



CERTIFICATE OF COMPLIANCE

Date: May 26, 2020

Certificate no. FAC-937-001 Rev. 1

ACE GUTTERS PTY LTD – 40mm, G550 Battens

DESCRIPTION OF ITEMS CERTIFIED: 40mm-G550 Top Hat Battens (0.48 and 0.55mm BMT)

ASPECTS OF BATTENS CERTIFIED: Design Data and Information in Fernandes & Associates Pty Ltd, Report No. FA-937-001 Rev. 1

BASIS OF CERTIFICATION

The following documents were referred to in making this certification:

- a. AS/NZS 1170.1:2002
- b. AS/NZS 1170.2:2011
- c. AS/NZS 4600:2018
- d. AS4055:2012

CERTIFICATION

I certify that the design data and capacity tables in Report No. FA-937-001 Rev. 1 have been prepared in accordance with the requirements of the Codes and Standards listed above.

Milton Fernandes – FIEAust CPEng NER APEC Engineer IntPE(Aus) RPEQ4112 RBP-VBA EM63270
Principal Engineer
For/and on behalf of
Fernandes & Associates Pty Ltd
milton@fernandes.net.au
Mobile: 0411 760 565





ACE GUTTER PTY LTD
40mm G550 TOP HAT BATTENS
DESIGN CAPACITY TABLES FOR NON-CYCLONIC REGIONS

CONTENTS

- INTRODUCTION
- BATTEN PROFILE
- APPLICATION
- SECTION PROPERTIES
- DESIGN CAPACITIES
- SPANS FOR HOUSES
- DISCLAIMER
- REFERENCES

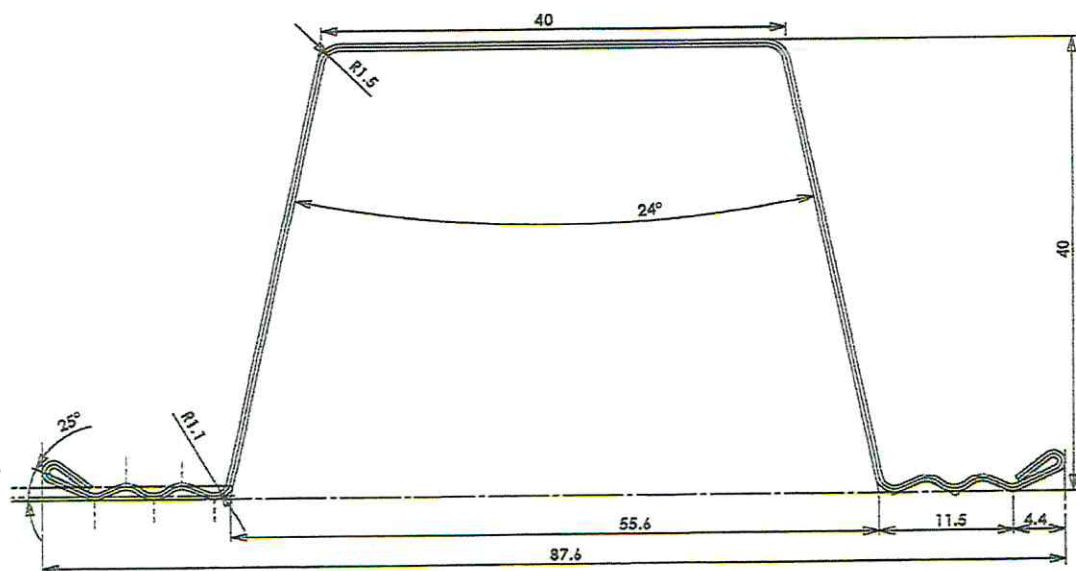
INTRODUCTION

This document for 40mm, G550 top hat battens manufactured and/or distributed by Ace Gutter Pty Ltd has been prepared using software developed by the University of Sydney, Australia. The design capacity tables comply with the requirements AS/NZS4600:2018.

BATTEN PROFILE

The 40mm high battens are available in 2 thicknesses – 0.48 and 0.55mm (B.M.T.) steel. They are manufactured from G550 (550 MPa) high tensile steel with coatings that comply with AS1397 AZ150. For more severe environmental conditions heavier coating thicknesses are available. Please contact Ace Gutters for assistance.

