FWPA Standard G01

Recycled Timber – Visually Graded for Structural Purposes

Forest & Wood Products Australia

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FWPA Standard G01

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This FWPA Standard was originally developed under a project supported by Forest and Wood Products Australia and Department of Tourism, Regional Development & Infrastructure - Qld, with input and development from stakeholders, including industry associations, representatives of the recycled timber industry, government, researchers and specifiers. The Standard has been taken through a formal public review process under the guidance of the established FWPA Recycled Timber Standards Writing Committee (SWC). The FWPA Standard was issued for comment on the 3rd September 2024, approved on behalf of FWPA by the SWC on February 26th 2024.

FWPA wishes to acknowledge the participation of expert individuals that contributed to the development of the Standard through their representation on the Committee and through the public comment period.

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FWPA welcomes suggestions for improvements and encourages readers to notify us immediately of any apparent inaccuracies or ambiguities.

Preface

The objective of this FWPA Standard is to provide recycled timber manufacturers, suppliers and users with requirements for visually grading recycled hardwood timber intended for structural use.

Specifiers and purchasers of recycled timber should be aware of the following key points and considerations prior to specifying or ordering recycled timber:–

(a) Recycled timber is sourced from a disparate range of buildings, structures and products from a wide geographical area and from a wide range of environmental exposures. The resulting products obtainable from recycled timber will therefore reflect previous use, and availability of individual species/species mixes, grades and products may change with time.
(b) Detailed discussions between purchasers and suppliers prior to specifying or ordering recycled timber is the key to a successful commercial transaction.
(c) Where practical, prior inspection should be undertaken of realistic representative sample of recycled timber product and that the grade/quality is agreed upon in writing between purchaser and supplier. The use of actual samples, electronic images etc, where available, may assist in facilitating satisfactory placement and delivery of the order.
(d) It should be noted that the grades available under this standard are specific to recycled timber and include recycled timber features.

In respect of the application of this Standard:

- Statements expressed in mandatory terms in NOTES to tables or diagrams are deemed to be requirements of this Standard.
- NOTES to text contain general information and guidance. They are not an integral part of the Standard.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the Appendix to which they apply. A ‘normative’ Appendix is an integral part of this Standard, whereas an ‘informative’ Appendix is only for information and guidance.

Contents

Section 1 Scope and General

1.1 Scope

This FWPA Standard (referred to hereafter as Standard) applies to recycled hardwood timber only and sets out the minimum requirements for structural visual grading. Recycled timber is timber that has been previously used and served its initial purpose. Recycled timber may be recovered from use for re-use either in its original cross-sectional size or re-manufactured to smaller dimensions. Whilst this document is specific to hardwood, some guidance on the use of recycled softwood is also provided in Appendix C.

This Standard covers:–

- Small end-section timbers less than 0.012 m^2 (e.g. 200 mm x 50 mm) from
    - timber that has been sawn from larger members (e.g. girders, power poles)
    - structural timber recovered from previous use (e.g. floor joists, roof framing)
- Large end-section members greater than 0.012 m^2 (e.g. 300 mm x 300 mm) in cross-section that have been recovered from previous use (e.g. girders) or have been sawn from larger members.

NOTE For lightly loaded (non-structural) large section recycled hardwood, refer to FWPA Standard G02 Recycled Timber - Visually Graded Decorative Products.

1.2 Application

This Standard recognises that structural recycled hardwood will contain characteristics and be of dimensions that are included in AS 2082 and AS 3818, however recycled timber also contains characteristics that differ in nature from ‘new’ sawn timber covered by those two standards including age effects which need consideration. This Standard, while similar in many aspects to the ‘new’ sawn standards, is to be used independently of them and is specifically for use with recycled timber only.

1.3 Referenced Documents

The following documents are referred to in this Standard:

AS/NZS 1604.1	Preservative-treated wood-based products Part 1 Products and treatment
AS 1684	Residential timber-framed construction (series)
AS 1720.1	Timber structures, Part 1: Design Methods
AS 2082	Timber – Hardwood – Visually stress graded for structural purposes

AS 3818.1	Timber – Heavy structural products – Visually graded – Part 1: General requirements
AS 3818.7	Timber – Heavy structural products – Visually graded – Part 7: Large cross-section sawn hardwood engineering timbers
AS 5604	Timber – Natural durability ratings
AS 3959	Construction of buildings in bushfire-prone areas
AS/NZS 1080.1	Timber – Methods of Test – Method 1: Moisture content
AS/NZS 1080.2	Timber – Methods of Test – Method 2: Slope of grain (Parts 1 to 3)
AS/NZS 4491	Timber – Glossary of terms in timber related Standards
FWPA G02	Recycled Timber – Visually Graded Decorative Products

1.4 Definitions

For the purpose of this Standard, the definitions given in AS/NZS 4491 and those given here apply. Where the definitions differ, for the purposes of this Standard those below apply.

1.4.1 Arris: The sharp intersection of two surfaces, e.g., the face and edge of a piece of timber refer Figure 1 Surfaces and Arris.

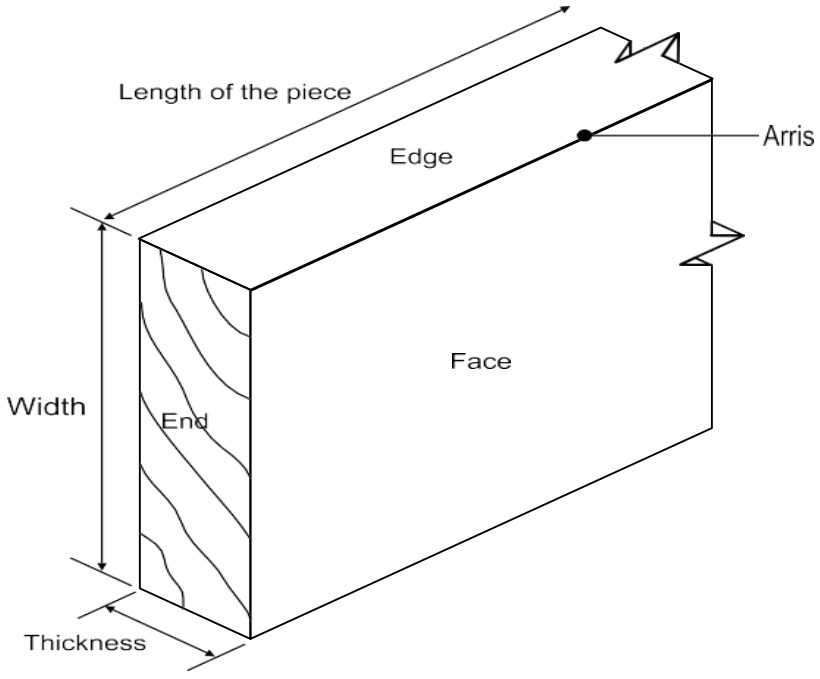


Figure 1 Timber Surfaces and Arris

1.4.2 Bow: A deviation in the longitudinal direction of the piece causing the face to curve away from its intended flat plane (see Figure 2).

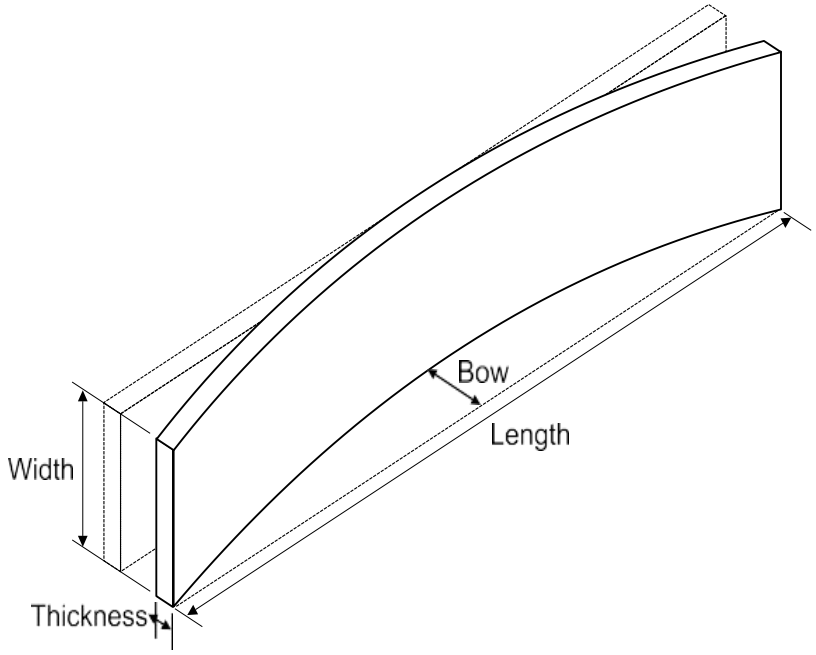


Figure 2 Bow

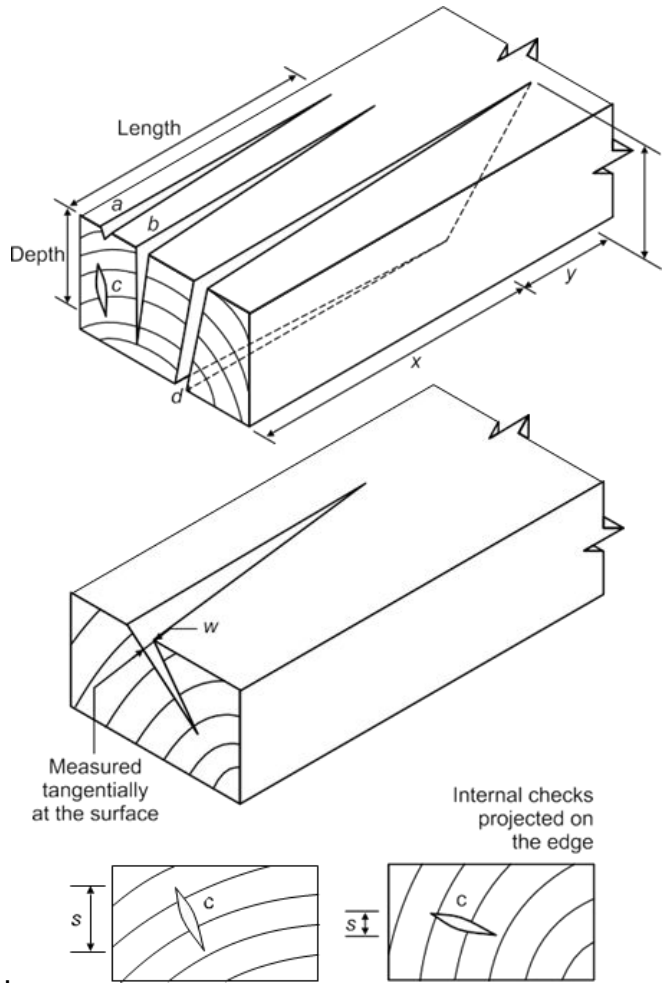
1.4.3 Brashness: A condition that causes wood to be relatively low in shock resistance (brittle). When stressed, brashy wood fails abruptly at comparatively small deflections with little or no splintering.

1.4.4 Check – longitudinal: Separation of fibres radially across growth rings and along the grain forming a fissure but not extending from one surface to another. Types include the following (see Figure 3):

(a) End check – A check occurring at the end of a piece.

(b) Heart check – A check extending from the pith outwards in any direction but not reaching the surface of the piece.

(c) Surface check – A check confined mainly to the surface of the piece but of no appreciable depth, that is, depth not exceeding 10 percent of the thickness of the piece.



Legend

a=surface check

b=check

c=internal check

d=split, w=width of check measured tangentially

x=length of split

y=length of check

s=projected length

Figure 3 Longitudinal Checks

1.4.5 Decay: Decomposition of wood by fungi. Sometimes referred to as doze.

1.4.6 Fracture, cross: A fracture not in the direction of the fibres and resembling a breakage of the fibre.

1.4.7 Gum pocket: cavity that contains or has contained gum or kino (see Figure 4).

1.4.8 Gum vein: A ribbon of gum or kino between growth rings that may be bridged radially at short intervals by wood tissue (see Figure 4).

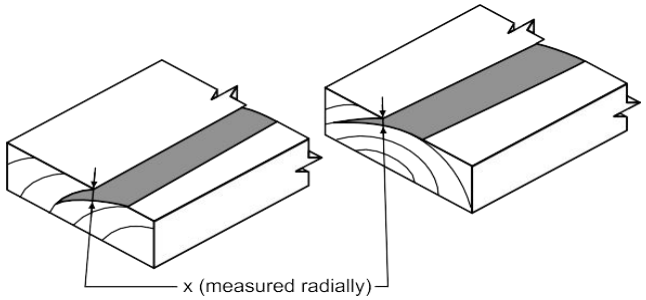


Figure 4 Gum Pockets, Gum Veins, Bark Pockets, Overgrowths of Injury

1.4.9 Gum vein, loose: A gum vein associated with extensive discontinuity of wood tissue.

1.4.10 Gum vein, tight: A gum vein that is bridged radially at close intervals with woody tissue and not associated with extensive discontinuity of wood tissue.

1.4.11 Heart: The portion of a log that is near the growth centre (pith or log centre) and which is of reduced strength (see Figure 5).

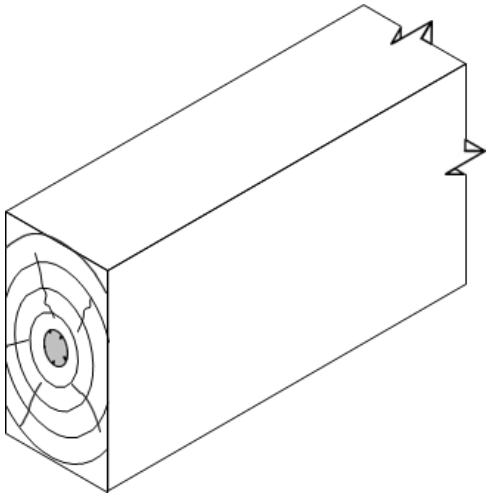


Figure 5 Heart

1.4.12 Heartwood: Wood which in the living tree had ceased to contain living cells and in which the reserve materials (e.g., starch) had been removed or changed into more durable substances.

1.4.13 Hole A hole extending partially or entirely through the piece and attributable to any cause as follows:

(a) Borer hole – A small hole in timber caused by the larval or adult stage of a wood boring insect, e.g., Lyctid, Anobiid, Bostrychid, Latypodid or Lymexylid.

(b) Grub hole – A hole or excavation usually larger than a borer hole made by the larval or adult stage of an insect, e.g., Cerambycid, Buprestid or Lepidoptera.

(c) Pinhole – Usually stained, made by a pinhole borer, i.e. Platypodid or Lymexylid.

(d) Plugged hole – A hole filled by inserting a matching piece of wood.

(e) Termite hole – See termite gallery.

(f) Bolt Holes – Mechanical damage in the form of a cylindrical hole, caused by removal of bolts that were inserted during a previous use of a piece of wood.

1.4.14 Knot: A section of a branch that is embedded in the wood of a tree trunk or of a larger branch (see Figure.6). Knots are defined with respect to their position on a cross-section of a piece or by their appearance on a surface:

(a) Defective knot – A loose or unsound knot.

(b) Loose knot – A knot that is not held firmly in place by growth and which cannot be relied upon to remain in place in the piece.

(c) Sound knot – A knot solid across its face, as hard as the surrounding tissue and free from decay.

(d) Unsound knot – A knot more or less decayed and softer than the surrounding tissue; not solid across the face; checked or split.

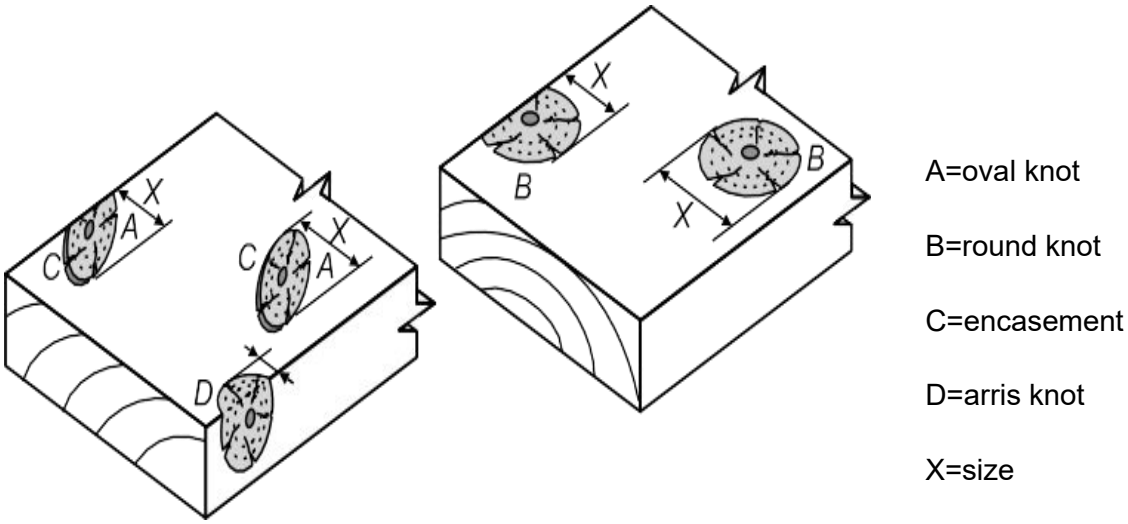


Figure 6 Knots in sawn timber

1.4.15 Lyctid: The commonly used term in the timber and building industries for the lyctine beetles.

1.4.16 Notch: A loss of solid wood through the cross-section of a member usually in the shape of rectangular prism. Generally, a notch represents a section of timber cut to form a connection, resulting from fabrication that occurred during previous history of a piece of wood.

1.4.17 Permitted Zone: The cross-sectional area in a piece of recycled timber, in which holes or notches are permitted, within the limits defined by this Standard

1.4.18 Pipe: A longitudinal cavity along the growth centre of round timber.

1.4.19 Recycled timber: Recycled timber is post-consumer, pre-used timber, which has served its original purpose.

1.4.20 Rot, primary: Heart rot or a pocket of rot occurring in the living tree before felling.

1.4.21 Sapwood: The outer layers of the wood of a tree, which, when the tree was living, contained tissue in which water and food materials were conveyed and stored; generally lighter in colour than the heartwood (see Figure 7).

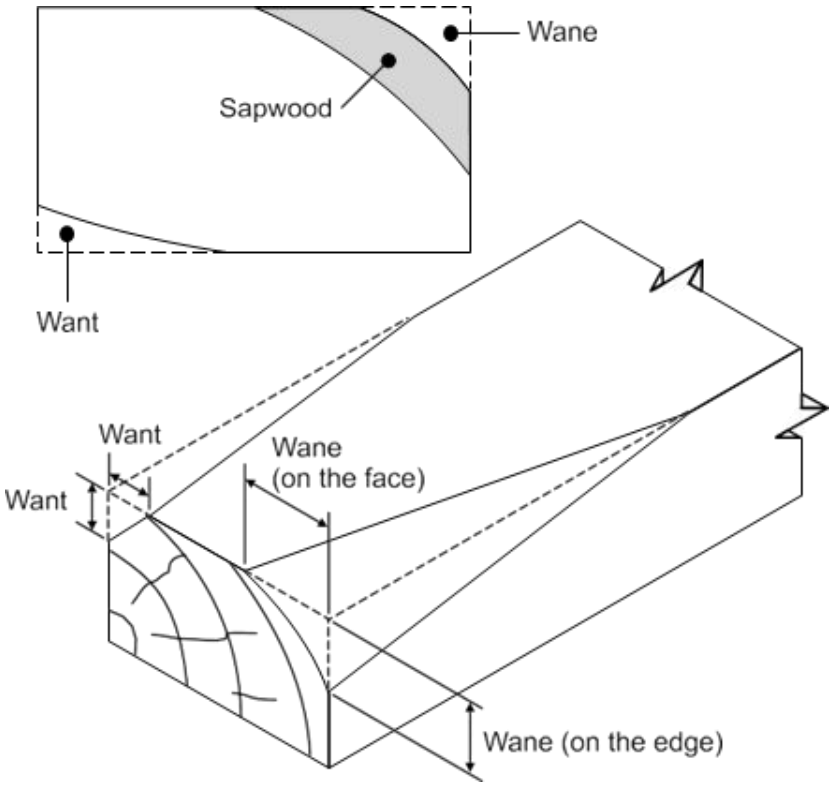


Figure 7 Wane, want and sapwood

1.4.22 Shake: A partial or complete dislocation, breakage or longitudinal separation of wood fibres due to causes other than drying and usually originating either in the standing tree or in the log during felling or conversion as in the following:

(a) Heart shake – A shake extending from the pith of a tree (see Appendix B).

(b) Ring shake – A shake following a growth ring. Also referred to as a shell shake or cup shake and the timber may be described as shelly (see Appendix B).

(c) Star shake – A number of adjoining heart shakes in the form of a star.

1.4.23 Shell-off: Missing material resulting from a ring shake.

1.4.24 Species Group: A group assigned to species of timber as an indicator of its basic strength classification.

1.4.25 Split: A longitudinal separation of wood fibres, which extends through a piece from one surface to another in sawn timber or through round timber.

1.4.26 Split, end: A split at the end of a log or piece.

1.4.27 Spring: A deviation in the longitudinal direction of the piece causing the edge to curve away from its intended flat plane (see Figure 8).

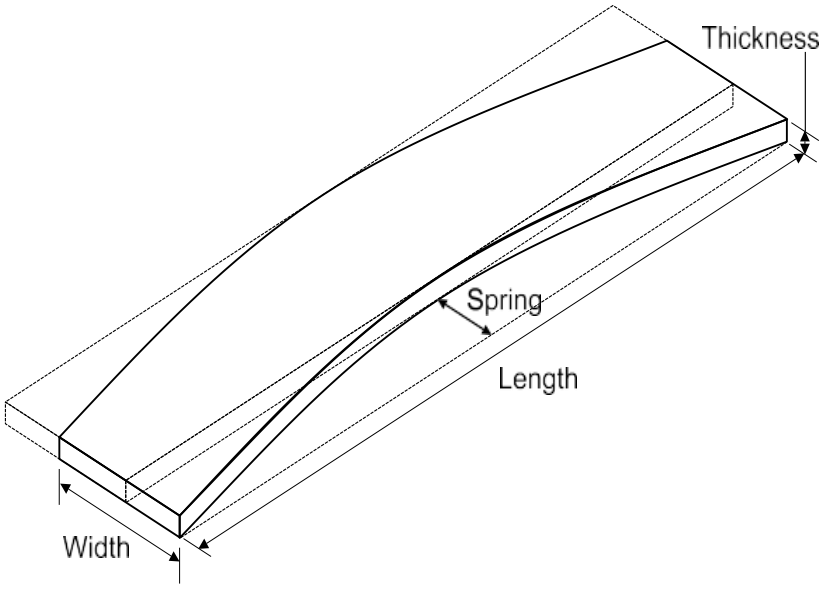


Figure 8 Spring

1.4.28 Termite gallery: An irregularly shaped passage or burrow excavated by termites in the bark or wood. An enclosed termite gallery is one that is not completely open to visual inspection throughout its entire length.

