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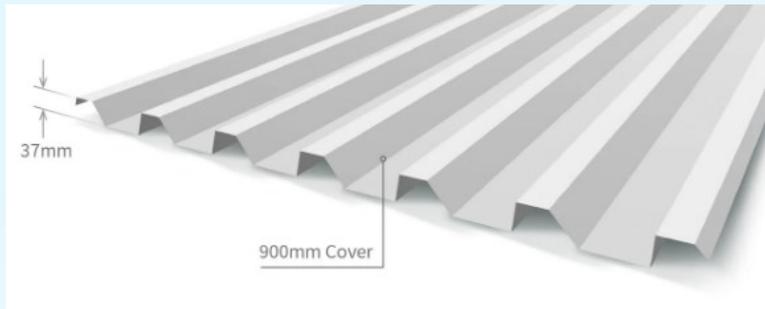
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WEBSITE: www.stratco.co.nz

PRODUCT: Stratco 900



DESCRIPTION

Stratco 900 is a metal trapezoidal roof and wall cladding with 900mm cover and 37mm rib height that is suitable for a minimum roof pitch of three degrees. This allows for long spans and has excellent water carrying ability.

Stratco 900 has a 'square corrugated' form that has the looks and versatility to allow it to blend easily with any building style. Its strong six rib design lends itself for use on roofing, wall cladding and fencing. Stratco 900 is ideal for architects and builders who are trying to achieve a different look, with maximum serviceability.

With its pierce fixed installation and lightweight, rigid design, Stratco 900 is an economical cladding that allows purlins to be widely spaced with wide coverage making it a very economical and efficient material to use while providing easy handling and installation.

PLACE OF MANUFACTURE

New Zealand

DESIGN CONSIDERATIONS

- Roof pitch minimum 3°
- Effective cover 900mm
- Rib height 37mm
- Specify material coating to suit building location/environment
- Unpainted metallic steel coatings as well as COLORSTEEL®, including Matte, and ColorCote standard range of colours - availability and minimum quantities may apply
- Stratco flashing details for roofing and wall cladding to be used to meet NZ Building Code, E2/AS1 and NZ Metal Roofing Manufacturers Code of Practice
- Allow for thermal expansion of Stratco 900, particularly in darker colours. The maximum length before an expansion joint is recommended is 24 metres for lighter colours, and 16 metres for darker colours.
- Purlin spacing not to exceed maximum spans as per Stratco 900 span tables
- Stratco 900 wall cladding must use drainage cavity batten in residential applications
- Ensure compatibility when using Superdek® roofing/wall cladding with other metal products such as copper to prevent accelerated corrosion
- Available in curved options—Refer Curving section for options and minimum radius

MATERIAL COMPOSITION & COATINGS

The boundaries of different corrosion zones are difficult to define because many factors determine the corrosivity of a particular location. It is important to choose the appropriate materials for the location to ensure they meet the minimum durability requirements of the NZ Building Code and satisfy customer expectations.

Zinc/alum coated steel substrate conforms with AS 1397:2011.

Pre-painted metals available provide solutions for different environments including various metals, metallic coatings, paint systems and paint thickness. The paint coatings are manufactured in accordance with AS/NZS 2728:2013.

BUILDING CODE COMPLIANCE

The product will, if used in accordance with Stratco's installation and maintenance requirements, assist with meeting the following provisions of the building code:

- Clause B1 Structure:**

Span tables are based on a maximum overall building height of ten metres and a 500 year design return period for strength limit state wind load assessment. Roofing spans specified are suitable for snow loading up to 2kPa in accordance with the New Zealand Metal Roof and Wall Cladding Code of Practice.

NZS 3604 WIND ZONES

Roofing: Spans are limited based on foot traffic incidental to maintenance. Maximum sheet overhang for 0.40 is 250mm and 0.55 is 350mm. For roof pitches less than 10°, self support underlay will require additional support.

Aluminium Stratco 900: Testing has proven that 0.70 and 0.90 aluminium have similar results to 0.40 and 0.55 G550 steel respectively. For practical application, spans for aluminium are to be no greater than 80% of G550 steel.

