

AS 1684.3 C1 Supplement 9—2010

Residential timber-framed construction

Part 3: Cyclonic areas

C1 Supplement 9: Timber framing span tables—Wind classification C1— Seasoned hardwood—Stress Grade F27 (Supplement to AS 1684.3—2010)



This Australian Standard Supplement was prepared by Committee TM-002, Timber Framing. It was approved on behalf of the Council of Standards Australia on 21 December 2009. This Standard was published on 21 June 2010.

The following are represented on Committee TM-002:

- A3P
- Association of Consulting Engineers, Australia
- Australian Building Codes Board
- Australian Institute of Building
- Building Research Association of New Zealand
- CSIRO Manufacturing and Infrastructures Technology
- Engineered Wood Products Association of Australasia
- Engineers Australia
- Forest Industries Federation (WA)
- Frame and Truss Manufacturers Association Australia
- Housing Industry Association
- Master Builders, Australia
- New Zealand Timber Industry Federation
- Scion
- South Australian Housing Trust
- Timber and Building Materials Association, NSW
- Timber Development Association, NSW
- Timber Queensland

Additional Interests:

- Mr Peter Juniper
-

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Supplement through their representation on the Committee.

Keeping Standards up-to-date

Australian Standards® are living documents that reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued.

Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments that may have been published since the Standard was published.

Detailed information about Australian Standards, drafts, amendments and new projects can be found by visiting **www.standards.org.au**

Standards Australia welcomes suggestions for improvements, and encourages readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at **mail@standards.org.au**, or write to Standards Australia, GPO Box 476, Sydney, NSW 2001.

AS 1684.3 C1 Supplement 9—2010

Residential timber-framed construction

Part 3: Cyclonic areas C1 Supplement 9: Timber framing span tables—Wind classification C1— Seasoned hardwood—Stress Grade F27 (Supplement to AS 1684.3—2010)

First published as AS 1684.3 C1 Supp 9—1999.
Second edition 2006.
Third edition 2010.

COPYRIGHT

© Standards Australia

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Published by Standards Australia GPO Box 476, Sydney, NSW 2001, Australia
ISBN 978 0 7337 9544 2

LIST OF TABLES

SINGLE OR UPPER STOREY

- 1 FLOOR BEARERS – Supporting single or upper storey loadbearing walls – FLW 1200
- 2 FLOOR BEARERS – Supporting single or upper storey loadbearing walls – FLW 2400
- 3 FLOOR BEARERS – Supporting single or upper storey loadbearing walls – FLW 3600
- 4 FLOOR BEARERS – Supporting single or upper storey loadbearing walls – FLW 4800
- 5 FLOOR BEARERS – Supporting floor load only
- 6 FLOORJOISTS
- 7 WALL STUDS – Not notched single or upper storey
- 8 WALL STUDS – Notched 20 mm single or upper storey
- 9 STUDS SUPPORTING CONCENTRATED LOADS – Not notched
- 10 STUDS SUPPORTING CONCENTRATED LOADS – Notched to 20 mm
- 11 JAMB STUDS – Single or upper storey
- 12 INTERNAL LOADBEARING WALL STUDS – Not notched single or upper storey
- 13 INTERNAL LOADBEARING WALL STUDS – Notched to 20 mm single or upper storey
- 14 BOTTOM PLATES - Supporting single or upper storey
- 15 TOP PLATES – Single or upper storey sheet roof
- 16 TOPPLATES- Single or upper storey tile roof
- 17 LINTELS – Sheet roof – Single or upper storey loadbearing walls
- 18 LINTELS – Tile roof – Single or upper storey loadbearing walls
- 19 LINTELS – Sheet roof – Supporting concentrated roof loads
- 20 LINTELS – Tile roof – Supporting concentrated roof loads
- 21 CEILING JOISTS – Supporting ceiling loads, no overbatten
- 22 CEILING JOISTS – Supporting ceiling loads with overbatten
- 23 HANGING BEAMS – Supporting ceiling loads
- 24 COUNTERBEAMS
- 25 STRUTTING/HANGING BEAMS – Supporting roof & ceiling loads
- 26 STRUTTING/COUNTER BEAMS – Supporting roof & ceiling loads
- 27 STRUTTINGBEAMS
- 28 UNDERPURLINS
- 29 RAFTERS OR PURLINS
- 30 RIDGE OR INTERMEDIATE BEAMS – Single span
- 31 RIDGE OR INTERMEDIATE BEAMS – Continuous span
- 32 ROOF BATTENS – Supporting roofing only