1.4.29 Thickness (T): The smaller dimension of the cross-section of a piece of timber (see Figure 1).

1.4.30 Twist: A spiral distortion along the length of a piece of timber (see Figure 9).

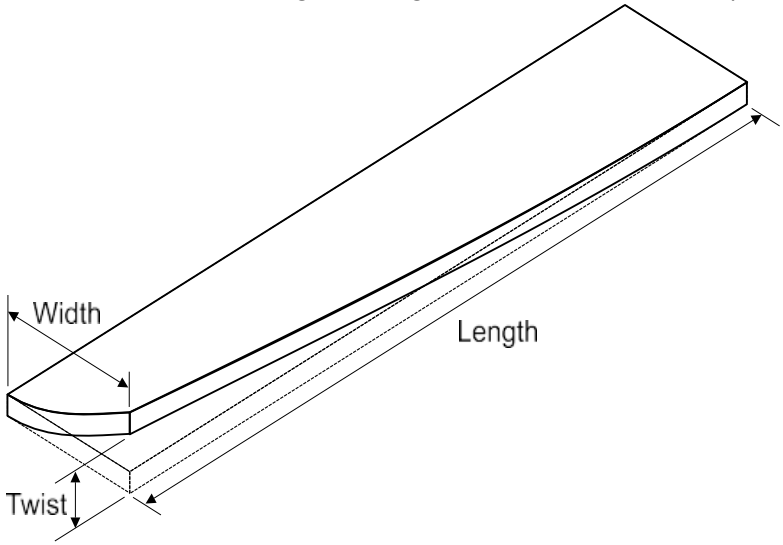


Figure 9 Twist

1.4.31 Wane: The presence of the original underbark surface with or without bark, on any face or edge of a piece of timber (see Figure 7).

1.4.32 Want: The absence of wood, other than wane, from the corner or surface of piece of timber (see Figure 7).

1.4.33 Width (W): The larger dimension in the cross-section of a piece (see Figure 1).

1.5 Timber Species

1.5.1 General

A list of species covered by this Standard together with properties including species group, durability class, termite resistance and Lyctid susceptibility is given by standard trade name in Appendix A.

If timbers are supplied as a mixture of species, then the species group applicable to the species group with the lesser properties shall apply to the whole parcel in respect of its properties.

1.5.2 Ordering

The order shall nominate one of the following:

(a) Grade and species.

(b) Grade together with species group or durability class, or both.

If no species is nominated, any species listed in Appendix A shall be accepted, provided any specified species group or durability class, or both, are met.

1.5.3 Bushfire Attack Level (BAL) Rating

BAL—12.5 & 19

For General Timber Use - Timber must have a density of 750 kg/m^3 or greater.

For Joinery Timber (Windows & Doors only) - Timber must have a density of 650 kg/m^3 or greater.

BAL—29

Timbers classified as having a BAL—29 rating include: Blackbutt, Kwila (Merbau), Red Ironbark, Spotted Gum, River Redgum, Silvertop Ash, Turpentine.

1.6 Visual Grades and Design Properties

Two recycled visual grades, Recycled Grade 1 and Recycled Grade 2 are given for both small end-section and for large end-section recycled timber.

The strength properties, stiffness and effect of duration of load effects for recycled timber differ from ‘new’ timber therefore, the stress grade system (‘F’ ratings) that is applicable to ‘new’ timber is not appropriate to recycled timber.

Recommended characteristic strength & stiffness for recycled timber are given in Appendix C.

NOTE 1 Specific span table for domestic construction for recycled timber using appropriate properties, stiffness and duration load effects as outlined in Appendix C may be developed in the future to provide more efficient design.

NOTE 2 Test results indicate that the stiffness of recycled timbers is not affected from previous usage or reduced to the same extent as strength properties. Guidance on the application of values of Modulus of Elasticity (MoE) is presented in Appendix C.

1.7 Claim of Compliance

In any statement or claim of compliance with this Standard or reference to one of the grades described in this Standard is a claim of compliance with the general requirements, product requirements and grading requirements set out in this Standard for that specific grade and that the product is recycled.

NOTE Manufacturers making a statement of compliance with this Standard on a product, packaging, or promotional material related to that product are advised to ensure that such compliance is capable of being verified.

Section 2 Product Requirements

2.1 Sizes and Tolerances

2.1.1 General

Except as permitted by Clause 2.1.2, and where permitted characteristics, want, wane or hit and miss occurs, measured at any point in the length of a piece, recycled structural timber must meet the minimum dimensional requirements specified in the order, in terms of length, depth and width.

2.1.2 Dimensions and Squareness

Where small end-section timber has been re-sawn from larger end-section material, deviation of the actual dimensions of the timber from the specified dimensions by more than the following are not permitted:

(a) The length shall be not less than the specified length.

(b) For width and thickness, except where permitted want, wane or hit and miss occurs, measured at any point in the length of a piece –

(i) for unseasoned timber: ±3 mm;

(ii) for seasoned timber: +5, –0 mm;

(iii) for sized timber: as for Items (i) and (ii) with an additional requirement of a maximum 2 mm difference between all pieces within a parcel for the sized dimension of the timber; and

(iv) for dressed timber: +2, –0 mm of the specified finished size.

(c) The tolerance on squareness shall be ±2 degrees, i.e. the angle at the arises shall be 90 ±2 degrees.

NOTE: When structural timber is supplied as dressed, the nominal size may be reduced due to the process of dressing to a 'finished dimension' or 'finished size'. Design calculations should be based on the finished dimension.

Where:–

(a) small end-section timber has been recovered from previous use and is to be re-used in its original size and

(b) for large end-section members,

The dimensional requirements specified in the order shall be a matter of agreement between the purchaser and supplier.

2.2 Bow, Spring, Twist and Cup

For small end-section timbers the permitted limits for bow, spring and twist are provided in Table 3.1.2a and Table 3.1.2b and cup in Table 3.1.1 in Section 3 and the method of measurement is provided in Appendix B.

For large end-section members bow and spring shall be evenly distributed and shall not exceed 25 mm per 3.6 m length of the piece or equivalent curvature in other lengths and twist shall be a matter of agreement between the purchaser and supplier.

2.3 Moisture Content

2.3.1 Small end-section timber

Where seasoned timber is specified for small end-section timber, at least 90 percent of the pieces being graded shall have a moisture content of not more than 15 percent and no piece shall have a moisture content greater than 18 percent. The moisture content of the timber shall be determined in accordance with AS/NZS 1080.1.

2.3.2 Large end-section timber

The moisture content in large cross-section members may be variable due to past history and whether any re-sawing has taken place.

This Standard does not impose any specific moisture content requirements on these members however moisture content may need to be considered in determination of serviceability performance. From a utility perspective, moisture content needs to be considered as in-service stability may be affected and more pronounced checking may occur depending on the member supplied.

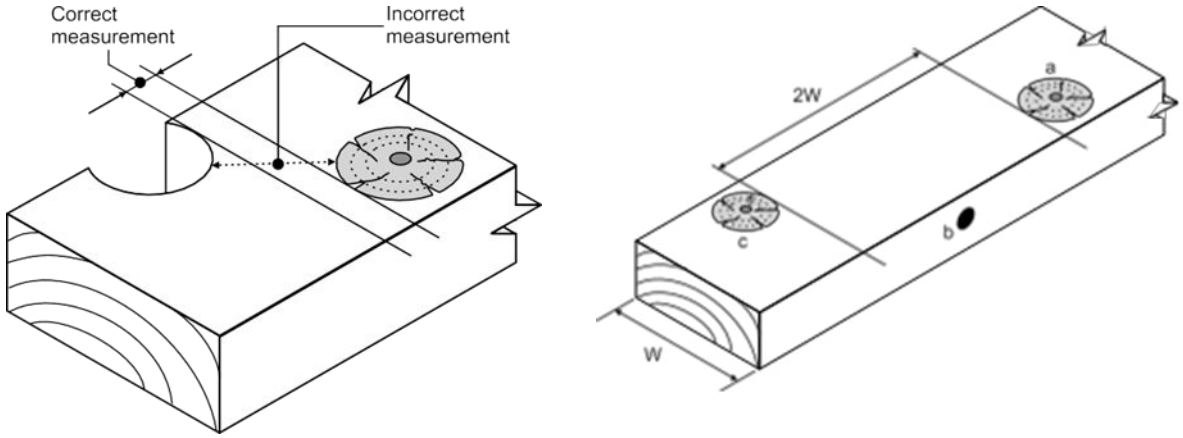
2.4 Characteristics and Appearance

2.4.1 Measurement of characteristics

The measurement of characteristics shall be as given in Appendix B.

2.4.2 Combination of characteristics

A combination of characteristics shall be permitted if the aggregate size of the combination is less than that of one characteristic of the maximum permissible size. A combination exists when two or more characteristics occur in a length of the piece such that there is less than twice the width of the piece between them (see Figure 10). Characteristics in combination may not necessarily appear on the same surface. If bow, spring, twist or cup is present in the piece each shall be measured separately and deemed not to be in combination with each other or with any other characteristic.



(a) Method of measurement of distance between features.

(b) Examples of combinations.

NOTE 1. In diagram (b), c and b are in combination; a and b are in combination and a and c are not in combination

NOTE 2. Given that knot 'a' is 90% of its allowance, bolt hole 'b' is 15% of its allowance and knot 'c' is 85% of its allowance, the combination of 'b' and 'c' complies but the combination 'a' and 'b' do not.

Figure 10 Measurement of distances between features

2.4.3 Characteristics occurring entirely within the prescribed limits for want and wane excepting bolt holes and notches

Irrespective of the limits imposed by the grade descriptions, a characteristic or combination of characteristics occurring wholly within the limits prescribed for want and wane, and resulting in no greater reduction in effective dimension, shall be permitted.

2.4.4 Surface Finish

When graded recycled structural timber is used, the surface finish may be:–

1. as is, in its recovered state

2. a remanufactured surface (e.g. ground, wire brushed, sawn or planed)

In many instances the recycled structural timber will be in appearance applications. No specific constraints other than the grading rules apply to recycled structural timber used in appearance applications. However mechanical damage (refer clause 2.4.5) is not permitted in appearance products. The surface finish shall be a matter of agreement between purchaser and supplier.

2.4.5 Mechanical Damage

Damage caused by hooks, ropes, forklifts and the like shall be permitted in non-appearance applications, provided that its effect is no more serious than that of a permissible characteristic. Particular attention should be given to any splitting or notch effects resulting from mechanical damage.

2.4.6 Residual Fixings

Unless otherwise agreed between the purchaser and supplier, recycled timber shall be supplied relatively free of nails, screws, bolts, brackets or similar fixings.

NOTE: It may not be practical or possible to detect and remove 100% of all fixings that can occur in recycled timber and indeed, some purchasers may deem retention of some residual fixings as a desirable feature.

2.5 Grade Limitation and Grading

2.5.1 Basis

Grading to the recycled grades in this Standard is based on assessing the characteristic or group of characteristics within a piece, which is considered to have the greatest limiting effect on the grade of that piece, when assessed in accordance with the grading rules. Each piece shall be inspected on all surfaces and the ends.

2.5.2 Limitations

The grade descriptions in Section 3 provide limitations on all characteristics known to have a significant effect on strength and describe material on the lower limit of that grade. Each parcel of small end-section timber used in structural applications shall contain a range of material such that not all of the material is near the lower limits of the grade.

2.5.3 Variations in Assessment

Within any parcel a maximum variation of 5 percent between the grading of pieces by individual inspectors or graders shall be acceptable, provided that none of the pieces in the disputed 5 percent shall have characteristics that exceed the maximum allowed in the grade *by more than 10 percent.*

2.5.4 Re-sawing and dressing

If the cross-section of the piece of timber is reduced by longitudinal sawing or dressing after the initial assignment of a recycled grade, the original grading is nullified.

2.5.5 Docking of multiple lengths

When grading a piece of timber that is to be supplied as a multiple of a shorter ordered length it shall be graded as if it were in the shorter length.

2.5.6 Moisture content of preservative treated timber

Where timber is seasoned and subsequently preservative treated, the preservative treatment process may increase the moisture content of timber considerably. Unless such timber is re-dried (low temperature) to the moisture content range for seasoned timber it does not conform to the requirements of this Standard for seasoned timber.

2.5.7 Grading Check

A check of the grading of the timber may be required sometime after the grading undertaken by the producer or supplier. Where the purpose of the check is to estimate the accuracy of the previous grading, reasonable allowance shall be made for changes in characteristics of the timber that are the result of moisture change. These changes in characteristics may include but are not limited to:–

(a) changes in dimensions reduction in dimensions swelling or shrinkage;

(b) increase in distortion (bow, spring, twist and cup);

increase in, or development of, seasoning checks, splits, end splits and shakes; and

(c) increase in, or development of, loose gum veins.

2.6 Sapwood susceptible to Lyctid Borers

The method for detection of Lyctid-susceptible sapwood shall be as given in AS/NZS 1604.1.

2.7 Preservative Treatment

When structural timber graded in accordance with this Standard is preservative treated, treatment shall be in accordance with AS/NZS 1604.1.

NOTE: Generally, only the sapwood of hardwoods can be impregnated with preservative.

2.8 Identification

Where a parcel or member is graded as complying with this Standard, the following details shall be clearly stated on the invoice:

(a) The name of this Standard
(b) The grade
(c) The species or that mixed species have been supplied
(d) The durability class if applicable
(e) If graded as seasoned, the word ‘SEASONED’ or the abbreviation ‘S’
(f) If preservative treated, additional branding in accordance with AS/NZS 1604.1.

Alternatively, if the timber is branded, labelled, stamped or marked to indicate that it complies with this Standard, the information in (a) to (f) shall be legibly marked on each piece.

Section 3 Grade Descriptions

3.1 Small End-Section Recycled Grade 1 and 2

3.1.1 General

Timbers supplied to Recycled Grades 1 and 2 shall comply with the general requirements of Section 1 and the product requirements specified in Section 2 of this Standard, and shall be free from shakes, enclosed termite galleries and brashness.

Table 3.1.1 Small End Section Permissible Characteristics

Type of characteristic	Recycled Grade 1	Recycled Grade 2
Knots, included branch stubs, knot holes and holes other than insect holes		
	Not exceeding 1/4 W on face or 1/4 T on edge	Not exceeding 3/8 W on face or 3/8 T on edge
Borer holes not associated with decay		
Diameter up to and including 3 mm	Not exceeding 20 holes per 100 x 100 mm	Unlimited, provided the distance between holes is at least 2x their diameter
Diameter over 3 mm or where separated by less than 2 x diameter	As for knots	As for knots
Nail, screw, spike and bolt holes		
Diameter up to and including 4 mm	Unlimited	Unlimited
Diameter exceeding 4 mm & not exceeding 10 mm	5 holes in any 1.0 m of the length	5 holes in any 1.0 m of the length
Diameter exceeding 10 mm & not exceeding 20 mm	4 holes in any 1.0 m of the length, only in the permitted zone shown in Figure 11 if separated by 3 x diameter	4 holes in any 1.0 m of the length, only in the permitted zone shown in Figure 11 if separated by 3 x diameter
Diameter greater than 20 mm	4 holes in any 1.0 m of the length not exceeding 1/4 W on face are permitted only in the permitted zone, as shown in Figure 11 if separated by 5 x diameter	4 holes in any 1.0 m of the length not exceeding 3/8 W on face are permitted only in the permitted zone, as shown in Figure 11 if separated by 5 x diameter
Notches		
On the face	As for bolt holes	As for bolt holes
On the edge	Not permitted unless they have been removed by planing or machining with a gradual slope not exceeding the slope of grain and want and wane requirements of this grade. (see Figure 12)	Not permitted unless they have been removed by planing or machining with a gradual slope not exceeding the slope of grain and want and wane requirements of this grade. (see Figure12)
Termite galleries		
	Enclosed not permitted Not enclosed – as for want and wane	Enclosed not permitted Not enclosed – as for want and wane
Slope of grain		
	Jarrah not exceeding 1 in 8, All other species not exceeding 1 in 10	All species (including Jarrah) not exceeding 1 in 6
Sound heart and heart shakes		
For species marked with an * (asterisk) in table A1	Permitted provided they do not exceed 1/9 of the cross-sectional area	Permitted provided they do not exceed 1/3 of the cross-sectional area
For all other species	Not permitted	Not permitted

Table 3.1.1 Small End Section Permissible Characteristics Continued

Type of characteristic	Recycled Grade 1	Recycled Grade 2
Tight gum veins		
	Unlimited	Unlimited
Loose gum veins, ring shakes and included bark		
	Width not exceeding 3 mm Aggregate length not exceeding 1/6 L Extending from one surface to another – not permitted	Width not exceeding 3 mm Aggregate length not exceeding 1/3 L Extending from one surface to another – not permitted except where intersecting at ends, where the characteristics is considered as a split
Gum pockets, latex pockets, and overgrowth of injury		
One surface to another and intersecting an end otherwise:	As for end splits	As for end splits
Individual length and width (measured radially)	Not exceeding lesser of 3W and 300 mm	Not exceeding lesser of 3W and 300 mm
On one surface only	Not exceeding lesser of 20 mm and 33% of the surface on which it occurs	Not exceeding lesser of 30 mm and 50% of the surface on which it occurs
Extending from one surface to another	Not exceeding lesser of 12 mm and 25% of the surface on which it occurs	Not exceeding lesser of 25 mm and 33% of the surface on which it occurs
End splits, aggregate length		
	Not exceeding lesser of W and 100 mm	Not exceeding lesser of 1.5W and 150 mm
Checks other than internal		
	Width not exceeding 3 mm and individual length not exceeding 1/3L	Width not exceeding 3 mm and individual length not exceeding 1/2L
Internal check		
Loss of cross-section area	Not exceeding 10%	Not exceeding 10%
Primary rot		
Depth	not exceeding 3 mm	not exceeding 3 mm
Aggregate area in any 2m of length	not exceeding 150 x 100 mm	not exceeding 150 x 100 mm
Want, wane and Lyctid-susceptible sapwood		
	Not exceeding 1/5 of the cross-sectional area and not exceeding 1/2 W on face or 1/3 T on edge	Not exceeding 1/5 of the cross-sectional area and not exceeding W/2 on face or 1/3 T on edge
Hit and miss		
Exceeding the limits for want and wane	Depth not exceeding 3 mm and individual length not exceeding 600 mm	Depth not exceeding 3 mm and individual length not exceeding 600 mm
Hit and miss within the limits of want and wane is permitted		
Bow, spring and twist		
	As defined in Section 3.1.2	As defined in Section 3.1.2
Cup		
	1 mm per 50 mm of W	1 mm per 50 mm of W

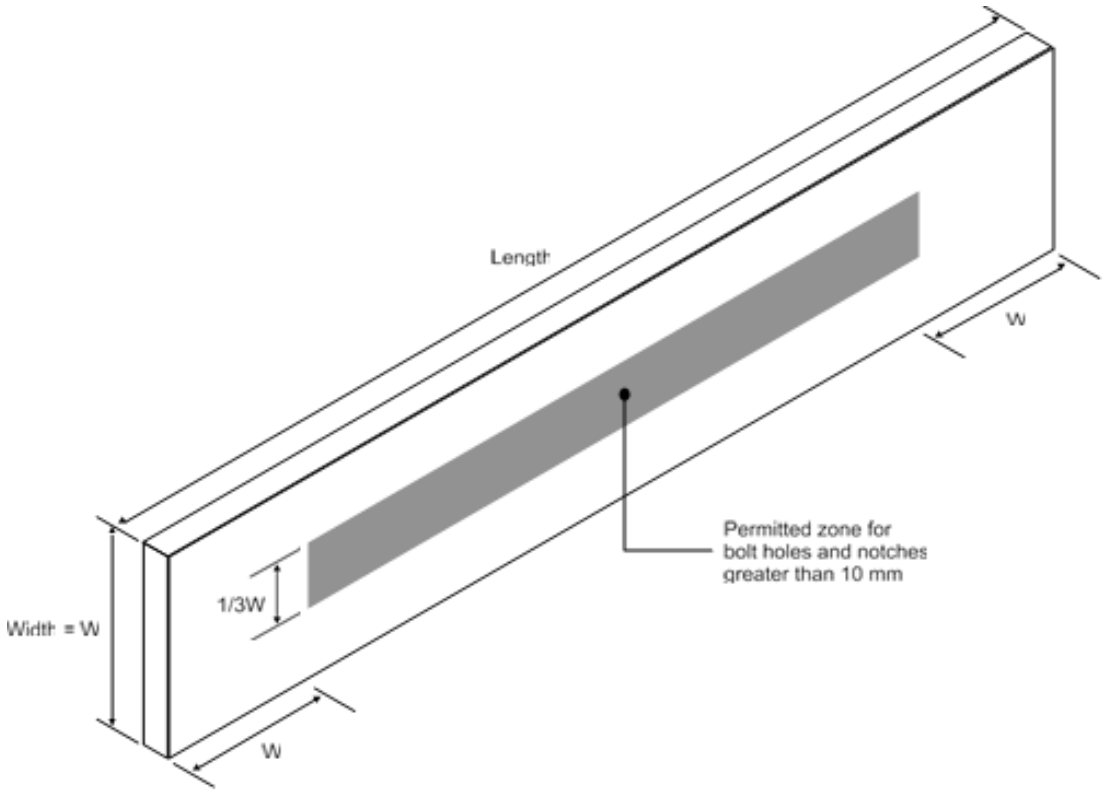
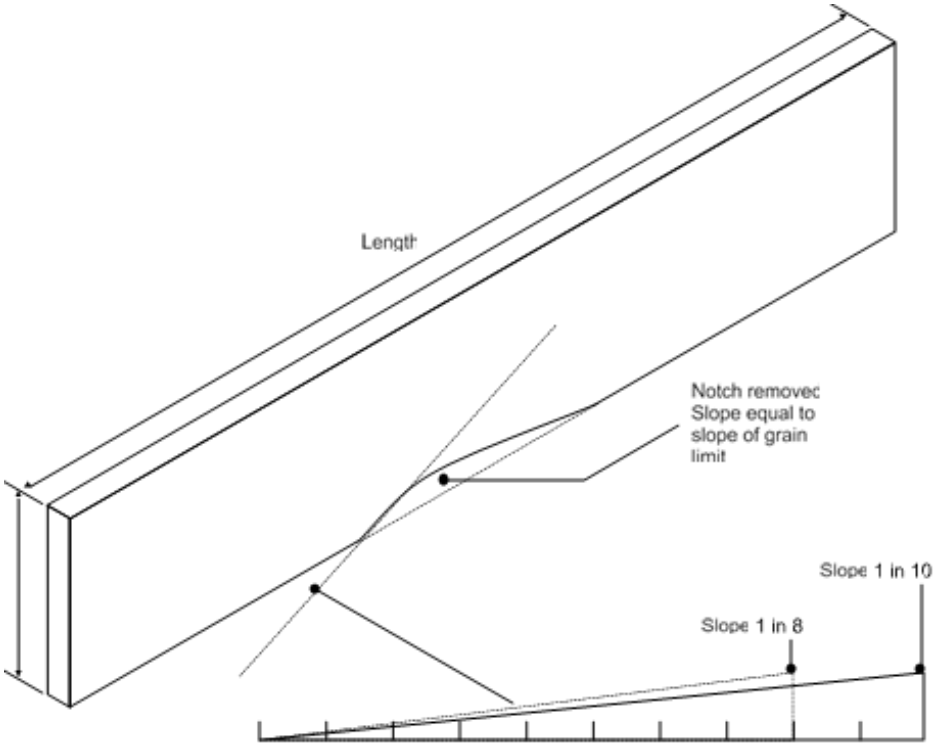


Figure 11 Permitted zone for bolts holes and notches greater than 10mm



N*OTE: Example is shown for small end section Recycled Grade 19 1:8 for Jarrah and 1:10 for other species*

Figure 12 Planing or machining to remove notches or holes on

3.1.2 Bow, Spring, Twist

Limits for Bow, Spring and Twist are given in Tables 3.1.2a and 3.1.2b, below.

