DESIGN
GUIDE

Prodek®

STRATCO

A profile endowed with superior spanning ability and maximum weather protection.

FORM AND FUNCTION

Stratco Prodek® is a versatile roofing material, designed to suit a wide range of applications, from verandah and carport installations to long length industrial roofing projects. The unique Prodek profile offers superior spanning ability, excellent water carrying capacity and impressive rigidity. Combine these advantages with a fast, easy pierced fixing installation and you have an economical profile that is ideal for use on industrial roofing.

Prodek is designed to provide maximum weather protection. The 50mm high rib on Prodek reduces the risk of wind driven rain entering the roof and ensures that water is channelled into the pan area of Prodek. It has a non-syphoning side lap which reduces the risk of moisture transfer between sheets due to capillary action, thus reducing the risk of roof leakage. In addition, turn up/down tools are available to assist in weatherproofing the end of the Prodek sheets.

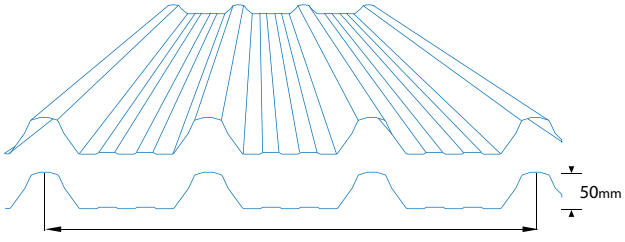
CUSTOM MADE FOR YOUR PROJECT

For lengths longer than 1.2 metres Prodek can be rolled to the specific length you require, provided satisfactory transport and handling facilities can be arranged. For lengths longer than ten metres, consult your nearest Stratco for advice on handling and transport.

Prodek is available in un-painted zinc/alum, and in an attractive range of factory pre-painted colours. To give your roof a professional finish, painted self-drilling screws are available. Stratco offer a complete range of accessories and flashings for use with Prodek, and can provide professional advice on specific flashings.

DESIGN CONSIDERATIONS

The minimum recommended roof pitch for Prodek is one degree (1 in 60). With a one degree fall, ensure that building settlement or the warping of timber structural sections does not cause 'ponding' on the surface of the roof. The 650mm coverage of Prodek provides easy handling and installation. Prodek roofing is subject to thermal expansion, particularly on darker colours. The maximum length before an expansion joint is required is 24 metres for lighter colours, and 16 metres for darker colours.



650mm coverage - Tolerance L±5mm W±2mm

MATERIAL SPECIFICATIONS

Material Properties	Finish	0.35 BMT	0.42 BMT	0.48 BMT
Total Coated Thickness (TCT) mm	Zinc/alum	0.40	0.47	0.53
	Colour	0.43	0.50	0.56
Mass (kg/linear metre)	Zinc/alum	2.74	3.26	3.70
	Colour	2.79	3.32	3.76
Mass (kg/square metre)	Zinc/alum	4.22	5.02	5.69
	Colour	4.29	5.11	5.78
Yield (square metre/tonne)	Zinc/alum	237.0	199.2	175.7
	Colour	233.1	195.7	173.0
Tensile Strength (MPa)	Zinc/alum & Colour	550	550	550
Width Coverage (mm)	Zinc/alum & Colour	650	650	650
Sheet Tolerances (mm)	Length & Width	±5 ±2	±5 ±2	±5 ±2
Minimum Roof Pitch	Zinc/alum & Colour	N/A	1˚	1˚

Table 1.0

COMPLIANCE

The Wind Capacity Tables are based on testing in accordance with AS1562.1-1992 and AS4040.0, 1 & 2-1992. Span tables have been developed by determining wind pressures in accordance with AS4055-2006 for domestic applications and AS/NZS 1170.2:2002 for all other applications. Capacity tables are in limit state format.

SPANS

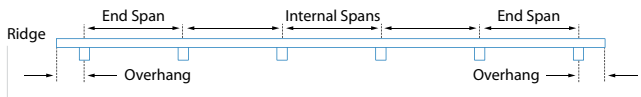
Spans are determined by wind speeds for non-cyclonic areas. For domestic applications, the pressures and spans are based on a maximum: eaves height of six metres, roof pitch of 35 degrees and total roof height of 8.5 metres. For commercial and industrial applications, tables are based on a maximum overall height of ten metres and a 500 year design return period.