LOWER STOREY OF TWO STOREY

- 33 FLOOR BEARERS – Supporting two storey loadbearing walls – FLW 1800
- 34 FLOOR BEARERS – Supporting two storey loadbearing walls – FLW 3600
- 35 FLOOR BEARERS – Lower Storey of two storey supporting upper and lower floor loads only
- 36 WALL STUDS – Not notched lower storey loadbearing walls
- 37 WALL STUDS - Notched to 20 mm lower storey loadbearing walls
- 38 STUDS – Not notched – Supporting concentrated floor loads
- 39 STUDS – Notched to 20 mm – Supporting concentrated floor loads
- 40 JAMB STUDS – Lower storey of two storey – FLW 1800
- 41 JAMB STUDS – Lower storey of two storey – FLW 3600
- 42 JAMB STUDS – Lower storey of two storey – FLW 4800
- 43 WALL STUDS - Not notched supporting floor loads only
- 44 WALL STUDS - Notched to 20 mm supporting floor loads only
- 45 BOTTOM PLATES – Lower storey of two storey
- 46 TOP PLATES – Lower storey of two storey
- 47 LINTELS – Lower storey loadbearing walls – Sheef roof
- 48 LINTELS – Lower storey loadbearing walls – Tile roof

VERANDAHS, POSTS & DECKS

- 49 DECK BEARERS
- 50 DECK JOISTS
- 51 VERANDAH BEAMS – Single span
- 52 VERANDAH BEAMS – Continuous span
- 53 POSTS SUPPORTING ROOF AND/OR FLOOR LOADS

TABLE 1 **FLOOR BEARERS - Floor load width 1200 mm**
Supporting single or upper storey loadbearing walls

Roof Load Width (mm)	1500		4500		7500		1500		4500		7500	
Size DxB (mm)	Maximum Bearer Span (mm)											
	Span	Cantilever	Span	Cantilever	Span	Cantilever	Span	Cantilever	Span	Cantilever	Span	Cantilever
	Single Span						Continuous Span					
Sheet Roof												
2/90x35	1700	500	1500	400	1300	300	2300	650	2000	600	1800	500
2/90x45	1800	500	1600	400	1400	400	2500	700	2100	600	1900	500
2/120x35	2200	600	1900	500	1700	500	3000	850	2600	700	2400	700
2/120x45	2400	700	2100	600	1900	500	3300	950	2900	800	2600	700
2/140x35	2600	700	2300	600	2000	600	3500	1000	3100	900	2800	800
2/140x45	2800	800	2500	700	2200	600	3800	1100	3300	900	3000	900
2/170x35	3200	900	2700	800	2500	700	4100	1200	3700	1100	3400	1000
2/170x45	3400	1000	3000	900	2700	800	4400	1300	3900	1100	3600	1000
2/190x35	3500	1000	3100	900	2800	800	4500	1350	4000	1200	3700	1100
2/190x45	3800	1100	3300	900	3000	900	4800	1400	4300	1200	4000	1200
2/240x35	4200	1200	3800	1100	3500	1000	5300	1500	4800	1400	4400	1300
2/240x45	4500	1300	4000	1200	3700	1100	5700	1700	5100	1500	4700	1400
2/290x35	4900	1400	4400	1300	4000	1200	6100	1800	5500	1600	5100	1500
2/290x45	5100	1500	4600	1300	4300	1200	6400	1900	5800	1700	5400	1600
Tile Roof												
2/90x35	1500	400	1200	300	1100	300	2100	600	1700	500	1500	400
2/90x45	1700	500	1300	300	1200	300	2200	600	1800	500	1600	400
2/120x35	2000	600	1600	400	1400	400	2800	800	2200	600	1900	500
2/120x45	2200	600	1800	500	1600	400	3000	900	2400	700	2100	600
2/140x35	2400	700	1900	500	1700	500	3200	900	2600	700	2300	600
2/140x45	2600	700	2100	600	1800	500	3500	1000	2800	800	2500	700
2/170x35	2900	800	2300	600	2000	600	3800	1100	3100	900	2800	800
2/170x45	3100	900	2500	700	2200	600	4100	1200	3400	1000	3000	900
2/190x35	3200	900	2600	700	2300	600	4100	1200	3500	1000	3100	900
2/190x45	3500	1000	2800	800	2500	700	4400	1300	3800	1100	3300	900
2/240x35	3900	1100	3300	900	2900	800	4900	1400	4200	1200	3800	1100
2/240x45	4200	1200	3500	1000	3100	900	5300	1500	4500	1300	4100	1200
2/290x35	4500	1300	3900	1100	3500	1000	5700	1700	4800	1400	4400	1300
2/290x45	4800	1400	4100	1200	3700	1100	6000	1800	5100	1500	4700	1400

