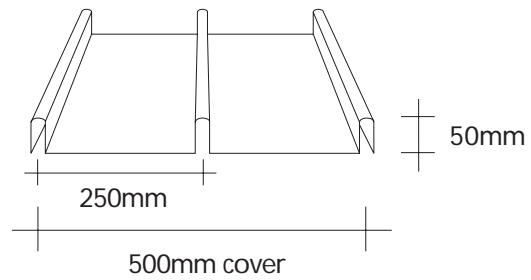


Popular Profiles

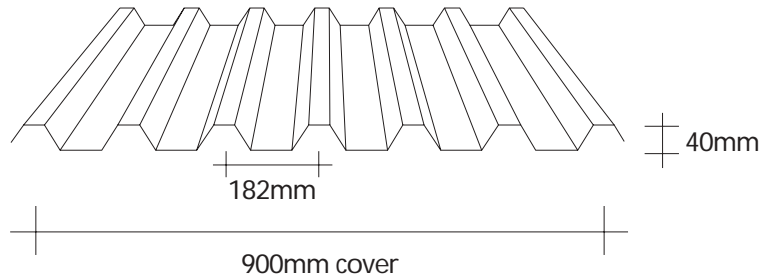
Multidek 500

Standard weight 2000 g/m² (1.2mm)



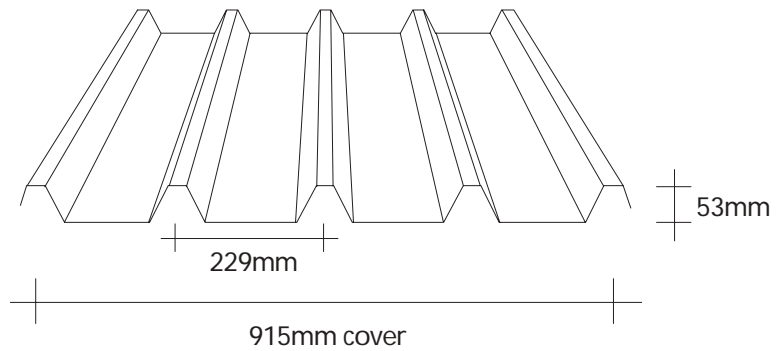
Multirib

Standard weight 2200 g/m² (1.3mm)



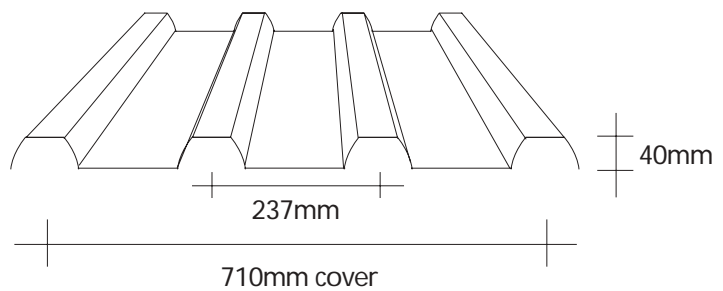
Multispan

Standard weight 2200 g/m² (1.3mm)



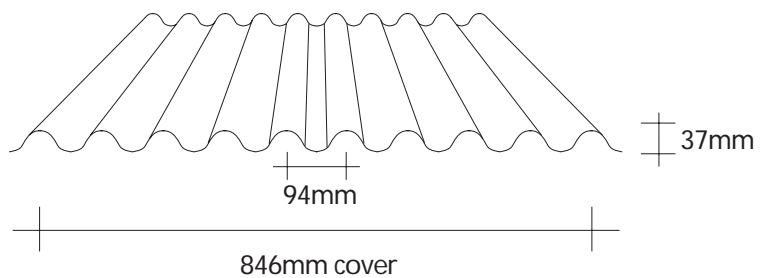
NC710 4 Rib

Standard weight 2200 g/m² (1.3mm)



Onduline

Standard weight 1800 g/m² (1.1mm)

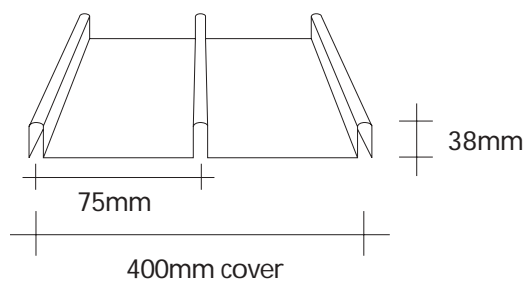


All Topglass products are available to match common roof profiles and flat sheet, subject to minimum quantity order and raw material availability. Contact Alsynite NZ Ltd for more information.

Popular Profiles

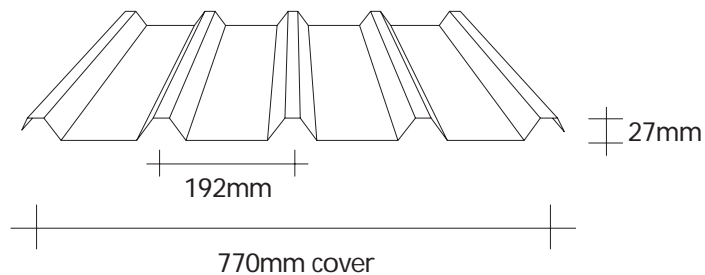
Paneldek

Standard weight 2000 g/m² (1.2mm)



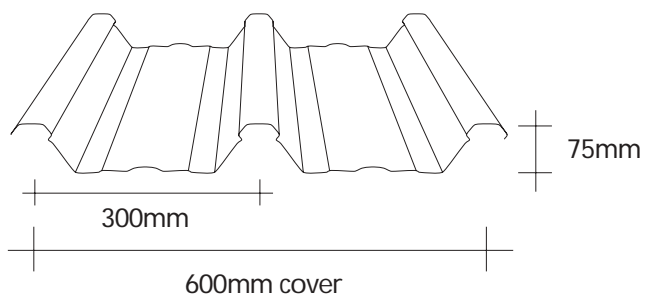
Plumbdek

Standard Weight 1800 g/m² (1.1mm)



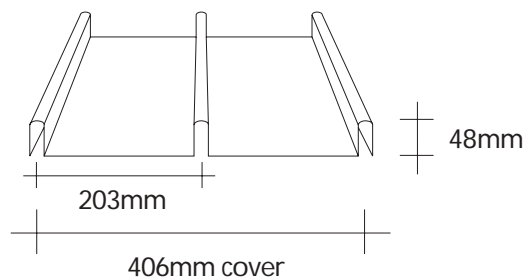
Purlindek

Standard weight 1800 g/m² (1.1mm)



