	**1250**	**4950**	**1450**	**6000**	**1800**	**6475**	**1850**	**6800**	**1950**	**7025**	**2000**	**7750**	**2100**	**8875**	**2350**
	1.68	3760	1110	4145	1210	4775	1400	5775	1730	6250	1790	6560	1880	6800	1930	7500	2030	8580	2270
	1.85	3620	1070	3990	1170	4600	1350	5550	1660	6025	1730	6320	1810	6575	1860	7250	1960	8285	2190
	2.01	3480	1030	3835	1130	4425	1300	5325	1590	5800	1670	6080	1740	6350	1790	7000	1890	7990	2110
	2.18	3340	990	3680	1090	4250	1250	5100	1520	5575	1610	5840	1670	6125	1720	6750	1820	7695	2030
N3-W41	**2.34**	**3200**	**950**	**3525**	**1050**	**4075**	**1200**	**4875**	**1450**	**5350**	**1550**	**5600**	**1600**	**5900**	**1650**	**6500**	**1750**	**7400**	**1950**
	2.57	3070	910	3400	1010	3920	1150	4700	1390	5160	1495	5405	1550	5695	1590	6280	1690	7160	1880
	2.80	2940	870	3275	970	3765	1100	4525	1330	4970	1440	5210	1500	5490	1530	6060	1630	6920	1810
	3.03	2810	830	3150	930	3610	1050	4350	1270	4780	1385	5015	1450	5285	1470	5840	1570	6680	1740
	3.26	2680	790	3025	890	3455	1000	4175	1210	4590	1330	4820	1400	5080	1410	5620	1510	6440	1670
N4-W50	**3.50**	**2550**	**750**	**2900**	**850**	**3300**	**950**	**4000**	**1150**	**4400**	**1275**	**4625**	**1350**	**4875**	**1350**	**5400**	**1450**	**6100**	**1600**
	3.80	2420	710	2760	810	3165	910	3855	1110	4240	1230	4465	1300	4695	1300	5205	1400	5780	1520
	4.11	2290	670	2620	770	3030	870	3710	1070	4080	1185	4305	1250	4515	1250	5010	1350	5460	1440
	4.41	2160	630	2480	730	2895	830	3565	1030	3920	1140	4145	1200	4335	1200	4815	1300	5140	1360
	4.72	2030	590	2340	690	2760	790	3420	990	3760	1095	3985	1150	4155	1150	4620	1250	4820	1280
N5-W60	**5.03**	**1900**	**550**	**2200**	**650**	**2625**	**750**	**3275**	**950**	**3600**	**1050**	**3825**	**1100**	**3975**	**1100**	**4425**	**1200**	**4500**	**1200**

Top sheet = 0.42 Colorbond XRW/Ultra Bottom sheet = 0.8 Aluminium

Span & fixing selection notes (non cyclonic areas)

1. The above span tables 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 buidling designer must take into account any application where the Cpi would exceed > 0.2 in open or partly open structures
4. Maximum cantilever is up to 40% actual backspan for ULS wind pressure up to 3.49 kPa, up to 30% actual backspan for ULS wind pressure 3.50 kPa and greater. Cantilever can not be 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)
5. Wind Load Serviceability Criteria based on AS 4055, Vs=0.64 x Vu
6. Over sized gutters may affect the cantilever capability, contact **ARC**PANEL for advice
7. Limited raking, diaphragm action and lateral restraint capacity
8. 300mm maximum side cantilever using full uncut panel
9. Thermal R-Values are Total R Values (Winter - Tested conductivity 0.038 W/m.K at 23^C
10. Spans shown are for XRW, ULTRA materials used on the top side (roof) sheet and aluminium materials used on the bottom side (ceiling) sheet only. For Xtreme material, spans reduce by 5% for ULS Design Wind Pressures less than 2.34kPa.

The Ultimate Strength Limit State Design Wind Pressures (P) indicated in the above span tables represent generalised design pressures applicable for single span panels located within edge zones of a roof where local pressure factors K(local) apply, for the appropriate Permissible Wind Class. Assumed values of pressure coefficients for Single Spans:- Cpe=1.5x-0.9=-1.35, Cpi=+0.2, Kc=1.0 [Cpi=+0.7 for cantilever]. The above pressure coefficients and design wind pressures are recommended as a minimum. Where a designer determines more severe pressure coefficients than those indicated above or wish to limit deflections, they must select a thicker panel , reduce the span accordingly, or consult **ARC**PANEL for technical advice.

General notes

Live Loads:
Maximum distributed live load 0.25kPa.
Roofs in Alpine areas: Designer must refer to **ARC**PANEL for specialist 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 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.

NOTE: THE ABOVE SPAN TABLES ARE APPLICABLE TO **ARC**PANEL PANELS ONLY AND ARE ACHIEVABLE BY USING PROVEN MANUFACTURING METHODS AND PRODUCT TESTING. STRUCTURAL ADEQUACY OF THE PANELS IS CERTIFIED BY TOD CONSULTING ENGINEERS, NOOSAVILLE, QLD.

ARCPANEL Aquatek Roof Panel - **Trimdek® Aquatek Span Table**

AQUATEK ROOF PANEL - SPAN TABLES & THERMAL RATINGS — TABLE 5

Aquatek® panel

NON CYCLONIC - Trimdek® top and corrugated bottom sheet

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

PANEL TYPE		90mm		110mm		130mm		150mm		175mm		200mm		250mm	
R VALUE		R1.7		R2.3		R2.8		R3.4		R4.0		R4.7		R6.1	
Wind Class (Permissible)	Ultimate Limit State Design Wind Pressure (P) (kPa)	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**	**3900**	**1150**	**4950**	**1450**	**6000**	**1750**	**6475**	**1800**	**6800**	**1900**	**7025**	**1950**	**8425**	**2200**
	1.68	3760	1110	4775	1400	5775	1680	6250	1740	6560	1830	6800	1890	8145	2130
	1.85	3620	1070	4600	1350	5550	1610	6025	1680	6320	1760	6575	1830	7865	2060
	2.01	3480	1030	4425	1300	5325	1540	5800	1620	6080	1690	6350	1770	7585	1990
	2.18	3340	990	4250	1250	5100	1470	5575	1560	5840	1620	6125	1710	7305	1920
N3-W41	**2.34**	**3200**	**950**	**4075**	**1200**	**4875**	**1400**	**5350**	**1500**	**5600**	**1550**	**5900**	**1650**	**7025**	**1850**
	2.57	3070	910	3920	1150	4700	1350	5160	1450	5405	1500	5695	1590	6800	1790
	2.80	2940	870	3765	1100	4525	1300	4970	1400	5210	1450	5490	1530	6575	1730
	3.03	2810	830	3610	1050	4350	1250	4780	1350	5015	1400	5285	1470	6350	1670
	3.26	2680	790	3455	1000	4175	1200	4590	1300	4820	1350	5080	1410	6125	1610
N4-W50	**3.50**	**2550**	**750**	**3300**	**950**	**4000**	**1150**	**4400**	**1250**	**4625**	**1300**	**4875**	**1350**	**5900**	**1550**
	3.80	2420	710	3165	910	3855	1110	4240	1200	4465	1250	4695	1300	5560	1470
	4.11	2290	670	3030	870	3710	1070	4080	1150	4305	1200	4515	1250	5220	1390
	4.41	2160	630	2895	830	3565	1030	3920	1100	4145	1150	4335	1200	4880	1310
	4.72	2030	590	2760	790	3420	990	3760	1050	3985	1100	4155	1150	4540	1230
N5-W60	**5.03**	**1900**	**550**	**2625**	**750**	**3275**	**950**	**3600**	**1000**	**3825**	**1050**	**3975**	**1100**	**4200**	**1150**

Top sheet = 0.42 Colorbond XRW/Ultra Bottom sheet = 0.8 Aluminium
Trimdek® is a registered trade mark of Bluescope Steel

Span & fixing selection notes (non cyclonic areas)

1. The above span tables 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 buidling designer must take into account any application where the Cpi would exceed > 0.2 in open or partly open structures
4. Maximum cantilever is up to 40% actual backspan for ULS wind pressure up to 3.49 kPa, up to 30% actual backspan for ULS wind pressure 3.50 kPa and greater. Cantilever can not be 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)
5. Wind Load Serviceability Criteria based on AS 4055, Vs=0.64 x Vu
6. Over sized gutters may affect the cantilever capability, contact **ARC**PANEL for advice
7. Limited raking, diaphragm action and lateral restraint capacity
8. 300mm maximum side cantilever using full uncut panel
9. Thermal R-Values are Total R Values
   (Winter - Tested conductivity 0.038 W/m.K at 23^C
10. Spans shown are for XRW, ULTRA materials used on the top side (roof) sheet and aluminium materials used on the bottom side (ceiling) sheet only.
    For Xtreme material, spans reduce by 5% for ULS Design Wind Pressures less than 2.34kPa.

The Ultimate Strength Limit State Design Wind Pressures (P) indicated in the above span tables represent generalised design pressures applicable for single span panels located within edge zones of a roof where local pressure factors K(local) apply, for the appropriate Permissible Wind Class. Assumed values of pressure coefficients for Single Spans:- Cpe=1.5x-0.9=-1.35, Cpi=+0.2, Kc=1.0 [Cpi=+0.7 for cantilever]. The above pressure coefficients and design wind pressures are recommended as a minimum. Where a designer determines more severe pressure coefficients than those indicated above or wish to limit deflections, they must select a thicker panel, reduce the span accordingly, or consult **ARC**PANEL for technical advice.

General notes

Live Loads:
Maximum distributed live load 0.25kPa.

Roofs in Alpine areas:
Designer must refer to **ARC**PANEL for specialist 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 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.

NOTE: THE ABOVE SPAN TABLES ARE APPLICABLE TO **ARC**PANEL PANELS ONLY AND ARE ACHIEVABLE BY USING PROVEN MANUFACTURING METHODS AND PRODUCT TESTING. STRUCTURAL ADEQUACY OF THE PANELS IS CERTIFIED BY TOD CONSULTING ENGINEERS, NOOSAVILLE, QLD

ARCPANEL Aquatek Roof Panel - **Corrugated Panel Fixing Information**

FIXING SCREWS — FIGURE 13

CLASS 4,14 - (TPI) X (LENGTH) eg 14-10 x 150 mm

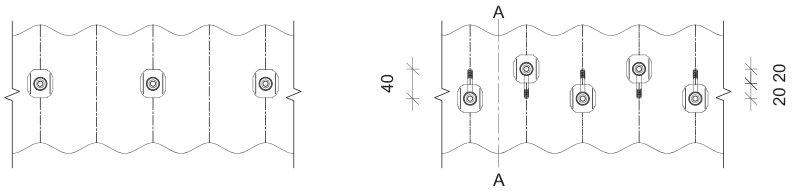
METAL TEK (SERIES 500 SHOWN) | TIMBER T17

CORRI-LOK CYCLONE ASSEMBLIES

FIXING DETAILS — FIGURE 14

AQUATEK CORRO ROOF PANEL FIX EVERY 2ND CREST

AQUATEK CORRO ROOF PANEL FIX EVERY CREST



NOTE: PANEL FIXING SCREWS ARE OFFSET BY 40MM (20MM FROM CENTRE LINE OF CREST) TO ENSURE THAT TIMBER BEAMS DO NOT SPLIT. ENSURE THAT SCREWS DO NOT BREAK OUT THOUGH THE SIDES OF THE BEAM.