Table 3.1.2a Maximum Permissible Bow and Spring

Length	Maximum permissible spring or bow, mm									
(L)	Width W (for spring) or thickness t (for bow), mm									
M	38	50	75	100	125	150	175	200	225	250
1.8	10	10	7	5	4	3	3	3	2	2
2.4	20	15	12	9	7	6	5	4	4	4
3	35	25	19	14	11	9	8	7	6	6
3.6	50	35	25	20	16	13	12	10	9	8
4.2	60	45	28	25	22	18	16	14	12	11
4.8	70	50	30	30	29	24	21	18	16	14
5.4	75	55	40	40	36	30	26	23	20	18
6	80	60	45	45	45	37	30	28	25	22
6.6	85	65	50	45	45	45	39	34	30	27
7.2 and over	90	70	55	50	50	50	46	40	36	32

NOTE The permissible allowances for nominal lengths between those quoted in the table may be obtained by interpolation

Table 3.1.2b Maximum Permissible Twist

Nominal length (L) m	Nominal thickness (t) mm	Maximum Permissible Twist Nominal width (W), mm			
		Up to 100	101 to 150	151 to 200	201 to 250
up to 2.4	up to 50	5	7	10	15
	over 50 to 75	4	6	8	11
2.7 to 3.0	up to 50	7	10	14	20
	over 50 to 75	5	8	11	15
3.3 to 3.6	up to 50	8	13	18	25
	over 50 to 75	6	9	13	19
3.9 to 4.2	up to 50	9	15	51	29
	over 50 to 75	7	11	15	22
4.5 to 4.8	up to 50	10	16	23	33
	over 50 to 75	7	12	17	24
5.1 to 5.4	up to 50	11	18	26	37
	over 50 to 75	8	14	19	27
5.7 and over	up to 50	12	20	28	40
	over 50 to 75	9	15	21	30

NOTE The permissible allowances for nominal lengths between those quoted in the table may be obtained by interpolation.

3.2 Large End Section Recycled Grade 1 and 2

3.2.1 General

Timber supplied to Recycled Grades 1 & 2 shall comply with the general requirements of Section 1 and the product requirements specified in Section 2 of this Standard, and shall be free from shakes, cross fractures, enclosed termite galleries and brashness.

Table 3.2.2 Large End Section Permissible Characteristics

Type of characteristic	Recycled Grade 1	Recycled Grade 2
Sound intergrown knots, individual and in aggregate		
	Not exceeding 1/6 W of the face and 1/4 T of the edge in any 2m of the length.	Mot exceeding 1/4 of the width of surface on which they occur in any 2m of the length.
Holes (including nail, screw, spike and bolt holes)		
Diameter up to and including 4 mm	Unlimited	Unlimited
Diameter exceeding 4 mm & not exceeding 10 mm	5 holes in any 1.0 m of the length	5 holes in any 1.0 m of the length
Diameter exceeding 10 mm & not exceeding 20 mm	4 holes in any 1.0 m of the length, in permitted zone shown in Figure 11 if separated by 3 x diameter	4 holes in any 1.0 m of the length, in permitted zone shown in Figure 11 if separated by 3 x diameter
Diameter exceeding 20 mm	4 holes in any 1.0 m of the length not exceeding 1/4 W on face are permitted only in the permitted zone, as shown in Figure 11 if separated by 5 x diameter	4 holes in any 1.0 m of the length not exceeding 3/8 W on face are permitted only in the permitted zone, as shown in Figure 11 if separated by 5 x diameter
Termite galleries		
Enclosed galleries	Not permitted	Not permitted
Fully open to view	Depth less than 25 mm and aggregate length not exceeding 1/4 L	Depth less than 25 mm and aggregate length not exceeding 1/4 L
Slope of grain		
	Not exceeding 1 in 12	Not exceeding 1 in 10
Sound heart and heart shakes		
For species marked with an * (asterisk) in table A1	Permitted provided they do not exceed 1/9 of the cross-sectional area	Permitted provided they do not exceed 1/3 of the cross-sectional area
For all other species:–		
Beam Applications Where the smallest cross-section dimension does not exceed 180 mm	Permitted within the middle 1/3 of the intended in situ depth and within 30 mm of the intended in situ vertical surface (refer Figure 13)	Permitted within the middle 1/3 of the intended in situ depth and within 30 mm of the intended in situ vertical surface (refer Figure 13)
Beam Applications Where the smallest cross-section dimension exceeds 180 mm	Permitted within the middle 1/3 of the intended in situ depth	Permitted within the middle 1/3 of the intended in situ depth
Applications Other Than Beams (e.g. columns) where the smallest cross-section dimension does not exceed 180 mm	Permitted within 30 mm of the intended in situ surfaces	Permitted within 30 mm of the intended in situ surfaces
Applications Other Than Beams (e.g. columns) where the smallest cross-section dimension exceeds 180 mm	Unlimited	Unlimited
Pipe and heart rot		
Beam Applications	Not permitted	Not within 75 mm of the intended in-situ upper or lower surface
Applications Other Than Beams	Permitted within 30 mm of the intended in situ surfaces and not exceeding 40 mm dia.	Permitted within 30 mm of the intended in situ surfaces and not exceeding 40 mm dia.

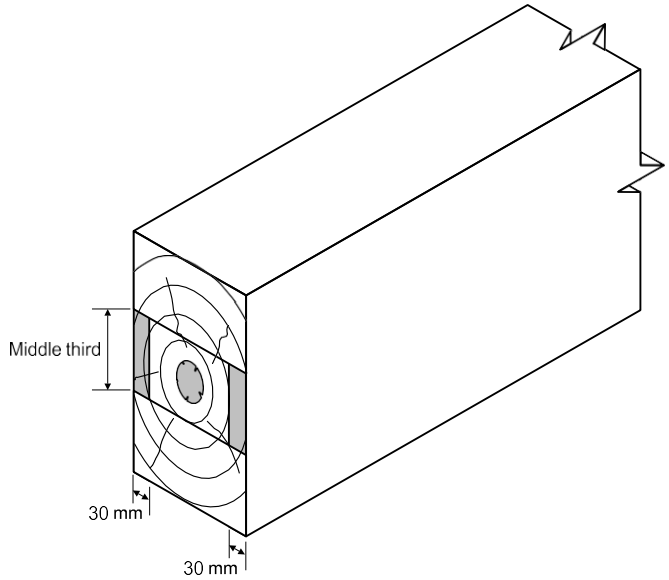


Figure 13 Areas where sound heart and heart shakes are permitted

Table 3.2.2 Large End Section Permissible Characteristics *Continued*

Type of characteristic	Large end Section Recycled Grade 1	Large end Section Recycled Grade 2
Tight gum veins		
Length	Individually not exceeding 1/3 L and in aggregate, not exceeding L on any surface	Unlimited
Width	Not exceeding 4 mm, measured radially	Unlimited
Loose gum veins, gum pockets & overgrowth of injury		
Length	Individually not exceeding 300 mm and not exceeding 2 in any 2m of the length of the piece	Individually not exceeding 300 mm and not exceeding 2 in any 2m of the length of the piece
Confined to one surface	Not exceeding 20 mm in width	Not exceeding 20 mm in width
From one surface to another	Not exceeding 12 mm in width	Not exceeding 12 mm in width
Shelling-off		
	Permitted within the central third of the width and the central third of the length of the piece on the heart side (refer Fig. 14) Depth not exceeding 6 mm	Permitted within the central half of the width and the central half of the length of the piece on the heart side (refer Fig. 14) Depth not exceeding 12 mm
End splits		
	Not exceeding 6 mm in width and not exceeding the lesser of 200 mm and 3% of the length	Not exceeding 6 mm in width and not exceeding the lesser of 225 mm and 5% of the length
Checks		
	Not exceeding 6 mm in width and not exceeding 20 mm in depth	Not exceeding 6 mm in width and not exceeding 20 mm in depth
Want, wane and untreated sapwood, and notches and holes on edges that have been removed by planing or machining with a gradual slope not exceeding the slope of grain requirements for each grade. (see Figure 12) Separately or in combination		
	• Not exceeding 1/10 of the cross-sectional area • Not exceeding 1/3 T on the edge or 1/2 W on the face • Not exceeding 25 mm deep and on one surface only	• Not exceeding 1/5 of the cross-sectional area • Not exceeding 1/3 T on the edge or 1/2 W on the face • Not exceeding 25 mm deep and on one surface only

Table 3.2.2 Large End Section Permissible Characteristics *Continued*

Type of characteristic	Large End Section Recycled Grade 1	Large End Section Recycled Grade 2
	Bow, spring and twist	
	To be agreed between purchaser and seller	To be agreed between purchaser and seller
	Notches	
Beam Applications	Notches are only permitted in the permitted zones indicated in Fig 15. The aggregate size of all notches in either the centre section and / or the beam ends shall be: Max depth: d_{notch} = 8 mm for a maximum length of: l_{notch} = 1/2 W	Notches are only permitted in the permitted zones indicated in Fig 15. The aggregate size of all notches in either the centre section and / or the beam ends shall be: Max depth: d_{notch} = 12 mm for a maximum length of: l_{notch} = 1/2 W
Applications Other Than Beams	Edge notches are permitted provided the depth of the notch does not exceed 10 mm in depth. The loss of timber due to notches at any cross-section shall not exceed 10% of the gross cross section of the member and shall not occur in combination with any other listed characteristic.	Edge notches are permitted provided the depth of the notch does not exceed 10 mm in depth. The loss of timber due to notches at any cross-section shall not exceed 10% of the gross cross section of the member and shall not occur in combination with any other listed characteristic

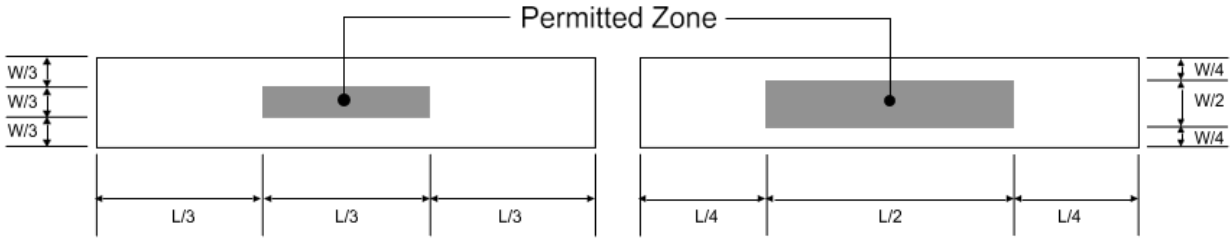


Figure 14 Permitted zones for "shelling off" RG1 (left) and RG2 (right)

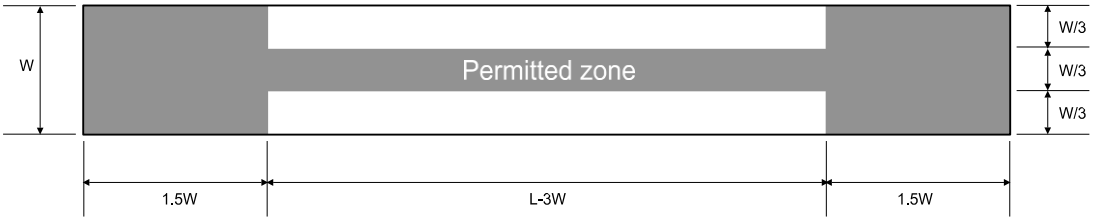


Figure 15 Permitted zones for notches in beams

Section 4 Bibliography

Forest & Wood Products Australia - "*Interim Industry Standard Recycled Timber Visually Stress Graded Recycled Timber for Structural Purposes, Project Number: PN06.1039"*. FWPA, Melbourne, July 2008.

Crews, K., McGrath, D., Flynn, S. - *"Development of visual grading rules for recycled timber preliminary report and literature review for Timber Queensland, Version 1.1"*. University of Technology Sydney, January 2007. *[Technical report: Project Number PN06.1039]*

Crews, K. - *"Development official grading rules for recycled timber report on testing for Timber Queensland, Version 2-1*". University of Technology Sydney, December 2007. *[Technical report: Project Number PN06.1039]*

Crews, K., MacKenzie, C. - "*Development of grading rules for recycled timber used in structural applications".* Volume 1, pp. 231-238, 10th World Conference on Timber Engineering 2008, Miyazaki, Japan.

Appendix A Species Properties (Normative)

Table A1 contains species that are appropriate for the visual grades given in the various Parts of this Standard. Suppliers and purchasers shall agree upon which species or species mixes are appropriate for their particular use. Properties are also given.

The standard common names used in the Table to refer to the timber species are as given in AS/NZS 1148.

The abbreviations used under Source in Table A1 are as follows:

N New South Wales

NZ New Zealand

Q Queensland

S South Australia

T Tasmania

Ter Northern Territory

V Victoria

W Western Australia

The species groups given are applicable to both seasoned and unseasoned timber and are specific to recycled timber only.

The joint groups are given with a 'J' prefix for unseasoned and a 'JD' prefix for seasoned and are as given in **AS 1720.2**. Refer to **AS 1720.1** and Appendix C.

The codes for marking species are as given in **AS 1720.2**.

Natural durability and lyctid susceptibility (S = susceptible, NS = not susceptible) information is as given in **AS 5604**.

The density (kg/m^3) at 12%MC is as given in **AS 1720.2**.

Termite resistance of heartwood (inside above ground) as given in **AS 5604**.

BAL 12.5 & 19

For General Timber Use - Timber must have a density of 750 kg/m^3 or greater.

For Joinery Timber (Windows & Doors only) - Timber must have a density of 650 kg/m^3 or greater.

Timbers classified as having a BAL 29 classification include: Blackbutt, Kwila (Merbau), Red Ironbark, Spotted Gum, River Redgum, Silvertop Ash and Turpentine.

Legend to Table A1

- no information available at publication

* species referred to in Tables 3.1.1 and 3.2.2 (Sound heart and heart shakes) as being marked with an * (asterisk) in Table A1

Table A1 Species Properties

Common Name	Botanical Names	Source	Species Group	Joint Group	Code for Species Mark	Durability Class*		Lyctid Susceptibility	Termite Resistance inside above ground	Density at 12% MC
						In-Ground Contact	Outside Above Ground			
Ash, alpine	*Eucalyptus delegatensis*	N, T, V	D	J3 J	AA	4	3	S	NR	660
Ash, Crow's	*Flindersia australis*	N, Q	B	-		1	1	S	R	940
Ash, hickory	*F. ifflaiana*	Q	A	-	HA	2	1	S	R	980
Ash, mountain	*E. regnans*	T, V	D	J2 JD2	MA	4	3	NS	NR	670
Ash, silvertop	*E. sieberi*	N, T, V	C	J2 JD2	ST	3	2	NS	NR	850
Beefwood	*Grevillea striata*	N, Q	C	-		2	-	S	NR	-
*Blackbutt	*E. pilularis*	N, Q	B	J2 JD2	BB	2	1	NS	R	880
Blackbutt, New England	*E. andrewsii* *E. campanulata*	N, Q	C	J2 JD2	NA	2	2	S	R	880
Blackbutt, Western Australian	*E. patens*	W	D	J2 JD2	BA	2	1	S	R	850
Bloodwood, brown	*Corymbia trachyphloia*	N, Q	C	-	BD	1	1	S	R	1020
Bloodwood, red	*C. gummifera* *C. intermedia* *C. polycarpa*	N, Q, V	C	-	RW	1	1	S	R	880
Box, black	*Eucalyptus largiflorens*	N, V	C	-	BX	1	1	S	-	1100
Box, brush	*Lophostemon confertus*	N, Q	C	J2 JD2	BH	3	2	NS	R	900
*Box, grey	*E. microcarpa* *E. moluccana* *E. woolsiana*	N, V	B	-	GB	1	1	S	R	1120
Box, grey, coast	*E. bosistoana*	N, V	B	J1 JD1	CB	1	1	S	R	1100
Box, red	*E. polyanthemos*	N, V	C	-	RX	1	1	S	R	1060
Box, white	*E. albens*	N, Q, V	B	-	WX	2	1	NS	R	1100
Box, white-topped	*E. quadrangulata*	N,Q	B	-	WT	2	2	NS	R	1020
Box, yellow	*E. melliodora*	N, Q, V	C	J1 JD1	YB	1	1	NS	R	1070

Table A1 Species Properties *Cont.*

Common Name	Botanical Names	Source	Species Group	Joint Group	Code for Species Mark	Durability Class*		Lyctid Susceptibility	Termite Resistance inside above ground	Density at 12% MC
						In-Ground Contact	Outside Above Ground			
Cadaga	*E. torelliana*	Q	B	-	CG	2	-	S	NR	910
Carbeen	*E. tessselaris*	N, Q	A	-	CN	1	1	S	R	1090
Gidge	*Acacia cambagei*	N, Q, S, Ter	A	-	G	1	1	NS	NR	1100
Gum, blue, southern	*E. globulus*	V, T	C	J2 JD2	BG	3	2	S	NR	980
Gum, blue, Sydney	*E.. saligna*	N, Q	C	J2 JD2	SY	3	2	S	NR	850
Gum, grey	*E. canaliculate* *E. punctata* *E. propinqua*	N, Q	A	J1 JD1	GG	1	1	NS	R	1060
Gum, grey, mountain	*E. cypellocarpa*	N, V	C	J2 JD2	MT	3	2	S	NR	860
Gum, Maiden's	*E. maideni*	N, V	C	-	MG	3	2	S	NR	860
Gum, manna	*E. viminalis*	N, S, T, V	C	J3 JD3	MN	4	3	S	NR	770
Gum, mountain	*E. cypellocarpa*	N, T, V	D	J3 JD3	MO	4	3	S	NR	690
Gum, poplar	*E. alba*	Q, W, V	B	-	PG	3	3	-	NR	-
*Gum, red, forest	*E. blakelyi* *E. viminalis*	N, Q, V	C	J1 JD1	FR	1	1	NS	R	960
Gum, red, river	*E. camaldulensis*	Q	D	J2 JD2	RR	2	1	S	R	910
Gum, rose	*E. grandis*	N, O	C	J2 JD2	RO	3	2	S	NR	750
Gum, salmon	*E. salmonophloia*	W	C	-	SA	2	1	NS	R	1070
*Gum, spotted	*Corymbis maculata* *C. citrodora* *C. henryi*	N, Q, V	B	J1 JD1	SG	2	1	S	R	990
Gum, yellow	*E. leucoxylon*	S, V	D	-		2	1	S	R	1010
Ironbark, Caley's	*E. caleyi*	N, Q	B	-		-	1	S	R	1100
*Ironbark, grey	*E. drepanophylla* *E. siderophloia* *E. paniculata*	N, Q	A	J1 JD1	GI	1	1	NS	R	1090

Table A1 Species Properties *Cont.*

Common Name	Botanical Names	Source	Species Group	Joint Group	Code for Species Mark	Durability Class*		Lyctid Susceptibility	Termite Resistance inside above ground	Density at 12% MC
						In-Ground Contact	Outside Above Ground			
*Ironbark, gum-topped	*Eucalyptus decorticans*	Q	B	-		1	1	NS	R	1100
*Ironbark, red	*E. sideroxylon*	N, Q, V	B	J1 JD1	RI	1	1	S	R	1090
*Ironbark, red, broad-leaved	*E. fibrosa*	N, Q	A	J1 JD1	BI	1	1	NS	R	1070
*Ironbark, red, narrow-leaved	*E. crebra*	N, Q	B	J1 JD1	NI	1	1	NS	R	1070
Ironbark, silver-leaved	*E. melanophiloia*	N, Q	B	-		1	1	NS	R	1080
Ironwood, Cooktown	*Erythrophloeum chlorostachys*	Q	A	-	IW	1	1	S	R	1100
Jarrah	*E. marginata*	W	D	J2 JD2	J	2	2	S	R	820
Karri	*E. diversicolor*	W	C	J2 JD2	K	3	2	NS	NR	900
Mahogony, red	*E. pellita* *E. resinifera*	N, Q	B	J1 JD1	RM	2	1	S	R	960
Mahogony, southern	*E. botryoides*	N, V	B	J2 JD2	SM	3	2	NS	R	910
Mahogony, white	*E. acmenioides* *E. tenuipes* *E. umbra*	N, Q	B	J1 JD1	WM	1	1	NS	R	960
Marri	*E. calophylla*	W	C	J2 JD2	ME	3	3	S	NR	850
Messmate	*E. obliqua*	N, V, T	C	J3 JD3	MS	3	3	S	NR	770
Messmate, Gympie	*E. cleoziana*	Q	B	-	GM	1	1	NS	R	990
Penda, brown	*Xanthostermon chrysanthus*	Q	B	-	PN	2	1	NS	R	1120
Penda, red	*X. whitei*	Q	B	J1 JD1	PD	2	1	NS	R	1060
Peppermint, narrow-leaved	*Eucalyptus, Australiana* *E. radiait* *E. robertsoni*	N N, V, N, V, T	D	J3 JD2	NL	3	3	S	NR	780
Peppermint, Queensland	*E. exesrta+*	Q	B	-		1	1	S	R	780
Peppermint, white	*E. pulchella*	V, T	D	-		3	-	S	NR	780

Table A1 Species Properties *Cont.*

Common Name	Botanical Names	Source	Species Group	Joint Group	Code for Species Mark	Durability Class*		Lyctid Susceptibility	Termite Resistance inside above ground	Density at 12% MC
						In-Ground Contact	Outside Above Ground			
Rustyjacket	*E. peltata*	Q	B	-		2	2	S	NR	-
Satinay	*Syncarpia hillii*	Q	C	J2 JD2	S	2	1	NS	R	900
Stringybark, blue-leaved	*Eucalyptus. agglomerata*	N	B	-		3	3	NS	NR	-
Stringybark, brown	*E. capitellata*	N, V, T	C	J2 JD2	BS	3	2	NS	NR	850
Stringybark, Darwin	*E. tetrodonta*	Q, W, Ter	A	-		1	1	NS	R	-
Stringybark, red	*E. macrohyncha*	N, V, T	C	J2 JD2	RS	3	2	S	R	900
Stringybark, silvertop	*E. laevopinea*	N, Q	C	J3 JD2	SS	3	3	NS	NR	-
Stringybark, white	*E. eugenioides* *E. globoidea* *E. phaeotricha*	N, Q, V	C	J2 JD2	WS	3 2 -	2 - -	NS	R - -	850
Stringybark, yellow	*E. muelleriana*	N, Q, V	C	J2 JD2	YS	3	2	NS	R	880
Tallowwood	*E. microcorys*	N, Q	B	J1 JD2	TW	1	1	S	R	990
Turpentine	*Syncarpia glomulifera*	N, Q	C	J2 JD2	TP	2	1	NS	R	940
Wandoo	*Eucalyptus wandoo*	W	B	J1 JD1	WG	1	1	NS	R	1100
Wandoo, powderbark	*E. accedens*	W	C	-	PW	1	1	NS	R	1100
Woolybutt	*E. longifolia*	N	C	-		1	1	S	R	1060
Woolybutt, northern	*E. miniata*	Q, W, Ter	B	-		2	-	S	NR	-
Yapunyah	*E. ochropphloia*	N, Q	B	-		1	1	S	-	-

Appendix B Measurement of Characteristics (Normative)

B.1 Knots in Sawn Timber

These include the following:

(a) Sound knots and knot holes – The size shall be the width as measured between lines enclosing the knot or hole and parallel to the arises of the piece (see Figure B.1).