MAXIMUM SPANS FOR NZS 3604 WIND ZONES (Based on 6 fasteners per sheet)

BMT	Wind Zone	Roofing		Wall Cladding	
		End/Double	Internal	End/Double	Internal
0.40mm	Low/Medium	2100	3200	2300	3450
	High	1450	2200	1900	2900
	Very High	1250	1900	1700	2600
	Extra High	1050	1600	1500	2300
0.55mm	Low/Medium	2600	3950	2900	4450
	High	2250	3400	2700	4100
	Very High	2000	3000	2500	3800
	Extra High	1650	2500	2300	3500

SLS Low wind zone = 0.68kPa, Medium wind zone = 0.93kPa, High wind zone = 1.32kPa, Very high wind zone = 1.72kPa, Extra high wind zone = 2.09kPa
 ULS Low wind zone = 0.98kPa, Medium wind zone = 1.32kPa, High wind zone = 1.88kPa, Very high wind zone = 2.44kPa, Extra high wind zone = 2.96kPa

SED WIND ZONES

MAXIMUM LOAD kPa (Based on 6 fasteners per sheet)

BMT	Span Type	Limit State	SPAN (mm)				
			1200	1600	1800	2400	3200
0.40mm	End/Double	Serviceability	6.08		2.86	1.92	
		Strength	6.46		4.89	3.67	
	Internal	Serviceability	9.13		4.29	2.89	
		Strength	9.70		7.34	5.81	
0.55mm	End/Double	Serviceability		5.78	5.19	3.52	2.53
		Strength		7.19	6.47	5.34	3.92
	Internal	Serviceability		8.68	7.80	5.29	3.80
		Strength		10.8	9.72	8.02	5.89

FASTENERS REQUIRED PER SHEET PER PURLIN

Fastener requirements for Wind Zones in accordance with NZS3604:2011, using standard fasteners. Stratco 900 roofing is typically fastened through every rib at top and bottom purlins. For Specific Engineering Design conditions and applications contact Stratco. When spans exceed 900mm for roofing or 1200mm for wall cladding, it is recommended the side laps are fixed at midspan to ensure a weatherproof seal and to secure the overlap using 10 x 14mm self drill stitching screws.

0.40 STRATCO 900 G550		WIND ZONE		
ACCESS	SPAN	Low & Medium	High & Very High	Extra High
Restricted	1200	3	3	6
Restricted	1800	3	6	6
Restricted	2400	6	6	6

0.55 STRATCO 900 G550		WIND ZONE		
ACCESS	SPAN	Low & Medium	High & Very High	Extra High
Restricted	1500	3	3	3
Restricted	2100	3	3	6
Restricted	2700	3	6	6
Restricted	3300	6	6	6

3 FASTENERS PER SHEET PER PURLIN	
6 FASTENERS PER SHEET PER PURLIN	

Purlin or frame material	Roofing—Crest Fixed	Wall Cladding—Pan Fixed (18 - 25mm cavity batten)	Wall Cladding—Pan Fixed Direct Fixed	Secondary Fasteners	
				Aluminium Rivets	Screws
	Steel sheeting	Steel sheeting	Steel sheeting	Steel sheeting	
Timber	Class 4 Type 17 14-10x75 Roofing Screw with neoprene washer	Class 4 Type 17 14-10x75 Roofing Screw with neoprene washer	Class 4 Type 17 12-11x40 Roofing Screw with neoprene washer	Residential - Blind AS5-3 x 4mm minimum	Class 4 Type 17 12-11x40 Roofing Screw with neoprene washer
Steel	Class 4 12-14x65 Tek Roofing Screw with neoprene washer	Class 4 12-14x65 Tek Roofing Screw with neoprene washer	Class 4 12-14x20 Tek Roofing Screw with neoprene washer	Commercial - Blind AS6-3 x 4.8mm minimum Bulb-tite	Class 4 12-14x20 Tek Roofing Screw with neoprene washer
	Aluminium sheeting	Aluminium sheeting	Aluminium sheeting	Aluminium sheeting	
Timber	Alutite Type A 14x73 Roofing Screw with EPDM and profile washer	Alutite Type A 14x73 Roofing Screw with bonded washer	Alutite Type A 14x35 Roofing Screw with bonded washer	Residential - Blind AS5-3 x 4mm minimum	Alutite Type A 14x35 Roofing Screw
Steel	SS304 Steel Tek 14 x 70 Roofing Screw with EPDM and profile washer	SS304 Steel Tek 14 x 70 Roofing Screw with bonded washer	SS304 Steel Tek 14 x 32 Roofing Screw with bonded washer	Commercial - Blind AS6-3 x 4.8mm minimum	SS304 Steel Tek 14 x 32 Roofing Screw