FIGURE 1. BATTEN PROFILE





APPLICATION

The 40mm sections are suitable for roofing and walling applications

SECTION PROPERTIES

TABLE 1. FULL SECTION PROPERTIES

FULL SECTION PROPERTIES – 40mm BATTENS													
Section	BMT (mm)	Mass (Kg/m)	Area (mm ²)	I_x (10 ³ mm ⁴)	I_y (10 ³ mm ⁴)	$Z_{x,top}$ (10 ³ mm ³)	$Z_{x,bot}$ (10 ³ mm ³)	Z_y (10 ³ mm ³)	r_x (mm)	r_y (mm)	J (mm ⁴)	β_x (mm)	I_w (10 ⁶ mm ⁴)
ATH4048	0.48	0.65	75.8	19.10	52.19	0.966	0.966	1.200	15.77	26.07	5.898	-90.56	3.571
ATH4055	0.55	0.75	88.0	21.88	59.80	1.107	1.107	1.375	15.77	26.07	8.873	-90.56	4.092

DESIGN CAPACITIES

TABLE 2. DESIGN CAPACITY TABLES

DESIGN CAPACITY TABLE ¹ FOR 40 mm/G550 BATTENS – TRIPLE UNLAPPED SPANS (kN/m)								
SPAN (mm)	ATH4048				ATH4055			
	DOWNWARDS LOAD ³	UPWARDS LOAD ⁴	1.1kN CONCENTRATED LOAD ²	LOAD FOR SPAN/300 DEFLECTION	DOWNWARDS LOAD ³	UPWARDS LOAD ⁴	1.1kN CONCENTRATED LOAD ²	LOAD FOR SPAN/300 DEFLECTION
600	7.81	5.72	PASS	8.67	9.81	7.40	PASS	9.93
900	3.25	2.57	PASS	2.57	4.07	3.21	PASS	2.94
1200	1.70	1.34	-	1.08	2.12	1.66	PASS	1.24
1500	1.01	0.78	-	0.55	1.25	0.97	-	0.64
1800	0.65	0.48	-	0.32	0.79	0.60	-	0.37

Notes:

- ¹ Design capacities have been calculated with roofing sheets installed
- ² Walking directly on un-cladded battens is not permitted
- ³ Downwards load is towards the batten
- ⁴ Upwards load is away from the batten
- ⁵ Design capacity tables have been prepared in accordance with AS/NZS4600:2018
- ⁶ Deflections are calculated using full section properties



SPAN FOR HOUSES

40mm TOP HAT BATTENS

The tables for the 40mm batten have been prepared using design wind speeds and wind loads as specified in AS4055-2012 and are applicable to houses with the following geometric limits:

- a. Distance from ground level to the underside of eaves does not exceed 6.0m.
- b. Distance from ground level to the highest point of the roof (excluding chimneys) does not exceed 8.5m.
- c. Width including roofed verandas (excluding eaves) does not exceed 16.0m, and the length does not exceed five times the width.
- d. Roof pitch does not exceed 35°.

ULTIMATE STRENGTH PRESSURES

The ultimate strength wind pressures on a roof for different wind classifications, as specified in AS4055-2012 are given in Table 3.

TABLE 3 WIND PRESSURES ON HOUSING ROOF

AS 4055 wind classification	Downward pressure (applies to whole roof) (kPa)	Upwards pressure (uplift) (kPa)		
		Roof edge	Roof general area	Roof edge corner
N1	+0.44	-1.25	-0.69	-1.81
N2	+0.60	-1.73	-0.95	-2.51
N3	+0.95	-2.70	-1.49	-3.92
N4	+1.41	-4.02	-2.21	-5.83
N5	+2.07	-5.91	-3.25	-8.58
N6	+2.80	-7.99	-4.39	-11.58

FIGURE 2 PRESSURE ZONES IN HOUSING ROOF (PLAN VIEW)