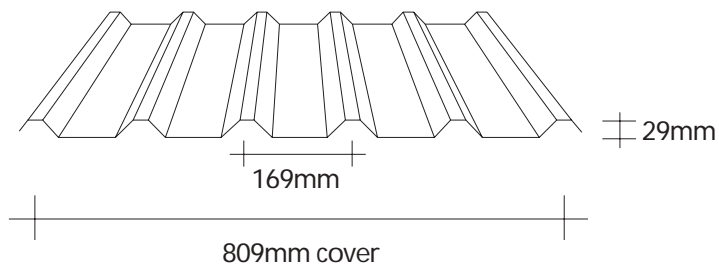
Ribdek

Standard weight 2000 g/m² (1.2mm)



Ribline 800

Standard weight 1800 g/m² (1.1mm)

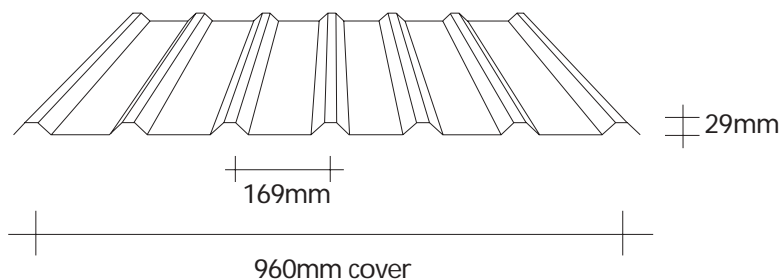


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Popular Profiles

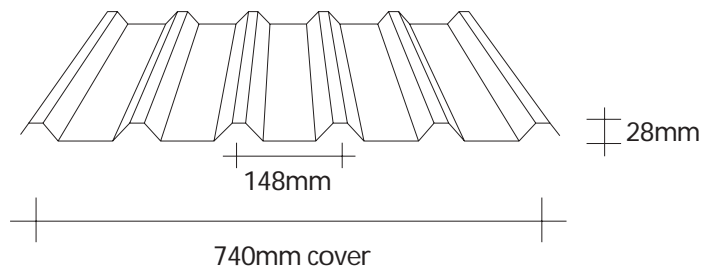
Ribline 960

Standard weight 2200 g/m² (1.3mm)



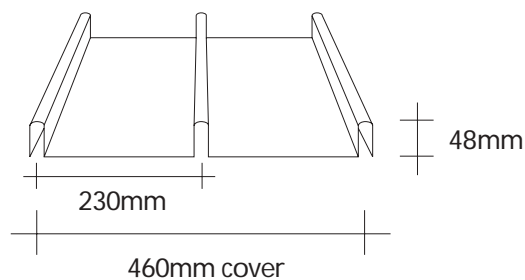
Rib Roof

Standard Weight 1800 g/m² (1.1mm)



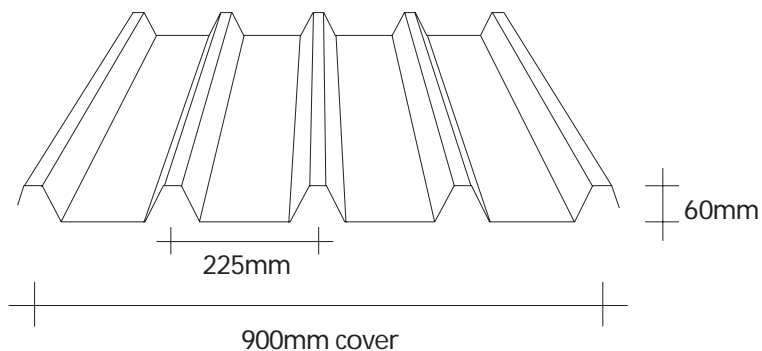
Rib Roof 18

Standard weight 2000 g/m² (1.2mm)



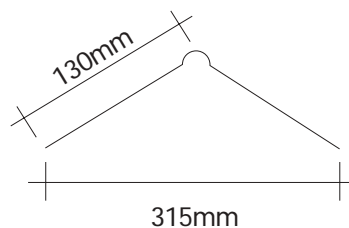
Ribspan 900

Standard weight 2200 g/m² (1.3mm)



Ridge

Standard weight 2200 g/m² (1.3mm)

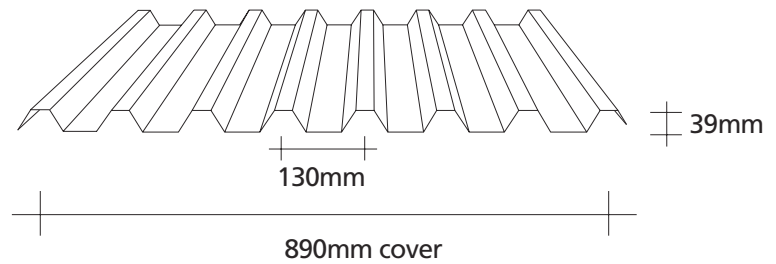


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Popular Profiles

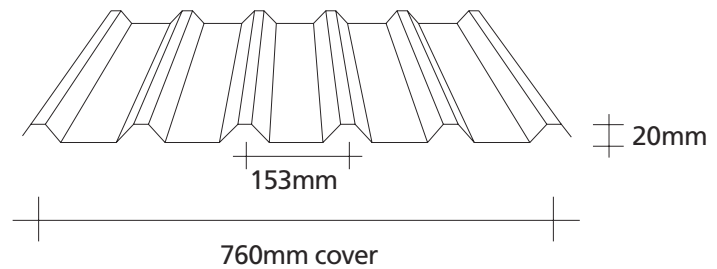
Silbery 7

Standard Weight 2200 g/m² (1.3mm)



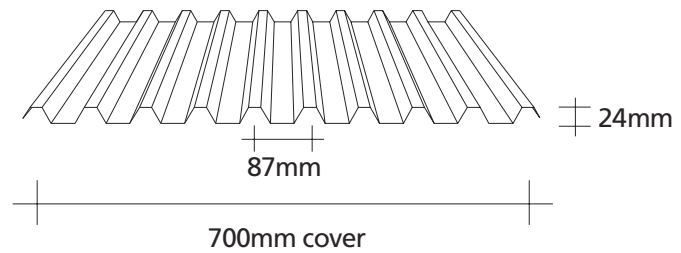
Six Rib

Standard Weight 1800 g/m² (1.1mm)



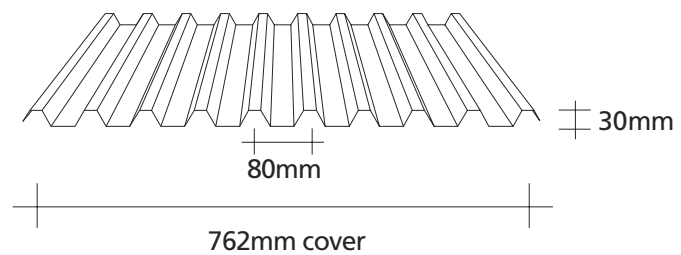
Alsynite 700

Standard Weight 1800 g/m² (1.1mm)