- **Clause B2 Durability:** B2.3.1 (b)

Durability in accordance with Table 20 E2/AS1		
Product	Rain Washed Roofs	Walls and Unwashed Areas
Colorsteel Endura / Colorcote Zinacore	B, C, D	B, C
Colorsteel Maxx / Colorcote Magnaflow	B, C, D, E	B, C, D
Colorsteel Altimate / Colorcote Alumiguard	B, C, D, E	B, C, D, E

- **Clause C Fire:** C3.5, C3.6, C3.7
Zinc/alum coated steel, Colorsteel and Colorcote products are rated as a Group 1-S material when tested in accordance with ISO 5660:2002 Part 1 & Part 2

- **Clause E1—Surface Water:** E1.3.2

The pan width and rib height of Stratco 900 gives it excellent water carrying capacity

Capacity Calculation in accordance with Metal Roofing Code of Practice calculators

Minimum Pitch 3 ^o , rainfall intensity 150 mm/hr		
Maximum Run	122m	
Catchment area of spreader	61.11 m ²	20 m run, 4 holes in spreader
Catchment behind penetration	30.55 m ²	20m run, discharging each side of penetration

- **Clause E2 External Moisture:** E2.3.1, E2.3.2, E2.3.7

The versatility of Stratco 900 lends itself to a wide range of details for any application.

Standard design details can be accessed from the web:

www.stratco.co.nz/nz/roofing/nz-roofing-and-walling/stratco900/

Alternative details may comply with solutions for trapezoidal roofing found in E2/AS1, or comply with the 4 “D’s” Deflection, Draining, Drying and Durability.

- **Clause E3—Internal moisture:** E3.3.1

When used with an absorbent, permeable underlay, complying with NZS 2295 2006, Stratco 900 will contribute to compliance with NZBC E3.3.1. Ceiling spaces of sarked roofs, skillion roofs, barrel curved roofs, flat roofs and roofs over moisture laden environments must have provision for adequate ventilation.

- **Clause F2 Hazardous building materials:** F2.3.1

Stratco 900 manufactured from Zinc/alum coated steel, Colorsteel, Colorcote or pre-painted aluminium will meet the performance requirement of F 2.3.1.

- **Clause G12 Water Supplies:** G12.3.2

Colorsteel and Colorcote tested in accordance with AS/NZS 4020:2005 passed the requirements for products in contact with drinking water.

TESTING & SUPPORTING EVIDENCE

NZ Metal Roofing Manufacturers Association Inc. (NZMRM Code of Practice) www.metalroofing.org.nz/cop

COLORSTEEL. NZ Steel www.colorsteel.co.nz/resources/downloads-and-brochures/

ColorCote Pacific Coilcoaters www.colorcote.co.nz/technical-information/

Supporting evidence provided where requested will apply to the product supplied for the specific project.

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.

INSTALLATION

Packs of Stratco 900 sheeting should always be kept dry and stored above ground level on site. If the sheets have become wet, they should be separated, wiped and placed in the open to dry.

Black lead pencils must never be used for marking aluminium/zinc, and unpainted or pre-painted steel products. The carbon in the pencil promotes corrosion which will etch the surface of the material, leaving a permanent mark. Use a pencil of any colour other than black, a marker pen, or crayon.

Cut pre-painted steel material by shear only — use nibblers or hand shears. Friction blades and high-speed saw blades must not be used on metal cladding. These blades will damage both the metallic coating and the pre-painted steel surface by creating excessive heat, and generate hot swarf that will get embedded into the coating surface.

All debris must be swept off the job at the end of each day. Prevention of swarf damage is far easier than its cure.