(b) Arris knots – The size shall be the dimension of the knot that forms the lesser proportion of the surfaces on which it occurs, as measured between lines touching the boundaries of the knot on both surfaces and parallel to the arris that intersects the knot (see Figure B.1).

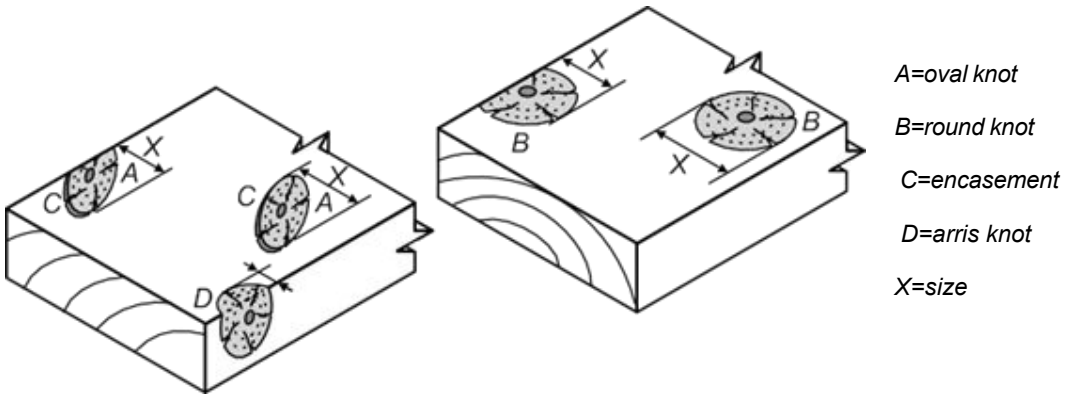
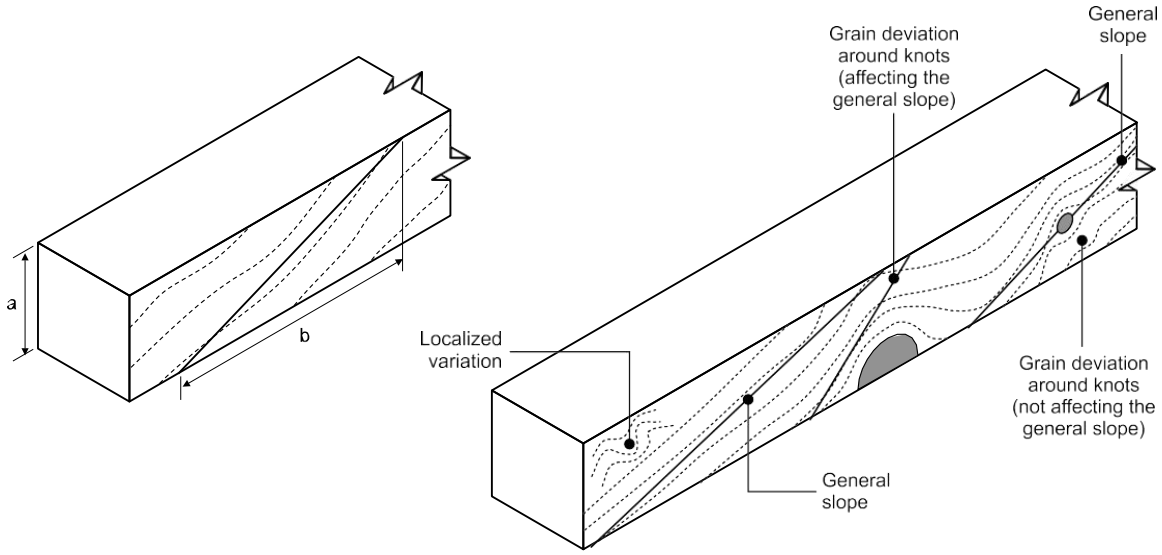


Figure B.1 Measurement of knots in sawn timber

B.2 Slope of Grain

Slope of grain shall be determined by one of the methods described in AS/NZS 1080.2.1 AS/NZS 1080.2.2 or AS/NZS 1080.2.3 and shall be measured over a distance sufficient to determine the general slope. Localized variations, where the grain deviates over less than half the surface, may be disregarded. Grain deviation around knots shall be disregarded providing such deviation does not significantly affect the general slope within the piece (see Figure B.2).



(a) General slope of grain = a:b expressed 1 in x. (b) Deviations around the knots and localized

Figure B.2 Measurements of slope of grain

B.3 Gum pockets, Gum veins, overgrowth of injury and primary rot

The widths of gum pockets, gum veins, resin pockets, overgrowths of injury and primary rot shall be measured radially (see Figure B.3)

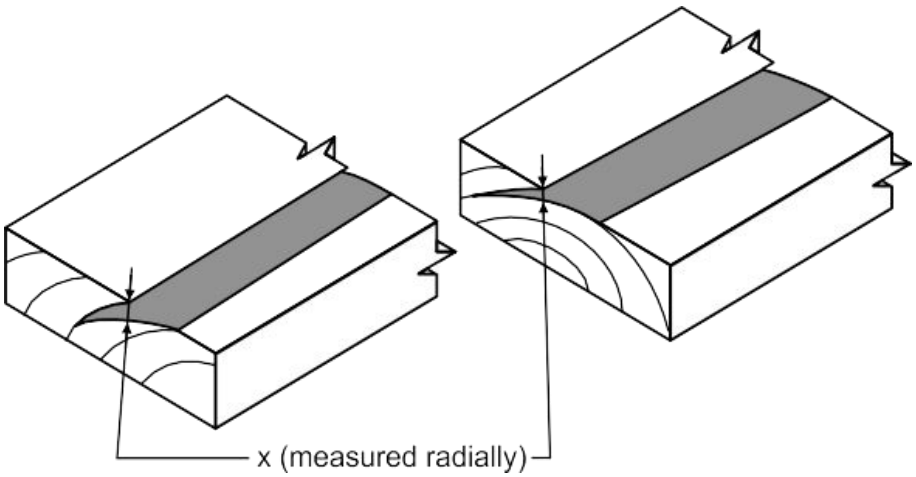


Figure B.3 Gum pockets, gum veins, bark

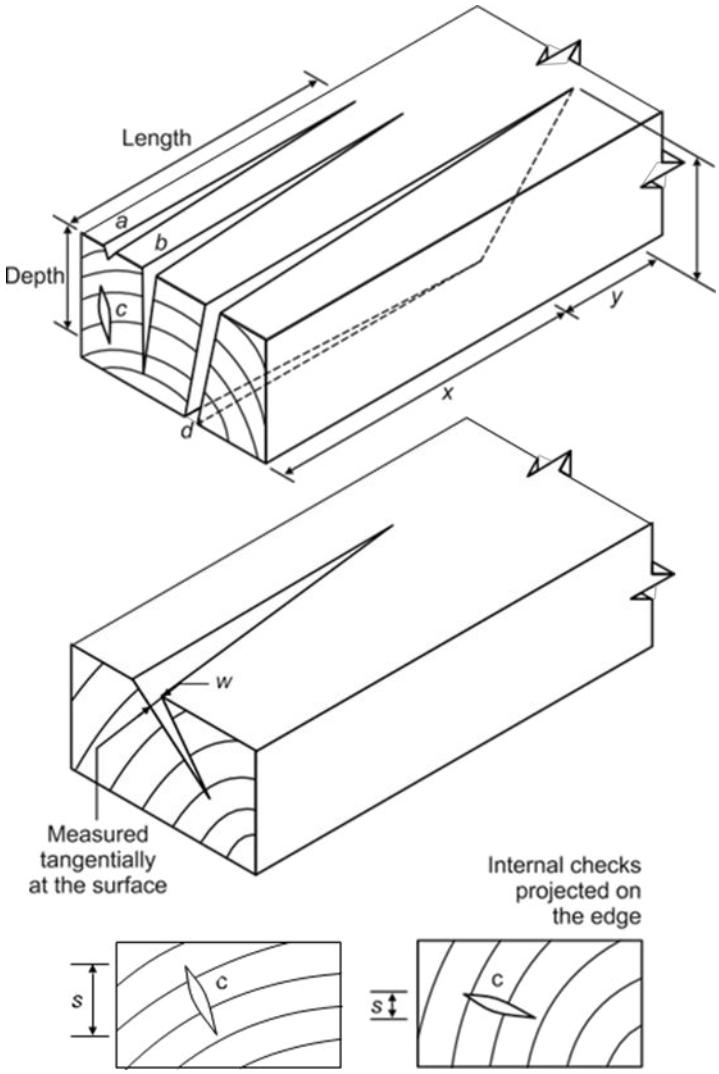
B.4 Checks

The measurement of checks shall be as follows (see Figure B.4):

(a) For checks other than internal checks, the width shall be measured tangentially at the surface at 90 degrees to the longitudinal direction of the check. The length shall be measured parallel to the arises.

(b) For internal checks, the size shall be measured at their projected length s, on the thickness of the piece.

(c) Checks are not to be confused with shakes (see Figure B.5)



Legend

a=surface check

b=check

c=internal check

d=split, w=width of check measured tangentially

x=length of split

y=length of check

s=projected length

Figure B.4 Checks and Splits

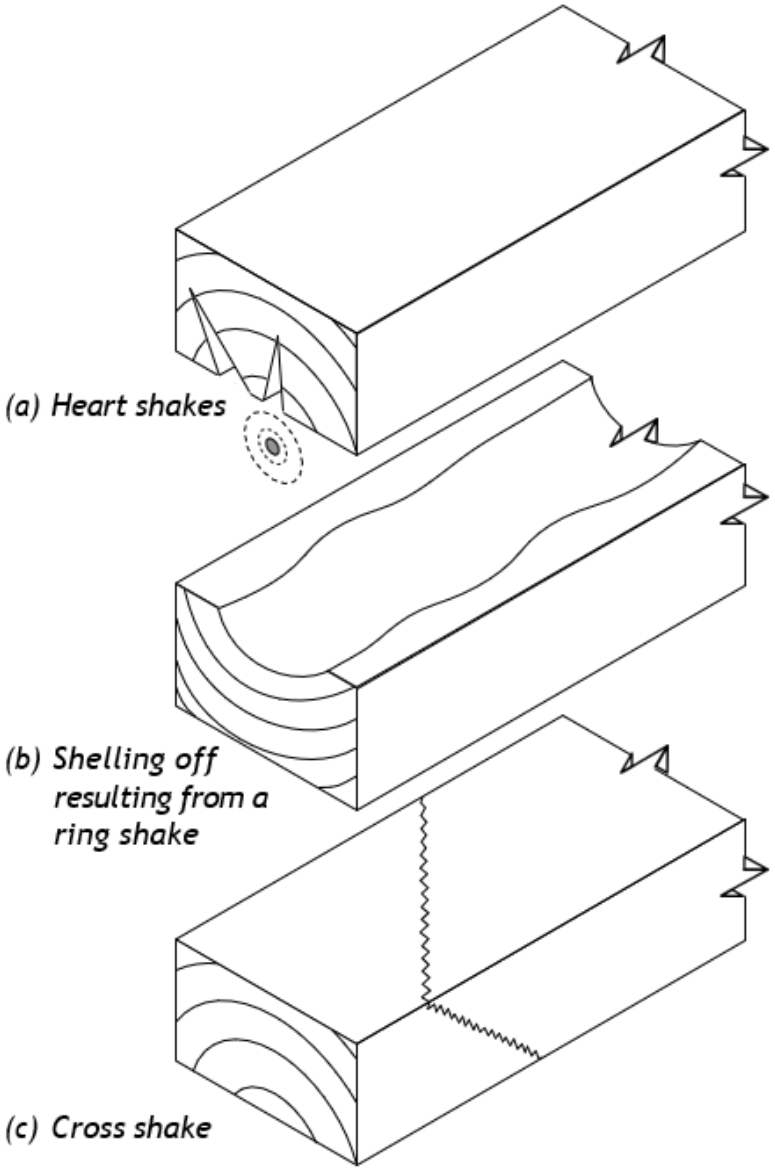


Figure B.5 Shakes

B.5 Wane, Want, and Lyctid-susceptible wood

Wane, want and Lyctid-susceptible sapwood shall be measured as the amount by which the cross-section of the piece is deficient or is Lyctid- susceptible sapwood (see Figure B.6).

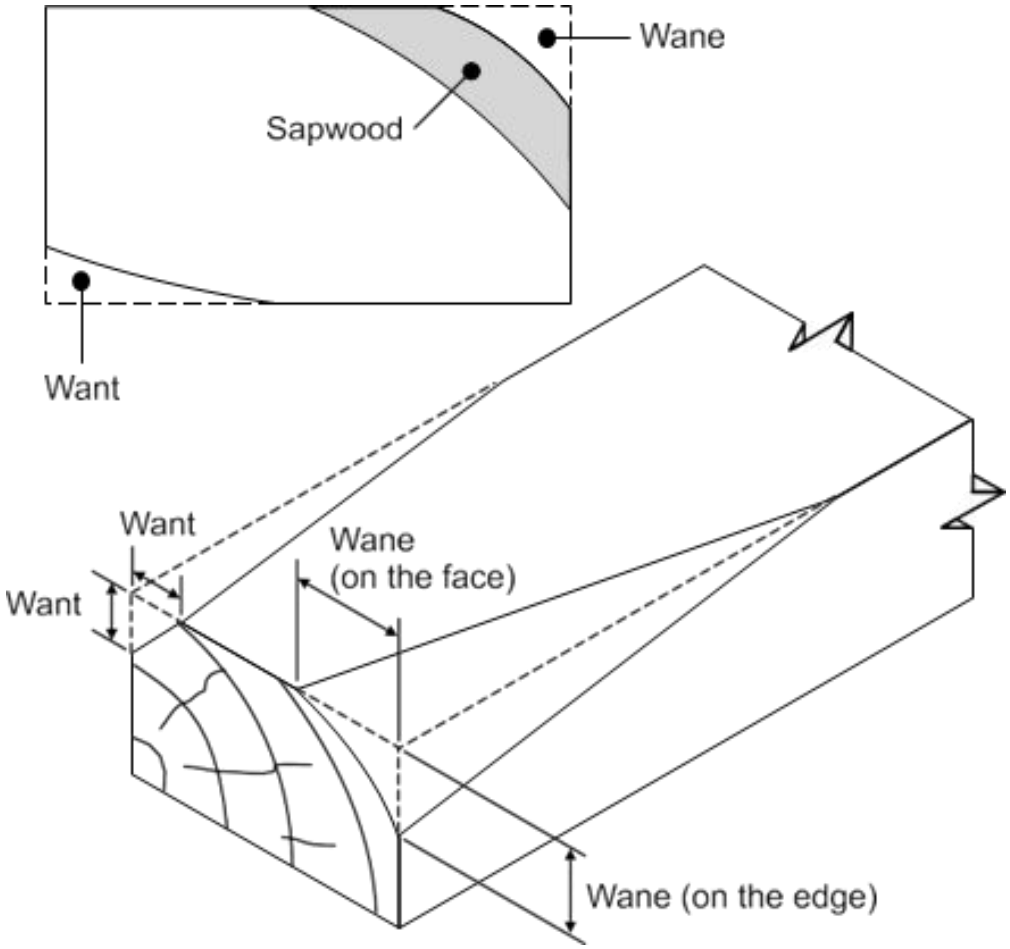


Figure B.6 Want, Wane, and Sapwood

B.6 Bow and Spring

Bow and spring shall be measured as the maximum distance perpendicular to the surface of any point on the face (bow) or edge (spring) from a straight line joining the arris at one end to the same arris at the other end (see Figures B.7 and B.8). When a piece has a combination of at least two of bow, spring, twist and cup, care needs to be exercised to measure each separately.

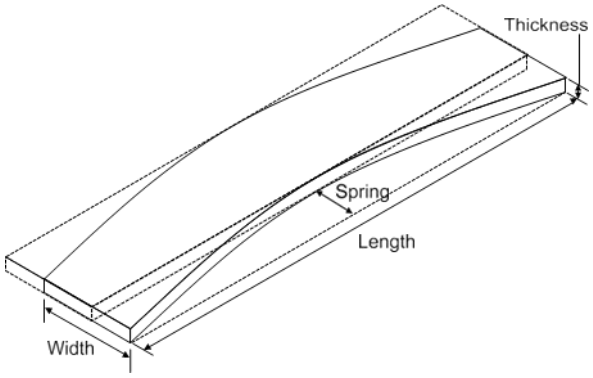


Figure B.7 Bow

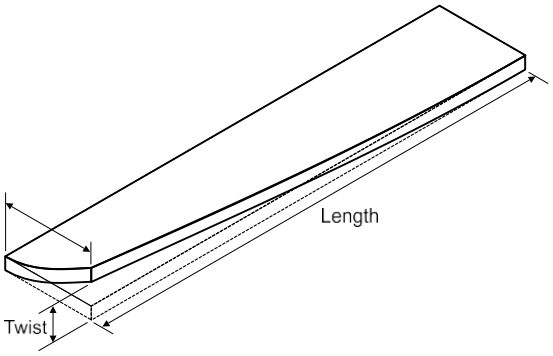


Figure B.8 Spring

B.7 Twist

Twist shall be measured by placing the piece so that three of the corners of one face are in contact with a flat surface and measuring the perpendicular distance from the fourth corner to the flat surface (see Figure B.9)

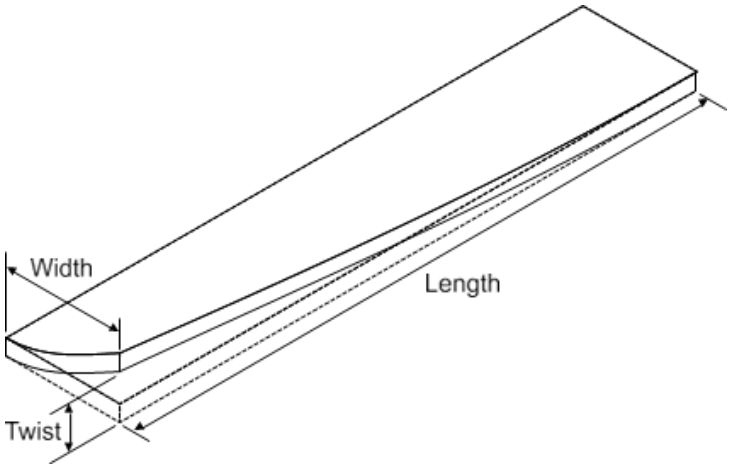


Figure B.9 Twist

B.8 Cup

Cup shall be measured on the concave surface as the maximum perpendicular distance of any point on the surface of the piece from a straight line joining the arises of that surface (see Figure B.10).

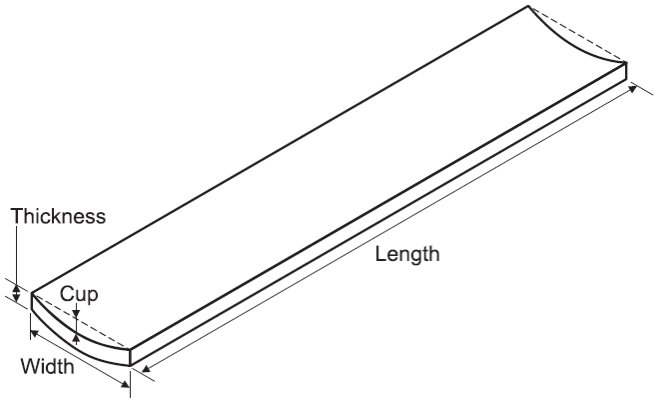


Figure B.10 Cup

Appendix C Design Properties – Guidelines for Designers (Informative)

C.1 General Considerations

The general provisions for visual grading of hardwoods using this Standard have been developed to be reasonably consistent with the relevant Australian Standards for new sawn Hardwood timbers as described in AS 2082 and AS 3818 Part 1 and Part 7.

However, the fact that all recycled hardwoods have been subjected to previous use results in members that have a history of loading, have at times been subjected to weathering or degradation agents and often contain evidence of prior fabrication from notches, nail and bolt holes. All of these effects tend to create mechanical damage, which must be taken into account when using recycled timbers in structural applications.

In order to quantify these effects, particularly in regard to their influence on strength and stiffness properties, a comprehensive testing program was undertaken as a part of the research and development program that supports this Standard. Whilst details of this testing are reported elsewhere, a number of salient features are discussed below.

C.2 Strength and Stiffness

One of the important outcomes of the testing program was recognition that the traditional relationship between strength and stiffness inherent in the F-grade system, does not apply in the same way as for new timber.

Essentially, the strength reduction effect observed in testing means that if a piece of recycled timber is visually graded using AS 2082 or AS 3818, then the F grade for that piece is nominally two F-grades lower, than would apply for a ’new’ piece of the same species and structural grade.

However, it is important to note, that the same reduction was not observed to apply for stiffness. This means that if a piece of timber is graded in accordance with the provisions of this Standard the stiffness, E, can be assumed to be that equivalent to ‘new’ timber.

Therefore, the characteristic strength, stiffness and other design considerations noted below for recycled structural timber do not align with the traditional ‘F’ grade properties given in AS 1720.1.

Table C1 provides recommended characteristic strength and stiffness for recycled hardwood timber graded in accordance with this Standard. Where recycled structural timber is proposed to be used in critical structural applications, designers and specifiers should consider specific structural or proof testing to satisfy themselves of the required characteristic strengths.

NOTE: A conservative approach has been taken by lowering the strength equivalent to two F-grades because the history of the recycled timber use may be unknown. Where the history of the timber is known, a one F-grade reduction may be applied. Individual operators/suppliers may conduct their own testing and may provide verification of strength by other means to supply timber of material properties different to those proposed in Table C.1. Refer to Section C.3 for consideration of the duration of load factor k1 if strength values other than those described in Table C.1 may be used.

Table C.1 Recommended Characteristic Strengths and Stiffness for Recycled Hardwood Graded in accordance with this Standard

Species Group (table B1)	Recycled Grade (Sect. 3)	Characteristic Strength, MPa				Short duration* modulus of elasticity parallel to the grain, MPa (E)	Short duration modulus of rigidity parallel to the grain, MPa (G)
		Bending *(f'b)*	tension parallel to grain *(f't)*	Shear in beams *(f's)*	Compression Parallel to Grain *(f'c)*		
A	RG1	50	30	4.3	40	18 500	930
	RG2	40	25	3.7	30	16 000	800
B	RG1	40	25	3.7	30	16 000	800
	RG2	35	20	3.1	25	14 000	700
C	RG1	35	15	3.1	25	14 000	700
	RG2	25	12	2.5	20	12 000	610
D	RG1	25	12	2.5	20	12 000	610
	RG2	20	9.7	2.1	15	10 500	530

* Includes an allowance for shear deformation.

C.3 Duration of Load Effects

Designers using AS1720.1 are required to apply a duration of load factor (k_1) to account for the fibre damage and consequent loss of strength that occurs from accumulated periods of loading. The question then arises, do the same factors have to be applied when designing a new structure using recycled timber?