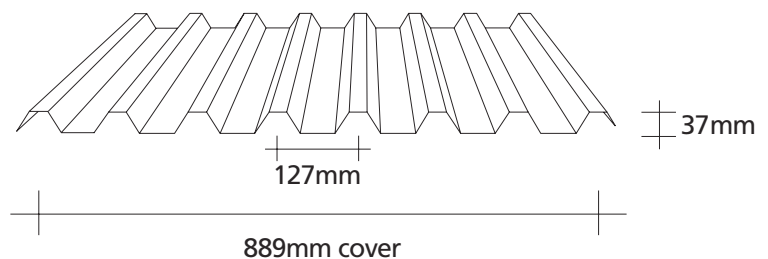
Alsynite 762

Standard Weight 1800 g/m² (1.1mm)



ST 7

Standard Weight 2200 g/m² (1.3mm)

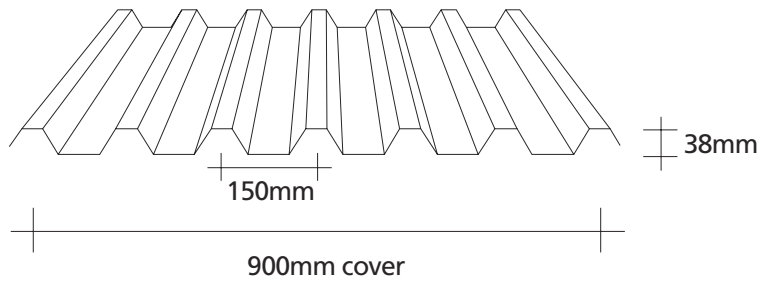


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Popular Profiles

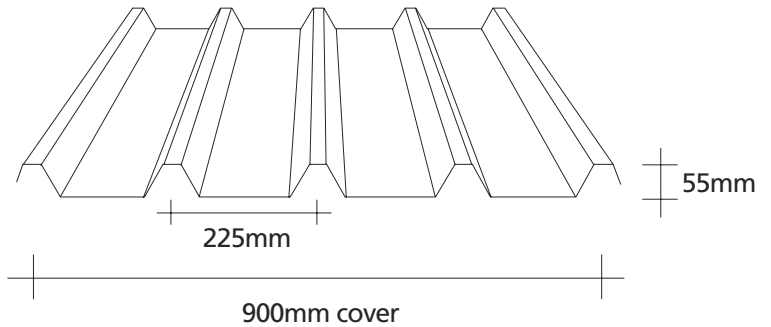
ST 900

Standard weight 2200 g/m² (1.3mm)



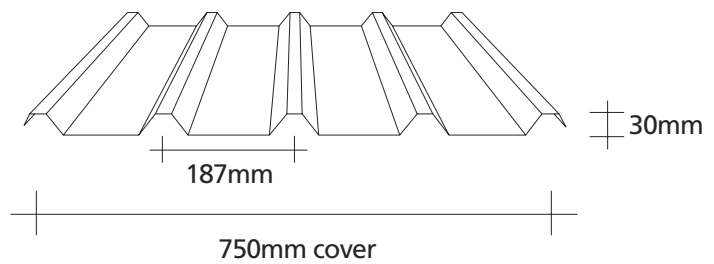
Alsynite 900

Standard weight 2200 g/m² (1.3mm)



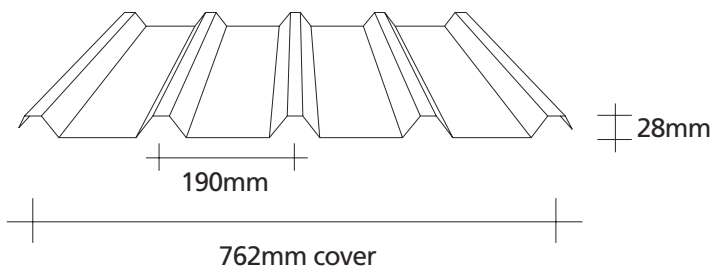
Styleline

Standard Weight 1800 g/m² (1.1mm)



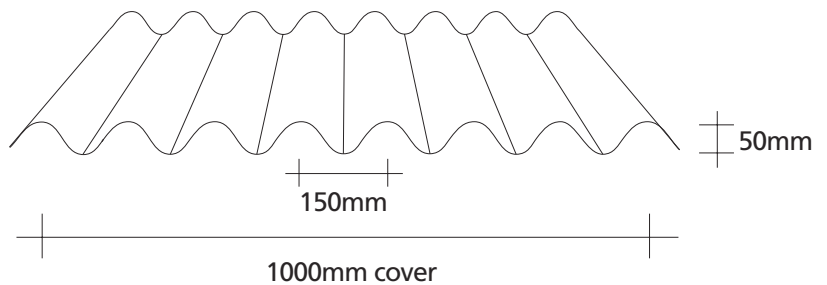
Superdek

Standard Weight 1800 g/m² (1.1mm)



Supersix

Standard weight 1800 g/m² (1.1mm)

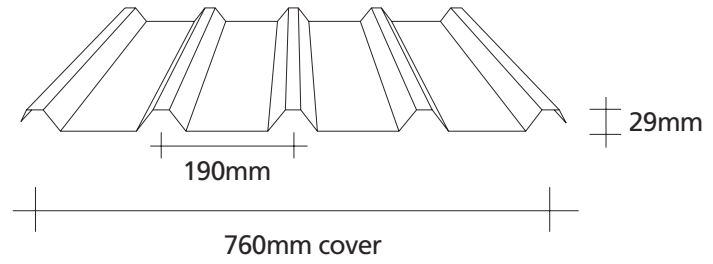


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Popular Profiles

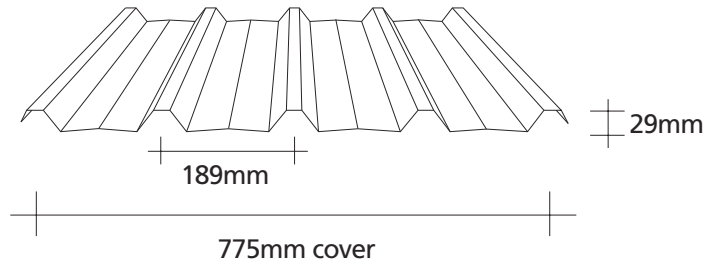
T Rib

Standard Weight 1800 g/m² (1.1mm)



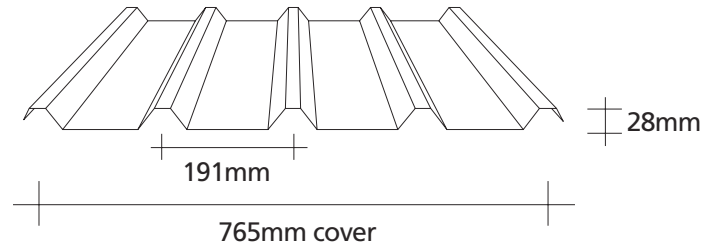
5 Rib

Standard Weight 1800 g/m² (1.1mm)