Stratco 900 sheets should be laid lapping to sit neatly on the preceding roof sheet. Avoid ‘stretching’ the width of the sheet when installing, as this could allow wind and rain to enter.

Roofing is to be crest fixed using fasteners as per the fastener and fastener pattern tables below. Typically fasten through every rib to top and bottom purlins. Load spreading metal profile washers with 30mm EPDM washers to be used when specified. Pan fixing is only suitable for wall cladding applications.

When spans exceed 900mm for roofing or 1200mm for wall cladding, it is recommended the side laps are fixed at midspan to ensure a weatherproof seal and to secure the overlap using self drilling stitching screws.

On roofing, at the end of the sheets, the pans should be turned up at crest of the roof and down into the gutter using a turn up/down tool. Wall cladding is to be turned up on both ends of sheets on horizontal cladding and the top of the sheet on vertical wall cladding. Compressible foam seals may also be required where detailed.

Eaves flashings must be installed where roof pitch is $\leq 10^\circ$ and/or soffit width is $\leq 100\text{mm}$ or wind zones are either Very High, Extra High or Specific Engineer Design.

When walking on Stratco 900 roofing, it is recommended you walk over the purlins to avoid any damage. Wear flat, rubber soled shoes and walk flat footed spreading your weight over at least two ribs. For carport and verandah applications, use crawl boards to avoid damage during installation and maintenance.

Cavity batten is required to be used under Stratco 900 wall cladding for both vertical and horizontal cladding. If cavity batten is used over the roof purlins, the screw length will need to be increased by at least the cavity batten thickness.

Flashings are to be installed as detailed and are to comply with NZ Building Code, E2/AS1 and/or NZMRM Code of Practice. All flashing turn downs into the pan of Stratco 900 sheeting are to be notched around the rib to provide maximum weather tightness. Refer www.stratco.co.nz/nz/roofing/nz-roofing-and-walling/stratco900/

CURVING

Drape (Spring) Curving— 0.55—Stratco 900 will drape curve to a minimum 90 metre radius.

Where the roof pitch is less than 3°, laps are to be sealed using a self adhesive closed cell lapseal tape.

MAINTENANCE

All roofing and cladding products are subject to the cumulative effects of weather, dust and other deposits so the performance and durability of Stratco 900 roofing and wall cladding over time depends on its correct maintenance. For roofing, normal rain washing will remove most accumulated atmospheric contaminants from the top side of roofs.

Wall cladding requires manual washing every 3 to 12 months (depending on the local environment and paint system), to prevent build up of dirt, debris or other material that is not otherwise removed by rain washing.

Areas that do not receive adequate rain washing (known as unwashed areas) require more extensive manual washing. These areas include soffits, wall cladding under eaves, undersides of gutters, fascias, sheltered areas of garage doors, unwashed roof areas, and other high risk areas like around flues, under television aerials and solar panels or in sites prone to mould, lichen, bird droppings or debris.

Washing your roofing and cladding Roofing and cladding products should be manually washed by either water and a sponge or a soft nylon-bristled brush or by water blasting at pressures of no more than 20MPa. Never use abrasive or solvent based cleaners such as turps, petrol or kerosene.

WEIGHTS & TOLERANCES

Weight		0.40 BMT	0.55 BMT	0.70 Aluminium	0.90 Aluminium
Kg/lineal metre	Painted	4.10	5.52	2.30	2.95
	Unpainted	4.03	5.46		
Kg/square metre	Painted	4.56	6.13	2.56	3.28
	Unpainted	4.48	6.07		

Tolerances: Sheet width +/- 5mm Sheet length +/-10mm

SECTION 26 OF THE BUILDING ACT

Stratco 900 roofing and wall cladding products are not subject to any warnings or bans under Section 26 of the Building Act.

ENVIRONMENT

Stratco has Toitu Enviromark Gold Certification. Stratco sites recycle all steel scrap and offcuts which can then be remelted for use in other steel products.

Steel is infinitely recyclable so at the end of its useful life as roofing or wall cladding the product can be recycled and remelted for other steel products.

Appendix

As reference, this appendix contains the full descriptions of all building performance clauses listed in this document.