NOTES:

- Maximum bearer spans supporting roof loads are based on the support of a maximum total sheet roof, framing and ceiling mass of 40 kg/m², a maximum total tile roof, framing and ceiling mass of 90 kg/m² and a maximum flooring mass of 40 kg/m². For guidance on determination of roof mass refer to Appendix B.
- Cantilevers shall not exceed 50% of actual backspan.
- Minimum bearing length = 50 mm at end supports and 100 mm at internal supports for continuous members.
- Multiple members shall be nailed together as per Clause 2.3.
- For design parameters refer to Figure 4.6.
- Where loadbearing walls are supported at right angles to bearer within the bearer span reference should be made to Clause 4.3.1.5.
- Where bearers support roof point loads, reference should be made to Clause 4.3.1.6.

TABLE 2 **FLOOR BEARERS - Floor load width 2400 mm**
Supporting single or upper storey loadbearing walls

Roof Load Width (mm)	1500		4500		7500		1500		4500		7500	
Size DxB (mm)	Maximum Bearer Span (mm)											
	Span	Cantilever	Span	Cantilever	Span	Cantilever	Span	Cantilever	Span	Cantilever	Span	Cantilever
	Single Span						Continuous Span					
Sheet Roof												
2/90x35	1400	400	1300	300	1200	300	2000	600	1800	500	1600	400
2/90x45	1600	400	1400	400	1300	300	2100	600	1900	500	1800	500
2/120x35	1900	500	1700	500	1600	400	2600	700	2400	700	2200	600
2/120x45	2100	600	1900	500	1800	500	2800	800	2600	700	2400	700
2/140x35	2200	600	2000	600	1900	500	3000	900	2800	800	2600	700
2/140x45	2400	700	2200	600	2000	600	3300	900	3000	900	2800	800
2/170x35	2700	800	2500	700	2300	600	3700	1100	3300	900	3100	900
2/170x45	3000	900	2700	800	2500	700	3900	1100	3600	1000	3400	1000
2/190x35	3000	900	2800	800	2500	700	4000	1200	3700	1100	3500	1000
2/190x45	3300	900	3000	900	2800	800	4200	1200	3900	1100	3700	1100
2/240x35	3800	1100	3500	1000	3200	900	4700	1400	4400	1300	4200	1200
2/240x45	4000	1200	3700	1100	3500	1000	5000	1500	4700	1400	4400	1300
2/290x35	4300	1200	4000	1200	3800	1100	5500	1600	5100	1500	4800	1400
2/290x45	4600	1300	4300	1200	4000	1200	5800	1700	5400	1600	5100	1500
Tile Roof												
2/90x35	1400	400	1100	300	1000	300	1800	500	1600	400	1400	400
2/90x45	1500	400	1200	300	1100	300	2000	600	1700	500	1500	400
2/120x35	1800	500	1500	400	1400	400	2400	700	2100	600	1900	500
2/120x45	2000	600	1700	500	1500	400	2700	800	2200	600	2000	600
2/140x35	2100	600	1800	500	1600	400	2800	800	2400	700	2200	600
2/140x45	2300	600	1900	500	1700	500	3100	900	2600	700	2300	600
2/170x35	2500	700	2200	600	1900	500	3500	1000	2900	800	2600	700
2/170x45	2800	800	2300	600	2100	600	3700	1100	3200	900	2900	800
2/190x35	2800	800	2400	700	2200	600	3800	1100	3300	900	2900	800
2/190x45	3100	900	2600	700	2300	600	4000	1200	3600	1000	3200	900
2/240x35	3600	1000	3000	900	2700	800	4500	1300	4000	1200	3700	1100
2/240x45	3800	1100	3300	900	3000	900	4800	1400	4300	1200	3900	1100
2/290x35	4100	1200	3600	1000	3300	900	5200	1500	4600	1300	4200	1200
2/290x45	4400	1300	3900	1100	3600	1000	5500	1600	4900	1400	4500	1300

NOTES:

- Maximum bearer spans supporting roof loads are based on the support of a maximum total sheet roof, framing and ceiling mass of 40 kg/m², a maximum total tile roof, framing and ceiling mass of 90 kg/m² and a maximum flooring mass of 40 kg/m². For guidance on determination of roof mass refer to Appendix B.
- Cantilevers shall not exceed 50% of actual backspan.
- Minimum bearing length = 50 mm at end supports and 100 mm at internal supports for continuous members.
- Multiple members shall be nailed together as per Clause 2.3.
- For design parameters refer to Figure 4.6.
- Where loadbearing walls are supported at right angles to bearer within the bearer span reference should be made to Clause 4.3.1.5.
- Where bearers support roof point loads, reference should be made to Clause 4.3.1.6.