RBS 1996-9A

AQUATEK CORRO PANEL FIXING CLASS 4 WITH CORRI-LOK CYCLONE ASSEMBLY — TABLE 8

Approved fixings: Buildex and Powers Fasteners

TOP SHEET = COLORBOND XRW, ULTRA. BOTTOM SHEET = ALUMINIUM

		FIXING TO STEEL				FIXING TO TIMBER		
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
75	105	METAL TEK	14 - 14 x 115 MM	METAL TEK	14 - 20 x 150 MM SERIES 500	110	TIMBER T17	14 - 10 X 115 MM
85	115	METAL TEK	14 - 14 x 115 MM	METAL TEK	14 - 20 x 150 MM SERIES 500	120	TIMBER T17	14 - 10 X 125 MM
100	130	METAL TEK	14 - 14 x 135 MM	METAL TEK	14 - 20 x 150 MM SERIES 500	135	TIMBER T17	14 - 10 X 150 MM
125	155	METAL TEK	14 - 14 x 175 MM	METAL TEK	14 - 20 x 200 MM SERIES 500	160	TIMBER T17	14 - 10 X 175 MM
140	170	METAL TEK	14 - 14 x 175 MM	METAL TEK	14 - 20 x 200 MM SERIES 500	175	TIMBER T17	14 - 10 X 175 MM
160	190	METAL TEK	14 - 14 x 205 MM	METAL TEK	14 - 20 x 200 MM SERIES 500	195	TIMBER T17	14 - 10 X 200 MM
175	205	METAL TEK	14 - 14 x 205 MM	METAL TEK	14 - 20 x 250 MM SERIES 500	210	TIMBER T17	14 - 10 X 240 MM
200	230	METAL TEK	14 - 10 x 230 MM (*CC1)	METAL TEK	14 - 20 x 250 MM SERIES 500	235	TIMBER T17	14 - 10 X 240 MM
		METAL TEK	14 - 20 x 250 MM SERIES 500 (3.0mm to 5.0mm)					
250	280	TIMBER T17	14 - 10 x 300 MM (*PD1)	METAL TEK	14 - 20 x 300 MM SERIES 500	285	TIMBER T17	14 - 10 X 300 MM
		METAL TEK	14 - 20 x 300 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 200 MM SERIES 500 SCREW CAN BE USED FOR 160MM CORRUGATED PANEL INTO 5.1MM to 12.5MM 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

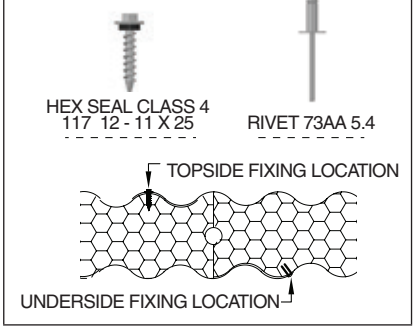
FIXING SCREW TABLE REFLECTS THE RANGE OF SCREWS CURRENTLY AVAILABLE FROM BUILDEX OR POWERS FASTENERS

End Support Fixing, Corri-Lok Cyclone Assembly, Class 4
1. Every second crest when pressure [P] x (3/4 backspan + 4/3 cantilever [m]) is not greater than 22.5 [kN/m]
2. Every crest when pressure [P] x (3/4 backspan + 4/3 cantilever [m]) is greater 22.5 [kN/m]
3. Raked external walls running parallel to the span fixing point at every 200mm c/c
Internal Support Fixing, Corri-Lok Cyclone Assembly, Class 4
1. Every second crest when pressure [P] x 1.25 x larger span not greater than 22.5 [kN/m]
2. Every crest when Pressure [P] x 1.25 x larger span is greater than 22.5 [kN/m]
3. Raked external walls running parallel to the span fixing point at every 200mm c/c

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

Rivets – Underside
Details: 73 AA 54
Spacing: Used at 300mm centres on the underside of the sheet lap
Note: All aluminum only

STITCHING FIXING — FIGURE 15



ARCPANEL Aquatek Roof Panel - Trimdek® Panel Fixing Information

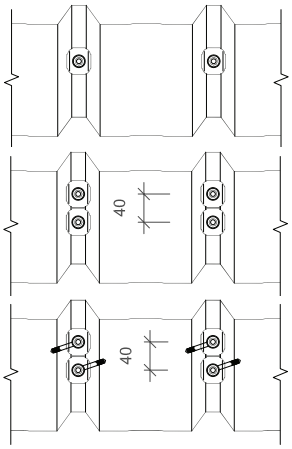
FIXING SCREWS — FIGURE 16

CLASS 4,14 - (TPI) X (LENGTH) eg 14-10 x 150 mm

METAL TEK (SERIES 500 SHOWN) | TIMBER T17

CORRI-LOK CYCLONE ASSEMBLIES

FIXING DETAILS — FIGURE 17



FIX SINGLE SCREW PER CREST

FIX DOUBLE SCREWS PER CREST (STEEL FIXING)

FIX DOUBLE SCREWS PER CREST (TIMBER FIXING)

RBS 1996-39A

AQUATEK TRIMDEK® PANEL FIXING CLASS 4 WITH CORRI-LOK CYCLONE ASSEMBLY — TABLE 9

Approved fixings: Buildex and Powers Fasteners

TOP SHEET = COLORBOND XRW, ULTRA. BOTTOM SHEET = ALUMINIUM

Panel size (mm)	Minimum fixing screw length (mm)	FIXING TO STEEL: Actual to order steel screw steel thickness 2.0mm to 5.0mm — SCREW TYPE	SIZE	FIXING TO STEEL: Actual to order steel screw steel thickness 5.1mm to 12.0mm — SCREW TYPE	SIZE	FIXING TO TIMBER: Minmum fixing screw length (mm)	Actual to order timber screw — SCREW TYPE	SIZE
90	120	METAL TEK	14 - 14 x 125 MM	METAL TEK	14 - 20 x 150 MM SERIES 500	125	TIMBER T17	14 - 10 X 125 MM
110	140	METAL TEK	14 - 14 x 150 MM	METAL TEK	14 - 20 x 150 MM SERIES 500	145	TIMBER T17	14 - 10 X 150 MM
130	160	METAL TEK	14 - 14 x 175 MM	METAL TEK	14 - 20 x 200 MM SERIES 500	165	TIMBER T17	14 - 10 X 175 MM
150	180	METAL TEK	14 - 14 x 205 MM	METAL TEK	14 - 20 x 200 MM SERIES 500	185	TIMBER T17	14 - 10 X 200 MM
175	205	METAL TEK	14 - 14 x 205 MM	METAL TEK	14 - 20 x 250 MM SERIES 500	210	TIMBER T17	14 - 10 X 240 MM
200	230	METAL TEK	14 - 10 x 230 MM (*CC1)	METAL TEK	14 - 20 x 250 MM SERIES 500	235	TIMBER T17	14 - 10 X 240 MM
		METAL TEK	14 - 20 x 250 MM SERIES 500 (3.0mm to 5.0mm)					
250	280	TIMBER	14 - 10 x 300 MM (*PD1)	METAL TEK	14 - 20 x 300 MM SERIES 500	285	TIMBER T17	14 - 10 X 300 MM
		METAL TEK	14 - 20 x 300 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

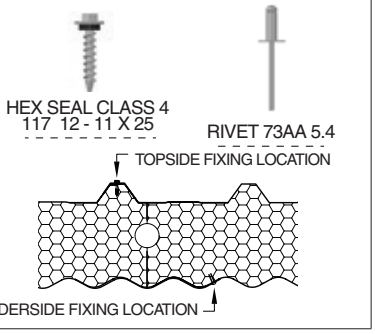
14 - 10 x 'X' MM SCREWS CAN BE SUBSTITUTED FOR 14 - 14 - 'X' MM SCREWS IN STEEL BETWEEN 1.3MM TO 4.0MM
14 - 20 x 150 MM SERIES 500 SCREW CAN BE USED FOR 110MM TRIMDEK® PANEL INTO 5.1MM to 12.5MM IF THERE IS NO VOID BETWEEN PANEL AND FIXING BEAM / TOP PLATE
14 - 20 x 250 MM SERIES 500 SCREW CAN BE USED FOR 210MM TRIMDEK® PANEL INTO 5.1MM to 12.5MM 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 FROM BUILDEX OR POWERS FASTENERS

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 1.25 x larger span not greater than 15 [kN/m]
2. Double every crest when Pressure [P] x 1.25 x larger span is greater than 15 [kN/m]
3. Raked external walls running parallel to the span fixing point at every 200mm c/c

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

Rivets – Underside
Details: 73AA 54
Spacing: Used at 300mm centres on the underside sheet lap
Note: All aluminum only

STITCHING FIXINGS — FIGURE 18



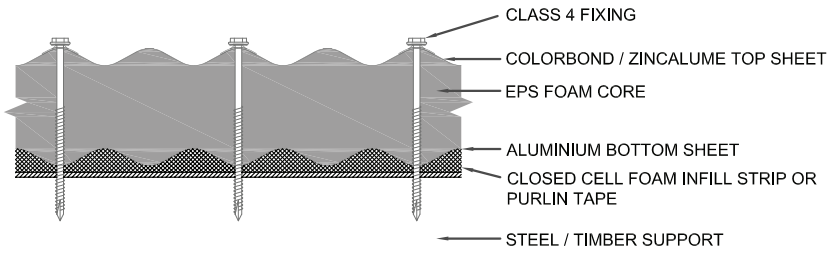
ARCPANEL Aquatek Roof Panel - **Fixing Material Compatibility**

Visible Fixings

All fasteners and connecting devices have been chosen to not corrode under conditions of use.

In the below design, Class 4 fixings (coated with 45 micron mech. Galv. Zinc-tin with 25-30% tin and balance zinc) are compatible with PVdF painted aluminium.

MATERIAL COMPATIBILITY DETAILS **FIGURE 19**



CORRUGATED PROFILE SHOWN

RBS 1996-45B

In combination with other metals.

To prevent electro-chemical corrosion, direct contact with copper, or water run-off from copper, or direct contact with lead in coastal environments, should be avoided. Precautions must also be taken (eg by using a strip sealant) to prevent direct contact with timber preserved with copper or fluoride compounds or treated with a fire retardant. The coated aluminium (PVdF coating on face side and lacquer of 3 um on reverse side) is compatible with painted steel (Colorbond), Zincalume and galvanised steel used as flashing material.

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 Aquatek roof

AQUATEK CORRUGATED MAXIMUM ALLOWABLE DISTRIBUTED DEAD LOAD **TABLE 10**
KG/M² FOR INTERNAL SPANS (DEFLECTION < SPAN / 300)

	PANEL THICKNESS - AQUATEK PANEL								
SPAN	**75**	**85**	**100**	**125**	**140**	**160**	**175**	**200**	**250**
< 3M	**10**	**10**	**12.5**	**15**	**17.5**	**20**	**22.5**	**25**	**30**
3M - 5M	**7.5**	**7.5**	**10**	**12.5**	**12.5**	**15**	**17.5**	**17.5**	**20**
5M - 7M	**-**	**-**	**-**	**10**	**10**	**12.5**	**15**	**15**	**15**
7M - 9M	**-**	**-**	**-**	**-**	**-**	**-**	**10**	**10**	**12.5**

AQUATEK TRIMDEK MAXIMUM ALLOWABLE DISTRIBUTED DEAD LOAD **TABLE 11**
KG/M² FOR INTERNAL SPANS (DEFLECTION < SPAN / 300)

	PANEL THICKNESS - AQUATEK PANEL						
SPAN	**90**	**110**	**130**	**150**	**175**	**200**	**250**
< 3M	**10**	**10**	**12.5**	**15**	**17.5**	**20**	**22.5**
3M - 5M	**7.5**	**10**	**12.5**	**15**	**15**	**17.5**	**20**
5M - 7M	**-**	**-**	**10**	**12.5**	**12.5**	**15**	**15**
7M - 9M	**-**	**-**	**-**	**-**	**-**	**10**	**12.5**

Notes:

1) For dead loads 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 Aquatek Roof Panel - **Fixing & Rainwater Lapping**

AQUATEK CORRUGATED PANEL FIXING SCHEDULE – RAINWATER GOODS						TABLE 12A
Item	**Topside**		**Underside**		**Vertical Face**	
	Type	**Spacing**	**Type**	**Spacing**	**Type**	**Spacing**
Barge Capping	Stitching screws	300mm	Rivet	300mm	Rivets	All external corners
Z Fascia	Rivet	Every 2nd crest	Rivet	Every 2nd crest	Rivet	All external corners
Apron Flashing	Stitching screws (end)	Every 2nd crest	N/A		N/A	
	Stitching screws (side)	300mm				
C - Channel (Refer to Fixing Detail)	Stitching screws	Every 2nd 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 2nd crest	Rivet	300mm	N/A	
Ridge Cap	Stitching screws	Every 2nd crest	N/A		N/A	

AQUATEK TRIMDEK PANEL FIXING SCHEDULE – RAINWATER GOODS						TABLE
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	

Fixing and Rainwater lapping Information

The tables above list the recommended fixing method for the **ARC**PANEL Aquatek 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 Aquatek roof panels.