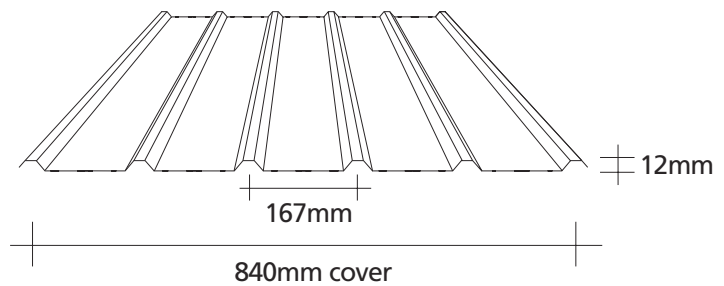
Trimform

Standard Weight 1800 g/m² (1.1mm)



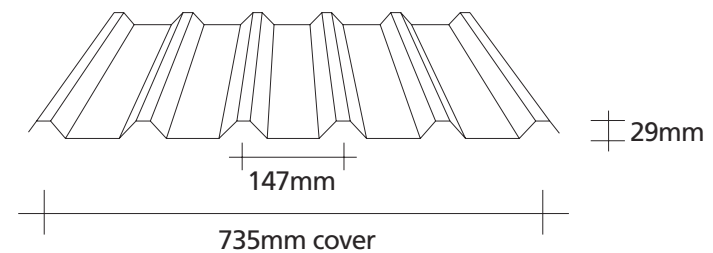
Trimklad

Standard Weight 1800 g/m² (1.1mm)



Trimline

Standard Weight 1800 g/m² (1.1mm)

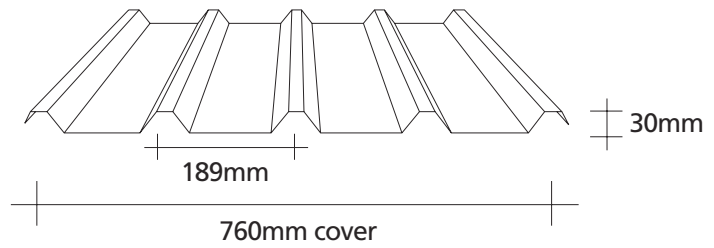


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Popular Profiles

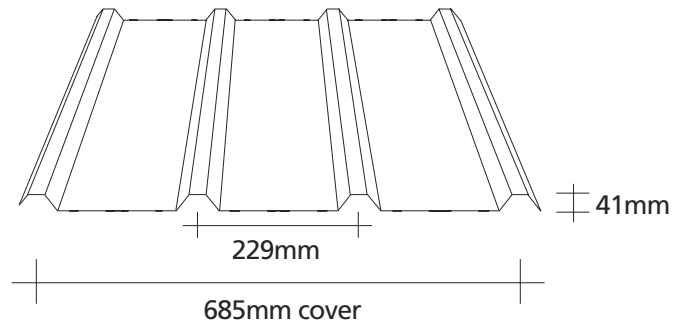
Trimroof

Standard Weight 1800 g/m² (1.1mm)



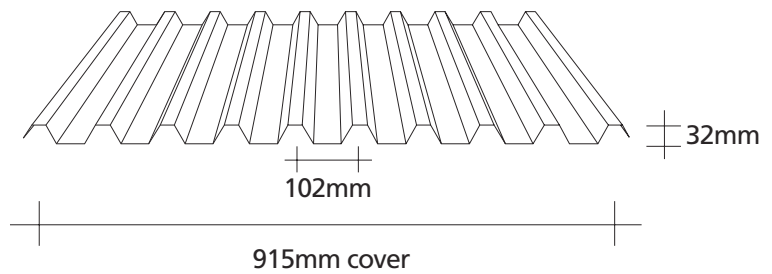
Triple Pan 685

Standard Weight 2000 g/m² (1.2mm)



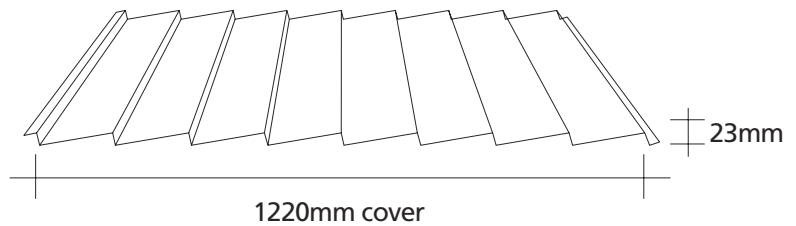
Alsynite Rib

Standard weight 2200 g/m² (1.3mm)



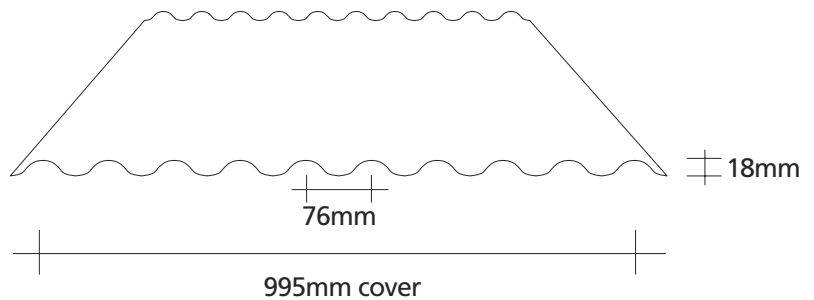
Weatherboard

Standard weight 1800 g/m² (1.1mm)



Wide Corrugate

Standard weight 1800 g/m² (1.1mm)

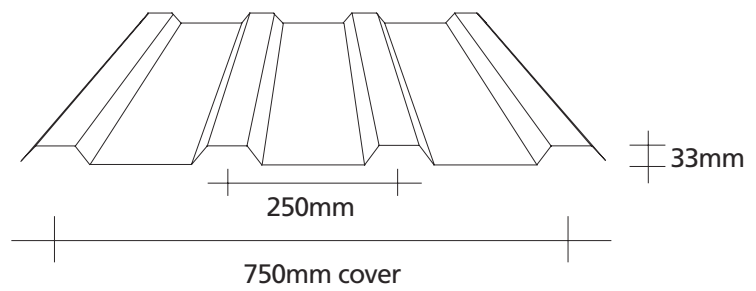


All Topglass products are available to match common roof profiles and flat sheet, subject to minimum quantity order and raw material availability. Contact Alsynite NZ Ltd for more information.

Popular Profiles

Alsynite 750

Standard Weight 1800 g/m² (1.1mm)



All Topglass products are available to match common roof profiles and flat sheet, subject to minimum quantity order and raw material availability. Contact Alsynite NZ Ltd for more information.