B1 Structure

B1.3.1

Buildings, building elements and sitework shall have a low probability of rupturing, becoming unstable, losing equilibrium, or collapsing during *construction or alteration* and throughout their lives.

B1.3.2

Buildings, building elements and sitework shall have a low probability of causing loss of amenity through undue deformation, vibratory response, degradation, or other physical characteristics throughout their lives, or during *construction or alteration* when the *building* is in use.

B1.3.3

Account shall be taken of all physical conditions likely to affect the stability of *buildings, building elements and sitework*, including:

- (b) imposed gravity loads arising from use
- (c) temperature
- (f) earthquake
- (g) snow
- (h) wind
- (j) Impact

B1.3.4

Due allowances shall be made for:

1. the consequences of failure,
2. the intended use of the *building*,
3. effects of uncertainties resulting from *construction* activities, or the sequence in which *construction* activities occur,
4. variation in the properties of materials and the characteristics of the site, and
5. accuracy limitations inherent in the methods used to predict the stability of *buildings*

B2 Durability

B2.3.1

Building elements must, with only normal maintenance, continue to satisfy the performance requirements of this code for the lesser of the *specified intended life* of the *building*, if stated, or:

(b) 15 years if:

- i. those *building elements* (including the *building* envelope, exposed plumbing in the subfloor space, and in-built chimneys and flues) are moderately difficult to access or replace, or
- ii. failure of those *building elements* to comply with the *building code* would go undetected during normal use of the *building*, but would be easily detected during normal maintenance.

C3 Fire affecting areas beyond the fire source

C3.5

Buildings must be designed and constructed so that *fire* does not spread more than 3.5 m vertically from the *fire source* over the external cladding of multi-level *buildings*.

C3.6

Buildings must be designed and constructed so that in the event of *fire* in the *building* the received radiation at the *relevant boundary* of the property does not exceed 30 kW/m² and at a distance of 1 m beyond the *relevant boundary* of the property does not exceed 16 kW/m².

Appendix

C3.7

External walls of *buildings* that are located closer than 1 m to the *relevant boundary* of the property on which the *building* stands must either:

- a. be constructed from materials which are not *combustible building materials*, or
- b. for *buildings* in importance levels 3 and 4, be constructed from materials that, when subjected to a radiant flux of 30 kW/m^2 , do not ignite for 30 minutes, or
- c. for *buildings* in Importance Levels 1 and 2, be constructed from materials that, when subjected to a radiant flux of 30 kW/m^2 , do not ignite for 15 minutes.

E1 Internal moisture

E1.3.2

Surface water, resulting from an event having a 2% probability of occurring annually, shall not enter *buildings*.

Performance E1.3.2 shall apply only to *housing*, *communal residential* and *communal non-residential buildings*.

E2 External moisture

E2.3.1

Roofs must shed precipitated moisture. In locations subject to snowfalls, roofs must also shed melted snow.

E2.3.2

Roofs and exterior walls must prevent the penetration of water that could cause undue dampness, damage to *building elements*, or both.

E2.3.7

Building elements must be constructed in a way that makes due allowance for the following:

- a. the consequences of failure:
- b. the effects of uncertainties resulting from *construction* or from the sequence in which different aspects of *construction* occur:
- c. variation in the properties of materials and in the characteristics of the site.

E3 Internal moisture

E3.3.1

An *adequate* combination of *thermal resistance*, ventilation, and space temperature must be provided to all *habitable spaces*, bathrooms, laundries, and other spaces where moisture may be generated or may accumulate.

Performance E3.3.1 does not apply to *communal non-residential*, *commercial*, *industrial*, *outbuildings*, or *ancillary buildings*.

F2 Hazardous building materials

F2.3.1

The quantities of gas, liquid, radiation or solid particles emitted by materials used in the *construction* of *buildings*, shall not give rise to harmful concentrations at the surface of the material where the material is exposed, or in the atmosphere of any space.

G12 Water Supplies

G12.3.2

A potable *water supply system* must be—

1. protected from contamination; and
2. installed in a manner that avoids the likelihood of contamination within the system and the water main; and
3. installed using components that will not contaminate the water.