*1 Please refer to standard fixing C - Channel details

STANDARD RAINWATER LAPPING ALLOWANCE FOR RAINWATER GOODS				TABLE 13
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	0	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)

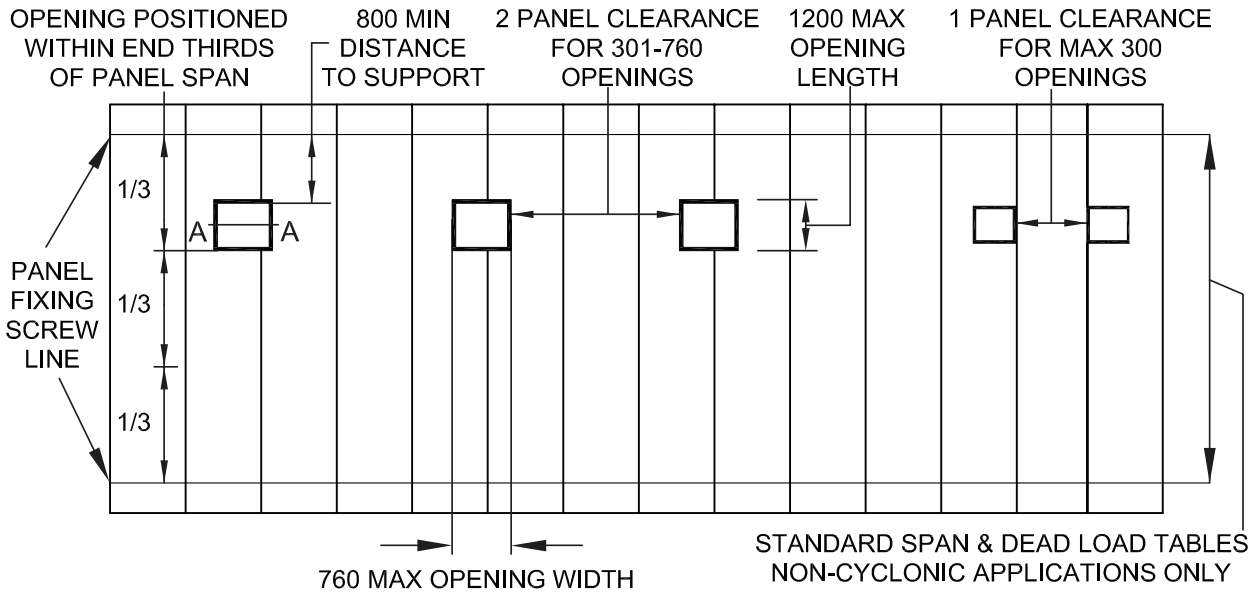
Brackets are typically calculated at 900 C / C (mm).

Gutter Brackets (External for half round)

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

ROOF PENETRATIONS **FIGURE 20**

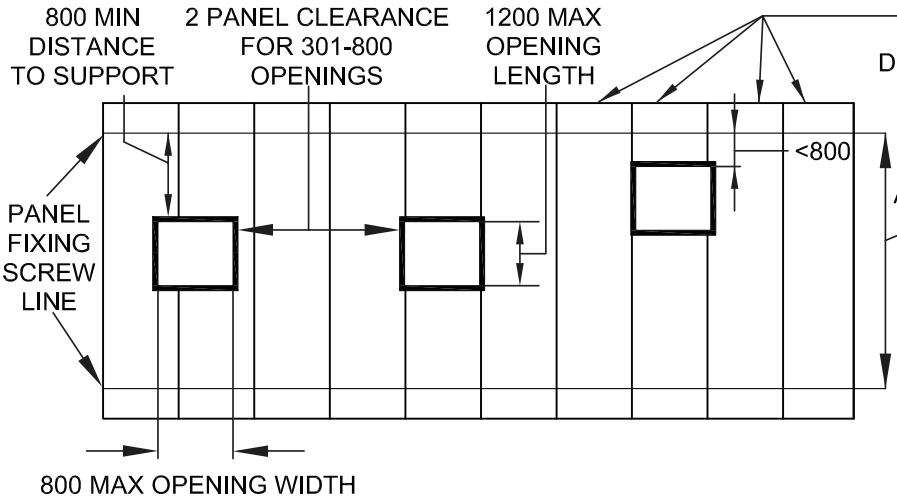
STANDARD ROOF PENETRATIONS - NON CYCLONIC ONLY



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 aluminium 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 aluminium C-Channel with chromate or anodized finish to be provided to perimeter of openings greater than 300mm width
8. Penetrations to be at least 800mm from the support OR
   Corrugated: where support fixing situation requires fixing every second crest; penetration can be within 800mm of support provided the adjacent whole panels each side to the penetration are provided with fixings to every crest.
   Trimdek: 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.

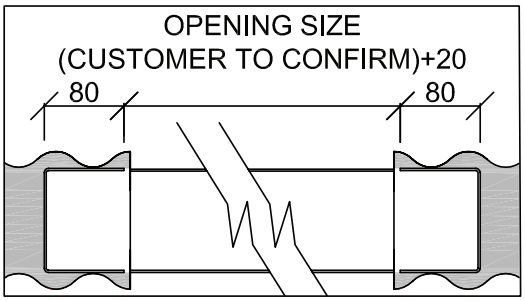
RBS 1996-47-1 B

ARCPANEL Aquatek Roof Panel - **Roof Penetrations**

CONTINUOUS C-CHANNEL **FIGURE 20**

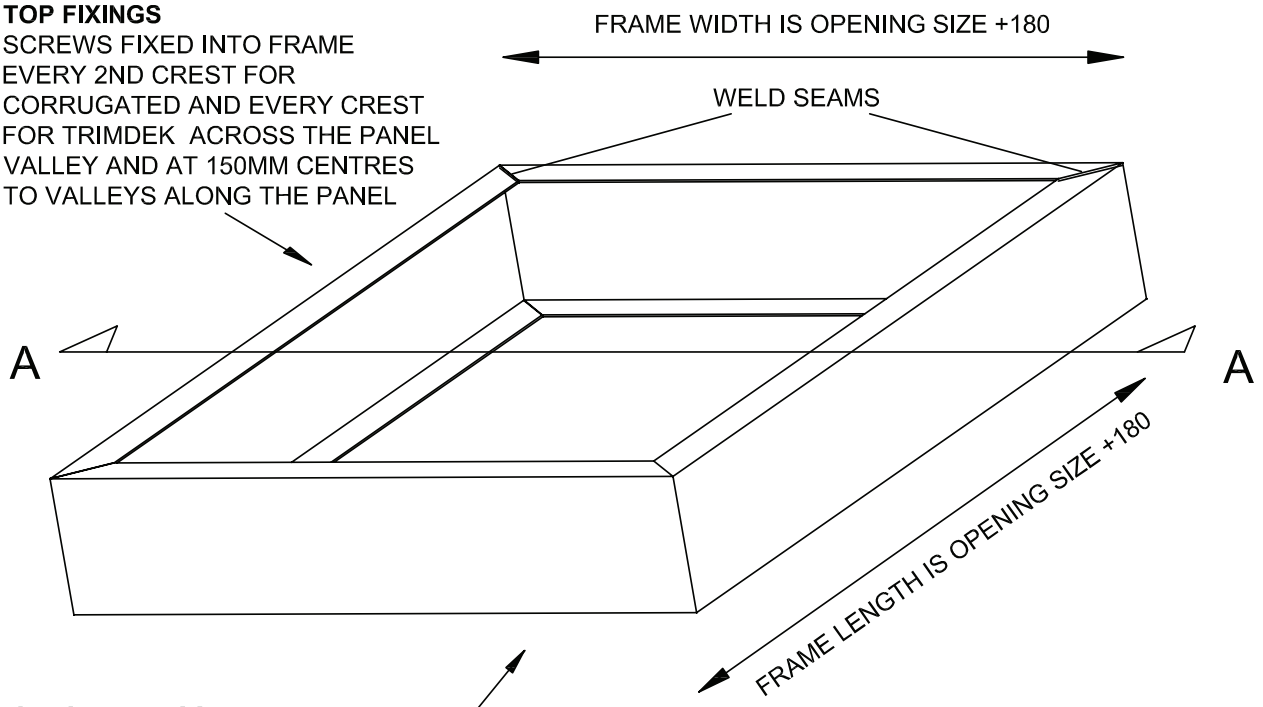
SECTION A-A

(corrugated profile shown)



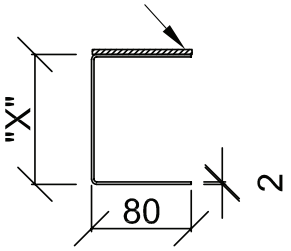
CONTINUOUS ALUMINIUM C - CHANNEL FRAME (CHROMATE OR ANODIZED FINISH)

TOP FIXINGS
SCREWS FIXED INTO FRAME EVERY 2ND CREST FOR CORRUGATED AND EVERY CREST FOR TRIMDEK ACROSS THE PANEL VALLEY AND AT 150MM CENTRES TO VALLEYS ALONG THE PANEL



BOTTOM FIXINGS
ALUMINIUM RIVETS FIXED INTO FRAME EVERY 2ND CREST ACROSS THE PANEL VALLEY AND AT 150MM CENTRES TO VALLEYS ALONG THE PANEL

CLOSED CELL PURLIN TAPE TO PREVENT CONTACT OF ALUMINIUM C-CHANNEL WITH STEEL SHEETING



CONTINUOUS C CHANNEL CORRUGATED PROFILE	
PANEL THICKNESS	DIMENSION 'X'
85mm	49mm
105mm	69mm
125mm	89mm
150mm	104mm

CONTINUOUS C CHANNEL TRIMDEK PROFILE	
PANEL THICKNESS	DIMENSION 'X'
105mm	50mm
125mm	70mm
150mm	95mm

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

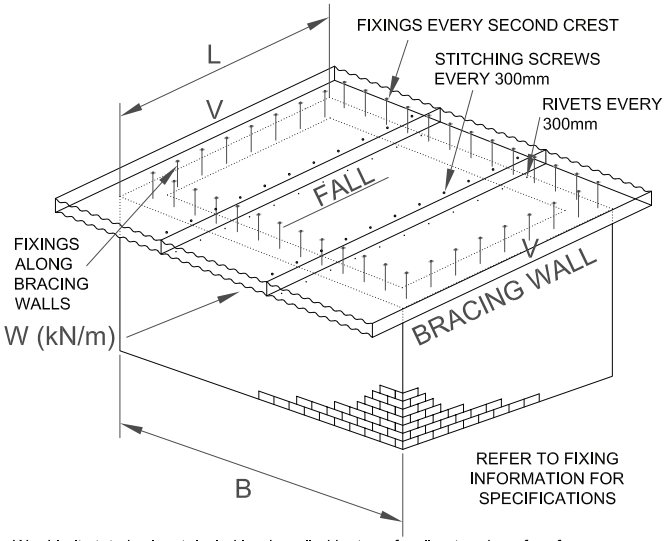
RBS 1996-47-2 C

ARCPANEL Aquatek Roof Panel - **Diaphragm Action & Acoustic Properties**

RACKING CAPACITY KN (LIMIT STATE) (P)							TABLE 14
AQUATEK PANEL THICKNESS 75 - 250mm	Panel Span (H) mm						
	4800	5400	6000	6600	7200	7800	8400
1 Panel (L=762mm)	2	1.8	1.6	1.5	1.35	1.25	1.1
2 Panels (L=1524mm)	4.1	3.6	3.3	3	2.7	2.5	2.3

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

ROOF DIAPHRAGM ACTION CAPACITY **FIGURE 21**



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

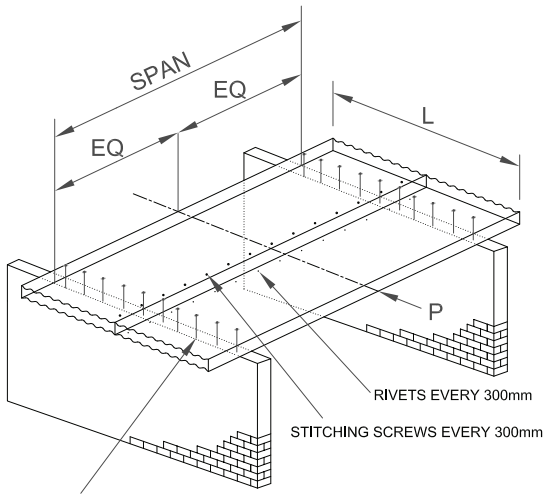
L = Length of Aquatek roof panel (in direction of horizontal force) which will transfer the shear force into the bracing walls - in metres

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

Minimum Fixings to Bracing Wall Structure
- Every second crest for corrugated profile and every crest for Trimdek profile 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)

RBS 1996-43C

RACKING TESTING METHOD **FIGURE 22**



RBS 1996-44D

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.

