



CERTIFICATE OF COMPLIANCE

Date: February 22, 2019

Certificate no. FAC-882 Rev. 1

ACE GUTTERS PTY LTD – CORRUGATED ROOF AND WALL CLADDING

Specification of items certified: Refer to drawing FA-AG-882 Rev. 1

Aspects of cladding certified: Spans for roofing and walling applications in residential building

BASIS OF CERTIFICATION

The following documents were referred to in making this certification:

- a. NCC2016 Volume 2
- b. AS 4100:1998 (R2016) Steel structures
- c. AS/NZS 4600:2018 Cold-formed steel structures
- d. AS 4055:2012 Wind loads for housing
- e. AS 1170.1:2002 (R2016) Structural design actions. Permanent, imposed and other actions


CERTIFICATION

I certify that the spans in drawing FA-AG-882 Rev. 1 comply with the requirements of the Codes and Standards listed above.

CONDITIONS OF CERTIFICATION

The spans are valid for:

- a. Residential buildings. (Refer to AS4055 for definition of residential building)
- b. Maximum roof pitch of 35° (minimum roof pitch is 5° for water drainage purposes)
- c. Minimum screw size of 12g and G550, 1.0mm (BMT) support material (check screw capacity if using smaller screws or thinner/weaker support material)


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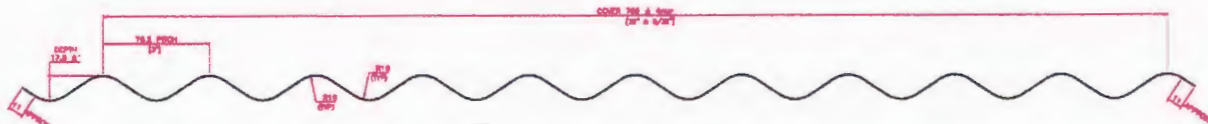
ACE GUTTERS – RESIDENTIAL BUILDING SPAN TABLES

CORRUGATED ROOF AND WALL CLADDING – SPAN TABLES FOR NON-CYCLONIC AREAS

ACE CORRUGATED SPECIFICATIONS

Material	High tensile steel, G550
Base metal thickness (B.M.T.)	Available in either 0.42 or 0.48mm
Cover	762 mm (width)
Profile height	17 mm
Finish	Available in ZINCALUME® or DURAKOTE
Minimum roof pitch	5°

SHEET PROFILE



BMT (mm)	APPLICATION	SPAN TYPE	AS4055 Wind Classification							
			3 Fasteners per support				5 Fasteners per support			
			N1	N2	N3	N4	N1	N2	N3	N4
0.42	Roof	Single	700	700	600	-	700	700	700	700
		End	900	900	750	-	950	900	900	900
		Internal	1200	1200	1050	-	1200	1200	1200	1200
	Wall	Single	1650	1350	1050	900	1650	1500	1350	1300
		End	2100	1550	1100	1000	2100	1900	1500	1450
		Internal	2600	2200	1700	1450	2600	2300	2050	1950
0.48	Roof	Single	800	800	600	-	800	800	800	800
		End	1300	1300	1000	-	1300	1300	1300	1300
		Internal	1600	1600	1550	-	1600	1600	1600	1600
	Wall	Single	1800	1450	1000	950	1800	1750	1450	1400
		End	2250	1850	1500	1300	2250	1950	1700	1650
		Internal	2700	2200	1950	1800	2700	2300	2100	2000

Notes:

- All spans are in mm and are valid for 12g screws and G550, 1.0mm BMT support material. Check screw capacity if using smaller screws or thinner support material.
- Refer to AS4055 for definition of residential building

TABLE 1. ACE CORRUGATED SPANS FOR RESIDENTIAL BUILDING

BMT (mm)	Application	Span type	Maximum recommended span – (mm)
0.42	Roof	Single	700
		End	900
		Internal	1200
	Wall	Single	1650
		End	2100
		Internal	2600
0.48	Roof	Single	800
		End	1300
		Internal	1600
	Wall	Single	1800
		End	2250
		Internal	2700

TABLE 2. MAXIMUM RECOMMENDED SPANS

	Fixed to steel		Fixed to timber	
	≥0.55 to 1.0mm BMT	≥1.0 to 3.0mm BMT	Hardwood	Softwood
Crest fixed	Roof Zips M6-11x50	12-14x35, HH Tekes	12-11x50, Type 17, HH	12-11x50, Type 17, HH; or Roof Zips M6-11x50
Pan fixed	10-16x16, HH Tekes; or Roof Zips M6-11x25	10-16x16, HH Tekes	10-12x25, Type 17, HH; or 12-11x25, Type 17 HH	10-12x30, Type 17, HH; or 12-11x25, Type 17, HH; or Roof Zips M6-11x25

Notes:

- HH stands for Hex Head
- All screws should be used with neoprene sealing washers
- Longer screws may be required if roof insulation is used under the sheets

TABLE 3. RECOMMENDED FASTENERS



CERTIFICATE OF COMPLIANCE

Date: October 23, 2020

Certificate no. FAC-954

ACE GUTTERS PTY LTD - CORRUGATED ROOF AND WALL CLADDING

ITEM CERTIFIED Design data and information given in report no. FA-AG-954, Revision date – 23 October 2020.