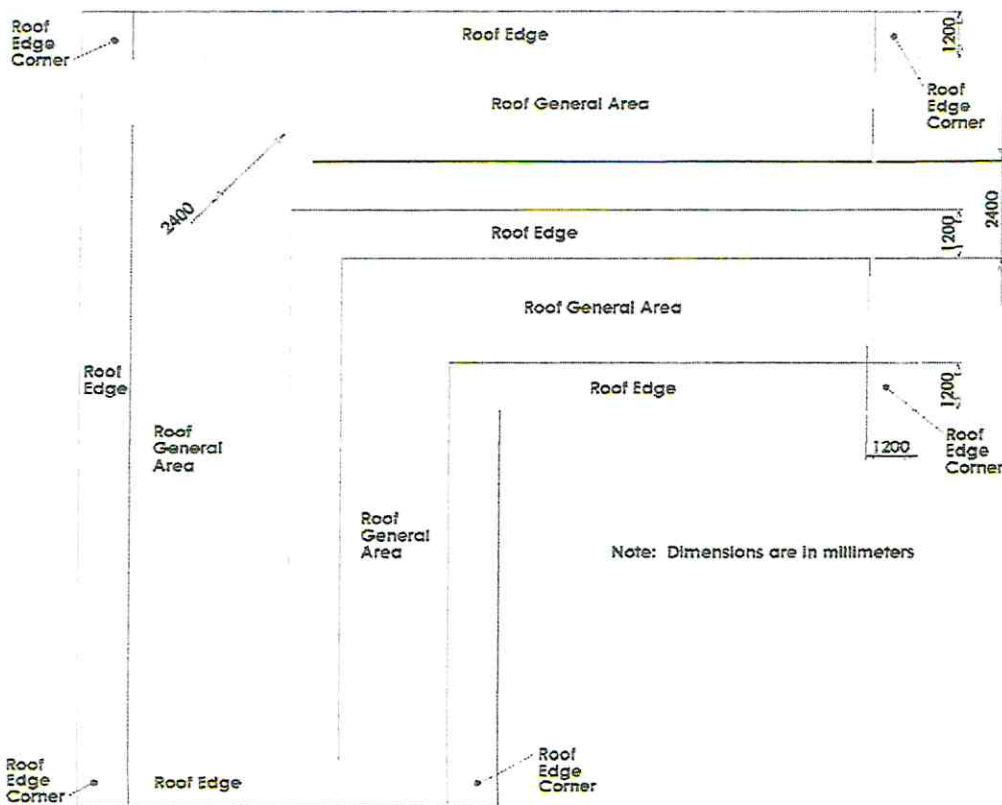




TABLE 4 MAXIMUM BATTEN SPANS FOR HOUSING ROOF

AS 4055 wind class	Location on roof	Batten spacing (mm)					
		ATH4048			ATH4055		
		450	600	900	450	600	900
N1	Roof edge	900	900	900	1200	1200	1200
	Roof general area	900	900	900	1200	1200	1200
	Roof edge corner	900	900	900	1200	1200	1200
N2	Roof edge	900	900	900	1200	1200	1200
	Roof general area	900	900	900	1200	1200	1200
	Roof edge corner	900	900	900	1200	1200	900
N3	Roof edge	900	900	900	1200	1200	900
	Roof general area	900	900	900	1200	1200	1200
	Roof edge corner	900	900	600	900	900	600

Notes about span tables:

1. Maximum battens spans are calculated for triple equal spans and are in millimeters
2. The maximum batten span is the lower of the two - maximum uplift design capacity or maximum span for foot traffic (1.1kN concentrated downwards force).
3. Exposed/un-cladded roof battens are not trafficable. All spans are based with roofing sheets attached.

TABLE 5 MAXIMUM TRIPLE EQUAL SPANS FOR CONCENTRATED LOAD

Section	ATH040048	ATH4055
Maximum span ¹ for 1.1kN concentrated load (mm)	900	1200

¹ Maximum spans for concentrated load are for triple equal spans with roof sheets attached

DISCLAIMER

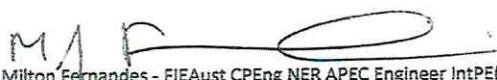
This document is intended to be an aid for building professionals and designers and is only valid for battens manufactured and distributed by Ace Gutters Pty Ltd.

The tables have been prepared having made some assumptions which have been clearly stated in the footnotes of the tables. It is the responsibility of the designer to check whether the assumptions are valid for their particular applications. This document is not a substitute for professional advice - please seek professional advice regarding the use of this product.

REFERENCES

- | | |
|-------------------|---|
| AS/NZS1170.1:2002 | Structural design actions. Permanent, imposed and other actions |
| AS/NZS1170.2:2011 | Structural design actions. Wind actions |
| AS/NZS4600:2018 | Cold-formed steel structures |
| AS4055:2012 | Wind loads for housing |

Prepared by:


Milton Fernandes - FIEAust CPEng NER APEC Engineer IntPE(Aus) RPEQ4112 RBP-VBA EM63270
Principal Engineer
For and on behalf of:
Fernandes & Associates Pty Ltd
Mobile: 0411 760 565
Email: milton@fernandes.net.au

 ENGINEERS AUSTRALIA	Milton J. Fernandes RPEQ, FIEAust CPEng Chartered Professional Engineer Membership No. 920595 Engineers Australia
	Registered Professional Engineer of Queensland RPEQ 4112