ACOUSTIC PROPERTIES						TABLE 15
Aquatek Roof Panel Thickness	75mm to 100mm		125mm to 175mm		200mm to 250mm	
Description	Rw	Rw + Ctr	Rw	Rw + Ctr	Rw	Rw + Ctr
Aquatek Panel	21dB	20dB	22dB	20dB	23dB	21dB

A full acoustic report is available on request.

ARCPANEL Aquatek Roof Panel - **Fire Properties**

EARLY FIRE HAZARD PROPERTIES		AS/NZS 1530.3	TABLE 16
Ignitability Index	=	0	
Spread of flame	=	0	
Heat evolved index	=	0	
Smoke produced index	=	2	

Construction of Buildings in Bushfire Prone Areas ARCPANEL AQUATEK Panel meets the requirements for buildings assessed in bushfire prone areas in accordance with section 2 AS 3959 - 2009 AS BAL – LOW

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 – 2010 CONSTRUCTION FOR BUSHFIRE ATTACK LEVEL LOW (BAL = LOW)
The Bushfire Attack Level (BAL) is classified BAL = LOW where the vegetation is one or a combination of any of the following:
(a) Vegetation of any type that is more than 100m from the site.
(b) Single areas of vegetation less than 1 ha in area and not within 100m from the site
(c) Multiple areas of vegetation less than 0.25 ha in area and not within 20m of the site
(d) Strips of vegetation less than 20m in width regardless of length and not within 20m of the site or each other, or other areas of vegetation being classified.
(e) Non-vegetated areas, including waterways, roads, footpaths, buildings and rocky outcrops.

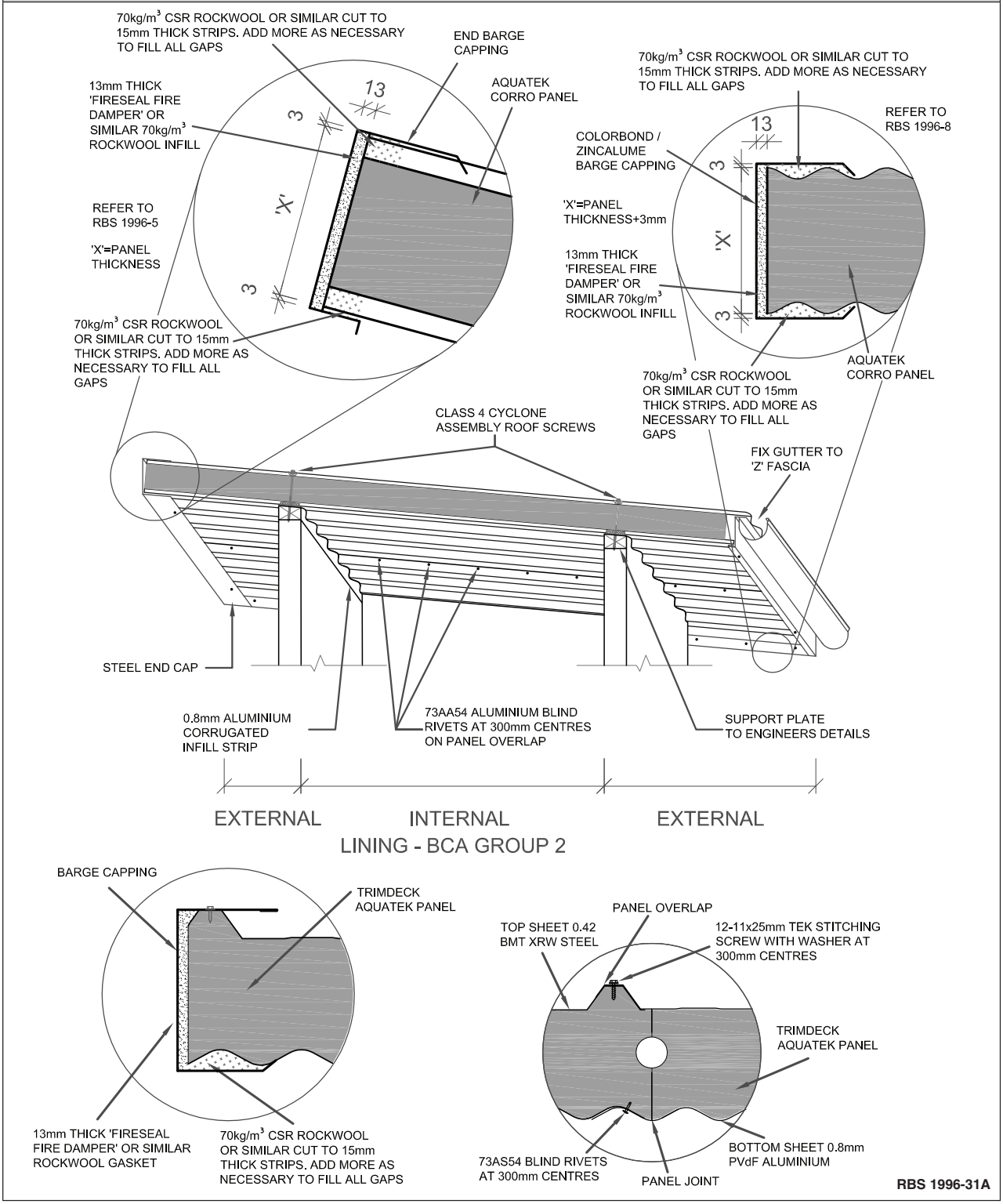
ARCPANEL AQUATEK ROOF PANEL - GROUP 2 MATERIAL					TABLE 17
Fire rating as ISO 9705-2003 in accordance with BCA specifications C1.10a					
BCA Building	Public Corridors		Specific Areas		Other Areas
Class	Wall	Ceiling	Wall	Ceiling	Wall/ Ceiling
Class 2 & 3 Excluding accommodation for the aged, people with disabilities and children					
Unsprinklered	1, 2	1, 2	1, 2, 3	1, 2, 3	1, 2, 3
Sprinklered	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, healthcare buildings					
Unsprinklered	1	1	1, 2	1, 2	1, 2, 3
Sprinklered	1, 2	1, 2	1, 2, 3	1, 2, 3	1, 2, 3
Class 5, 6, 7, 8, & 9b schools					
Unsprinklered	1, 2	1, 2	1, 2, 3	1, 2	1, 2, 3
Sprinklered	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3
Class 9b other than schools					
Unsprinklered	1	1	1, 2	1, 2	1, 2, 3
Sprinklered	1, 2	1, 2	1, 2	1, 2, 3	1, 2, 3
Class 9c other than schools					
Sprinklered	1, 2	1, 2	1, 2, 3	1, 2, 3	1, 2, 3

ARCPANEL Aquatek Roof Panel - **Fire Properties**

NCC/BCA GROUP 2 FIRE RATING INSTALLATION DETAIL

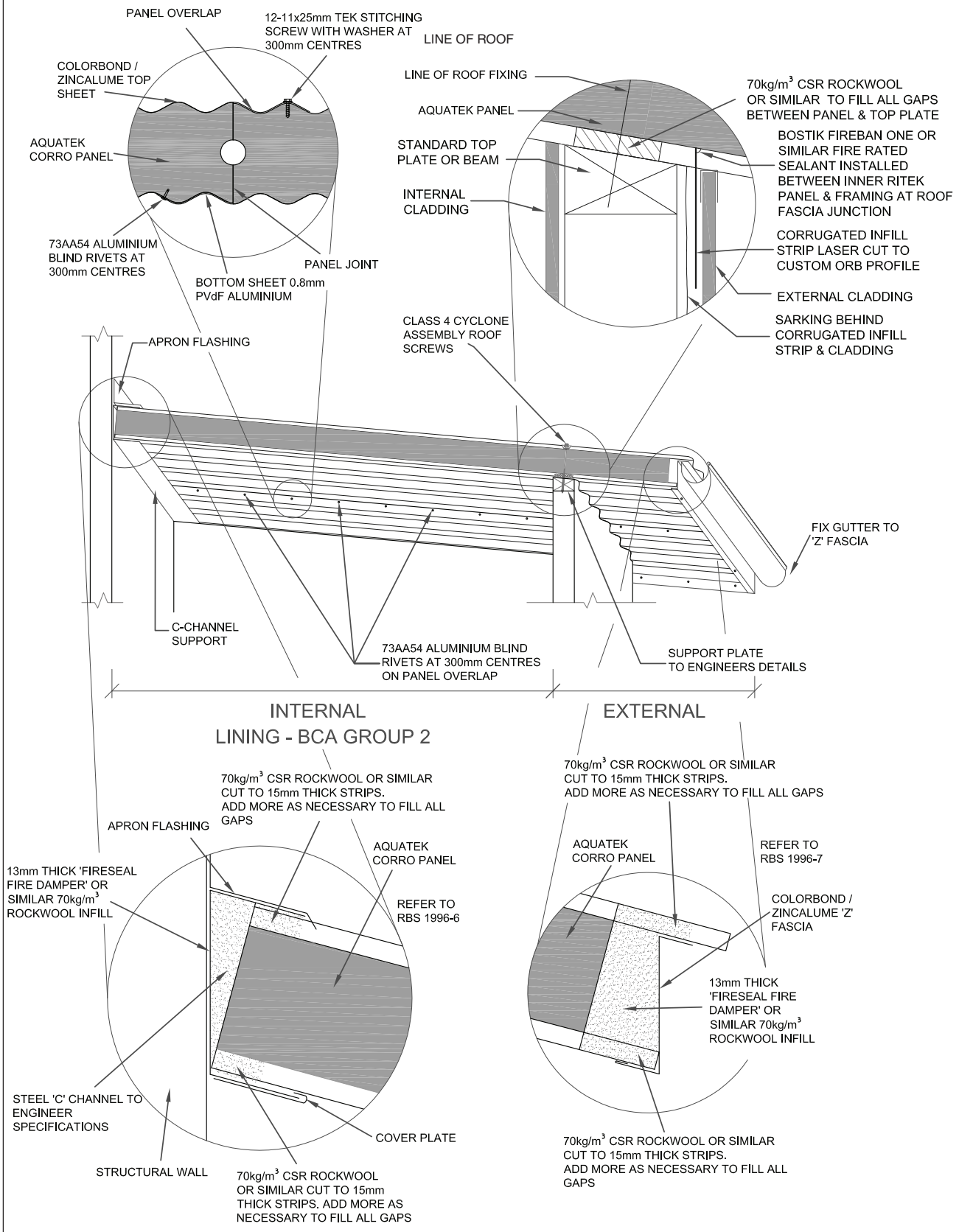
To achieve a 'Group 2' fire rating both internally and externally, the **ARC**PANEL Aquatek roof panel must be installed in accordance with the following details on pages 25 and 26. All penetrations through the panel also must be suitably sealed with fire retardant products. Should you require any further information please contact **ARC**PANEL for details.