TABLE 3 **FLOOR BEARERS - Floor load width 3600 mm**
Supporting single or upper storey loadbearing walls

Roof Load Width (mm)	1500		4500		7500		1500		4500		7500	
Size DxB (mm)	Maximum Bearer Span (mm)											
	Span	Cantilever	Span	Cantilever	Span	Cantilever	Span	Cantilever	Span	Cantilever	Span	Cantilever
	Single Span						Continuous Span					
Sheet Roof												
2/90x35	1300	300	1200	300	1100	300	1700	500	1600	400	1500	400
2/90x45	1400	400	1300	300	1200	300	1900	500	1800	500	1700	500
2/120x35	1700	500	1600	400	1500	400	2300	600	2200	600	2000	600
2/120x45	1900	500	1700	500	1600	400	2500	700	2400	700	2200	600
2/140x35	2000	600	1900	500	1800	500	2700	800	2500	700	2400	700
2/140x45	2200	600	2000	600	1900	500	3000	900	2700	800	2600	700
2/170x35	2400	700	2300	600	2100	600	3300	900	3100	900	2900	800
2/170x45	2600	700	2500	700	2300	600	3600	1000	3300	900	3100	900
2/190x35	2700	800	2500	700	2400	700	3700	1100	3400	1000	3200	900
2/190x45	2900	800	2700	800	2600	700	3900	1100	3700	1100	3500	1000
2/240x35	3400	1000	3200	900	3000	900	4400	1300	4100	1200	3900	1100
2/240x45	3700	1100	3500	1000	3300	900	4600	1300	4400	1300	4200	1200
2/290x35	4000	1200	3800	1100	3600	1000	5000	1500	4700	1400	4500	1300
2/290x45	4200	1200	4000	1200	3800	1100	5300	1500	5000	1500	4800	1400
Tile Roof												
2/90x35	1200	300	1100	300	1000	300	1700	500	1500	400	1300	300
2/90x45	1300	300	1200	300	1100	300	1800	500	1600	400	1400	400
2/120x35	1600	400	1400	400	1300	300	2200	600	1900	500	1800	500
2/120x45	1800	500	1600	400	1400	400	2400	700	2100	600	1900	500
2/140x35	1900	500	1700	500	1500	400	2600	700	2300	600	2100	600
2/140x45	2100	600	1800	500	1700	500	2800	800	2500	700	2200	600
2/170x35	2300	600	2000	600	1800	500	3100	900	2800	800	2500	700
2/170x45	2500	700	2200	600	2000	600	3400	1000	3000	900	2700	800
2/190x35	2600	700	2300	600	2100	600	3500	1000	3100	900	2800	800
2/190x45	2800	800	2500	700	2200	600	3800	1100	3300	900	3000	900
2/240x35	3300	900	2900	800	2600	700	4200	1200	3800	1100	3500	1000
2/240x45	3500	1000	3100	900	2800	800	4500	1300	4100	1200	3800	1100
2/290x35	3900	1100	3500	1000	3100	900	4800	1400	4400	1300	4100	1200
2/290x45	4100	1200	3700	1100	3400	1000	5200	1500	4700	1400	4400	1300

NOTES:

- Maximum bearer spans supporting roof loads are based on the support of a maximum total sheet roof, framing and ceiling mass of 40 kg/m², a maximum total tile roof, framing and ceiling mass of 90 kg/m² and a maximum flooring mass of 40 kg/m². For guidance on determination of roof mass refer to Appendix B.
- Cantilevers shall not exceed 50% of actual backspan.
- Minimum bearing length = 50 mm at end supports and 100 mm at internal supports for continuous members.
- Multiple members shall be nailed together as per Clause 2.3.
- For design parameters refer to Figure 4.6.
- Where loadbearing walls are supported at right angles to bearer within the bearer span reference should be made to Clause 4.3.1.5.
- Where bearers support roof point loads, reference should be made to Clause 4.3.1.6.