In the case of recycled timbers, the 5th percentile strength observed from testing varied between approximately 55% and 65% of that for new timbers of the same visual grading, depending on the previous loading history. In most cases, this previous loading history will be unknown and as such it is appropriate to adopt a slightly conservative approach in recommending design properties. The general observation is that most recycled timbers have been subjected to an accumulated duration of loading somewhere between 5 months and 50 years.

A review of Madsen's work[1] that details testing and derivation of models used to account for the duration of load effect indicates the phenomenon is not linear but progressive, slowing gradually with time. The k_1 terms presented in AS1720.1 have been derived by utilising this same method of gradual loss of strength with increasing accumulated times of loading. This can be clearly seen in Figure C.1.

[1] Madsen, Borg – *Structural Behaviour of Timber*, 1992; ISBN 0-9696162-0-1.

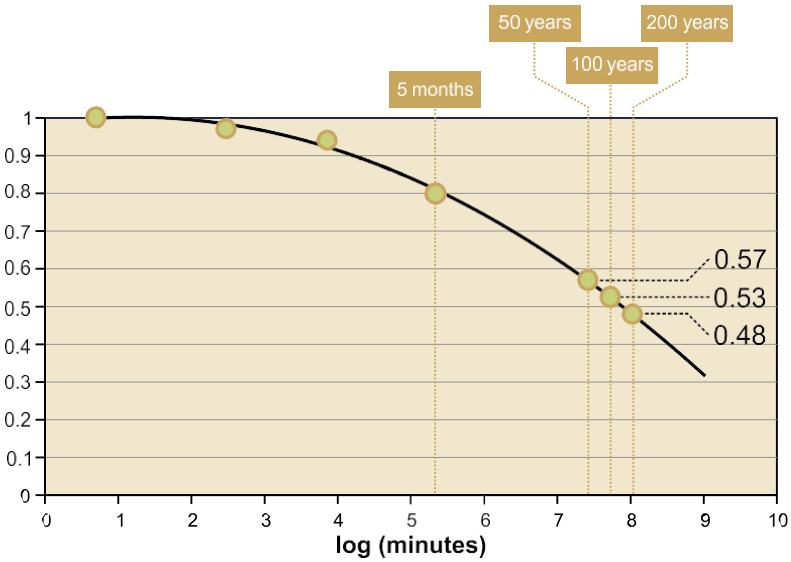


Figure C.1 Duration of Load and modification factor k_1

From AS1720.1 and the summary of this presented in Figure C1, it can be seen that at 50 years, the assumed value of k_1 is 0.57.

However, if the member was to remain in service and continues to carry permanent loads for say another 50 years, the value of k_1 for the extended period of load accumulation using the same model, only changes from 0.57 to approximately 0.53 (0.526). A further 100 years of loading (total 200 years) would result in a further reduction to 0.48. However, adding a further 5 months of accumulated loading, which is typical for normal occupancy load events, would change the value of k_1 by less than 0.5% – in other words, it is negligible. A conservative approach for applying k_1 to recycled structural timber that will be put back into service, would be to reduce the characteristic properties for occupancy loads by 2%, and for permanent loads by 10%.

The important thing to note is that application of a duration of load factor for recycled timber is very different than that for new timber. Based on this review, the following values of k_1 are recommended for designs utilising recycled timbers which are graded to this Standard with the characteristic properties given in Table C.1 for recycled hardwood. Where strength values greater than those described in this Standard have been provided by the supplier, this may indicate the timber has not reached a high level of load reduction from the duration of load effect. As such, the k_1 values used in conjunction with higher characteristic strength values than described in Table C.1 of this Standard may be taken as the k_1 values for new timber described in AS 1720.1 The structural engineer shall ensure that the appropriate k_1 value has been used in conjunction with the characteristic strength values provided by the individual operators/suppliers.

Table C.2 Recommended Values of Duration of Load Factor k_1 when using AS1720.1 for recycled hardwood

Type of Load	Assumed accumulated duration	Value of k_1
All short term loads	Less than 5 days	1.0
Occupancy loads	Up to 5 months	0.98
Permanent loads	Over 5 months	0.90

C.4 Recycled Structural Softwood

Whilst specific recommendations regarding the characteristic strength, stiffness and duration of load effects for recycled softwood are not provided in this Standard, similar overseas research, Falk et al[2] has demonstrated similar trends to that obtained for recycled structural hardwoods and therefore designers should make appropriate judgments and adjustments to design properties and procedures.

C.5 Bolt Holes and Notches

The testing program also involved consideration of notch effects. The effect of edge notches of any size in a “zone” subject to bending moment is quite severe and results in a significant loss of strength when compared to the bending capacity of an un-notched section. However, notches and holes in the vicinity of the neutral axis have a negligible effect on strength and stiffness.

For these reasons the “safe zones” for bolt holes and notches have been carefully defined in Section 3, and even where edge notches or holes may be permitted near the supports, designers are advised to check the member capacity using the relevant provisions of AS 1720.1 for beams.

C.6 Design of Connections

Table B1 notes the joint classifications for specific timber species referenced in this Standard. These joint classifications are based upon density of the timber, which for re-cycled timber does not change significantly from the “as new” state.

However, there is evidence that some reduction in connector strength due to previous load history occurs and as such, the characteristic capacities for each of the joint groups as defined in the relevant Tables of AS1720.1, should be reduced by multiplying the specified value by 0.8 (a reduction allowance of 20%).

The appropriate values for k_1 (duration of load) for the connections in structural members designed using recycled timber, are given in Table C.2.

Appendix D Guidelines for Specifiers and Purchasers of Recycled Timber (Informative)

When enquiring about or ordering recycled timber products in accordance with this standard, the following particulars should be supplied, where appropriate, preferably in this sequence:–

a) The product required e.g. Structural recycled hardwood

b) The Species Group and Recycled Grade in accordance with this Standard e.g. SG2, RG1

c) If a milled product, the finished dimensions

d) Any special requirements such as particular species, moisture content or required level of durability for specific applications.

e) Any special requirements in respect of colour or colour matching. (Inspection and agreement of a representative sample is strongly recommended).

NOTE Generally, only the sapwood of hardwoods can be impregnated with preservative

f) Hole plugging required/not required

g) Surface finish (sawn, dressed, brushed, wired etc)

h) Lengths (set, multiple, lineal etc)

i) Pre-delivery finishing (coatings, sealers, end grain anti split plates etc)

j) Packaging requirements (wrapping, blocks, corner strap protection, pack size/weight)

k) Place and time of delivery and

l) Delivery and on-site storage requirements (e.g. protection from the weather)

FWPA Standard G01

Recycled Hardwood Span Table Supplements

RECYCLED HARDWOOD
SPAN TABLES

SUPPLEMENT 1

Wind Classifications N1, N2 and N3

Recycled Species Group A
Recycled Grade, RG1

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1.0 INTRODUCTION

This Supplement was prepared under a project supported by Forest and Wood Products Australia and provides span tables for some common applications and uses for recycled structural hardwood timber. The span tables provided include some commercial as well as some domestic construction uses. The span tables are specific to recycled timber which will include recycled timber features.

2.0 APPLICATION

The span tables included in this Supplement are only applicable for use with timber graded in accordance with 'FWPA Standard G01, Recycled Timber – Visually Graded for Structural Purposes' available from www.fwpa.com.au for the Wind Classifications designated in this Supplement.

The Tables in this Supplement apply to Recycled Timber Species Group A and Recycled Grade, RG1.

For domestic applications, the requirements of AS 1684 are also applicable for use in conjunction with the Tables in this Supplement.

3.0 ALTERNATIVE GRADE

Not applicable.

4.0 TOLERANCES

The depth (D) and breadth (B) shall not be more than 2mm under the sizes given.

5.0 CONTENTS

Table 1

Decking Boards - Commercial Applications Supporting 5.0 kPa Uniform Live Load

	Point Live Load (kN)			
	3	5	9	13
Size DxB (mm)	**Span**			
35x70	760	680	380	NS
35x90	820	800	460	320
35x120	900	880	600	420
35x140	960	940	700	480
45x70	980	960	640	440
45x90	1080	1040	780	540
45x120	1180	1160	940	720
45x140	1200	1200	1000	840

NOTES:

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum DL of 60 (kg/m2), Floor Live Load of 5 (kPa).

iii) End bearing lengths = 20 mm at end supports and 20 mm at internal supports for continuous members.

iv) Point loads are assumed to be shared by two deck boards.

v) Live load deflection limit = span/150 or 4 mm.

vi) Decking shall be two or more continuous span.

Table 2

Deck Bearers - Domestic Applications
May Support Decks Greater than 1000mm above the Ground

	Floor Load Width (mm)											
	1200		2400		4800		1200		2400		4800	
	Bearer Span (mm)											
	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
Size DxB (mm)	**Single Span**						**Continuous Span**					
90x45	1700	500	1200	300	NS	NS	1800	500	1200	300	NS	NS
90x70	2000	600	1500	400	1100	300	2200	600	1500	400	1100	300
90x90	2200	600	1700	500	1200	300	2400	700	1700	500	1200	300
120x45	2300	600	1700	500	1200	300	2400	700	1700	500	1200	300
120x70	2700	800	2100	600	1400	400	3000	900	2100	600	1400	400
120x90	3000	900	2300	600	1600	400	3300	900	2300	600	1600	400
140x45	2700	800	2000	600	1400	400	2800	800	2000	600	1400	400
140x70	3200	900	2400	700	1700	500	3500	1000	2400	700	1700	500
140x90	3400	1000	2700	800	1900	500	3800	1100	2700	800	1900	500
170x45	3300	900	2400	700	1700	500	3400	1000	2400	700	1700	500
170x70	3700	1100	3000	900	2100	600	4200	1200	3000	900	2100	600
170x90	3900	1100	3300	900	2300	600	4700	1400	3300	900	2300	600
190x45	3600	1000	2700	800	1900	500	3800	1100	2700	800	1800	500
190x70	4000	1200	3300	900	2300	600	4700	1400	3300	900	2300	600
190x90	4300	1200	3600	1000	2600	700	5200	1500	3700	1100	2600	700
240x45	4300	1200	3400	1000	2400_{5}	700_{5}	4900	1400	3400	1000	2300_{25}	600_{25}
240x70	4800	1400	4000	1200	3000	900	6000	1800	4200	1200	3000	900
240x90	5100	1500	4300	1200	3300	900	6500	1900	4700	1400	3300	900
290x45	5000	1500	4200	1200	2900_{15}	800_{15}	5900	1700	4200_{5}	1200	2800_{55}	800_{55}
290x70	5600	1600	4700	1400	3600_{5}	1000_{5}	7000	2100	5100	1500	3600_{25}	1000_{25}
290x90	5900	1700	5000	1500	4000	1200	7200	2100	5600	1600	4000_{10}	1200

NOTES:

i) D = member depth, B = member breadth, NS = not suitable, O/H = Cantilever (mm).

ii) The above table was based on a maximum DL of 30 (kg/m2), Floor Point Load of 1.8 (kN), Balcony Live Load of 3 (kPa).

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 30 % of Backspan.

v) End bearing lengths = 50 mm at end supports and 100 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 50 mm at end supports and 100 mm at internal supports.

Table 3

Deck Joists - Domestic Applications
May Support Decks greater than 1000mm above the Ground

	Joist Spacing (mm)											
	300		450		600		300		450		600	
	Max Joist Span (mm)											
	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever
Size DxB (mm)	**Single Span**						**Continuous Span**					
90x35	1700	500	1600	400	1600	400	2100	600	1900	500	1900	500
90x45	2000	600	1800	500	1800	500	2400	700	2200	600	2100	600
120x35	2700	800	2600	700	2500	700	3300	900	3100	850	3000	800
120x45	3200	900	3000	900	2800	800	3600	1050	3400	950	3300	850
140x35	3400	1000	3300	900	3100	900	3900	1150	3700	1000	3600	900
140x45	3700	1100	3600	1000	3400	1000	4200	1250	4000	1100	3900	1000
170x35	4200	1200	3900	1100	3700	1100	4700	1400	4500	1200	4300	1100
170x45	4600	1300	4200	1200	3900	1100	5200	1500	4900	1300	4800	1200
190x35	4700	1400	4300	1200	4000	1200	5300	1550	5000	1350	4800	1250
190x45	5100	1500	4600	1300	4300	1200	5800	1700	5500	1450	5300	1350
240x35	5700	1700	5100	1500	4800	1400	6700	1950	6400	1700	6000	1550
240x45	6100	1800	5500	1600	5100	1500	7200	2100	6900	1850	6400	1700
290x45	7000	2100	6300	1800	5900	1700	7200	2100	7200	2100	7200	2050

NOTES:

i) D = member depth, B = member breadth, NS = not suitable, C'lever = Cantilever (mm).

ii) The above table was based on a maximum Deck Mass of 30 (kg/m2), Floor Point Load of 1.8 (kN), Balcony Live Load of 3 (kPa).

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 30 % of Backspan.

v) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members.

Table 4

Stair Stringers

Size DxB (mm)	Stair Width (mm)					
	750	900	1200	1500	1800	2400
	Maximum Stringer Span (mm)					
190x35	3800	3800	3500	3300	3100	2800
190x45	4100	4000	3800	3600	3300	3000
240x35	4700	4500	4200	4000	3800	3500
240x45	5000	4800	4500	4200	4000	3700
290x45	5700	5500	5100	4900	4600	4300

NOTES:

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Floor Mass of 40 (kg/m2), Floor Live Load of 2.0 (kPa), Floor Point Load of 2.7 (kN).

iii) Minimum bearing length = 50 mm at end supports.

iv) Maximum trench depth to accommodate treads - 10 mm.

Table 5 Stair Treads (with open flights)

Size DxB (mm)	Max. Tread Span (mm)
35x240	800
35x290	900
40x240	1100
40x290	1200
45x240	1300
45x290	1400
50x240	1500
50x290	1700
60x240	2000
60x290	2100

NOTES:

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Deck Mass of 40 (kg/m2), Floor Point Load of 2.7 (kN).

iii) Minimum bearing length = 35 mm at end supports.

Table 6

Posts
Supporting Roof and/or Floor Loads

	Floor Load Area (m2)											
	0				10				20			
Roof Load Area (m2)	0	10	20	40	0	10	20	40	0	10	20	40
Size DxB (mm)	**Maximum Post Height (mm)**											
Sheet Roof												
70x70	4800	3800	2700	1900	2700	2400	2200	1800	1900	1800	1700	1500
90x90	4800	4800	4400	3100	4400	3900	3600	2900	3100	2900	2800	2500
120x120	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4500
140x140	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
170x170	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
190x190	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
Tile Roof												
70x70	4800	3000	2100	1500	2700	2200	1800	1400	1900	1700	1500	1200
90x90	4800	4800	3500	2400	4400	3500	3000	2300	3100	2700	2500	2100
120x120	4800	4800	4800	4300	4800	4800	4800	4100	4800	4800	4400	3800
140x140	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
170x170	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
190x190	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800

NOTES:

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Sheet Roof Mass of 40 (kg/m2), Tile Roof Mass of 90 (kg/m2), Total Upper Floor Mass of 50 (kg/m2), Floor Live Load of 1.5 (kPa).

iii) Posts are free standing, i.e. not supporting lateral wind loads from walls etc.

Table 7

Window or Door Mullions
Single or Upper Storey Load Bearing Walls

Size DxB (mm)	Mullion Height (mm)	Roof Load Width (mm)							
		3000	4500	6000	7500	3000	4500	6000	7500
		Mullion Spacing (mm)							
		Sheet Roof				Tile Roof			
70x70	2400	1600	1400	1300	1100	1400	1100	NS	NS
	2700	1100	1000	NS	NS	1000	NS	NS	NS
70x90	2400	2000	1700	1600	1400	1700	1400	1200	900
	2700	1500	1400	1200	1100	1300	1000	NS	NS
	3000	1000	1000	NS	NS	1000	NS	NS	NS
70x120	2400	2700	2300	2100	1800	2200	1800	1600	1400
	2700	2000	1800	1600	1500	1700	1500	1200	1000
	3000	1400	1300	1200	1200	1300	1100	NS	NS
70x140	2400	3200	2800	2400	2200	2700	2200	1800	1600
	2700	2400	2200	1900	1700	2100	1700	1500	1300
	3000	1700	1700	1500	1400	1600	1400	1100	900
90x70	2400	3000	2700	2400	2200	2600	2200	1800	1700
	2700	2300	2100	1800	1700	2000	1700	1500	1300
	3000	1800	1600	1500	1400	1500	1400	1200	900
90x90	2400	3800	3400	3000	2700	3200	2700	2300	2100
	2700	2900	2600	2300	2100	2500	2100	1800	1600
	3000	2300	2100	1800	1700	2000	1700	1500	1300
	3600	1100	1100	1000	1000	1100	1000	NS	NS
90x120	2400	4800	4500	4000	3600	4300	3600	3200	2800
	2700	3900	3500	3100	2800	3400	2800	2400	2200
	3000	3100	2800	2500	2300	2700	2300	1900	1700
	3600	1600	1600	1600	1400	1600	1400	1300	1200
90x140	2400	4800	4800	4700	4300	4800	4300	3700	3300
	2700	4700	4100	3700	3400	4000	3400	2900	2500
	3000	3700	3300	3000	2700	3200	2700	2300	2000
	3600	1800	1800	1800	1800	1800	1800	1500	1400
120x70	2400	4800	4800	4800	4600	4800	4600	4100	3600
	2700	4700	4300	3900	3600	4100	3600	3200	2800
	3000	3800	3400	3100	2900	3300	2900	2500	2200
	3600	2200	2200	2000	1900	2100	1900	1700	1500
	4200	1100	1100	1100	1100	1100	1100	1000	1000
120x90	2400	4800	4800	4800	4800	4800	4800	4800	4600
	2700	4800	4800	4800	4500	4800	4500	4000	3500
	3000	4700	4300	3900	3600	4100	3600	3200	2800
	3600	2900	2800	2600	2400	2700	2400	2100	1900
	4200	1500	1500	1500	1500	1500	1500	1400	1300

NOTES:

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Sheet Roof Mass of 40 (kg/m2), Tile Roof Mass of 90 (kg/m2).

iii) Maximum tension load in mullion not to exceed 20 kN.

iv) Mullion Spacing is half the width of opening either side of mullion or for mullions/studs at sides of opening, half the opening width.

Table 7 (cont)

Window or Door Mullions
Single or Upper Storey Load Bearing Walls

Size DxB (mm)	Mullion Height (mm)	Roof Load Width (mm)							
		3000	4500	6000	7500	3000	4500	6000	7500
		Mullion Spacing (mm)							
		Sheet Roof				Tile Roof			
120x120	2400	4800	4800	4800	4800	4800	4800	4800	4800
	2700	4800	4800	4800	4800	4800	4800	4800	4700
	3000	4800	4800	4800	4800	4800	4800	4200	3800
	3600	4000	3800	3500	3300	3700	3300	2900	2600
	4200	2100	2100	2100	2100	2100	2100	2000	1800
	4800	900	900	900	900	900	900	900	900
120x140	2700	4800	4800	4800	4800	4800	4800	4800	4800
	3000	4800	4800	4800	4800	4800	4800	4800	4500
	3600	4700	4500	4200	3800	4400	3900	3400	3000
	4200	2400	2400	2400	2400	2400	2400	2400	2200
	4800	900	900	900	900	900	900	900	900
140x70	2400	4800	4800	4800	4800	4800	4800	4800	4800
	2700	4800	4800	4800	4800	4800	4800	4700	4300
	3000	4800	4800	4600	4200	4800	4200	3800	3400
	3600	3600	3400	3100	2900	3300	2900	2600	2300
	4200	1800	1800	1800	1800	1800	1800	1800	1600
	4800	900	900	900	900	900	900	900	900
140x90	2700	4800	4800	4800	4800	4800	4800	4800	4800
	3000	4800	4800	4800	4800	4800	4800	4700	4300
	3600	4600	4200	3900	3600	4100	3600	3200	2900
	4200	2500	2500	2500	2500	2500	2500	2200	2100
	4800	900	900	900	900	900	900	900	900
140x120	3000	4800	4800	4800	4800	4800	4800	4800	4800
	3600	4800	4800	4800	4800	4800	4800	4300	3900
	4200	3400	3400	3400	3400	3400	3400	3100	2800
	4800	1800	1800	1800	1800	1800	1800	1800	1800
140x140	3000	4800	4800	4800	4800	4800	4800	4800	4800
	3600	4800	4800	4800	4800	4800	4800	4800	4600
	4200	4100	4100	4100	4000	4100	4000	3600	3300
	4800	1800	1800	1800	1800	1800	1800	1800	1800

NOTES:

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Sheet Roof Mass of 40 (kg/m2), Tile Roof Mass of 90 (kg/m2).

iii) Maximum tension load in mullion not to exceed 20 kN.

iv) Mullion Spacing is half the width of opening either side of mullion or for mullions/studs at sides of opening, half the opening width.