Design Considerations

Weight And Thickness Comparison of Translucent Sheeting

1200g/m ²	0.9mm	2400g/m ²	1.5mm
1800g/m ²	1.1mm	2800g/m ²	1.9mm
2000g/m ²	1.2mm	3030g/m ²	2.1mm
2200g/m ²	1.3mm	3660g/m ²	2.5mm

Materials Properties of Topglass® and Sequelite Roof Sheeting

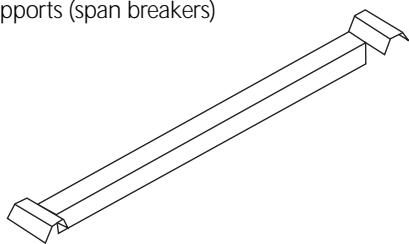
Tests based on 2400g/m² (1.5mm) sheet)

Test description	Standard	Mean Value
Barcol hardness	ASTM 2583	50-55
Glass content	AS/NZS 4257:5	26.0%
Impact strength	AS/NZS 4257.6	4.3 J
Impact resistance		Pass (0.880m)
Tensile strength	ASTM D638	91.4Mpa
Flexural strength	ASTM D790	173Mpa
Flexural Modulus	ASTM D790	5.62Gpa
Heat distortion Temperature(°C)	ASTM-C177-81	+180 to 200
Operating temperature (°C)		-40 to +110

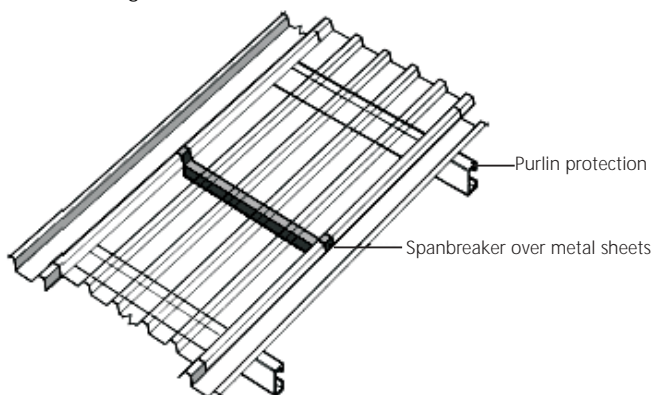
Mid Span Supports

Where spans exceed data displayed in the Load Span graph, mid span supports should be installed at appropriate intervals. They should be of a length to allow them to extend a minimum of 0.400m under the adjacent metal roofing sheets. Mid span supports are not designed to support foot traffic. Mid span supports shall not be used where more than two translucent roof sheets are to be laid side by side.

Mid span supports (span breakers)



Plastic roof light sheets over metal



Unsupported Overhang

The following is the maximum unsupported overhang allowable:

GRP Roofing and cladding	= 150mm
Laserlite Polycarbonate	= 50mm
Laserlite Plus	= 50mm

Wind Forces

The designer's attention is drawn to the necessity of taking into consideration the combination of high negative wind pressures on the upper surfaces of the roof with high positive pressure on the underside. Alsynite can increase the thickness and weight of the sheet to meet additional load requirements. Refer Load Span Capabilities graph in this catalogue. Further information is contained in AS1170.2/ NZS4203.

Particular attention should also be given to the additional internal wind pressure forces during construction where ceilings, walls and glazing, etc are still to be installed.

Snow Load

Translucent/Transparent rooflights located in the peripheral areas of a high wind load zone are to be constructed of a heavier weight (thickness sheet) or alternatively the purlin spacing reduced. The deflection of the roofing due to the UDL wind or snow loading shall be limited to <1/30th span or 50mm.

Design Considerations

Trafficable GRP Roofing

Translucent and GRP solid colour roofing products are considered non-trafficable and should always be planked during installation or where future foot traffic is required. However by manufacturing the GRP roofing to a weight of 3660 g/m² (2.5mm) and by meeting the impact test requirements defined in AS/NZS 1562:3:1994 and AS/NZS 4040, trafficable roofing can be supplied.

To comply with the requirements of AS/NZS 1562:3:1996 Part 3 Plastic, all translucent roofing products must have safety mesh installed under the sheeting unless specifically designated as being of trafficable grade. Test information to meet the requirements of trafficable grade is covered in AS/NZS 4040:4:1996 Sand Impact Test.

Alsynite recognises that specifiers may wish to dispense with the use of safety mesh while still providing safer work areas for roof traffic. Topglass Traffic, which doubles as a heavy duty corrosive resistant natural light or coloured roofing and cladding product, has been developed specifically to meet these requirements.

To protect the UV stabilised surface of the sheeting the roof should continue to be planked during installation and for subsequent foot traffic. Signs should be erected referring roof foot traffic to management prior to entering the roof area. Refer to Topglass Traffic for more information.

Point Load, Trafficability and Walkways

Where trafficability is of concern refer to Topglass Traffic product information.

AS/NZS 1562:3:1996 requires the provision of safety mesh under all plastic sheeting subject to some promulgated exceptions. The HSE Act 1992 classifies accessible roof lighting as hazardous and requires the use of safety mesh under or above translucent sheeting over 500mm in width.

Walking and Standing on GRP and Plastic Roofing

Where it is necessary to walk on GRP roofing or use the roof as an access-way, Walkways or walkboards shall be provided (refer AS/NZS 1657). This does not apply to domestic installations.

If a roof is classified trafficable walkboards shall be provided during installation and for future foot traffic to prevent damage to the weather surface coating.

1562:3:1996 clause 2.4.4.3 requires notice in accordance with statutory regulations warning persons not to step onto the GRP roof sheeting shall be provided in conspicuous locations.

Moisture Behaviour

Condensation is difficult to avoid on single skin roofs of any sort, but care in providing adequate ventilation will greatly reduce the problem.

The use of Alsynite rotary roof ventilators is the most efficient method to ventilate the building.

Alternatively the use of Alsynite condensation film in 100 metre x 1 metre rolls installed under the translucent roofing will ensure condensation does not drip into the building. A twin skin application properly carried out with sealed joints and laps on the inside sheets can also reduce the problem. This will also reduce heat penetration and loss. There should be a minimum of 20 mm between the two skins. The internal skin must be sealed to form a vapour barrier preventing moisture and dirt entering between the two sheets. It is also recommended that a high performance product such as Topglass® or Topglass Ultra® are used.

Condensation Control

Condensation may occur in poorly ventilated buildings. The use of either Alsynite turbine rotary roof ventilators, Alsynite condensation film or Alsynite twinskin systems are options for consideration.