Roofing calculations are based on Cpe=-0.9 and Cpi=0.2, walling is based on Cpe=-0.65 and Cpi=0.2. A local pressure factor, Kl=2.0 has been used for all roofing and walling spans for both strength and serviceability limit states. Roof spans allow for loads incidental to maintenance.

All pressures have been determined assuming the wind loading in any direction is not affected by topography. The following shielding factors have been used for each of the terrain categories: Category 3 = 0.85, Category 2.5 = 0.95, and Category 2 = 1.

The carport and verandah spans only apply to structures not enclosed by peripheral walls. Spans are based on Cpn=-0.9 and Kl=1.5 applied over the entire span, and are suitable for all span types. Loads on supporting purlins may limit these spans.

Stratco can provide additional engineering advice if any design parameters vary from those above.



Span Definitions

Wind Load Conversion

For domestic applications use the appropriate wind classification for the area. To read the span tables for commercial and industrial applications, select the region and category for the area, then convert it to the correct classification using table 2.0 below.

WIND LOAD CONVERSION

Wind Classification (Domestic)	Region & Category (Commercial/Industrial)
N1 (W28)	Reg A, Cat 3
N2 (W33)	Reg A, Cat 2.5 - Reg B, Cat 3
N3 (W41)	Reg A, Cat 2 - Reg B, Cat 2.5
N4 (W50)	Reg B, Cat 2

Table 2.0

MAXIMUM RECOMMENDED SPANS (mm)

Span Type	Roofing (BMT)		Walling (BMT)		
	0.42mm	0.48mm	0.35mm	0.42mm	0.48mm
Single Span	2600	3100	2400	3000	3600
End Span	2800	3400	2700	3500	4000
Internal Span	3200	3800	3000	3800	4200
Un-stiffened Overhang	200	250	150	200	250
Stiffened Overhang	600	650	400	600	650

Roofing spans are limited, based on typical maintenance foot traffic.
Walling spans are based on N1 (W28) wind loading.

Table 3.0

CARPORT AND VERANDAH SPANS (mm)

Wind Classification	Base Metal Thickness	
	0.42mm	0.48mm
N1 (W28)	3700	4250
N2 (W33)	2950	3750
N3 (W41)	2200	3300
N4 (W50)	2050	3100

Table 4.0

SPANS (mm) – Determined by wind speeds for non-cyclonic areas

BMT	Application	Span Type	N1 (W28)	N2 (W33)	N3 (W41)	N4 (W50)
0.35mm	Walling	Single	2400	2350	1950	1600
		End	2700	2700	2050	1800
		Internal	3000	3000	2200	1800
0.42mm	Roofing	Single	2600	2050	1850	1550
		End	2800	2500	1900	1550
		Internal	3200	2750	2050	1650
	Walling	Single	3000	2700	2050	1800
		End	3500	3100	2200	1800
		Internal	3800	3400	2800	1950
0.48mm	Roofing	Single	3100	3100	2350	1850
		End	3400	3400	2350	1850
		Internal	3800	3800	2900	2000
	Walling	Single	3600	3600	3100	2200
		End	4000	3900	3300	2200
		Internal	4200	4200	3700	2500

Table 5.0

WIND CAPACITIES (kPa)