Table 8 Lintels (Window Heads) - Sheet Roof Supporting Single or Upper Storey Loadbearing Walls

	Roof Load Width (mm)									
	1500		3000		4500		6000		7500	
Rafter/Truss Spacing (mm)	600	1200	600	1200	600	1200	600	1200	600	1200
	Maximum Lintel Span (mm)									
Size DxB (mm)	**Single Span**									
140x35	2600	2700	2100	2100	1800	1800	1600	1600	1500	1400
140x45	2800	2800	2300	2300	2000	2000	1800	1800	1600	1600
140x70	3200	3200	2600	2700	2300	2300	2100	2100	1900	1900
140x90	3400	3300	2800	2900	2500	2600	2300	2300	2100	2100
170x35	3100	3100	2500	2600	2200	2200	2000	2000	1800	1800
170x45	3300	3300	2800	2800	2400	2400	2200	2200	2000	2000
170x70	3700	3600	3100	3100	2800	2800	2600	2600	2400	2400
170x90	3900	3900	3300	3300	3000	3000	2800	2800	2600	2600
190x35	3400	3300	2800	2800	2500	2500	2200	2200	2100	2000
190x45	3600	3600	3000	3000	2700	2700	2500	2500	2300	2300
190x70	4000	4000	3400	3400	3100	3100	2900	2900	2700	2700
190x90	4200	4200	3600	3600	3300	3300	3100	3100	2900	2900
240x35	4000	4000	3400	3400	3100	3100	2900	2900	2700	2700
240x45	4300	4300	3600	3600	3300	3300	3100	3100	2900	2900
240x70	4700	4700	4100	4000	3700	3700	3400	3400	3300	3200
240x90	5000	5000	4300	4300	3900	3900	3700	3600	3500	3400
290x45	4900	4900	4200	4200	3800	3800	3600	3500	3400	3300
290x70	5400	5400	4700	4600	4200	4200	4000	4000	3800	3700
290x90	5700	5700	4900	4900	4500	4500	4200	4200	4000	4000
Continuous Span										
140x35	3400	3300	2800	2800	2500	2500	2200	2100	1900	1600
140x45	3600	3600	3000	3000	2700	2600	2400	2400	2200	2100
140x70	4000	3900	3400	3300	3100	3000	2800	2800	2600	2600
140x90	4200	4200	3600	3600	3300	3200	3000	3000	2900	2900
170x35	3900	3900	3300	3300	3000	3000	2600	2700	2300	2100
170x45	4200	4200	3500	3500	3200	3100	3000	3000	2700	2700
170x70	4600	4600	3900	3900	3600	3500	3300	3300	3100	3100
170x90	4800	4900	4200	4200	3800	3800	3500	3500	3300	3300
190x35	4200	4200	3600	3600	3200	3200	2900	2900	2700	2700
190x45	4500	4500	3800	3800	3500	3400	3200	3200	3000	2900
190x70	5000	5000	4300	4200	3900	3800	3600	3600	3400	3400
190x90	5300	5300	4500	4500	4100	4100	3800	3800	3600	3600
240x35	5000	5100	4300	4300	3900	3800	3600	3600	3400_{15}	3100_{5}
240x45	5300	5300	4600	4500	4100	4100	3900	3800	3600	3600
240x70	5900	5900	5100	5100	4600	4600	4300	4300	4100	4100
240x90	6200	6200	5400	5400	4900	4900	4600	4600	4400	4300
290x45	6100	6100	5200	5200	4800	4800	4400	4400	4200_{15}	4200_{15}
290x70	6700	6700	5800	5800	5300	5300	5000	5000	4700	4700
290x90	7000	7100	6200	6100	5600	5700	5300	5300	5000	5000

NOTES:

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Roof Mass of 40 (kg/m2).

iii) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

Table 10

Rafters or Purlins Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
90x35	10	3000	600	2800	500	2500	400	2300	350
	20	2600	600	2300	500	2100	400	1800	350
	40	2100	650	1800	500	1700	450	1500	350
	60	1800	650	1600	500	1500	450	1300	350
	90	1600	600	1400	550	1300	450	1100	350
90x45	10	3300	700	3000	550	2800	500	2500	400
	20	2800	700	2500	550	2300	500	2000	400
	40	2300	700	2000	600	1800	500	1600	400
	60	2000	750	1800	600	1600	500	1400	400
	90	1800	750	1500	600	1400	550	1200	400
90x70	10	3600	850	3300	700	3100	600	2800	500
	20	3100	900	2800	700	2600	600	2300	500
	40	2600	900	2300	700	2100	600	1900	500
	60	2300	900	2000	750	1900	650	1600	500
	90	2000	950	1800	800	1600	650	1400	550
90x90	10	3800	950	3500	800	3300	650	3000	550
	20	3300	1000	3000	800	2800	700	2500	550
	40	2800	1000	2500	800	2300	700	2000	550
	60	2500	1000	2200	850	2000	700	1800	550
	90	2200	1000	1900	850	1800	750	1600	600
120x35	10	4000	800	3700	600	3400	550	3000	400
	20	3400	800	3000	650	2800	550	2500	450
	40	2800	800	2500	650	2300	550	2000	450
	60	2500	850	2200	650	2000	550	1700	450
	90	2200	850	1900	700	1700	600	1500	450
120x45	10	4300	900	3900	700	3600	600	3300	500
	20	3600	900	3300	700	3000	600	2700	500
	40	3000	900	2700	750	2400	650	2200	500
	60	2700	950	2400	750	2200	650	1900	500
	90	2400	1000	2100	800	1900	650	1600	550
120x70	10	4600	1100	4300	900	4000	750	3700	600
	20	4000	1100	3700	900	3400	750	3100	600
	40	3400	1150	3100	900	2800	800	2500	650
	60	3100	1150	2700	950	2500	800	2200	650
	90	2700	1200	2400	1000	2200	850	1900	700

NOTES:

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).
ii) The above table was based on a Batten Spacing of 900.
iii) Minimum Backspan = 200 % of Overhang.
iv) Maximum Overhang = 50 % of Backspan.
v) Maximum Birdsmouth Depth = 30.00% of depth.
vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members.
vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
120x90	10	4800	1250	4500	1000	4300	850	3900	700
	20	4300	1250	3900	1000	3700	850	3300	700
	40	3700	1300	3300	1050	3000	900	2700	700
	60	3300	1300	2900	1050	2700	900	2400	750
	90	2900	1350	2600	1100	2400	950	2100	750
140x35	10	4600	900	4200	700	3900	600	3500	500
	20	3900	900	3500	700	3300	600	2900	500
	40	3300	900	2900	750	2600	600	2300	500
	60	2900	950	2500	750	2300	650	2000	500
	90	2500	1000	2200	800	2000	650	1800	550
140x45	10	4900	1000	4500	800	4200	700	3800	550
	20	4200	1000	3800	800	3500	700	3100	550
	40	3500	1050	3100	850	2900	700	2500	550
	60	3100	1050	2800	850	2500	750	2200	600
	90	2800	1100	2400	900	2200	750	1900	600
140x70	10	5200	1250	4900	1000	4700	850	4300	700
	20	4700	1250	4300	1000	4000	900	3600	700
	40	4000	1300	3600	1050	3300	900	2900	700
	60	3600	1350	3200	1050	2900	900	2600	750
	90	3200	1400	2800	1100	2600	950	2200	750
140x90	10	5400	1400	5100	1150	4900	950	4500	800
	20	4900	1450	4500	1150	4200	1000	3800	800
	40	4200	1450	3800	1150	3500	1000	3100	800
	60	3800	1500	3400	1200	3100	1000	2800	850
	90	3400	1550	3000	1250	2800	1050	2400	850
170x35	10	5500	1050	5000	850	4700	700	4300	550
	20	4700	1050	4300	850	3900	700	3500	550
	40	3900	1050	3500	850	3200	750	2800	600
	60	3500	1100	3100	900	2800	750	2500	600
	90	3100	1150	2700	900	2500	800	2200	650
170x45	10	5700	1200	5300	950	5000	800	4600	650
	20	5000	1200	4600	950	4200	800	3800	650
	40	4200	1200	3800	1000	3500	850	3100	650
	60	3800	1250	3300	1000	3100	850	2700	700
	90	3300	1300	2900	1050	2700	900	2400	700

NOTES:

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
170x70	10	6100	1500	5800	1200	5500	1000	5100	800
	20	5500	1500	5100	1200	4800	1000	4300	800
	40	4800	1550	4300	1250	4000	1050	3500	850
	60	4300	1600	3800	1250	3500	1100	3100	850
	90	3800	1650	3400	1300	3100	1100	2700	900
170x90	10	6300	1650	6000	1350	5800	1150	5400	900
	20	5800	1700	5400	1350	5000	1150	4600	900
	40	5000	1700	4600	1400	4300	1200	3800	950
	60	4600	1750	4100	1400	3800	1200	3400	950
	90	4100	1850	3700	1500	3400	1250	3000	1000
190x35	10	6000	1150	5600	900	5200	750	4700	600
	20	5200	1150	4700	900	4400	800	3900	600
	40	4400	1200	3900	950	3600	800	3100	650
	60	3900	1200	3400	950	3100	850	2800	650
	90	3400	1250	3000	1000	2800	850	2400	700
190x45	10	6300	1300	5900	1050	5500	900	5100	700
	20	5500	1300	5100	1050	4700	900	4200	700
	40	4700	1350	4200	1050	3900	900	3400	750
	60	4200	1400	3700	1100	3400	950	3000	750
	90	3700	1450	3300	1150	3000	1000	2600	800
190x70	10	6700	1650	6400	1300	6100	1100	5600	900
	20	6100	1650	5600	1300	5300	1100	4800	900
	40	5300	1700	4800	1350	4400	1150	3900	900
	60	4800	1750	4300	1400	3900	1200	3500	950
	90	4300	1800	3800	1450	3500	1250	3100	1000
190x90	10	6900	1850	6600	1450	6300	1250	5900	1000
	20	6300	1850	5900	1500	5600	1250	5100	1000
	40	5600	1900	5100	1500	4700	1300	4200	1050
	60	5100	1950	4600	1550	4200	1350	3800	1050
	90	4600	2050	4100	1600	3800	1400	3300	1100
240x35	10	7200	1400	6800	1100	6500	950	5900	750
	20	6500	1400	5900	1100	5500	950	4900	750
	40	5500	1450	4900	1150	4500	950	4000	750
	60	4900	1450	4300	1150	4000	1000	3500	800
	90	4300	1550	3800	1200	3500	1050	3100	850

NOTES:

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
240x45	10	7200	1550	7200	1250	6800	1050	6300	850
	20	6800	1600	6300	1250	5800	1050	5300	850
	40	5800	1650	5300	1300	4900	1100	4300	900
	60	5300	1650	4700	1350	4300	1150	3800	900
	90	4700	1750	4200	1400	3800	1200	3300	950
240x70	10	7200	2000	7200	1600	7200	1350	6900	1050
	20	7200	2000	6900	1600	6500	1350	5900	1100
	40	6500	2050	5900	1650	5500	1400	4900	1100
	60	5900	2100	5300	1700	4900	1450	4400	1150
	90	5300	2200	4800	1750	4400	1500	3900	1200
240x90	10	7200	2250	7200	1800	7200	1500	7200	1200
	20	7200	2250	7200	1800	6800	1550	6300	1200
	40	6800	2350	6300	1850	5900	1550	5300	1250
	60	6300	2400	5700	1900	5300	1600	4700	1300
	90	5700	2500	5100	2000	4700	1700	4200	1350
290x45	10	7200	1850	7200	1450	7200	1250	7200	1000
	20	7200	1850	7200	1500	6900	1250	6300	1000
	40	6900	1900	6300	1500	5800	1300	5200	1000
	60	6300	1950	5600	1550	5200	1350	4600	1050
	90	5600	2050	5000	1650	4600	1400	4000	1100
290x70	10	7200	2350	7200	1850	7200	1600	7200	1250
	20	7200	2350	7200	1900	7200	1600	7000	1250
	40	7200	2450	7000	1950	6600	1650	5900	1300
	60	7000	2500	6400	2000	5900	1700	5300	1350
	90	6400	2600	5700	2050	5300	1750	4700	1400
290x90	10	7200	2650	7200	2100	7200	1750	7200	1400
	20	7200	2700	7200	2100	7200	1800	7200	1450
	40	7200	2750	7200	2200	7000	1850	6300	1450
	60	7200	2800	6800	2250	6300	1900	5700	1500
	90	6800	2950	6100	2350	5700	2000	5000	1550

NOTES:

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).
ii) The above table was based on a Batten Spacing of 900.
iii) Minimum Backspan = 200 % of Overhang.
iv) Maximum Overhang = 50 % of Backspan.
v) Maximum Birdsmouth Depth = 30.00% of depth.
vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members.
vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
90x35	10	3800	600	3400	500	3000	400	2300	350
	20	3500	600	3100	500	2900	400	2400	350
	40	2900	650	2500	500	2300	450	2000	350
	60	2500	650	2200	500	2000	450	1800	350
	90	2200	600	1900	550	1800	450	1500	350
90x45	10	4400	700	4000	550	3400	500	2700	400
	20	3800	700	3400	550	3100	500	2700	400
	40	3100	700	2700	600	2500	500	2200	400
	60	2700	750	2400	600	2200	500	1900	400
	90	2400	750	2100	600	1900	550	1700	400
90x70	10	4900	850	4500	700	4200	600	3300	500
	20	4200	900	3800	700	3500	600	3100	500
	40	3500	900	3100	700	2900	600	2500	500
	60	3100	900	2800	750	2500	650	2200	500
	90	2800	950	2400	800	2200	650	1900	550
90x90	10	5100	950	4800	800	4500	650	3700	550
	20	4500	1000	4100	800	3800	700	3400	550
	40	3800	1000	3400	800	3100	700	2800	550
	60	3400	1000	3000	850	2800	700	2400	550
	90	3000	1000	2700	850	2400	750	2100	600
120x35	10	5500	800	4900	600	4100	550	3200	400
	20	4600	800	4100	650	3800	550	3300	450
	40	3800	800	3400	650	3100	550	2700	450
	60	3400	850	3000	650	2700	550	2400	450
	90	3000	850	2600	700	2400	600	2100	450
120x45	10	5800	900	5300	700	4700	600	3600	500
	20	5000	900	4500	700	4100	600	3600	500
	40	4100	900	3600	750	3300	650	2900	500
	60	3600	950	3200	750	2900	650	2600	500
	90	3200	1000	2800	800	2600	650	2300	550
120x70	10	6300	1100	5800	900	5500	750	4500	600
	20	5500	1100	5000	900	4700	750	4200	600
	40	4700	1150	4200	900	3800	800	3400	650
	60	4200	1150	3700	950	3400	800	3000	650
	90	3700	1200	3300	1000	3000	850	2600	700

NOTES:

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
120x90	10	6500	1250	6100	1000	5800	850	5100	700
	20	5800	1250	5300	1000	5000	850	4500	700
	40	5000	1300	4500	1050	4100	900	3700	700
	60	4500	1300	4000	1050	3700	900	3200	750
	90	4000	1350	3500	1100	3200	950	2900	750
140x35	10	6300	900	5700	700	4900	600	3700	500
	20	5400	900	4800	700	4400	600	3800	500
	40	4400	900	3900	750	3600	600	3200	500
	60	3900	950	3500	750	3200	650	2800	500
	90	3500	1000	3000	800	2800	650	2400	550
140x45	10	6600	1000	6100	800	5500	700	4300	550
	20	5700	1000	5200	800	4800	700	4300	550
	40	4800	1050	4300	850	3900	700	3400	550
	60	4300	1050	3800	850	3400	750	3000	600
	90	3800	1100	3300	900	3000	750	2600	600
140x70	10	7100	1250	6700	1000	6300	850	5400	700
	20	6300	1250	5800	1000	5400	900	4800	700
	40	5400	1300	4800	1050	4500	900	4000	700
	60	4800	1350	4300	1050	4000	900	3500	750
	90	4300	1400	3800	1100	3500	950	3100	750
140x90	10	7200	1400	7000	1150	6600	950	6100	800
	20	6600	1450	6100	1150	5700	1000	5200	800
	40	5700	1450	5200	1150	4800	1000	4300	800
	60	5200	1500	4700	1200	4300	1000	3800	850
	90	4700	1550	4100	1250	3800	1050	3300	850
170x35	10	7200	1050	6800	850	6000	700	4700	550
	20	6400	1050	5800	850	5300	700	4800	550
	40	5300	1050	4800	850	4400	750	3800	600
	60	4800	1100	4200	900	3800	750	3400	600
	90	4200	1150	3700	900	3400	800	3000	650
170x45	10	7200	1200	7200	950	6800	800	5300	650
	20	6800	1200	6200	950	5700	800	5100	650
	40	5700	1200	5100	1000	4700	850	4200	650
	60	5100	1250	4600	1000	4200	850	3700	700
	90	4600	1300	4000	1050	3700	900	3200	700

NOTES:

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
170x70	10	7200	1500	7200	1200	7200	1000	6700	800
	20	7200	1500	6900	1200	6500	1000	5800	800
	40	6500	1550	5800	1250	5400	1050	4800	850
	60	5800	1600	5200	1250	4800	1100	4200	850
	90	5200	1650	4600	1300	4200	1100	3700	900
170x90	10	7200	1650	7200	1350	7200	1150	7200	900
	20	7200	1700	7200	1350	6800	1150	6200	900
	40	6800	1700	6200	1400	5800	1200	5200	950
	60	6200	1750	5600	1400	5200	1200	4600	950
	90	5600	1850	5000	1500	4600	1250	4100	1000
190x35	10	7200	1150	7200	900	6700	750	5300	600
	20	7100	1150	6400	900	5900	800	5300	600
	40	5900	1200	5300	950	4900	800	4300	650
	60	5300	1200	4700	950	4300	850	3800	650
	90	4700	1250	4100	1000	3800	850	3300	700
190x45	10	7200	1300	7200	1050	7200	900	6000	700
	20	7200	1300	6900	1050	6400	900	5700	700
	40	6400	1350	5700	1050	5300	900	4700	750
	60	5700	1400	5100	1100	4700	950	4100	750
	90	5100	1450	4500	1150	4100	1000	3600	800
190x70	10	7200	1650	7200	1300	7200	1100	7200	900
	20	7200	1650	7200	1300	7100	1100	6500	900
	40	7100	1700	6500	1350	6000	1150	5300	900
	60	6500	1750	5800	1400	5300	1200	4700	950
	90	5800	1800	5200	1450	4700	1250	4200	1000
190x90	10	7200	1850	7200	1450	7200	1250	7200	1000
	20	7200	1850	7200	1500	7200	1250	6900	1000
	40	7200	1900	6900	1500	6400	1300	5800	1050
	60	6900	1950	6200	1550	5800	1350	5100	1050
	90	6200	2050	5600	1600	5100	1400	4500	1100
240x35	10	7200	1400	7200	1100	7200	950	6800	750
	20	7200	1400	7200	1100	7200	950	6600	750
	40	7200	1450	6600	1150	6100	950	5400	750
	60	6600	1450	5900	1150	5400	1000	4800	800
	90	5900	1550	5200	1200	4800	1050	4200	850

NOTES:

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
240x45	10	7200	1550	7200	1250	7200	1050	7200	850
	20	7200	1600	7200	1250	7200	1050	7100	850
	40	7200	1650	7100	1300	6600	1100	5900	900
	60	7100	1650	6400	1350	5900	1150	5200	900
	90	6400	1750	5700	1400	5200	1200	4600	950
240x70	10	7200	2000	7200	1600	7200	1350	7200	1050
	20	7200	2000	7200	1600	7200	1350	7200	1100
	40	7200	2050	7200	1650	7200	1400	6700	1100
	60	7200	2100	7200	1700	6700	1450	6000	1150
	90	7200	2200	6500	1750	6000	1500	5300	1200
240x90	10	7200	2250	7200	1800	7200	1500	7200	1200
	20	7200	2250	7200	1800	7200	1550	7200	1200
	40	7200	2350	7200	1850	7200	1550	7200	1250
	60	7200	2400	7200	1900	7200	1600	6400	1300
	90	7200	2500	7000	2000	6400	1700	5700	1350
290x45	10	7200	1850	7200	1450	7200	1250	7200	1000
	20	7200	1850	7200	1500	7200	1250	7200	1000
	40	7200	1900	7200	1500	7200	1300	7000	1000
	60	7200	1950	7200	1550	7000	1350	6200	1050
	90	7200	2050	6800	1650	6200	1400	5500	1100
290x70	10	7200	2350	7200	1850	7200	1600	7200	1250
	20	7200	2350	7200	1900	7200	1600	7200	1250
	40	7200	2450	7200	1950	7200	1650	7200	1300
	60	7200	2500	7200	2000	7200	1700	7200	1350
	90	7200	2600	7200	2050	7200	1750	6300	1400
290x90	10	7200	2650	7200	2100	7200	1750	7200	1400
	20	7200	2700	7200	2100	7200	1800	7200	1450
	40	7200	2750	7200	2200	7200	1850	7200	1450
	60	7200	2800	7200	2250	7200	1900	7200	1500
	90	7200	2950	7200	2350	7200	2000	6800	1550

NOTES:

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 11

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span									
170x45	10	4500	1450	3500	1300	2900	1050	2500	950	2200	850
	20	3800	1450	3000	1300	2500	1100	2200	950	2000	850
	40	3200	1450	2500	1200	2100	1000	1900	950	1700	850
	60	2800	1400	2200	1100	1900	900	1700	800	1600	800
	90	2500	1200	1900	900	1700	800	1500	700	1400	700
170x70	10	5000	1700	4000	1600	3300	1300	2900	1150	2600	1050
	20	4300	1700	3400	1600	2900	1350	2600	1150	2300	1050
	40	3600	1700	2900	1400	2500	1200	2200	1100	2000	1000
	60	3200	1600	2600	1300	2200	1100	2000	1000	1800	900
	90	2900	1400	2300	1100	2000	1000	1800	900	1600	800
170x90	10	5300	1850	4200	1800	3600	1450	3200	1250	2800	1150
	20	4600	1850	3700	1800	3200	1500	2800	1300	2500	1150
	40	3900	1850	3100	1500	2700	1300	2400	1200	2200	1100
	60	3500	1700	2800	1400	2400	1200	2200	1100	2000	1000
	90	3100	1500	2500	1200	2100	1000	1900	900	1800	900
190x45	10	5000	1650	3900	1450	3200	1200	2800	1050	2500	950
	20	4300	1650	3300	1450	2800	1200	2500	1050	2200	950
	40	3500	1650	2800	1400	2400	1200	2100	1000	1900	950
	60	3100	1500	2500	1200	2100	1000	1900	900	1700	800
	90	2800	1400	2200	1100	1900	900	1700	800	1600	800
190x70	10	5500	1900	4400	1800	3700	1450	3300	1300	2900	1150
	20	4800	1900	3800	1800	3300	1500	2900	1300	2600	1150
	40	4100	1900	3200	1600	2800	1400	2500	1200	2300	1100
	60	3600	1800	2900	1400	2500	1200	2200	1100	2000	1000
	90	3200	1600	2500		2200	1100	2000	1000	1800	900
190x90	10	5800	2050	4700	2000	4000	1650	3500	1400	3200	1250
	20	5100	2050	4100	2000	3500	1650	3100	1450	2800	1300
	40	4400	2050	3500	1700	3000	1500	2700	1300	2500	1200
	60	3900	1900	3100	1500	2700	1300	2400	1200	2200	1100
	90	3500	1700	2800	1400	2400	1200	2200	1100	2000	1000

NOTES:

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span									
240x45	10	6100	2050	4800	1850	4100	1500	3600	1300	3200	1200
	20	5300	2050	4200	1850	3600	1550	3200	1350	2900	1200
	40	4500	2050	3500	1700	3000	1500	2700	1350	2500	1200
	60	4000	2000	3100	1500	2700	1300	2400	1200	2200	1100
	90	3500	1700	2800	1400	2400	1200	2200	1100	2000	1000
240x70	10	6800	2400	5500	2250	4700	1850	4100	1600	3700	1450
	20	6000	2400	4800	2250	4100	1900	3700	1650	3300	1450
	40	5100	2400	4100	2050	3500	1700	3100	1500	2900	1400
	60	4600	2300	3600	1800	3100	1500	2800	1400	2600	1300
	90	4100	2000	3200	1600	2800	1400	2500	1200	2300	1100
240x90	10	7100	2600	5900	2500	5000	2050	4400	1800	4000	1600
	20	6300	2600	5200	2400	4500	2100	4000	1800	3600	1650
	40	5400	2600	4400	2200	3800	1900	3400	1700	3100	1500
	60	4900	2450	3900	1900	3400	1700	3100	1500	2800	1400
	90	4400	2200	3500	1700	3000	1500	2700	1300	2500	1200
290x45	10	7200	2450	5800	2250	4900	1850	4300	1600	3800	1450
	20	6300	2450	5100	2250	4300	1850	3800	1600	3500	1450
	40	5400	2450	4300	2150	3700	1800	3300	1650	3000	1500
	60	4800	2400	3800	1900	3300	1600	2900	1400	2700	1300
	90	4200	2100	3400	1700	2900	1400	2600	1300	2400	1200
290x70	10	7200	2850	6600	2750	5600	2250	4900	1950	4400	1750
	20	7100	2850	5800	2650	5000	2300	4400	2000	4000	1800
	40	6100	2850	4900	2400	4200	2100	3800	1900	3500	1700
	60	5500	2650	4400	2200	3800	1900	3400	1700	3100	1500
	90	4900	2400	3900	1900	3400	1700	3000	1500	2800	1400
290x90	10	7200	3150	7000	3000	6000	2500	5300	2150	4800	1950
	20	7200	3150	6200	2800	5400	2500	4800	2200	4300	1950
	40	6500	3000	5300	2550	4600	2300	4100	2000	3800	1900
	60	5900	2850	4700	2300	4100	2000	3700	1800	3400	1700
	90	5300	2650	4200	2100	3700	1800	3300	1600	3100	1500