BASIS OF CERTIFICATION

The following documents were referred to in making this certification:

CTS Report No. TS1193	Concentrated Load Testing, Serviceability and Static Simulated Wind Load Strength Testing of Corrugated Roof Cladding
AS 4100:1998 (R2016)	Steel structures
AS/NZS 4600:2018	Cold-formed steel structures
AS 4055:2012	Wind loads for housing
AS 1170.1:2002 (R2016)	Structural design actions. Permanent, imposed and other actions
AS1562.1:2018	Design and installation of sheet roof and wall cladding
AS4040.0:1992 (R2016)	Methods of testing sheet roof and wall cladding. Introduction, list of methods and general requirements
AS4040.1:1992 (R2016)	Methods of testing sheet roof and wall cladding. Resistance to concentrated loads
AS4040.2:1992 (R2016)	Methods of testing sheet roof and wall cladding. Resistance to wind pressures for non-cyclonic regions)
NCC2019	National Construction Code 2019 (Volumes 1, 2 and 3)

CERTIFICATION

I certify that the design data and information in document number FA-AG-954 comply with the requirements of the Codes and Standards listed above.

Regards

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REPORT NO. FA-AG-954

23 October 2020

DESIGN CAPACITY OF CORRUGATED CLADDING

PREPARED FOR

ACE GUTTERS PTY LTD

BY

FERNANDES & ASSOCIATES PTY LTD
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IMPORTANT NOTES

This manual has been prepared for Corrugated roof and wall cladding manufactured and distributed by Ace Gutters Pty Ltd.

DISCLAIMER

The design capacity tables presented in this manual have been obtained from results of tests carried out by the Cyclone Testing Station at James Cook University, Townsville, Qld, Australia. This manual is intended to be an aid for building professionals and designers and is only valid for Corrugated cladding manufactured and distributed by Ace Gutters Pty Ltd. It is not a substitute for professional advice - please seek professional advice regarding the use of this product.



INTRODUCTION

This report has been prepared for building designers and specifiers who wish to use Corrugated roof and wall cladding in non-cyclonic regions of Australia. The design capacity tables for the panels in this report have been prepared from results of static wind pressure tests carried out by the Cyclone Testing Station (CTS) at James Cook University (JCU).

CORRUGATED PANEL SPECIFICATIONS

The properties of the Corrugated roof and wall claddings manufactured and distributed by Ace Gutters Pty Ltd are given in Table 1.

TABLE 1. CORRUGATED PROPERTIES

Product	Base metal thickness (BMT) (mm)	Cladding application	Nominal profile height (mm)	Crest centres/pitch (mm)	Cover (mm)	Weight (kg/m ²)	
						ALUZINC	DURAKOTE®
Corrugated	0.42	Roof and Wall	17	76.2	762	4.29	4.36
	0.48					4.85	4.92

FIGURE 1. CORRUGATED PROFILE



Profile height – 17mm; Crest centres/pitch – 76.2mm; Cover – 762mm



MATERIAL

Corrugated panels are manufactured from G550 high tensile steel (complying with AS1397:2011) with a minimum yield stress of 550MPa and coating mass of 125g/m². Corrugated panels are available in Aluzinc finish or in a variety of pre-painted DURAKOTE® colour coatings complying with AS/NZS2728:2013. They are available in thicknesses of 0.42 or 0.48mm base metal thickness (BMT).

FASTENERS

Corrugated panels can be fixed directly to steel or timber supports using 3 or 5 screws per support. The capacity tables presented in this manual were prepared from results of tests carried out using 3 screws per support. The recommended fasteners are given in the Table 2 below.

TABLE 2. RECOMMENDED FASTENERS

Fixing to	Steel supports, 0.55mm to 1.0mm BMT	Steel supports, 1.0mm to 3.0mm BMT	Timber hardwood supports	Timber softwood supports	Stitching screws side lap screws
Recommended fastener	Roof Zips® M6- 11x50mm	12-14x50mm Teks, Hex Head or M6- 13x50 self-drilling metal screws	12-11x50mm, Type 17, Hex Head	12-11x50mm, Type 17, Hex Head or Roof Zips® M6- 11x25mm	10-16x16mm Teks. Hex Head or M6- 11x25mm Roof Zips®

Notes:

1. Use longer screws if using roof insulation under the panels
2. All screws should be used with neoprene sealing washers
3. Use stitching or side lap screws at mid-span for spans over 900mm.

INSTALLATION OF CORRUGATED PANELS

Details on installing Corrugated panels are given in the Corrugated Installation Guide. Visit www.acegutters.com.au or contact Ace Gutters Pty Ltd to get a copy of the guide.

DESIGN CAPACITY TABLES

Limit state design wind pressures (for uplift) and concentrated loads for foot traffic are given in the tables below. Span types in the tables are as shown in Figure 2.