Design Considerations

Load Span Capabilities (Based on 1.5kPa ultimate wind uplift load)

Curved roofing minimum drapecurve radius (m)

Grade	1800g/m ²	2000g/m ²	2200g/m ²	2400g/m ²	2800g/m ²	3050g/m ²	3660g/m ²	1800g/m ²	2200g/m ²
Sheet thickness	1.1mm	1.2mm	1.3mm	1.5mm	1.9mm	2.0mm	2.5mm	1.1mm	1.3mm
Profile (to match)									
Corrugated, Custom Orb	1.000(s)	–	1.200	1.250	1.400	1.500	1.600	3.8	4
5 Rib (Trimdeck etc)	1.200(s)	–	1.450	1.500	1.600	1.700	2.000	8	9
Plumbdek, Trimline	1.200(s)	–	1.450	1.500	1.600	1.700	2.000	8	9
MC700, MC750, MC770	1.200(s)	–	1.450	1.500	1.600	1.700	2.000	8	9
Ribline 960	1.200(s)	–	1.450	1.500	1.600	1.700	2.000	8	9
Hi Five Six Rib	1.200(s)	–	1.450	1.500	1.600	1.700	2.000	8	9
MC1000, Metric, Windek	1.200(s)	–	1.450	1.500	1.600	1.700	2.000	8	9
V Rib	1200	–	1.450(s)	1.500	1.600	1.700	2.000	12	14
ST7, Silbery7, LT7	–	–	1.700(s)	1.800	1.950	2.100	2.400	12	14
ST900, Multirib BB900	–	–	1.700(s)	1.800	1.950	2.100	2.400	12	14
Multispan, MC930, Maxispan, Steelspan	–	–	2.100(s)	2.200	2.400	2.600	3.000	16	18
Purlindek	1.900(s)	–	2.300	2.650	2.900	3.300	3.600	18	21
Deck Profiles	–	1.200(s)	1.400	1.500	1.550	1.700	2.000	16	18
Supersix	1.150(s)	–	1.400	1.500	1.550	1.650	1.950	16	17

Product spanning can be increased by installing a mid span support – or increasing weight of sheet. Based on 1.5kPa ultimate wind uplift load maximum span limits to meet the requirements of the NZ Building Code. Spans relate to intermediate purlins. Purlin spacings should be reduced for draped curving. Consult Alsynite NZ Ltd for details.

(s) denotes standard translucent roof sheet weight ex stock. For all other profiles and weights contact Alsynite NZ Ltd

Load Span Capabilities (Based on 2.0kPa ultimate wind uplift load)

Curved roofing minimum drapecurve radius (m)

Grade	1800g/m ²	2000g/m ²	2200g/m ²	1800g/m ²	2200g/m ²
Sheet thickness	1.1mm	1.2mm	1.3mm	1.1mm	1.3mm
Profile (to match)					
Corrugated, Custom Orb	.900(s)	–	–	3.8	4
5 Rib (Trimdeck etc)	1.000(s)	–	–	8	9
Plumbdek, Trimline	1.000(s)	–	–	8	9
MC700, MC750, MC770	1.000(s)	–	–	8	9
Ribline 960	1.000(s)	–	–	8	9
Hi Five Six Rib	1.000(s)	–	–	8	9
MC1000, Metric, Windek	1.000(s)	–	–	8	9
V Rib	–	–	1.100(s)	12	14
ST7, Silbery7, LT7	–	–	1.500(s)	12	14
ST900, Multirib BB900	–	–	1.500(s)	12	14
Multispan, MC930, Maxispan, Steelspan	–	–	1.600(s)	16	18
Purlindek	1.600(s)	–	–	18	21
Deck Profiles	–	1.000(s)	–	16	18
Supersix	1.050(s)	–	–	16	17

Product spanning can be increased by installing a mid span support – or increasing weight of sheet. Based on 2.0kPa ultimate wind uplift load maximum span limits to meet the requirements of the NZ Building Code. Spans relate to intermediate purlins. Purlin spacings should be reduced for draped curving. Consult Alsynite NZ Ltd for details.

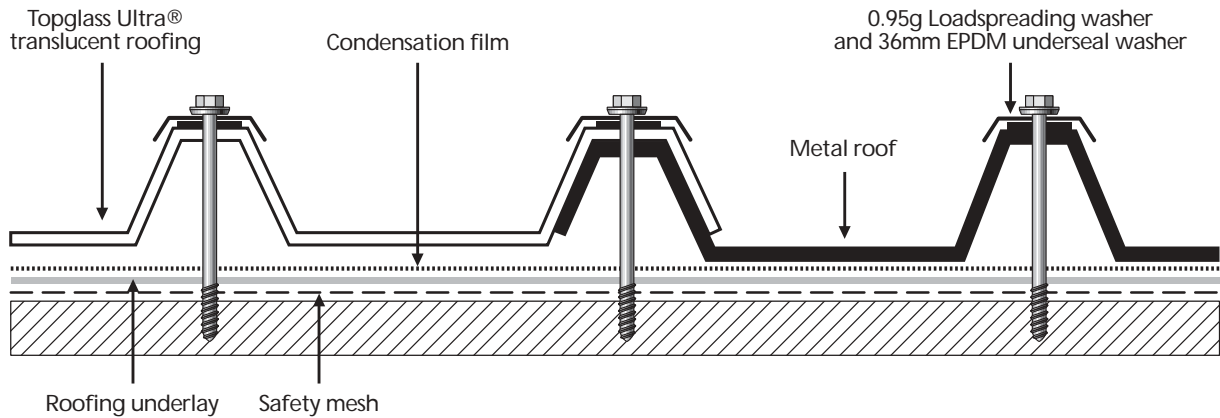
(s) denotes standard translucent roof sheet weight ex stock. For all other profiles and weights contact Alsynite NZ Ltd

Design Considerations

Alsynite Condensation Film (125 micron)

Alsynite condensation film, available in 1000mm and 1300mm widths, can be installed as a translucent roofing underlay to carry condensation which may form on the underside of the translucent roofing to the outside of the building.

Alsynite Condensation Film Application

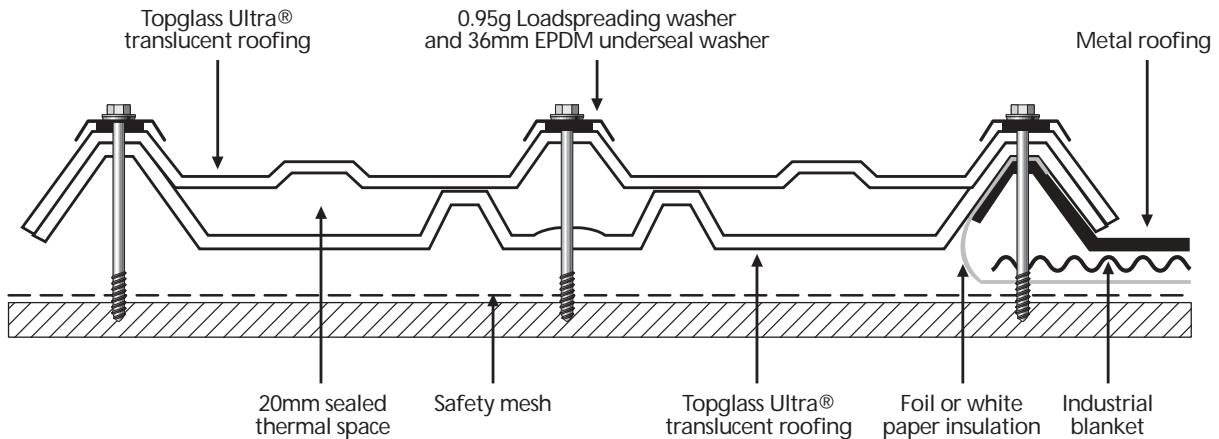


Twinskin Systems

Alsynite have designed twinskin systems for use where severe condensation maybe of concern or alternatively to form a thermal barrier to prevent heat loss or solar heat gain.