NOTES :

i) D = member depth, B = member breadth, N S = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span									
170x45	10	5900	1450	4000	1300	3300	1050	2900	950	2600	850
	20	5200	1450	4100	1300	3400	1100	2900	950	2600	850
	40	4300	1450	3400	1350	2900	1100	2600	950	2400	850
	60	3800	1450	3000	1300	2600	1150	2300	1000	2100	900
	90	3400	1450	2700	1200	2300	1100	2100	1000	1900	900
170x70	10	6800	1700	4900	1600	4100	1300	3500	1150	3200	1050
	20	5900	1700	4700	1600	4000	1350	3500	1150	3200	1050
	40	5000	1700	3900	1550	3400	1350	3000	1200	2700	1050
	60	4400	1700	3500	1450	3000	1300	2700	1200	2500	1100
	90	3900	1650	3100	1350	2700	1200	2400	1150	2200	1050
170x90	10	7200	1850	5500	1800	4500	1450	3900	1250	3500	1150
	20	6300	1850	5000	1800	4300	1500	3800	1300	3500	1150
	40	5300	1850	4300	1650	3700	1500	3300	1300	3000	1200
	60	4800	1850	3800	1550	3300	1400	2900	1300	2700	1200
	90	4200	1750	3400	1450	2900	1300	2600	1200	2400	1150
190x45	10	6700	1650	4500	1450	3700	1200	3200	1050	2900	950
	20	5800	1650	4500	1450	3800	1200	3300	1050	3000	950
	40	4800	1650	3800	1500	3300	1250	2900	1100	2600	950
	60	4300	1650	3400	1400	2900	1250	2600	1100	2400	1000
	90	3800	1600	3000	1300	2600	1200	2300	1100	2100	1000
190x70	10	7200	1900	5500	1800	4500	1450	4000	1300	3600	1150
	20	6500	1900	5200	1800	4500	1500	3900	1300	3600	1150
	40	5500	1900	4400	1700	3800	1500	3400	1300	3100	1200
	60	4900	1900	3900	1600	3400	1450	3000	1300	2800	1200
	90	4400	1800	3500	1500	3000	1350	2700	1250	2500	1150
190x90	10	7200	2050	6200	2000	5000	1650	4400	1400	4000	1250
	20	7000	2050	5600	2000	4800	1650	4300	1450	3900	1300
	40	5900	2050	4800	1850	4100	1650	3700	1450	3300	1300
	60	5300	2050	4200	1700	3700	1550	3300	1400	3000	1300
	90	4700	1900	3800	1600	3300	1450	2900	1300	2700	1250

NOTES:

i) D = member depth, B = member breadth, N S = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span									
240x45	10	7200	2050	5700	1850	4700	1500	4100	1300	3700	1200
	20	7200	2050	5700	1850	4800	1550	4200	1350	3800	1200
	40	6100	2050	4800	1850	4100	1550	3700	1350	3400_{5}	1200
	60	5400	2050	4300	1700	3700	1550	3300	1400	3000_{10}	1250
	90	4800	1900	3800	1600	3300	1450	2900	1300	2700_{15}	1250
240x70	10	7200	2400	7100	2250	5800	1850	5000	1600	4500	1450
	20	7200	2400	6500	2250	5600	1900	5000	1650	4500	1450
	40	6900	2400	5500	2050	4800	1850	4300	1650	3900	1500
	60	6200	2300	4900	1950	4300	1700	3800	1600	3500	1500
	90	5500	2150	4400	1800	3800	1600	3400	1500	3200	1400
240x90	10	7200	2600	7200	2500	6400	2050	5600	1800	5000	1600
	20	7200	2600	7000	2400	6100	2100	5400	1800	4900	1650
	40	7200	2600	6000	2200	5200	1950	4600	1800	4200	1650
	60	6700	2450	5400	2050	4700	1850	4200	1700	3800	1600
	90	6000	2300	4800	1900	4100	1700	3700	1600	3400	1500
290x45	10	7200	2450	7000	2250	5600	1850	4900	1600	4400_{5}	1450
	20	7200	2450	6900	2250	5800	1850	5100_{5}	1600	4600_{20}	1450
	40	7200	2450	5800	2150	5000	1900	4500_{10}	1650	4100_{25}	1500
	60	6500	2400	5200	2000	4500	1800	4000_{15}	1650	3700_{30}	1500
	90	5800	2200	4600	1850	4000	1650	3600_{20}	1550	3300_{40}	1450
290x70	10	7200	2850	7200	2750	7000	2250	6100	1950	5500	1750
	20	7200	2850	7200	2650	6800	2300	6000	2000	5400	1800
	40	7200	2850	6600	2400	5800	2150	5200	1950	4700	1800
	60	7200	2650	6000	2250	5200	2000	4700	1850	4300	1750
	90	6600	2500	5300	2100	4600	1850	4200	1700	3800_{10}	1600
290x90	10	7200	3150	7200	3000	7200	2500	6800	2150	6100	1950
	20	7200	3150	7200	2800	7200	2500	6500	2200	5900	1950
	40	7200	3000	7200	2550	6200	2300	5600	2100	5100	1950
	60	7200	2850	6400	2400	5600	2150	5100	2000	4600	1850
	90	7200	2650	5700	2200	5000	2000	4500	1850	4200	1750

NOTES:

i) D = member depth, B = member breadth, N S = not suitable, O /H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

RECYCLED HARDWOOD
SPAN TABLES

SUPPLEMENT 2

Wind Classifications N1, N2 and N3

Recycled Species Group B
Recycled Grade, RG1

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1.0 INTRODUCTION

This Supplement was prepared under a project supported by Forest and Wood Products Australia and provides span tables for some common applications and uses for recycled structural hardwood timber. The span tables provided include some commercial as well as some domestic construction uses. The span tables are specific to recycled timber which will include recycled timber features.

2.0 APPLICATION

The span tables included in this Supplement are only applicable for use with timber graded in accordance 'FWPA Standard G01, Recycled Timber – Visually Graded for Structural Purposes' available from www.fwpa.com.au for the Wind Classifications designated in this Supplement.

The Tables in this Supplement apply to Recycled Timber Species Group B - Recycled Grade, RG1.

For domestic applications, the requirements of AS 1684 are also applicable for use in conjunction with the Tables in this Supplement.

3.0 ALTERNATIVE GRADE

In addition to Species Group B, RG1, the tables in this Supplement apply to Recycled Timber Species Group A - Recycled Grade, RG2.

4.0 TOLERANCES

The depth (D) and breadth (B) shall not be more than 2mm under the sizes given.

5.0 CONTENTS

Table 1

Decking Boards - Commercial Applications Supporting 5.0 kPa Uniform Live Load

	Point Live Load (kN)			
	3	5	9	13
Size DxB (mm)	**Span**			
35x70	720	540	300	NS
35x90	780	660	360	NS
35x120	860	840	480	340
35x140	900	880	560	380
45x70	940	920	500	340
45x90	1020	1000	620	440
45x120	1120	1100	820	560
45x140	1180	1160	960	660

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum DL of 60 (kg/m2), Floor Live Load of 5 (kPa).

iii) End bearing lengths = 20 mm at end supports and 20 mm at internal supports for continuous members.

iv) Point loads are assumed to be shared by two deck boards.

v) Live load deflection limit = span/150 or 4 mm.

vi) Decking shall be two or more continuous span.

Table 2

Deck Bearers - Domestic Applications
May Support Decks Greater than 1000mm above the Ground

	Floor Load Width (mm)											
	1200		2400		4800		1200		2400		4800	
	Bearer Span (mm)											
	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
Size DxB (mm)	**Single Span**						**Continuous Span**					
90x45	1600	400	1100	300	NS	NS	1600	400	1100	300	NS	NS
90x70	1900	500	1400	400	NS	NS	2000	600	1400	400	NS	NS
90x90	2100	600	1500	400	1100	300	2200	600	1500	400	1100	300
120x45	2100	600	1500	400	1000	300	2100	600	1500	400	1000	300
120x70	2600	700	1900	500	1300	300	2600	700	1900	500	1300	300
120x90	2800	800	2100	600	1400	400	2900	800	2100	600	1400	400
140x45	2500	700	1800	500	1200	300	2500	700	1800	500	1200	300
140x70	3000	900	2200	600	1500	400	3100	900	2200	600	1500	400
140x90	3300	900	2400	700	1700	500	3400	1000	2400	700	1700	500
170x45	3100	900	2200	600	1500	400	3100	900	2200	600	1500	400
170x70	3600	1000	2700	800	1800	500	3800	1100	2700	800	1800	500
170x90	3800	1100	3000	900	2100	600	4200	1200	3000	900	2100	600
190x45	3400	1000	2400	700	1700	500	3400	1000	2400	700	1700_{10}	500_{10}
190x70	3900	1100	3000	900	2100	600	4200	1200	3000	900	2100	600
190x90	4100	1200	3300	900	2300	600	4700	1400	3300	900	2300	600
240x45	4100	1200	3100	900	2100_{10}	600_{10}	4300	1200	3100	900	2100_{45}	600_{45}
240x70	4600	1300	3800	1100	2600	700	5300	1500	3800	1100	2600_{10}	700
240x90	5000	1500	4200	1200	2900	800	5900	1700	4200	1200	2900	800
290x45	4800	1400	3700	1100	2600_{25}	700_{25}	5300	1500	3700_{20}	1100_{20}	2500_{75}	700_{75}
290x70	5400	1600	4500	1300	3200_{10}	900_{10}	6400	1900	4600	1300	3200_{45}	900_{45}
290x90	5700	1700	4800	1400	3500_{5}	1000_{5}	7100	2100	5000	1500	3500_{25}	1000_{25}

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Cantilever (mm).

ii) The above table was based on a maximum DL of 30 (kg/m2), Floor Point Load of 1.8 (kN), Balcony Live Load of 3 (kPa).

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 30 % of Backspan.

v) End bearing lengths = 50 mm at end supports and 100 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 50 mm at end supports and 100 mm at internal supports.

Table 3

Deck Joists - Domestic Applications
May Support Decks greater than 1000mm above the Ground

	Joist Spacing (mm)											
	300		450		600		300		450		600	
	Max Joist Span (mm)											
	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever
Size DxB (mm)	**Single Span**						**Continuous Span**					
90x35	1600	400	1500	400	1500	400	1900	500	1800	500	1700	500
90x45	1800	500	1700	500	1700	500	2200	600	2100	600	2000	600
120x35	2500	700	2400	700	2300	600	3100	900	2900	800	2700	750
120x45	2900	800	2700	800	2600	700	3400	1000	3300	900	3100	800
140x35	3200	900	3100	900	2900	850	3700	1100	3500	950	3200	850
140x45	3600	1000	3400	1000	3300	950	4000	1200	3800	1050	3600	950
170x35	4000	1200	3800	1100	3500	1050	4500	1300	4300	1150	3900	1050
170x45	4300	1200	4100	1200	3800	1100	4900	1450	4700	1250	4400	1150
190x35	4400	1300	4100	1200	3800	1100	5000	1450	4800	1300	4300	1200
190x45	4900	1400	4400	1300	4100	1200	5500	1600	5200	1400	4900	1300
240x35	5500	1600	5000	1500	4600	1300	6400	1850	6100	1600	5500	1500
240x45	5900	1700	5300	1500	4900	1400	7000	2000	6600	1750	6100	1600
290x45	6800	2000	6100	1800	5700	1700	7200	2100	7200	2150	7100	1950

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, C'lever = Cantilever (mm).

ii) The above table was based on a maximum Deck Mass of 30 (kg/m2), Floor Point Load of 1.8 (kN), Balcony Live Load of 3 (kPa).

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 30 % of Backspan.

v) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members.

Table 4

Stair Stringers

Size DxB (mm)	Stair Width (mm)					
	750	900	1200	1500	1800	2400
	Maximum Stringer Span (mm)					
190x35	3600	3600	3400	3100	2900	2600
190x45	3900	3900	3600	3400	3200	2900
240x35	4500	4400	4100	3800	3700	3300
240x45	4800	4600	4300	4100	3900	3600
290x45	5500	5300	4900	4700	4500	4100

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Floor Mass of 40 (kg/m2), Floor Live Load of 2.0 (kPa), Floor Point Load of 2.7 (kN).

iii) Minimum bearing length = 50 mm at end supports.

iv) Maximum trench depth to accommodate treads - 10 mm.

Table 5 Stair Treads (with open flights)

Size DxB (mm)	Max. Tread Span (mm)
35x240	800
35x290	900
40x240	1000
40x290	1100
45x240	1200
45x290	1300
50x240	1400
50x290	1600
60x240	1900
60x290	2000

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Deck Mass of 40 (kg/m2), Floor Point Load of 2.7 (kN).

iii) Minimum bearing length = 35 mm at end supports.

Table 6

Posts
Supporting Roof and/or Floor Loads

	Floor Load Area (m2)											
	0				10				20			
Roof Load Area (m2)	0	10	20	40	0	10	20	40	0	10	20	40
Size DxB (mm)	**Maximum Post Height (mm)**											
Sheet Roof												
70x70	4800	3500	2500	1700	2400	2200	2000	1600	1700	1600	1500	1400
90x90	4800	4800	4000	2800	4000	3600	3300	2600	2800	2700	2500	2300
120x120	4800	4800	4800	4800	4800	4800	4800	4700	4800	4700	4500	4100
140x140	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
170x170	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
190x190	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
Tile Roof												
70x70	4800	2700	1900	1300	2400	2000	1700	1200	1700	1500	1300	NS
90x90	4800	4500	3200	2200	4000	3200	2700	2100	2800	2500	2300	1900
120x120	4800	4800	4800	4000	4800	4800	4800	3800	4800	4400	4000	3400
140x140	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4700
170x170	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
190x190	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Sheet Roof Mass of 40 (kg/m2), Tile Roof Mass of 90 (kg/m2), Total Upper Floor Mass of 50 (kg/m2), Floor Live Load of 1.5 (kPa).

iii) Posts are free standing, i.e. not supporting lateral wind loads from walls etc.

Table 7

Window or Door Mullions
Single or Upper Storey Load Bearing Walls

Size DxB (mm)	Mullion Height (mm)	Roof Load Width (mm)							
		3000	4500	6000	7500	3000	4500	6000	7500
		Mullion Spacing (mm)							
		Sheet Roof				Tile Roof			
70x70	2400	1300	1100	900	NS	1000	NS	NS	NS
70x90	2400	1600	1400	1300	1100	1400	1100	NS	NS
	2700	1200	1100	NS	NS	1000	NS	NS	NS
70x120	2400	2200	1900	1700	1500	1800	1500	1300	1100
	2700	1600	1500	1300	1200	1400	1200	NS	NS
	3000	1200	1100	1000	NS	1100	NS	NS	NS
70x140	2400	2600	2200	2000	1800	2100	1700	1500	1300
	2700	2000	1700	1600	1400	1600	1400	1200	900
	3000	1400	1300	1200	1100	1300	1000	NS	NS
90x70	2400	2400	2100	1900	1700	2100	1700	1500	1400
	2700	1800	1700	1500	1400	1600	1400	1200	1000
	3000	1400	1300	1200	1100	1300	1000	NS	NS
90x90	2400	3000	2700	2400	2200	2600	2200	1900	1700
	2700	2300	2100	1900	1700	2000	1700	1500	1300
	3000	1800	1600	1500	1400	1600	1400	1200	1000
90x120	2400	4000	3600	3200	2900	3500	2900	2500	2200
	2700	3100	2800	2500	2300	2700	2300	2000	1700
	3000	2500	2200	2000	1800	2100	1800	1600	1400
	3600	1300	1300	1200	1200	1200	1200	1000	NS
90x140	2400	4800	4200	3800	3500	4100	3500	3000	2600
	2700	3700	3300	3000	2700	3200	2700	2300	2000
	3000	3000	2600	2400	2200	2500	2100	1800	1600
	3600	1600	1600	1500	1400	1600	1400	1300	1100
120x70	2400	4800	4400	4000	3700	4200	3700	3300	2900
	2700	3700	3400	3100	2900	3300	2900	2500	2300
	3000	3000	2700	2500	2300	2600	2300	2000	1800
	3600	1800	1800	1600	1500	1700	1500	1400	1200
120x90	2400	4800	4800	4800	4600	4800	4600	4100	3700
	2700	4700	4200	3900	3600	4100	3600	3200	2800
	3000	3700	3400	3100	2900	3300	2900	2500	2300
	3600	2500	2200	2100	1900	2200	1900	1700	1600
	4200	1300	1300	1300	1200	1300	1200	1100	1100

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Sheet Roof Mass of 40 (kg/m2), Tile Roof Mass of 90 (kg/m2).

iii) Maximum tension load in mullion not to exceed 20 kN.

iv) Mullion Spacing is half the width of opening either side of mullion or for mullions/studs at side of opening, half opening width.

Table 7 (cont)

Window or Door Mullions
Single or Upper Storey Load Bearing Walls

Size DxB (mm)	Mullion Height (mm)	Roof Load Width (mm)							
		3000	4500	6000	7500	3000	4500	6000	7500
		Mullion Spacing (mm)							
		Sheet Roof				Tile Roof			
120x120	2400	4800	4800	4800	4800	4800	4800	4800	4800
	2700	4800	4800	4800	4800	4800	4800	4200	3800
	3000	4800	4500	4100	3800	4400	3800	3400	3000
	3600	3300	3100	2800	2600	3000	2600	2300	2100
	4200	1700	1700	1700	1700	1700	1700	1600	1400
120x140	2400	4800	4800	4800	4800	4800	4800	4800	4800
	2700	4800	4800	4800	4800	4800	4800	4800	4500
	3000	4800	4800	4800	4500	4800	4500	4000	3600
	3600	3900	3600	3300	3100	3500	3100	2700	2400
	4200	2100	2100	2100	2000	2100	2000	1900	1700
	4800	900	900	900	900	900	900	900	900
140x70	2400	4800	4800	4800	4800	4800	4800	4800	4300
	2700	4800	4800	4600	4200	4800	4200	3800	3400
	3000	4300	4000	3600	3400	3800	3400	3000	2700
	3600	2900	2700	2500	2300	2600	2300	2000	1800
	4200	1600	1600	1600	1500	1600	1500	1400	1300
140x90	2400	4800	4800	4800	4800	4800	4800	4800	4800
	2700	4800	4800	4800	4800	4800	4800	4700	4300
	3000	4800	4800	4500	4200	4800	4200	3800	3400
	3600	3600	3300	3100	2900	3300	2900	2600	2300
	4200	2100	2100	2100	2000	2100	2000	1800	1600
	4800	900	900	900	900	900	900	900	900
140x120	2700	4800	4800	4800	4800	4800	4800	4800	4800
	3000	4800	4800	4800	4800	4800	4800	4800	4600
	3600	4800	4500	4100	3900	4400	3900	3400	3100
	4200	2900	2900	2900	2700	2900	2700	2500	2200
	4800	900	900	900	900	900	900	900	900
140x140	3000	4800	4800	4800	4800	4800	4800	4800	4800
	3600	4800	4800	4800	4500	4800	4500	4100	3700
	4200	3500	3500	3400	3300	3500	3300	2900	2600
	4800	1800	1800	1800	1800	1800	1800	1800	1800

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Sheet Roof Mass of 40 (kg/m2), Tile Roof Mass of 90 (kg/m2).

iii) Maximum tension load in mullion not to exceed 20 kN.

iv) Mullion Spacing is half the width of opening either side of mullion or for mullions/studs at side of opening, half opening width.

Table 8 Lintels (Window Heads) - Sheet Roof Supporting Single or Upper Storey Loadbearing Walls

	Roof Load Width (mm)									
	1500		3000		4500		6000		7500	
Rafter/Truss Spacing (mm)	600	1200	600	1200	600	1200	600	1200	600	1200
	Maximum Lintel Span (mm)									
Size DxB (mm)	**Single Span**									
140x35	2500	2600	2000	1900	1700	1700	1500	1400	1400	1300
140x45	2700	2700	2100	2100	1900	1900	1700	1600	1600	1500
140x70	3100	3000	2500	2600	2200	2200	2000	2000	1800	1800
140x90	3200	3200	2700	2700	2400	2400	2200	2200	2000	2000
170x35	3000	3000	2400	2400	2100	2100	1900	1900	1800	1700
170x45	3200	3200	2600	2700	2300	2300	2100	2100	1900	1900
170x70	3500	3500	3000	3000	2700	2700	2400	2500	2200	2200
170x90	3700	3700	3200	3200	2900	2900	2600	2700	2500	2500
190x35	3300	3200	2700	2700	2400	2400	2100	2100	2000	2000
190x45	3500	3400	2900	2900	2600	2600	2300	2300	2200	2100
190x70	3800	3800	3300	3300	3000	3000	2700	2800	2500	2600
190x90	4000	4000	3500	3500	3200	3100	3000	3000	2800	2800
240x35	3900	3900	3300	3300	3000	3000	2700	2800	2500	2500
240x45	4100	4100	3500	3500	3200	3200	3000	3000	2800	2800
240x70	4600	4500	3900	3900	3600	3500	3300	3300	3100	3100
240x90	4800	4800	4100	4100	3800	3700	3500	3500	3400	3300
290x45	4700	4700	4000	4000	3700	3600	3400	3400	3200	3200
290x70	5200	5200	4500	4500	4100	4100	3800	3800	3600	3600
290x90	5500	5500	4800	4700	4300	4300	4100	4100	3900	3800
Continuous Span										
140x35	3200	3200	2700	2600	2200	2200	1900	1600	1600	1400
140x45	3400	3400	2900	2900	2500	2500	2200	2100	1900	1600
140x70	3800	3800	3300	3200	3000	3000	2700	2700	2400	2500
140x90	4100	4100	3500	3400	3100	3100	2900	2900	2700	2700
170x35	3700	3700	3200	3100	2700	2800	2300	2200	2100	1700
170x45	4000	4000	3400	3300	3100	3000	2700	2700	2400	2400
170x70	4400	4400	3800	3800	3400	3400	3200	3100	2900	2900
170x90	4700	4700	4000	4000	3600	3600	3400	3400	3200	3200
190x35	4100	4100	3400	3400	3000	3000	2600	2700	2300	2100
190x45	4300	4300	3700	3700	3300	3300	3000	3000	2700	2700
190x70	4800	4800	4100	4100	3700	3700	3500	3500	3300	3200
190x90	5100	5100	4400	4300	4000	3900	3700	3700	3500	3500
40x35	4800	4900	4100	4100	3700	3700	3400_{15}	3300_{15}	3000_{25}	3000_{25}
240x45	5100	5200	4400	4400	4000	4000	3700	3700	3400_{15}	3300_{10}
240x70	5700	5700	4900	4900	4400	4400	4200	4200	3900	3900
240x90	6000	6000	5200	5200	4700	4700	4400	4400	4200	4200
290x45	5900	5900	5100	5100	4600	4600	4300_{15}	4300_{15}	4100_{35}	4000_{35}
290x70	6500	6500	5600	5600	5100	5100	4800	4800	4500_{5}	4500
290x90	6700	6800	5900	5900	5400	5400	5100	5100	4800	4800

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Roof Mass of 40 (kg/m2).

iii) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

Table 9

Lintels (Window Heads) - Tile Roof
Supporting Single or Upper Storey Loadbearing Walls