GROUP 2 FIRE RATING INSTALLATION DETAIL **FIGURE 23**



ARCPANEL Aquatek Roof Panel - **Fire Properties**

GROUP 2 FIRE RATING INSTALLATION DETAIL — FIGURE 24

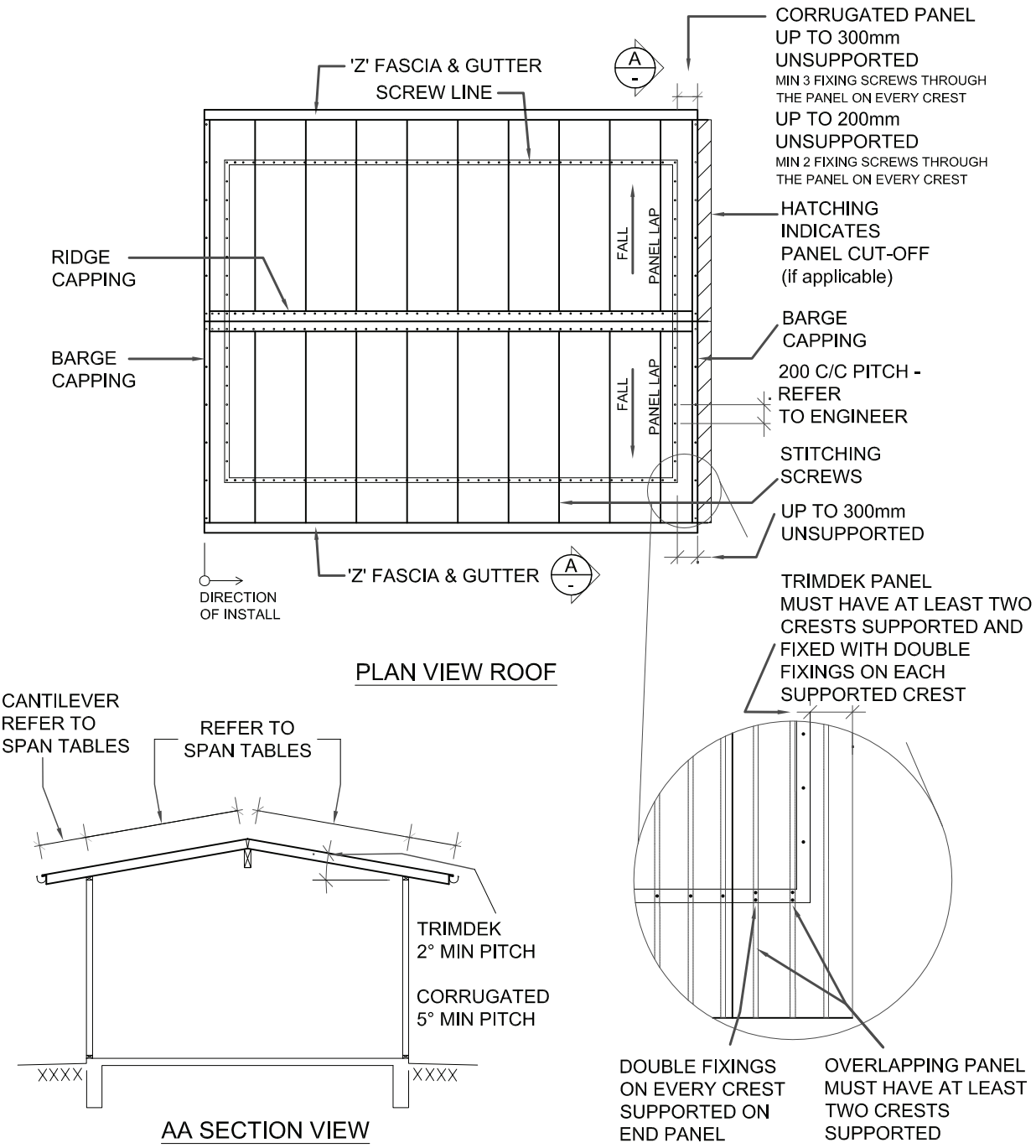


RBS 1996-31A

ARCPANEL Aquatek Roof Panel - **Typical Roof Plans**

Figure 26 shows standard components used in constructing a gable end **ARC**PANEL Corrugated Aquatek roof panel. This includes hold down positions, stitching screw layout and rainwater goods.

TYPICAL GABLE ROOF **FIGURE 26**

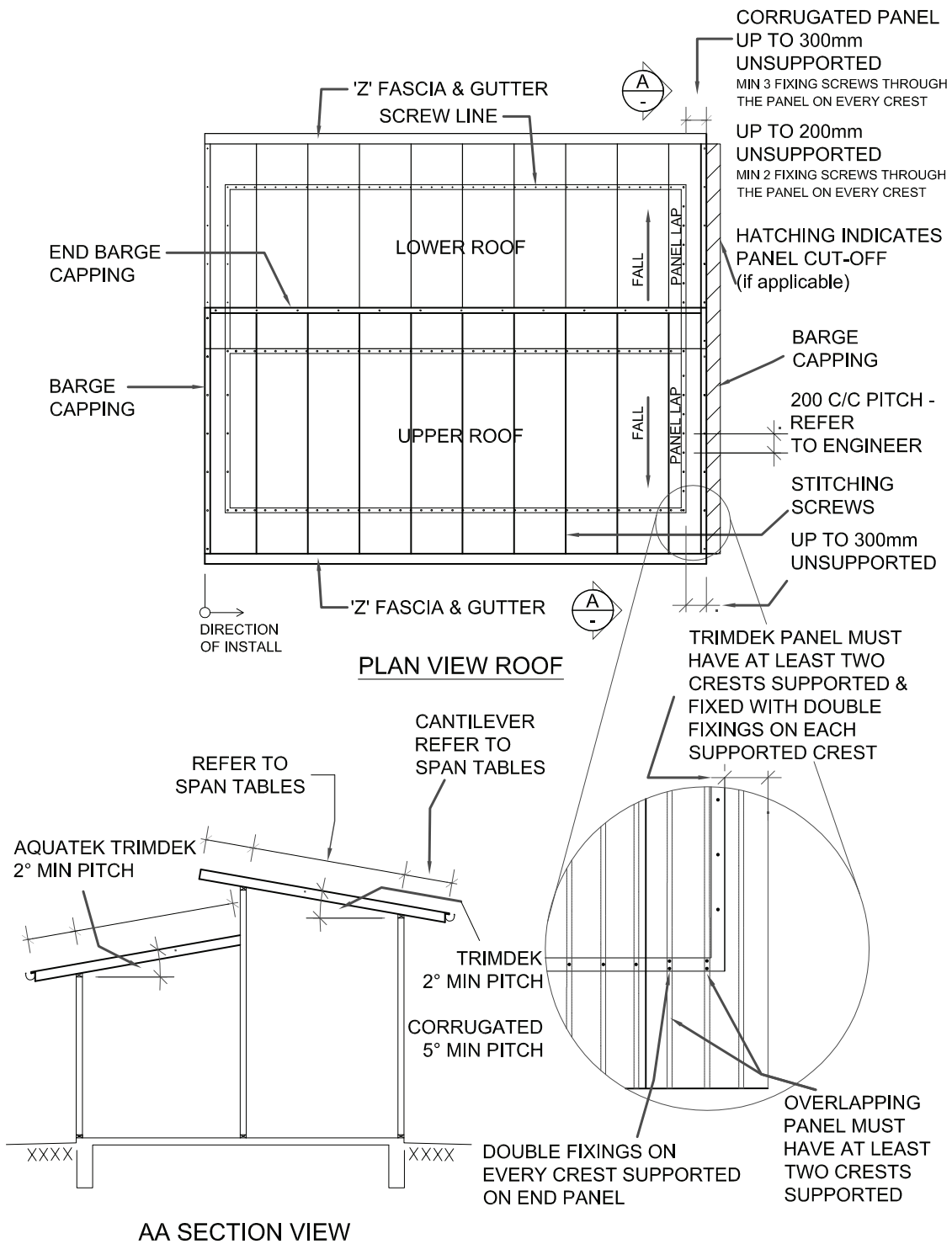


RBS 1996 -17C

ARCPANEL Aquatek Roof Panel - **Typical Roof Plans**

Figure 27 shows standard components used in constructing a skillion roof using the **ARC**PANEL Aquatek roof panel, this includes hold down positions, stitching screws and rainwater goods.

TYPICAL SKILLION ROOF **FIGURE 27**

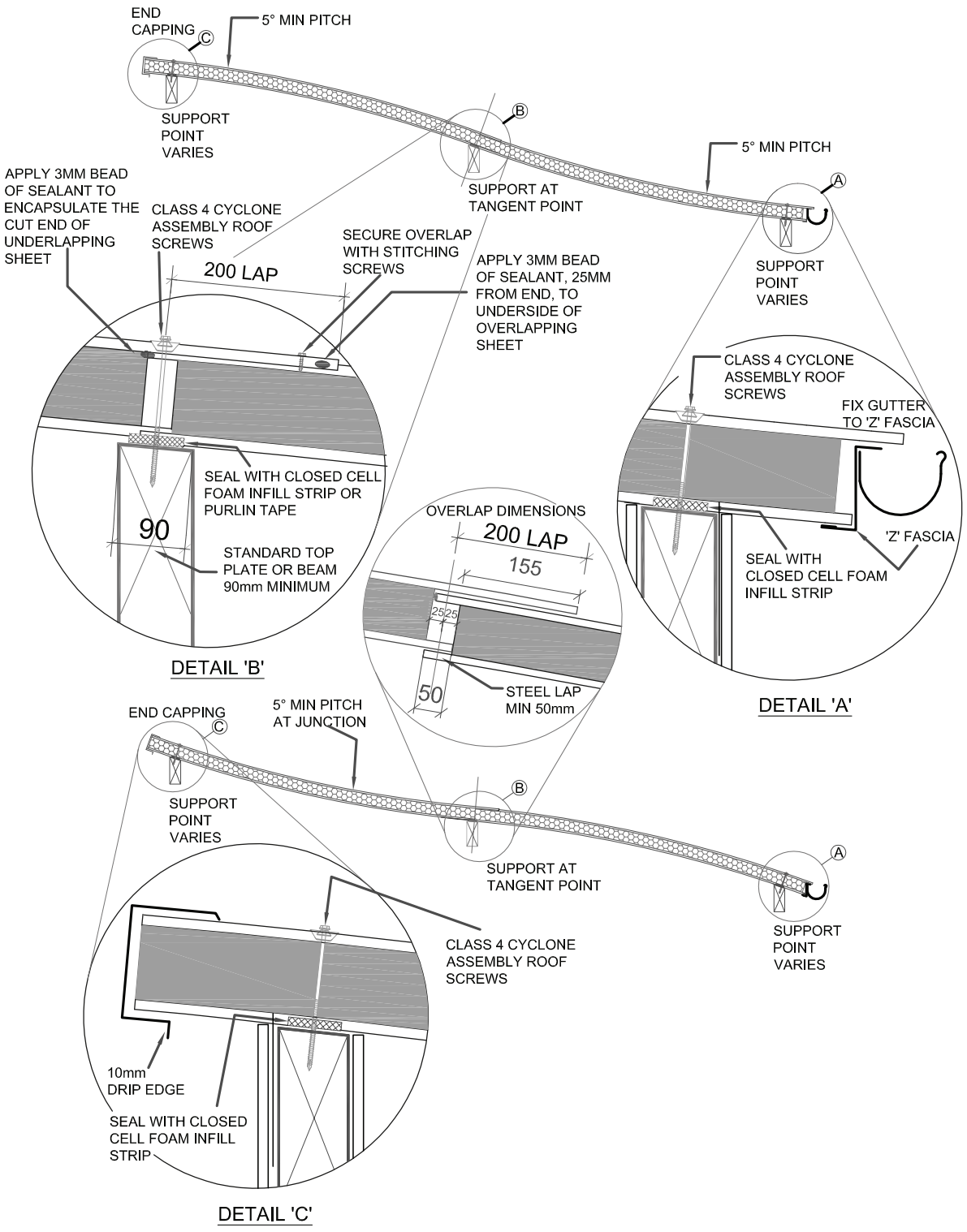


RBS 1996-18E

ARCPANEL Aquatek Roof Panel - **Typical Details**

Figure 28 shows some of the standard **ARC**PANEL Aquatek roof panel details, detail 'A', reflecting a typical gutter end, detail 'B', a standard lap detail and final detail 'C', treatment of the top end of a roof.