BMT	Span Type	Limit State	SPAN (mm)											
			1200	1500	1800	2100	2400	2700	3000	3300	3600	3900	4200	4500
0.35mm	Single	Serviceability	2.05	1.72	1.40	1.08	0.92	0.82	0.71	0.61	0.51	0.40	0.30	0.19
		Strength	4.60	3.75	2.89	2.04	1.46	1.35	1.25	1.14	1.03	0.92	0.82	0.71
	End	Serviceability	2.46	2.12	1.77	1.42	1.08	0.97	0.86	0.75	0.64	0.53	0.42	0.31
		Strength	5.38	4.46	3.54	2.23	1.69	1.58	1.47	1.36	1.25	1.14	1.03	0.92
	Internal	Serviceability	2.67	2.31	1.95	1.59	1.23	1.10	0.98	0.85	0.73	0.60	0.47	0.35
		Strength	5.58	4.54	3.50	2.46	1.85	1.74	1.63	1.52	1.41	1.30	1.19	1.08
0.42mm	Single	Serviceability	3.23	2.54	1.85	1.15	1.04	0.93	0.82	0.70	0.59	0.48	0.42	0.37
		Strength	6.08	4.87	3.67	2.46	2.31	2.16	2.01	1.87	1.72	1.57	1.42	1.27
	End	Serviceability	3.46	2.79	2.13	1.46	1.31	1.15	1.00	0.85	0.69	0.54	0.46	0.38
		Strength	6.04	4.79	3.55	2.31	2.18	2.05	1.92	1.79	1.66	1.53	1.41	1.28
	Internal	Serviceability	4.08	3.42	2.75	2.09	1.43	1.28	1.13	0.98	0.83	0.68	0.65	0.63
		Strength	6.35	5.18	4.01	2.85	2.64	2.43	2.22	2.01	1.79	1.58	1.50	1.42
0.48mm	Single	Serviceability	4.23	3.59	2.96	2.32	1.68	1.50	1.32	1.13	0.95	0.77	0.58	0.40
		Strength	6.63	5.75	4.88	4.00	3.12	2.85	2.58	2.31	2.04	1.78	1.51	1.24
	End	Serviceability	4.62	3.96	3.31	2.65	2.00	1.79	1.58	1.37	1.16	0.95	0.74	0.53
		Strength	6.54	5.63	4.71	3.79	2.87	2.67	2.46	2.26	2.06	1.85	1.65	1.44
	Internal	Serviceability	4.77	4.13	3.50	2.87	2.23	2.02	1.81	1.60	1.39	1.18	0.97	0.76
		Strength	6.70	5.89	5.08	4.27	3.46	3.19	2.92	2.65	2.37	2.10	1.83	1.56

The values in all of the above tables are for use with steel supports with a minimum thickness of 0.95mm, G550.

Table 6.0

WATER CARRYING CAPACITY

MAXIMUM ROOF RUN FOR DRAINAGE (m)

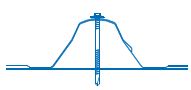
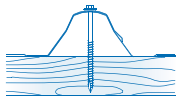
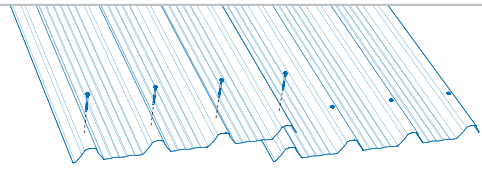
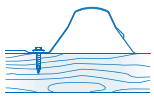
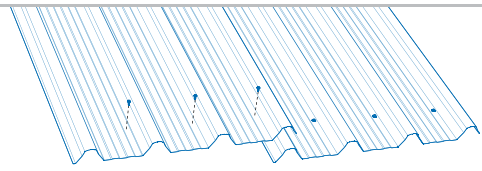
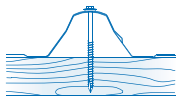
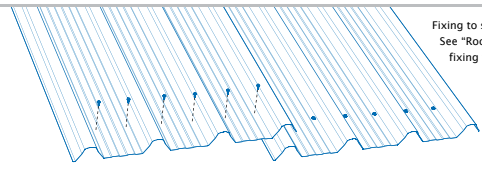
Roof Slope	Peak Rainfall Intensity 150 mm/hr	180 mm/hr	200 mm/hr	250 mm/hr	300 mm/hr	350 mm/hr	400 mm/hr	450 mm/hr
1°	319	266	239	191	159	137	119	106
2°	452	377	339	271	226	193	169	150
3°	554	461	415	332	277	237	207	184
5°	716	596	537	429	358	307	268	238
7.5°	878	732	658	527	439	376	329	292
10°	1016	847	762	610	508	436	381	338

The peak rainfall intensities shown represent a 100 year average recurrence interval (ARI) for a five minute rainfall duration. If roof penetrations exist, the total roof run will generally be greater than the distance from ridge to eaves at the location the penetration interferes with the runoff. Contact Stratco if further advice is required.

Table 7.0

FIXING RECOMMENDATIONS

Lay Prodek sheets into the prevailing wind. They should sit neatly on the preceding sheet, and be fixed at the recommended support spacings. Avoid 'stretching' the width of the sheet when installing, as this could allow wind and rain to enter. Flashing turn downs into the pan of Prodek should always be notched around the rib for maximum weather tightness. For spans between 1200mm and 3600mm, side lap fasteners are recommended for use at mid-span. For spans beyond 3600mm use two evenly spaced fasteners between supports to secure the side lap. Use either 8 x 12mm self drill stitching screws or 4.8mm sealed blind rivets. On roofing, at the end of the sheets, turn the pans up at the roof crest and down into the gutter using a turn up/down tool.