FIGURE 2. SPAN TYPES IN TABLES

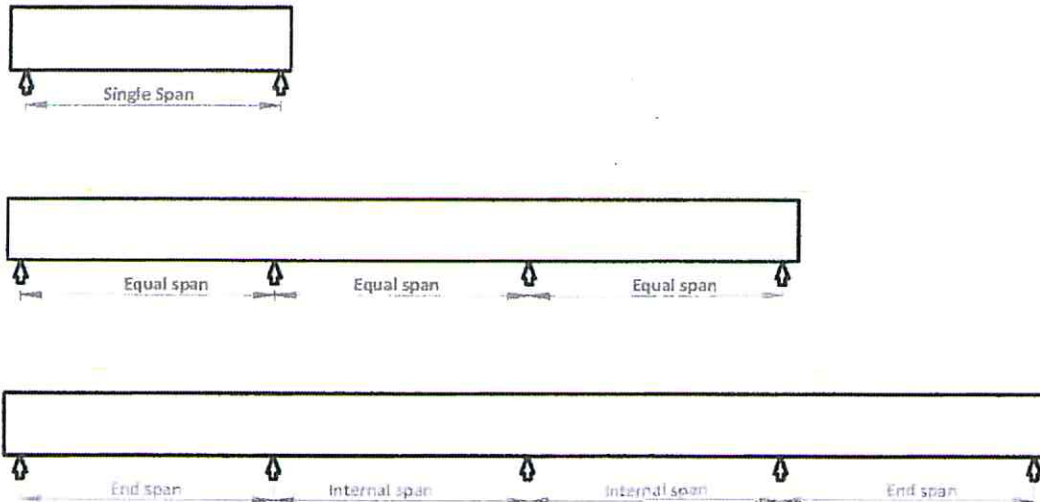


TABLE 3. CORRUGATED SERVICEABILITY LIMIT STATE DESIGN WIND CAPACITY (UPLIFT) (kPa)

BMT (mm)	Span type	Span (mm)						
		900	1200	1500	1800	2100	2400	2700
0.42	Equal	1.29	1.06	0.86	0.64	0.57	0.48	0.26
	Internal	1.42	1.16	0.94	0.70	0.63	0.53	0.29
	End	1.14	0.93	0.76	0.56	0.50	0.42	0.23
0.48	Equal	1.60	1.30	1.04	0.73	0.66	0.56	0.30
	Internal	1.76	0.73	1.14	0.80	0.72	0.61	0.33
	End	1.41	1.14	0.92	0.64	0.58	0.49	0.26

Note: Design capacity tables were prepared from tests using 3 screws per support



TABLE 4. CORRUGATED ULTIMATE STRENGTH LIMIT STATE DESIGN WIND CAPACITY (UPLIFT) (kPa)

BMT (mm)	Span type	Span (mm)						
		900	1200	1500	1800	2100	2400	2700
0.42	Equal	6.86	5.32	4.09	3.55	3.07	2.59	2.11
	Internal	7.53	5.84	4.49	3.89	3.37	2.84	2.31
	End	6.04	4.68	3.60	3.12	2.70	2.28	1.86
0.48	Equal	8.94	7.11	5.58	4.13	3.55	2.98	2.40
	Internal	9.81	7.80	6.12	4.53	3.90	3.27	2.63
	End	7.87	6.26	4.91	3.63	3.13	2.62	2.11

Note: Design capacity tables were prepared from tests using 3 screws per support per sheet

TABLE 5. SINGLE SPAN CAPACITY (kPa)

BMT (mm)	Span type	Limit state	Span length (mm)	
			700	800
0.42	Single	Serviceability	1.08	NA
		Strength	7.44	
0.48	Single	Serviceability	NA	1.52
		Strength		7.63

Note: Design capacity tables were prepared from tests using 3 screws per support per sheet




TABLE 6. RECOMMENDED SPANS FOR FOOT TRAFFIC

BMT (mm)	Span type	Maximum span length ¹ (mm)
0.42	Triple Equal Span	1500
0.48	Triple Equal Span	1800

¹ Maximum span for foot traffic is based on applying a concentrated (downwards) load of 1.1kN in any position on the roof. (A person may walk anywhere on the roof cladding)

REFERENCES

CTS Report No. TS1193	Concentrated Load Testing, Serviceability and Static Simulated Wind Load Strength Testing of Corrugated Roof Cladding
AS1562.1:2018	Design and installation of sheet roof and wall cladding
AS1397:2011	Continuous hot-dip metallic coated steel sheet and strip – Coatings of zinc and zinc alloyed with aluminium and magnesium
AS/NZS2728:2013	Prefinished/prepainted sheet metal products for interior/exterior building applications. Performance requirements
AS4040.0:1992 (R2016)	Methods of testing sheet roof and wall cladding. Introduction, list of methods and general requirements
AS4040.1:1992 (R2016)	Methods of testing sheet roof and wall cladding. Resistance to concentrated loads
AS4040.2:1992 (R2016)	Methods of testing sheet roof and wall cladding. Resistance to wind pressures for non-cyclonic regions)
NCC2019	National Construction Code 2019 (Volumes 1, 2 and 3)


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