LAPPING DETAILS **FIGURE 28**

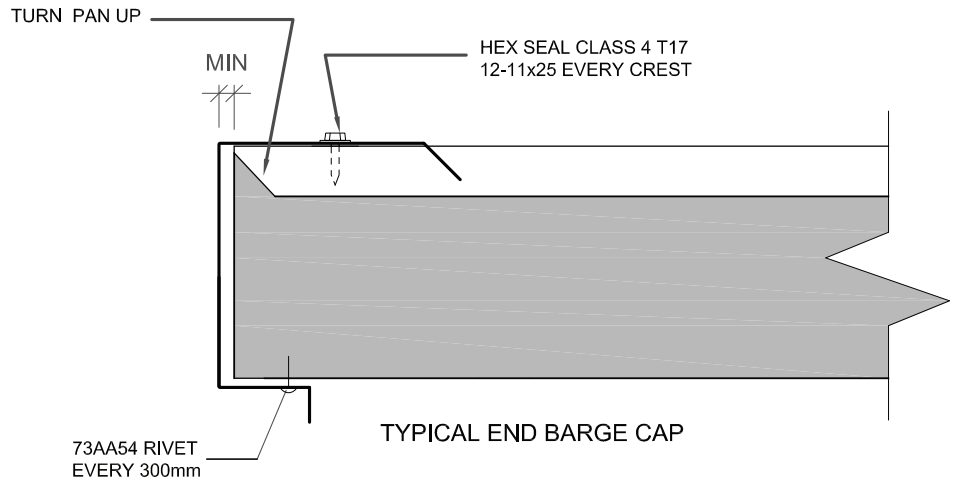


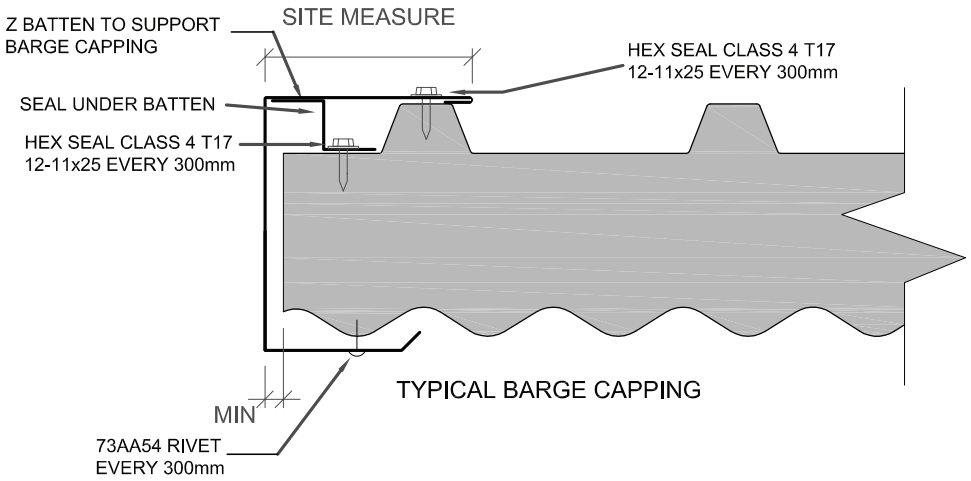
RBS 1996 -12B

ARCPANEL Aquatek Roof Panel - **Typical Details**

Figure 29 shows standard barge capping details for the **ARC**PANEL Aquatek Trimdek profiled roof panel.

AQUATEK TRIMDEK® BARGE DETAIL **FIGURE 29**





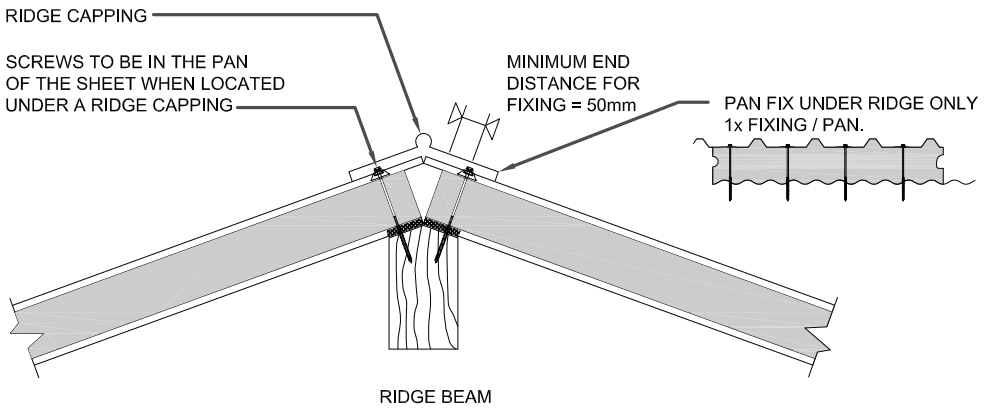
RBS 1996 -38A

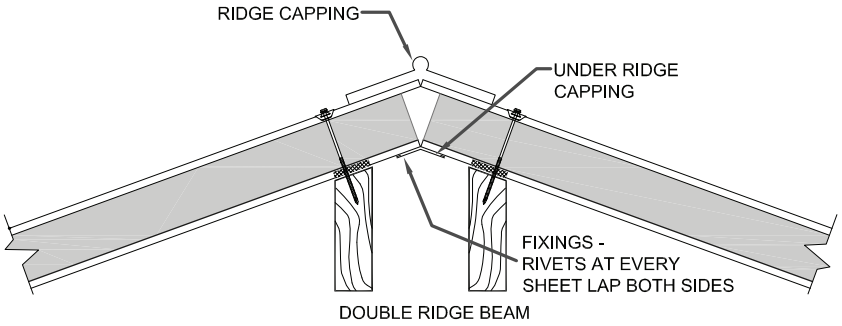
ARCPANEL Aquatek Roof Panel - **Typical Details**

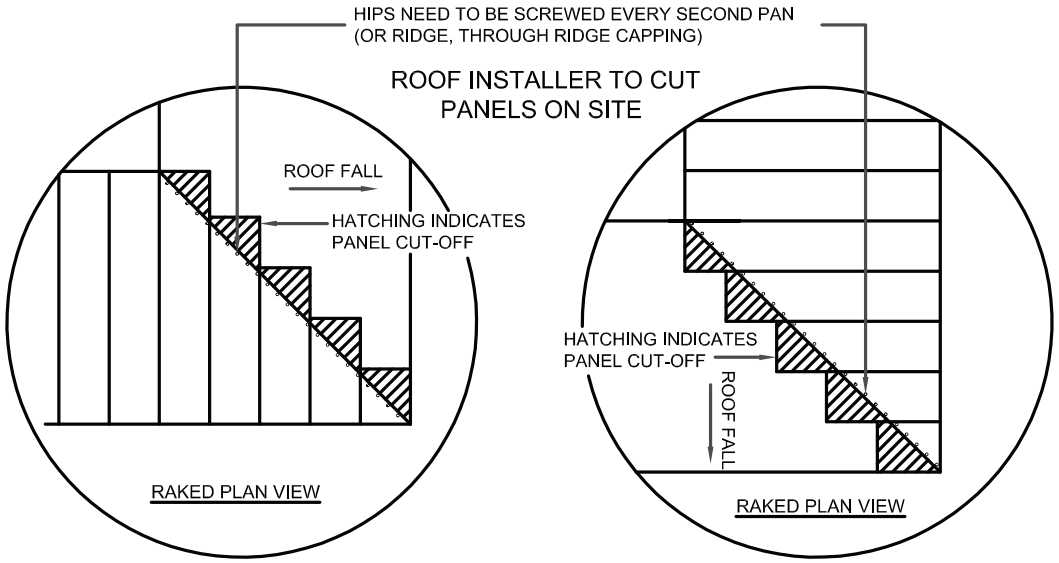
Figure 30 provides details on how the **ARC**PANEL Aquatek roof panel is used on hipped roofs, or in the case of a verandah roof, a 90 degree return. In the case of hipped roofs, all panels are to be cut on site, **ARC**PANEL does not pre cut any roof panels.

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.

SUGGESTED HIP BEAM ARRANGEMENTS **FIGURE 30**





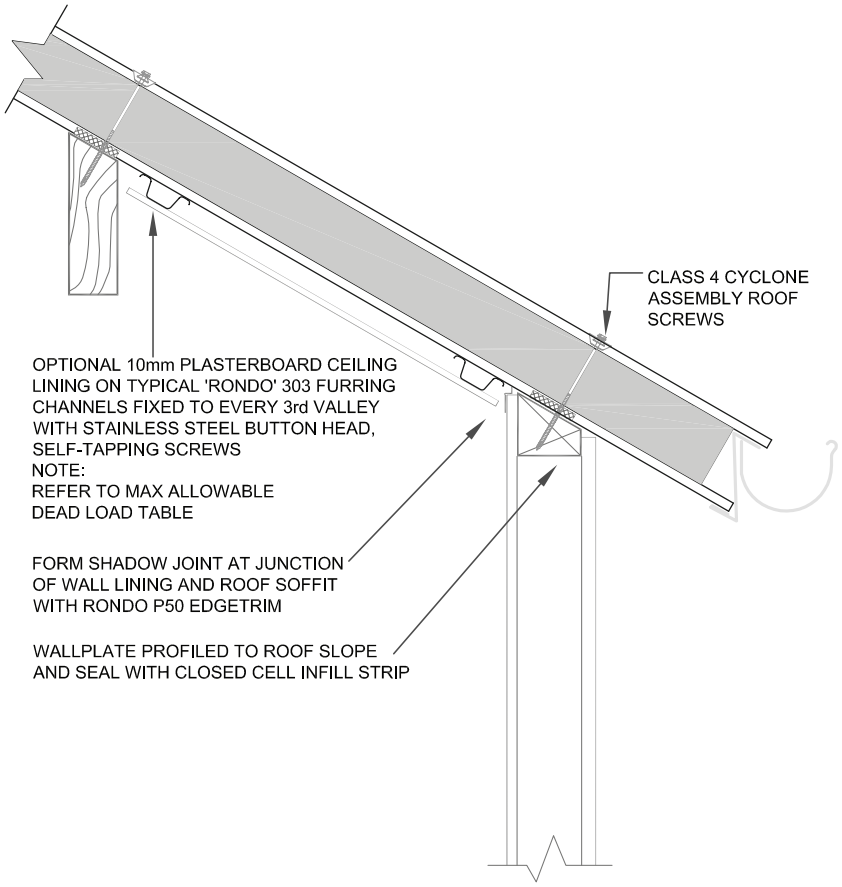


RBS 1996 -19D

ARCPANEL Aquatek Roof Panel - **Typical Details**

Figure 31 provides details on how to attach plasterboard lining to the underside of the **ARC**PANEL Aquatek roof 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 31**



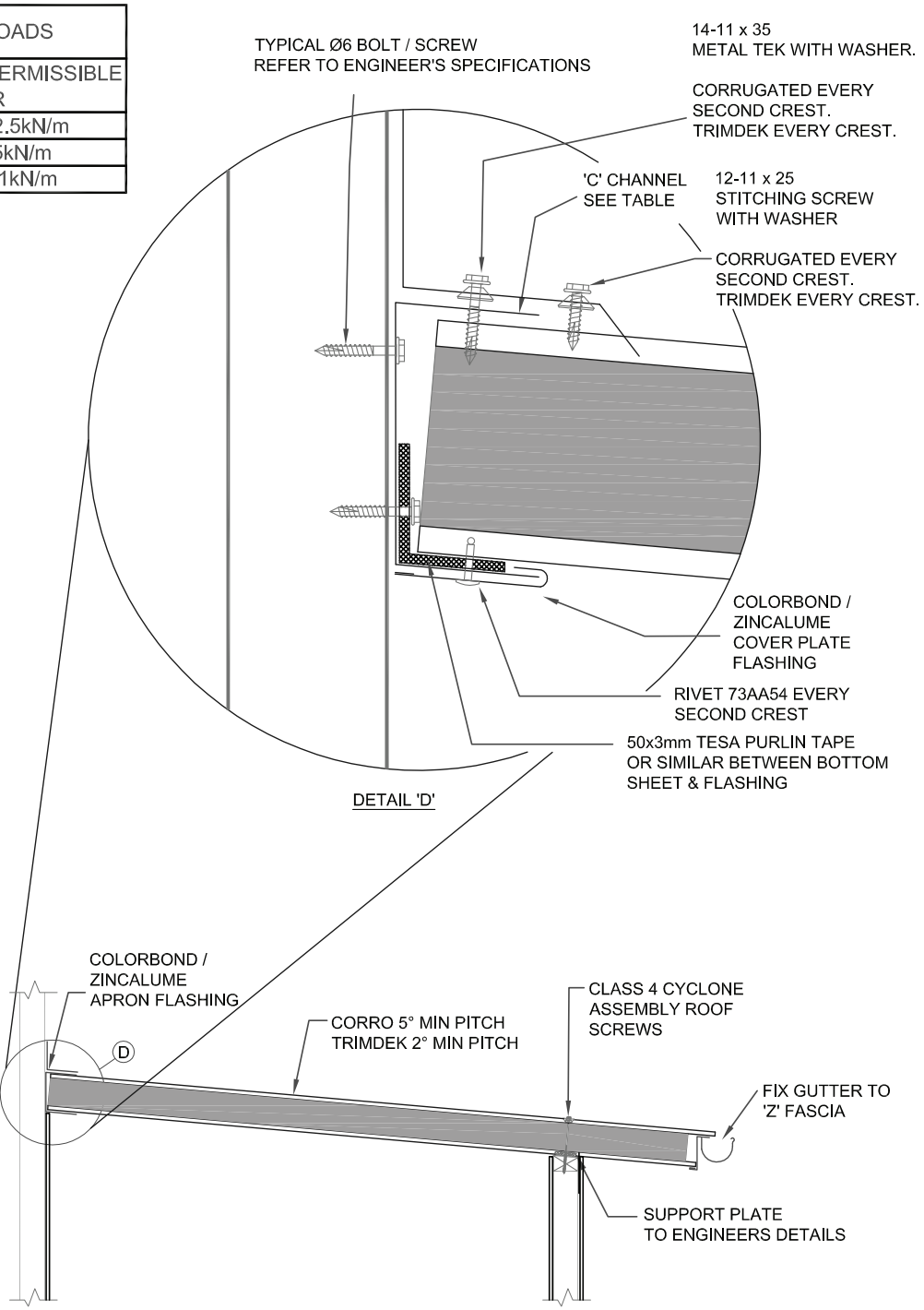
RBS 1996 -10A

ARCPANEL Aquatek Roof Panel - **Typical Details**

Figure 32 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.