	FASTENER SIZE SELECTION		Laying Procedure
	Fixing to Steel	Fixing to Timber	Prevailing Wind / Laying Direction
ROOFING **Crest fixing only** One fixing required per crest	 12 x 68mm Self drilling and tapping screw with neoprene washer	 14 x 90mm Type 17 hex head screw with neoprene washer	
WALLING **Pan fixing only** One fixing required per pan. Fasten adjacent to overlapping rib	 10 x 16mm Self drilling and tapping screw with neoprene washer	 10 x 25mm Type 17 hex head screw with neoprene washer	
VERANDAH AND CARPORT	 3.2mm rivets or 10 x 16mm screws Two fixings per purlin per pan	 14 x 90mm Type 17 hex head screw with neoprene washer	 Fixing to steel only. See "Roofing" for fixing to timber.

The above fastener sizes are suitable for fixing over an insulation blanket up to 55mm thick, for thicknesses up to 100mm, the next standard screw length to that indicated is to be used.

CONTACT
1300 165 165

WALKING ON PRODEK

When walking on Prodek roofing, it is recommended you walk over the purlins to avoid damage. Wear flat, rubber soled shoes and walk flat footed in the sheet pans only. For carport and verandah applications, crawl boards should be used to avoid damage during installation and maintenance.

ORDERING

Sheets are available custom cut, allowing you to minimise waste, and enhance your design options. Prodek is available in un-painted zinc/alum, and in an attractive range of factory pre-painted colours. Subject to the delivery location, quantity and material availability, delivery is usually within 48 hours, or at an agreed time that suits your building schedule. Unless advised differently, a one tonne maximum is usually applied to larger packs. Arrangements for unloading the truck are the responsibility of the customer, and should be arranged before ordering. When unloading you must ensure the load is adequately spread using spreaders and slings to prevent damage. If packs are to be loaded directly above structural members, they must be of sufficient strength, such as over portal frames, or braced roof trusses.

USING PRODEK

Stratco Prodek will have a long, useful life if used according to Stratco specifications. While roofing materials in outer urban and rural areas may have a life-span in excess of 30 years, this can reduce to only a few years in coastal and industrial environments.

Zinc/alum and pre-painted steel should not be used in very aggressive areas such as near swimming pools and spas. It is important that dirt, soil, compost, paving sand, or other materials which retain moisture are not placed against steel sheeting. Concrete should not be poured against zinc/alum material. Check with Stratco before using in these severe environments.

Incompatible Metals

The best way of reducing corrosion is to keep incompatible metals apart. Zinc/alum and pre-painted steel cannot be used with lead, copper and monel. Galvanised steel and pure zinc material can be used with zinc/alum, but you must avoid water run-off from zinc/alum onto galvanised material. Fixings such as rivets and self-drilling screws must be compatible with the material they are fixing.

Handling and Cutting of Prodek

For safety, wear gloves when handling Prodek. Ensure your hands or gloves are clean, especially when handling zinc/alum which can mark. Use a coloured pencil for marking steel, as lead or black pencils contain graphite which promotes rusting. Prodek is best cut using tin snips, but for larger cuts it may be necessary to use a power saw with a steel cutting blade or a power nibbler. Avoid using abrasive discs as they can cause burred edges and coating damage. Where possible cut sheets on the ground, and always clean off any swarf and metal filings progressively during the installation. Dispose of off-cuts carefully.

Insulation and Sealants

The use of blanket insulation is recommended in domestic roofing to assist in temperature, condensation and sound control. Prodek can be used with an insulating blanket up to 55mm thick. Increased thicknesses require longer fasteners and greater care when installing.

When choosing a silicone sealant, ensure it is suitable for roofing and guttering use and of a non-acetic, amine free, neutral cure type. Sealants that smell of ammonia, vinegar or lemons are not usually suitable.

MAINTENANCE REQUIREMENTS

The performance of Prodek over time depends on its correct application and maintenance. Maintenance should be performed as often as is required to remove any dirt, salt and pollutants. Where used in severely corrosive environments, cleaning should be performed more often. It is important that screws have the same life expectancy as the cladding you have specified.

Packs of Prodek should always be kept dry and stored above ground level while on site. If the sheets have become wet, they should be separated, wiped and placed in the open to dry.

Refer to the Stratco “Selection, Use and Maintenance” brochure, for more detailed information about the correct use and maintenance of this product.

ZY-BRO-PRO

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