Contact Alsynite NZ Ltd for type of profiles available for use in Twinskin systems.

Alsynite TS 20 Twinskin System

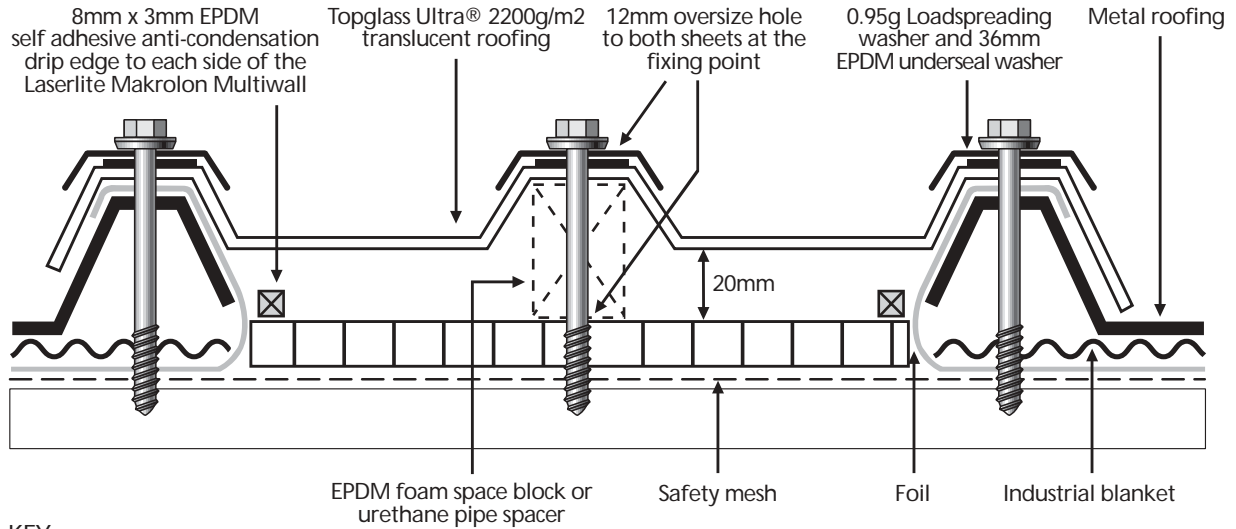


NOTE:

- Gutter end sealed with purpose made Alsynite closed cell foam strip
- Twinskin clear roofing at 2200g/m² (1.3mm thick) provides light transmission of 70%

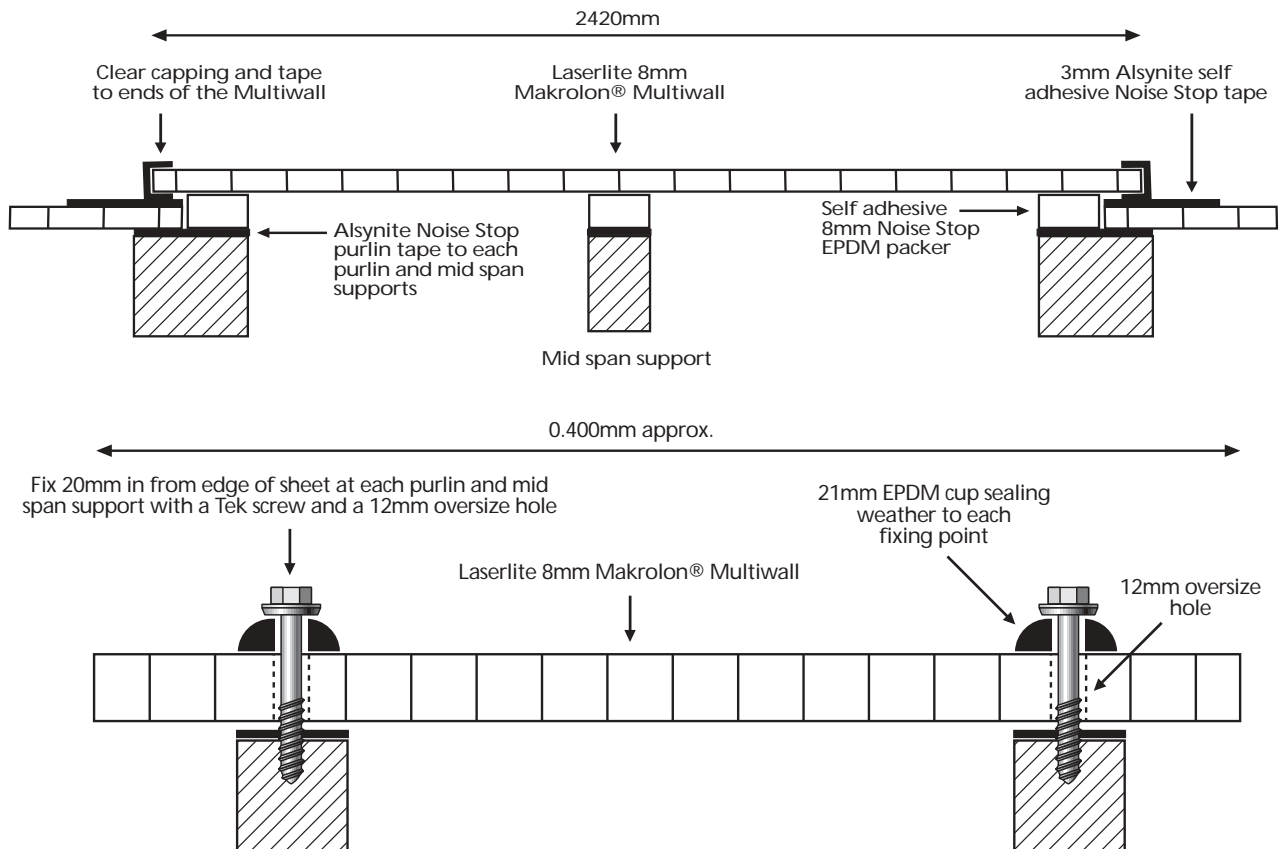
Design Considerations

Alsynite Twinskin TS 20 Makrolon® Multiwall Application



KEY

- Provision for 70% light transmission
- Midspan supports to be inserted at 1200mm centres
- Foam strip to be inserted on Purlin line, mid span supports, ridge and gutter line
- Purpose made stop ends to be provided at the ridge line
- Multispan profile foam strip to be provided at the gutter line



R-Values

Twinskin Topglass Ultra® TS 20 with 20 mm air gap = 0.28m²K/W

Twinskin Topglass Ultra® TS 20 weather layer with 8mm Makrolon® Multiwall

Polycarbonate lower layer and incorporating a 20mm air gap = 0.38m²K/W

Design Considerations

Softening and Flammability of Topglass® and Sequelite GRP Roofing

GRP translucent roofing will soften at 180-200°C and has a flammability point of 450-500°C dependant on the thickness of the product.