SKILLION ROOF **FIGURE 32**

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

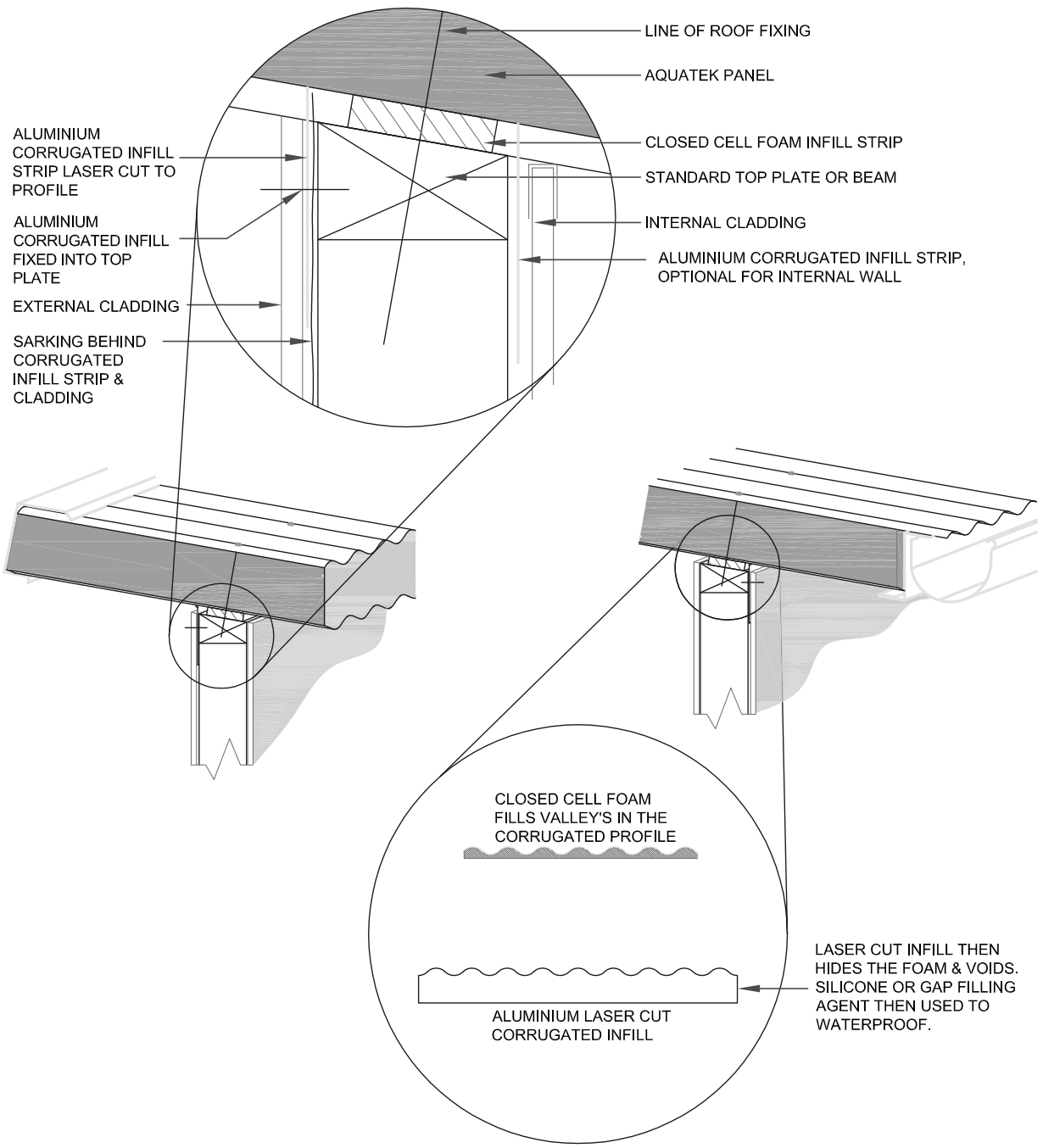


RBS 1996 -13E

ARCPANEL Aquatek Roof Panel - **Corrugated Infill Detail**

Figure 33 showing typical use of the corrugated infill detail.

CORRUGATED INFILL DETAIL **FIGURE 33**

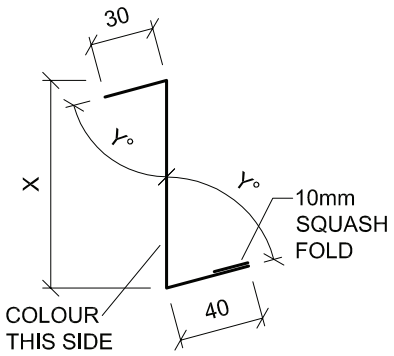


RBS 1996 -11A

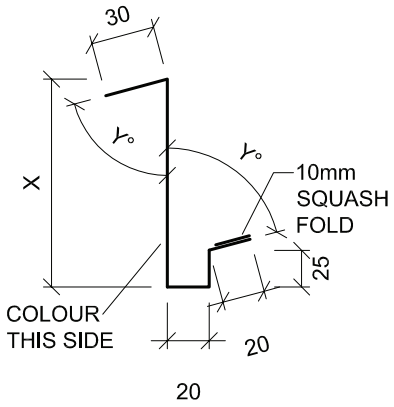
ARCPANEL Aquatek Roof Panel - **Accessories**

Figures 34 through to 39 show flashing options and accessories required for the installation of the **ARC**PANEL Aquatek roof panel.

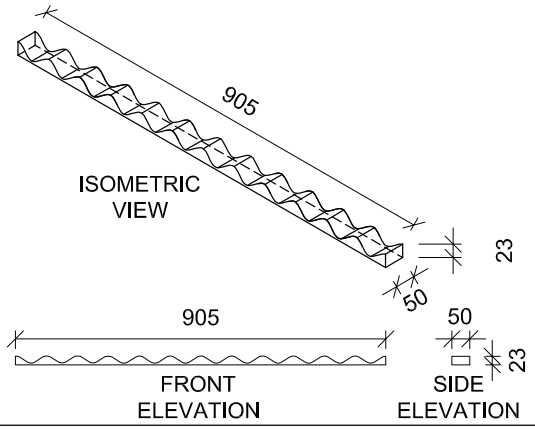
'Z' FASCIA TYPE 1 **FIGURE 34**



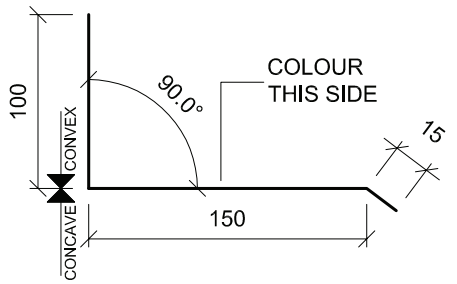
'Z' FASCIA TYPE 2 **FIGURE 35**



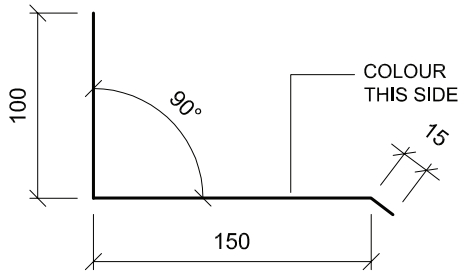
CLOSED CELL FOAM INFILL STRIP **FIGURE 36**



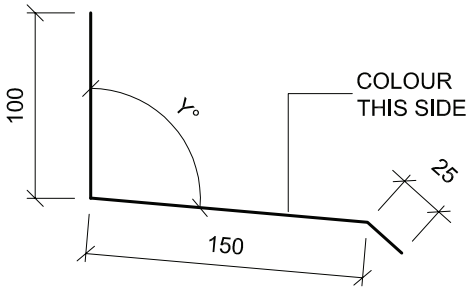
CURVED APRON FLASHING - RADIUS (m) **FIGURE 37**



APRON FLASHING 15 - CORRUGATED ONLY **FIGURE 38**



APRON FLASHING 25 - CORRUGATED ONLY **FIGURE 39**



RBS 1996-21B

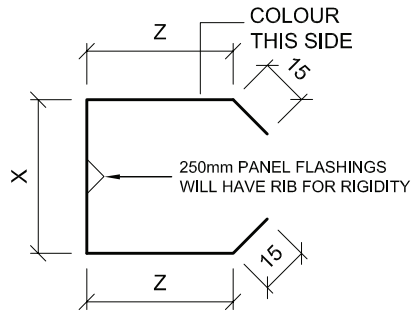
X = Dependent on panel thickness, Y = Dependent on roof pitch. Typically BMT = 0.55. Refer to page 20 for fixing details.

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 Aquatek Roof Panel - **Accessories**

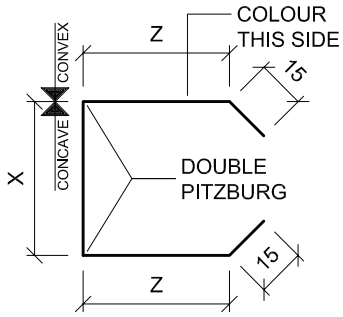
Figures 40 through to 45 show flashing options and accessories required for the installation of the **ARC**PANEL Aquatek roof panel.

SIDE BARGE CAPPING - CORRUGATED ONLY — FIGURE 40



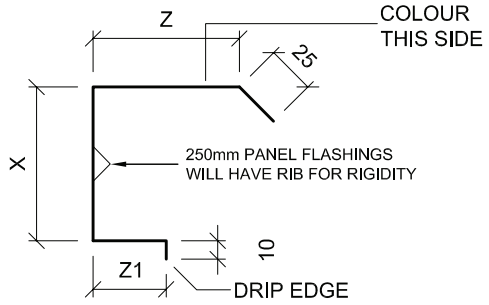
STANDARD APPLICATIONS X = PANEL THICKNESS + 3
Z = 80
GROUP 2 APPLICATIONS X = PANEL THICKNESS + 6
Z = 93

CURVED BARGE CAPPING RADIUS (m) - CORRO ONLY — FIGURE 41



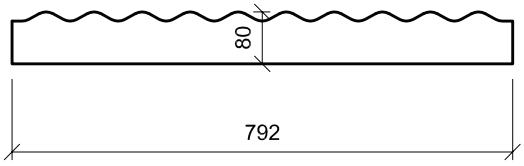
STANDARD APPLICATIONS X = PANEL THICKNESS + 3
Z = 80
GROUP 2 APPLICATIONS X = PANEL THICKNESS + 6
Z = 93

END BARGE CAPPING - CORRUGATED ONLY — FIGURE 42

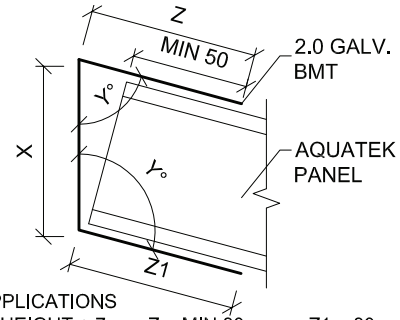


STANDARD APPLICATIONS X = PANEL THICKNESS + 3
Z = 80 Z1 = 40
GROUP 2 APPLICATIONS X = PANEL THICKNESS + 6
Z = 93 Z1 = 53

CORRUGATED INFILL — FIGURE 43

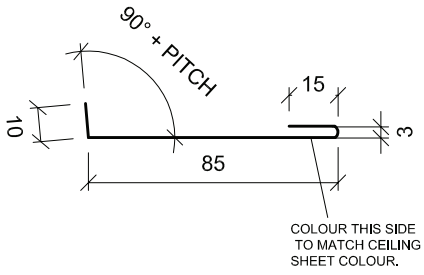


C CHANNEL — FIGURE 44



STANDARD APPLICATIONS
X = VERTICAL HEIGHT + 7 Z = MIN 80 Z1 = 80
GROUP 2 APPLICATIONS
X = VERTICAL HEIGHT + 10 Z = MIN 93 Z1 = 93

COVER PLATE (used with C channel) — FIGURE 45



RBS 1996 -22D

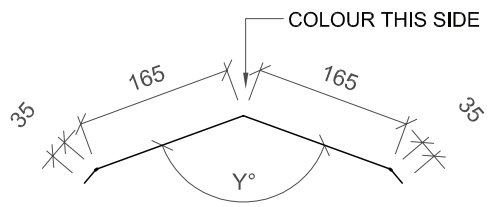
X = Dependent on panel thickness, Y = Dependent on roof pitch. Typically BMT = 0.55. Refer to page 20 for fixing details.