In the event of fire, Alsynite GRP translucent roofing products will burn with the rate and intensity dependent on the inclusion of fire retardant or standard resin systems during manufacture. In the majority of cases the webbing is left draped harmlessly over the purlins without dropping flaming balls or molten material into the structure which can cause reignition therefore venting smoke and heat from the building.

The use of Alsynite rotary roof ventilators are also an effective means of venting fumes and heat in the event of fire. See Ventilators section for more information.

Fire Retardant Sheeting

Alsynite manufacture a fire and smoke retardant sheeting to match a number of roofing profiles. Refer Alsynite Topglass FR product in this catalogue.

Fire retardant resin systems can be purpose formulated by Alsynite and added during the manufacturing process in order to meet the required fire properties, this will also be reflected in the end user price. The end user should ensure they have specified and are indeed supplied with the appropriate product for the application. Refer AWTA Fire Test Report herein.

Corrosion

Where severe corrosive conditions are of concern, refer to Topglass Extreme product information herein.

Expansion and Contraction of GRP and Plastic Sheeting

Formulae For Expansion And Contraction Of GRP Translucent Roofing

	Formulae
GRP Translucent roofing:	$2.2 \times 10.5 \text{ cm/cm } ^\circ\text{C}$ E.g. 7 metre long sheet with a 40°C temperature change $2.2 \times 10.5 \times (10 \times 100) \times 7 \times 40$ $= 6.16\text{mm per 7M length @ } 40^\circ\text{C temperature rise}$
Polycarbonate Sheeting:	3.2mm per 50°C per 1.0 metre length
PVC Sheeting:	7.0mm per 50°C per 1.0 metre length

The above spans are for internal purlin spacings. Although standard weight is classified as non-trafficable, it is recommended that the end span should be positioned at 0.8 x the internal span. The above data is not applicable for use with single spans.

Simultaneous determination of ignitability, flame propagation, heat release and smoke release of non fire retardant GRP translucent roofing

	Mean	
Ignition time	5.63	min
Flame propagation time	15.3	S
Heat release integral	463.5	KJ/m ²
Smoke release.Log D	0.3404	
Optical density	D	2.1908
Ignitability Index	14	Range 0-20
Spread of flame index	9	Range 0-20
Heat involved index	10	Range 0-20
Smoke developed index	9	Range 0-20

Note: Where fire retardance is of concern refer to Topglass FR product information.

Greenhouses

Topglass® products are suitable for covering greenhouses as photosynthesis is available through the sheeting. Contact Alsynite NZ Ltd prior to designing greenhouses as some crops may require specific design criteria.

Effects of GRP Roofing on Unpainted Galvanised Steel

If the roof design requires that full length sheets GRP not be used (i.e. not running from the ridge to gutter line) then pre-painted steel should be used as the main roof cladding. GRP roofing should always be run into pre-painted or Butynol type gutter systems to prevent corrosion of the gutters.

AWTA TEXTILE TESTING

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 Phone (03) 9371 2126 Fax (03) 9371 2182
 Australian Wool Testing Authority Ltd - A.C.N. 006 014 106
 trading as AWTA Textile Testing

TEST REPORT

CLIENT : ALSYNITE NZ BUILDING PRODUCTS
 14 CARTERS CRESCENT
 CAMBRIDGE NEW ZEALAND

TEST NUMBER : 7-487161-CO
 DATE : 22/09/99

SAMPLE DESCRIPTION CORROGATED ROOFING
 COLOUR: CLEAR/YELLOW
 APPROX THICKNESS: 1mm

MATERIAL SPECIFICATION PROVIDED BY CLIENT:
 NOMINAL COMPOSITION: FIBREGLASS
 NOMINAL MASS: 1800g/m²

AS 1530.3-1989 SIMULTANEOUS DETERMINATION OF IGNITABILITY, FLAME
 AMDT NO 1 APR 92 PROPAGATION, HEAT RELEASE AND SMOKE RELEASE

RESULTS: FACE TESTED: BOTH SIDES

	MEAN	STANDARD ERROR
IGNITION TIME	7.14 min	0.25
FLAME PROPAGATION TIME	12.1 s	2.5
HEAT RELEASE INTEGRAL	328.1 kJ/m ²	6.6
SMOKE RELEASE, LOG D	0.1386	0.0155
OPTICAL DENSITY, D	1.3805 /m	

NUMBER OF SPECIMENS IGNITED: 6
 NUMBER OF SPECIMENS TESTED: 6

REGULATORY INDICES:	INDEX	RANGE
IGNITABILITY INDEX	13	RANGE 0-20
SPREAD OF FLAME INDEX	9	RANGE 0-10
HEAT EVOLVED INDEX	10	RANGE 0-10
SMOKE DEVELOPED INDEX	8	RANGE 0-10

COMMENTS:

THE RESULTS OF THIS FIRE TEST MAY BE USED TO DIRECTLY ASSESS
 FIRE HAZARD, BUT IT SHOULD BE RECOGNIZED THAT A SINGLE TEST
 METHOD WILL NOT PROVIDE A FULL ASSESSMENT OF FIRE HAZARD UNDER
 ALL FIRE CONDITIONS.

EACH TEST SPECIMEN WAS CLAMPED IN FOUR PLACES.

93910 1

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CHARGES

TESTING \$599.00
 TOTAL \$599.00



This Laboratory is accredited by the National Association of Testing Authorities, Australia for:
 - Chemical Testing of Textiles & Related Products
 - Mechanical Testing of Textiles & Related Products
 - Heat & Temperature Measurement

Accreditation No. 982
 Accreditation No. 986
 Accreditation No. 1238



The tests reported herein have been performed in accordance with the terms of accreditation. Samples and their identifying descriptions are normally submitted by the client unless otherwise stated. AWTA Textile Testing makes no warranty, express or otherwise, as to the source of the tested samples. The above terms relate only to the sample tested. This document, the name AWTA Textile Testing or AWTA Ltd may be used in advertising, provided the content and terms of the advertisement have been approved in advance by the Managing Director of AWTA Ltd.

Dr Carroll
 AUTHORIZED SIGNATORY

[Signature]
 G.J. BRAD'S SL, B.A.14.5
 MANAGING DIRECTOR