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.*

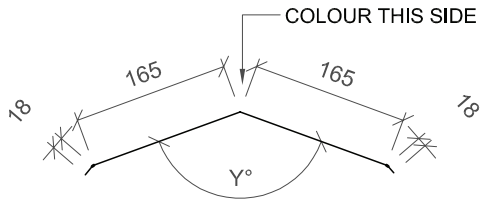
ARCPANEL Aquatek Roof Panel - **Accessories**

Figures 46 through to 51 show flashing options for the installation of the **ARC**PANEL Aquatek roof panel.

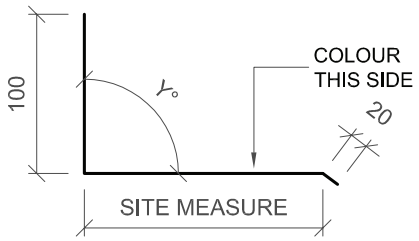
3 BREAK RIDGE CAPPING - TRIMDEK® **FIGURE 46**



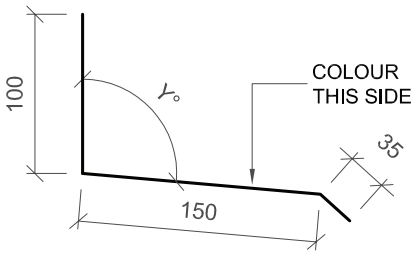
3 BREAK RIDGE CAPPING - CORRUGATED **FIGURE 47**



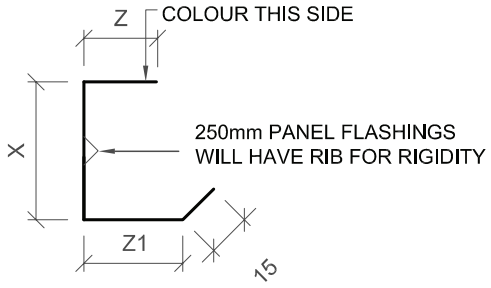
AF15 - APRON FLASHING SIDE - TRIMDEK® **FIGURE 48**



AF25 - APRON FLASHING SIDE - TRIMDEK® **FIGURE 49**

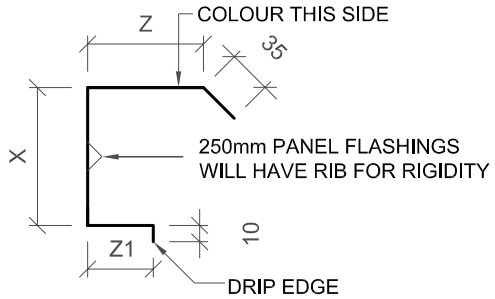


BARGE CAPPING FOR SKY LIGHT OPTION - TRIMDEK® **FIGURE 50**



STANDARD APPLICATIONS X = PANEL THICKNESS + 3
Z = 50 Z1=80
GROUP 2 APPLICATIONS X = PANEL THICKNESS + 6
Z = 63 Z1=93

EBC1 - END BARGE CAPPING - TRIMDEK® **FIGURE 51**



STANDARD APPLICATIONS X = PANEL THICKNESS + 3
Z = 80 Z1=40
GROUP 2 APPLICATIONS X = PANEL THICKNESS + 6
Z = 93 Z1=53

RBS 1996 -34B

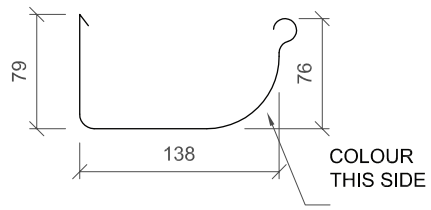
X = Dependent on panel thickness, Y = Dependent on roof pitch. Typically BMT = 0.55. Refer to page 20 for fixing details.

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.*

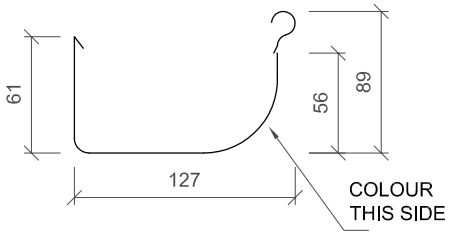
ARCPANEL Aquatek Roof Panel - **Accessories**

Figures 52 through to 57 show flashing options for the installation of the **ARC**PANEL Aquatek roof panel.

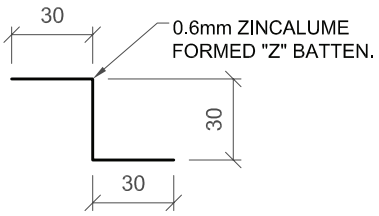
150 QUAD GUTTER - LOW FRONT (UNSLOTTED) FIGURE 52



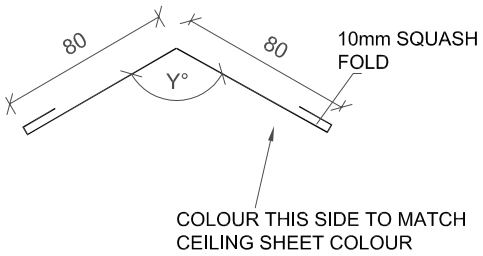
125 QUAD GUTTER - HIGH FRONT (SLOTTED) FIGURE 53



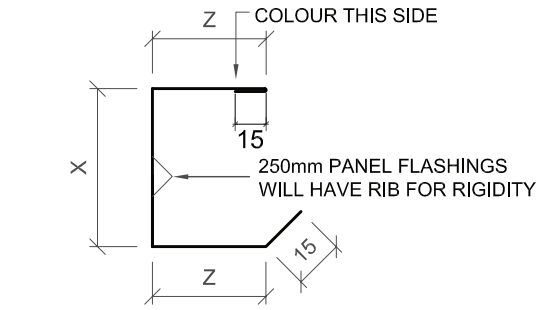
BARGE CAPPING SUPPORT 'Z' BATTEN - TRIMDEK® FIGURE 54



HIP BEAM BOTTOM COVER TRIM FIGURE 55

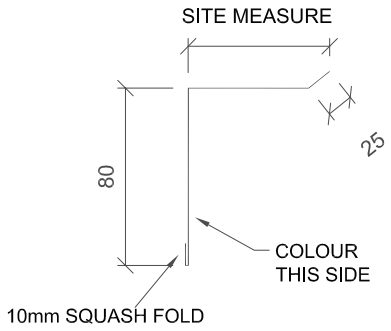


BC1 - BARGE CAPPING - TRIMDEK® FIGURE 56



STANDARD APPLICATIONS X = PANEL THICKNESS + 3
Z = 80
GROUP 2 APPLICATIONS X = PANEL THICKNESS + 6
Z = 93

UNDER FLASHING FIGURE 57



RBS 1996 -35B

X = Dependent on panel thickness, Y = Dependent on roof pitch. Typically BMT = 0.55. Refer to page 20 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 Aquatek Roof Panel - **Fire Test Certificate**

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 ISO 9705

Specimen name: Ritek Aquatek Panel

Specimen description:

Ritek Aquatek Panel polystyrene insulated panel nominally 250mm thick or less, comprising Class SL expanded polystyrene sandwiched between 0.42 mm BMT Colorbond sheeting on the exterior face and 0.8 mm aluminium pre-painted finish on the interior face, installed as detailed in the referenced BRANZ report FI5105.

The ceiling panel system is required to be installed in accordance with the Ritek Roof Panel Installation Manual.

Orientation: N/A

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

BRANZ FI 5105

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:

Group Number 2 in accordance with BCA 2005 Specification C1.10a

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

Test Dates:	13/6/2013	**Test Supervisor(s):**	N/A
This Certificate issued:	1/8/2013	**Certificate Number:**	634

G. Baker
SES Manager
For BRANZ Limited

ARCPANEL Aquatek Roof Panel - **Fire Test Report**

Certificate of Test

NE6808

REPORT No.: FNE10779

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

TRADE NAME: Aquatek Panel

SPONSOR: Building Solutions Pty Ltd
19 Lowermill Road
COOROY QLD
AUSTRALIA

DESCRIPTION OF SAMPLE: The sponsor described the tested specimen as sandwich panel with 100-mm thick expanded polystyrene foam core (EPS) enclosed in a steel casing made of 0.42BMT (base metal thickness) Colorbond corrugated sheet on the exposed face, and 0.7-mm thick corrugated aluminium steel sheet on the unexposed face. All edges of the casing were steel flashed using 0.5BMT Colorbond steel sheeting. The EPS core was adhered onto the steel facings using polyurethane adhesive and applied with an application rate of 0.4 m^2/L.

Nominal total thickness:	100 mm
Nominal total mass:	17.5 kg/m^2
Nominal density of EPS:	10.1 kg/m^3
Colour:	white (Colorbond steel); silver grey (aluminium sheet)

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/m²)	N/A	N/A
Smoke Release ($log_{10}D$)	-1.525	0.036

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	2

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: 18 March 2013

Issued on the 17th day of April 2013 without alterations or additions.

Heherson Alarde
Testing Officer

Garry E Collins
Manager, Fire Testing and Assessments

NATA

This document is issued in accordance with NATA's accreditation requirements.
Accreditation No. 165 – Corporate Site No. 3625

CSIRO

CSIRO Materials Science and Engineering
14 Julius Avenue, Riverside Corporate Park, North Ryde NSW 2113 AUSTRALIA
Telephone: 61 2 9490 5444 Facsimile:61 2 9490 5555

ARCPANEL Aquatek Roof Panel - **Compliance Certificate**

Compliance Certificate
for Building Design or Specification

Ritek Building Solutions

TOD CONSULTING JOB NO: 06665-20150317 — RITEK AQUATEK 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 Aquatek Roof Panel

Prefabricated roof panel with standard 0.42mm thick Custom Orb or Trimdeck roof sheeting, bonded to the top side of a profiled EPS core; and Custom Orb (corrugated) 0.8mm thick Aluminium roof sheeting bonded to the bottom side of the 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 Aquatek 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 Aquatek 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

3. Reference documentation
Clearly identify any relevant documentation, e.g. numbered structural engineering plans.

Refer to Ritek Aquatek 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*)
Tod Consulting Pty Ltd

Contact person

Phone no. *business hours*
07 5449 9600

Mobile no.

Fax no.
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 17/03/2015

ARCPANEL Aquatek Roof 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**
AQUATEK ALUMINIUM	**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 Aquatek Roof 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 ™
Cove™
Dune®
Evening Haze®
Gully™
Jasper®
Mangrove™
Manor Red®
Pale Eucalypt®
Paperbark®
Shale Grey®
Surfmist®
Terrain™
Wallaby™
Whitehaven®
Windspray®
Zincalume
XTREME
Off White
STAINLESS
Surfmist®
ALUMINIUM
Aquatek White
Aquatek Light Grey
Aquatek Dark Grey

*For further information on COLORBOND® steel and aluminium with PVdF coating, 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
- Ctb-12 dissimilar metals
- Ctb-13 contact with timber

The new innovative **ARC**PANEL Aquatek roofing system is a clear winner when it comes to specifying a solution for projects which are located in severe marine, industrial or aquatic environments.

1300 200 004
www.arcpanel.com.au info@arcpanel.com.au
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20/58 Box Road | PO Box 2086 | Taren Point NSW 2229

ARCPANEL

ROOF SYSTEMS

ARCPANEL Aquatek Roof Panel
Design & Detailing Manual
Version 2015.02