	Roof Load Width (mm)									
	1500		3000		4500		6000		7500	
Rafter/Truss Spacing (mm)	600	1200	600	1200	600	1200	600	1200	600	1200
	Maximum Lintel Span (mm)									
Size DxB (mm)	**Single Span**									
140x35	1900	1900	1500	1400	1300	NS	1200	NS	NS	NS
140x45	2100	2100	1600	1600	1400	1300	1300	NS	1200	NS
140x70	2400	2500	1900	1900	1700	1600	1500	1400	1400	1200
140x90	2600	2700	2100	2100	1800	1800	1600	1600	1500	1400
170x35	2300	2300	1800	1800	1600	1500	1400	1300	1400	NS
170x45	2500	2600	2000	2000	1700	1700	1600	1500	1500	1300
170x70	2900	2900	2300	2300	2000	2000	1800	1800	1700	1700
170x90	3100	3100	2600	2600	2200	2200	2000	2000	1900	1900
190x35	2600	2700	2100	2000	1800	1800	1600	1500	1500	1400
190x45	2800	2800	2200	2200	2000	1900	1800	1800	1600	1600
190x70	3200	3200	2600	2700	2300	2300	2100	2000	1900	1900
190x90	3400	3400	2800	2900	2500	2500	2300	2200	2100	2100
240x35	3200	3200	2600	2700	2300	2200	2100	2000	1900	1900
240x45	3400	3400	2900	2900	2500	2500	2300	2200	2100	2100
240x70	3800	3800	3200	3200	2900	2900	2700	2700	2400	2400
240x90	4000	4000	3400	3400	3100	3100	2900	2900	2700	2700
290x45	3900	3900	3300	3300	3000	3000	2800	2800	2600	2500
290x70	4400	4400	3700	3700	3400	3300	3100	3100	3000	3000
290x90	4600	4600	4000	3900	3600	3600	3400	3300	3200	3100
	Continuous Span									
140x35	2600	2600	2000	2000	1800	1600	1600	1200	1400	NS
140x45	2800	2800	2200	2100	1900	1800	1700	1600	1600	1200
140x70	3200	3100	2600	2600	2300	2200	2100	2000	1900	1600
140x90	3400	3300	2800	2800	2500	2500	2200	2200	2100	2000
170x35	3100	3100	2500	2500	2100	2100	1700	1500	1600	1200
170x45	3300	3200	2700	2700	2400	2400	2100	2100	1700	1500
170x70	3700	3700	3100	3100	2800	2700	2500	2500	2300	2200
170x90	3900	3900	3300	3300	3000	3000	2800	2700	2600	2500
190x35	3300	3300	2800	2800	2400	2400_{5}	2200_{10}	1600_{5}	1600_{5}	1300_{15}
190x45	3600	3600	3000	3000	2700	2600	2400	2400_{5}	2200_{10}	1700
190x70	4000	4000	3400	3300	3100	3000	2800	2800	2600	2600
190x90	4200	4200	3600	3600	3300	3200	3000	3000	2900	2800
240x35	4000	4000	3400	3400	3100_{15}	3100_{15}	2700_{30}	2800_{35}	2200_{40}	1900_{20}
240x45	4300	4300	3600	3600	3300	3200	3100_{20}	3000_{20}	2700_{30}	2800_{35}
240x70	4700	4700	4000	4000	3700	3600	3400	3400	3200_{10}	3200_{5}
240x90	5000	5100	4300	4300	3900	3900	3600	3600	3400	3400
290x45	4900	4900	4200	4200	3800_{15}	3700_{15}	3500_{35}	3500_{35}	3300_{60}	3200_{60}
290x70	5500	5500	4700	4600	4200	4200	3900_{5}	3900_{5}	3700_{20}	3700_{20}
290x90	5800	5800	4900	5000	4500	4500	4200	4200	4000_{5}	3900_{10}

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Roof Mass of 90 (kg/m2).

iii) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

Table 10

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
90x35	10	2600	550	2400	450	2300	400	2100	300
	20	2400	550	2200	450	2000	400	1800	300
	40	2000	550	1800	450	1600	400	1400	300
	60	1800	550	1500	450	1400	400	1200	300
	90	1500	500	1300	450	1200	400	1100	350
90x45	10	3100	600	2800	500	2600	450	2300	350
	20	2600	650	2300	500	2200	450	1900	350
	40	2200	650	1900	500	1700	450	1500	350
	60	1900	650	1700	550	1500	450	1300	350
	90	1700	600	1500	550	1300	500	1200	400
90x70	10	3400	800	3200	650	3000	550	2700	450
	20	3000	800	2700	650	2500	550	2200	450
	40	2500	800	2200	650	2000	550	1800	450
	60	2200	850	1900	650	1800	550	1500	450
	90	1900	850	1700	700	1500	600	1400	500
90x90	10	3600	850	3300	700	3100	600	2900	500
	20	3100	900	2900	700	2600	600	2400	500
	40	2600	900	2400	750	2200	600	1900	500
	60	2400	950	2100	750	1900	650	1700	500
	90	2100	950	1800	800	1700	650	1500	550
120x35	10	3800	700	3500	550	3200	450	2800	400
	20	3200	700	2900	550	2700	500	2300	400
	40	2700	700	2300	600	2100	500	1900	400
	60	2300	750	2100	600	1900	500	1600	400
	90	2100	800	1800	600	1600	550	1400	400
120x45	10	4000	800	3700	650	3500	550	3100	450
	20	3500	800	3100	650	2900	550	2500	450
	40	2900	800	2500	650	2300	550	2000	450
	60	2500	850	2200	700	2000	600	1800	450
	90	2200	900	2000	700	1800	600	1600	500
120x70	10	4400	1000	4100	800	3900	700	3500	550
	20	3900	1000	3500	800	3300	700	2900	550
	40	3300	1050	2900	850	2700	700	2400	550
	60	2900	1050	2600	850	2400	750	2100	600
	90	2600	1100	2300	900	2100	750	1800	600

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or veranda rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
120x90	10	4600	1100	4300	900	4100	750	3700	600
	20	4100	1100	3700	900	3500	800	3100	600
	40	3500	1150	3100	950	2900	800	2600	650
	60	3100	1200	2800	950	2600	800	2300	650
	90	2800	1250	2500	1000	2300	850	2000	700
140x35	10	4400	800	4000	650	3700	550	3300	450
	20	3700	800	3400	650	3100	550	2700	450
	40	3100	800	2700	650	2500	550	2200	450
	60	2700	850	2400	700	2200	600	1900	450
	90	2400	900	2100	700	1900	600	1700	500
140x45	10	4600	900	4300	700	4000	600	3600	500
	20	4000	900	3600	750	3300	600	3000	500
	40	3300	950	3000	750	2700	650	2400	500
	60	3000	950	2600	750	2400	650	2100	500
	90	2600	1000	2300	800	2100	700	1800	550
140x70	10	5000	1150	4700	900	4400	800	4100	600
	20	4400	1150	4100	900	3800	800	3400	650
	40	3800	1150	3400	950	3100	800	2800	650
	60	3400	1200	3000	950	2800	850	2400	650
	90	3000	1250	2700	1000	2400	850	2100	700
140x90	10	5200	1250	4900	1000	4700	850	4300	700
	20	4700	1300	4300	1000	4000	900	3600	700
	40	4000	1300	3600	1050	3400	900	3000	700
	60	3600	1350	3300	1100	3000	950	2600	750
	90	3300	1400	2900	1150	2600	950	2300	800
170x35	10	5200	950	4800	750	4500	650	4100	500
	20	4500	950	4100	750	3700	650	3300	500
	40	3700	950	3300	750	3000	650	2700	500
	60	3300	1000	2900	800	2700	650	2400	550
	90	2900	1050	2600	850	2400	700	2100	550
170x45	10	5500	1050	5100	850	4800	700	4300	550
	20	4800	1050	4300	850	4000	750	3600	600
	40	4000	1100	3600	900	3300	750	2900	600
	60	3600	1150	3200	900	2900	750	2600	600
	90	3200	1150	2800	950	2600	800	2200	650

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or veranda rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
170x70	10	5900	1350	5500	1050	5300	900	4800	700
	20	5300	1350	4800	1100	4500	900	4100	750
	40	4500	1400	4100	1100	3800	950	3400	750
	60	4100	1400	3600	1150	3400	950	3000	750
	90	3600	1500	3200	1200	3000	1000	2600	800
170x90	10	6000	1500	5700	1200	5500	1000	5100	800
	20	5500	1500	5100	1200	4800	1050	4400	850
	40	4800	1550	4400	1250	4100	1050	3600	850
	60	4400	1600	3900	1250	3600	1100	3200	850
	90	3900	1650	3500	1350	3200	1150	2800	900
190x35	10	5700	1000	5300	800	5000	700	4500	550
	20	5000	1050	4500	800	4200	700	3700	550
	40	4200	1050	3700	850	3400	700	3000	550
	60	3700	1100	3300	850	3000	750	2600	600
	90	3300	1150	2900	900	2600	750	2300	600
190x45	10	6000	1150	5600	950	5300	800	4800	650
	20	5300	1150	4800	950	4500	800	4000	650
	40	4500	1200	4000	950	3700	800	3300	650
	60	4000	1250	3600	1000	3300	850	2900	650
	90	3600	1300	3100	1050	2900	900	2500	700
190x70	10	6400	1450	6100	1150	5800	1000	5300	800
	20	5800	1500	5300	1200	5000	1000	4500	800
	40	5000	1500	4500	1200	4200	1050	3700	850
	60	4500	1550	4100	1250	3700	1050	3300	850
	90	4100	1650	3600	1300	3300	1100	2900	900
190x90	10	6600	1650	6300	1300	6000	1100	5600	900
	20	6000	1650	5600	1350	5300	1150	4800	900
	40	5300	1700	4800	1350	4500	1150	4000	950
	60	4800	1750	4400	1400	4000	1200	3600	950
	90	4400	1850	3900	1450	3600	1250	3200	1000
240x35	10	7000	1250	6500	1000	6100	850	5600	650
	20	6100	1250	5600	1000	5200	850	4700	650
	40	5200	1300	4700	1000	4300	850	3800	700
	60	4700	1300	4100	1050	3800	900	3300	700
	90	4100	1350	3600	1100	3300	950	2900	750

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or veranda rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
240x45	10	7200	1400	6800	1100	6500	950	6000	750
	20	6500	1450	6000	1150	5600	950	5000	750
	40	5600	1450	5000	1150	4600	1000	4100	800
	60	5000	1500	4500	1200	4100	1000	3600	800
	90	4500	1550	4000	1250	3600	1050	3200	850
240x70	10	7200	1800	7200	1400	7000	1200	6600	950
	20	7000	1800	6600	1450	6200	1200	5600	1000
	40	6200	1850	5600	1500	5200	1250	4700	1000
	60	5600	1900	5100	1500	4700	1300	4200	1000
	90	5100	2000	4500	1600	4200	1350	3700	1050
240x90	10	7200	2000	7200	1600	7200	1350	6900	1100
	20	7200	2050	6900	1600	6500	1400	6000	1100
	40	6500	2100	6000	1650	5600	1400	5000	1100
	60	6000	2150	5400	1700	5000	1450	4500	1150
	90	5400	2250	4900	1800	4500	1500	4000	1200
290x45	10	7200	1650	7200	1300	7200	1100	7100	900
	20	7200	1650	7100	1350	6600	1100	6000	900
	40	6600	1700	6000	1350	5500	1150	4900	900
	60	6000	1750	5400	1400	4900	1200	4400	950
	90	5400	1850	4800	1450	4400	1250	3900	1000
290x70	10	7200	2100	7200	1650	7200	1400	7200	1100
	20	7200	2150	7200	1700	7200	1450	6700	1150
	40	7200	2200	6700	1750	6300	1450	5600	1150
	60	6700	2250	6100	1750	5600	1500	5000	1200
	90	6100	2350	5400	1850	5000	1550	4400	1250
290x90	10	7200	2400	7200	1900	7200	1600	7200	1250
	20	7200	2400	7200	1900	7200	1600	7100	1300
	40	7200	2450	7100	1950	6700	1650	6000	1300
	60	7100	2550	6500	2000	6000	1700	5400	1350
	90	6500	2650	5800	2100	5400	1750	4800	1400

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or veranda rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
90x35	10	3400	550	3100	450	2600	400	2100	300
	20	3300	550	3000	450	2700	400	2100	300
	40	2700	550	2400	450	2200	400	1900	300
	60	2400	550	2100	450	1900	400	1700	300
	90	2100	500	1800	450	1700	400	1500	350
90x45	10	4100	600	3600	500	3000	450	2400	350
	20	3600	650	3200	500	2900	450	2400	350
	40	2900	650	2600	500	2400	450	2100	350
	60	2600	650	2300	550	2100	450	1800	350
	90	2300	600	2000	550	1800	500	1600	400
90x70	10	4700	800	4300	650	3800	550	2900	450
	20	4000	800	3600	650	3400	550	3000	450
	40	3400	800	3000	650	2700	550	2400	450
	60	3000	850	2600	650	2400	550	2100	450
	90	2600	850	2300	700	2100	600	1900	500
90x90	10	4900	850	4500	700	4200	600	3300	500
	20	4300	900	3900	700	3600	600	3200	500
	40	3600	900	3200	750	3000	600	2600	500
	60	3200	950	2900	750	2600	650	2300	500
	90	2900	950	2500	800	2300	650	2000	550
120x35	10	5200	700	4300	550	3600	450	2800	400
	20	4400	700	3900	550	3600	500	2900	400
	40	3600	700	3200	600	2900	500	2600	400
	60	3200	750	2800	600	2600	500	2200	400
	90	2800	800	2500	600	2200	550	2000	400
120x45	10	5500	800	4900	650	4100	550	3200	450
	20	4700	800	4200	650	3900	550	3300	450
	40	3900	800	3500	650	3200	550	2800	450
	60	3500	850	3100	700	2800	600	2500	450
	90	3100	900	2700	700	2500	600	2100	500
120x70	10	6000	1000	5600	800	5200	700	4000	550
	20	5200	1000	4800	800	4400	700	4000	550
	40	4400	1050	4000	850	3700	700	3200	550
	60	4000	1050	3500	850	3200	750	2800	600
	90	3500	1100	3100	900	2800	750	2500	600

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or veranda rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
120x90	10	6200	1100	5800	900	5500	750	4500	600
	20	5500	1100	5100	900	4700	800	4300	600
	40	4700	1150	4300	950	3900	800	3500	650
	60	4300	1200	3800	950	3500	800	3100	650
	90	3800	1250	3400	1000	3100	850	2700	700
140x35	10	6000	800	5100	650	4300	550	3300	450
	20	5100	800	4600	650	4200	550	3400	450
	40	4200	800	3700	650	3400	550	3000	450
	60	3700	850	3300	700	3000	600	2600	450
	90	3300	900	2900	700	2600	600	2300	500
140x45	10	6300	900	5800	700	4900	600	3800	500
	20	5400	900	4900	750	4500	600	3900	500
	40	4500	950	4000	750	3700	650	3300	500
	60	4000	950	3600	750	3300	650	2900	500
	90	3600	1000	3100	800	2900	700	2500	550
140x70	10	6800	1150	6400	900	6000	800	4800	600
	20	6000	1150	5500	900	5100	800	4600	650
	40	5100	1150	4600	950	4300	800	3800	650
	60	4600	1200	4100	950	3800	850	3300	650
	90	4100	1250	3600	1000	3300	850	2900	700
140x90	10	7000	1250	6600	1000	6300	850	5400	700
	20	6300	1300	5800	1000	5500	900	4900	700
	40	5500	1300	4900	1050	4600	900	4100	700
	60	4900	1350	4400	1100	4100	950	3600	750
	90	4400	1400	3900	1150	3600	950	3200	800
170x35	10	7100	950	6300	750	5300	650	4100	500
	20	6100	950	5500	750	5100	650	4200	500
	40	5100	950	4500	750	4100	650	3700	500
	60	4500	1000	4000	800	3700	650	3200	550
	90	4000	1050	3500	850	3200	700	2800	550
170x45	10	7200	1050	6900	850	6000	700	4700	550
	20	6500	1050	5900	850	5500	750	4800	600
	40	5500	1100	4900	900	4500	750	4000	600
	60	4900	1150	4300	900	4000	750	3500	600
	90	4300	1150	3800	950	3500	800	3100	650

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or veranda rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
170x70	10	7200	1350	7200	1050	7100	900	5900	700
	20	7100	1350	6600	1100	6200	900	5600	750
	40	6200	1400	5600	1100	5100	950	4600	750
	60	5600	1400	5000	1150	4600	950	4000	750
	90	5000	1500	4400	1200	4000	1000	3600	800
170x90	10	7200	1500	7200	1200	7200	1000	6700	800
	20	7200	1500	6900	1200	6500	1050	5900	850
	40	6500	1550	5900	1250	5500	1050	4900	850
	60	5900	1600	5300	1250	4900	1100	4400	850
	90	5300	1650	4800	1350	4400	1150	3900	900
190x35	10	7200	1000	7100	800	6000	700	4700	550
	20	6800	1050	6100	800	5700	700	4800	550
	40	5700	1050	5000	850	4600	700	4100	550
	60	5000	1100	4500	850	4100	750	3600	600
	90	4500	1150	3900	900	3600	750	3100	600
190x45	10	7200	1150	7200	950	6800	800	5300	650
	20	7200	1150	6500	950	6100	800	5400	650
	40	6100	1200	5400	950	5000	800	4400	650
	60	5400	1250	4800	1000	4400	850	3900	650
	90	4800	1300	4300	1050	3900	900	3400	700
190x70	10	7200	1450	7200	1150	7200	1000	6700	800
	20	7200	1500	7200	1200	6800	1000	6200	800
	40	6800	1500	6200	1200	5700	1050	5100	850
	60	6200	1550	5500	1250	5100	1050	4500	850
	90	5500	1650	4900	1300	4500	1100	4000	900
190x90	10	7200	1650	7200	1300	7200	1100	7200	900
	20	7200	1650	7200	1350	7200	1150	6600	900
	40	7200	1700	6600	1350	6100	1150	5500	950
	60	6600	1750	5900	1400	5500	1200	4900	950
	90	5900	1850	5300	1450	4900	1250	4300	1000
240x35	10	7200	1250	7200	1000	7200	850	6000	650
	20	7200	1250	7200	1000	7100	850	6200	650
	40	7100	1300	6300	1000	5800	850	5200	700
	60	6300	1300	5600	1050	5200	900	4500	700
	90	5600	1350	5000	1100	4500	950	4000	750

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or veranda rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
240x45	10	7200	1400	7200	1100	7200	950	6900	750
	20	7200	1450	7200	1150	7200	950	6800	750
	40	7200	1450	6800	1150	6300	1000	5600	800
	60	6800	1500	6100	1200	5600	1000	4900	800
	90	6100	1550	5400	1250	4900	1050	4300	850
240x70	10	7200	1800	7200	1400	7200	1200	7200	950
	20	7200	1800	7200	1450	7200	1200	7200	1000
	40	7200	1850	7200	1500	7100	1250	6400	1000
	60	7200	1900	6900	1500	6400	1300	5700	1000
	90	6900	2000	6200	1600	5700	1350	5000	1050
240x90	10	7200	2000	7200	1600	7200	1350	7200	1100
	20	7200	2050	7200	1600	7200	1400	7200	1100
	40	7200	2100	7200	1650	7200	1400	6800	1100
	60	7200	2150	7200	1700	6800	1450	6100	1150
	90	7200	2250	6600	1800	6100	1500	5400	1200
290x45	10	7200	1650	7200	1300	7200	1100	7200	900
	20	7200	1650	7200	1350	7200	1100	7200	900
	40	7200	1700	7200	1350	7200	1150	6700	900
	60	7200	1750	7200	1400	6700	1200	5900	950
	90	7200	1850	6500	1450	5900	1250	5200_{5}	1000
290x70	10	7200	2100	7200	1650	7200	1400	7200	1100
	20	7200	2150	7200	1700	7200	1450	7200	1150
	40	7200	2200	7200	1750	7200	1450	7200	1150
	60	7200	2250	7200	1750	7200	1500	6800	1200
	90	7200	2350	7200	1850	6800	1550	6000	1250
290x90	10	7200	2400	7200	1900	7200	1600	7200	1250
	20	7200	2400	7200	1900	7200	1600	7200	1300
	40	7200	2450	7200	1950	7200	1650	7200	1300
	60	7200	2550	7200	2000	7200	1700	7200	1350
	90	7200	2650	7200	2100	7200	1750	6500	1400

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or veranda rafters/purlins

Table 11

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span									
170x45	10	4200	1400	3300	1150	2800	950	2400	850	2100	750
	20	3600	1400	2800	1200	2400	950	2100	850	1900	750
	40	3000	1400	2400	1200	2000	1000	1800	850	1600	800
	60	2700	1300	2100	1000	1800	900	1600	800	1500	700
	90	2400	1200	1900	900	1600	800	1400	700	1300	600
170x70	10	4700	1600	3800	1450	3200	1200	2800	1000	2500	900
	20	4100	1600	3300	1450	2800	1200	2500	1050	2200	950
	40	3500	1600	2700	1300	2400	1200	2100	1050	1900	950
	60	3100	1500	2400	1200	2100	1000	1900	900	1700	800
	90	2700	1300	2200	1100	1900	900	1700	800	1500	700
170x90	10	5000	1750	4000	1600	3400	1300	3000	1150	2700	1000
	20	4400	1750	3500	1600	3000	1300	2700	1150	2400	1050
	40	3700	1750	3000	1500	2600	1300	2300	1100	2100	1050
	60	3300	1600	2700	1300	2300	1100	2100	1000	1900	900
	90	3000	1500	2400	1200	2000	1000	1800	900	1700	800
190x45	10	4700	1550	3700	1300	3100	1050	2700	950	2400	850
	20	4000	1550	3200	1300	2700	1100	2400	950	2100	850
	40	3400	1550	2600	1300	2300	1100	2000	950	1800	850
	60	3000	1500	2400	1200	2000	1000	1800	900	1700	800
	90	2600	1300	2100	1000	1800	900	1600	800	1500	700
190x70	10	5200	1800	4200	1600	3500	1300	3100	1150	2800	1050
	20	4600	1800	3600	1600	3100	1350	2800	1150	2500	1050
	40	3900	1800	3100	1500	2600	1300	2400	1200	2100	1050
	60	3400	1700	2700	1300	2400	1200	2100	1000	1900	900
	90	3100	1500	2400	1200	2100	1000	1900	900	1700	800
190x90	10	5500	1950	4500	1800	3800	1450	3400	1250	3000	1150
	20	4900	1950	3900	1800	3400	1500	3000	1300	2700	1150
	40	4200	1950	3300	1600	2900	1400	2600	1300	2300	1100
	60	3700	1800	3000	1500	2600	1300	2300	1100	2100	1000
	90	3300	1600	2600	1300	2300	1100	2100	1000	1900	900

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or veranda beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span									
240x45	10	5800	1950	4600	1650	3900	1350	3400	1200	3000	1050
	20	5100	1950	4000	1650	3400	1350	3000	1200	2700	1050
	40	4200	1950	3400	1700	2900	1400	2600	1200	2300	1100
	60	3800	1900	3000	1500	2600	1300	2300	1100	2100	1000
	90	3300	1600	2600	1300	2300	1100	2100	1000	1900	900
240x70	10	6400	2250	5200	2050	4500	1650	3900	1450	3500	1300
	20	5700	2250	4600	2050	3900	1700	3500	1450	3200	1300
	40	4800	2250	3900	1900	3300	1600	3000	1500	2700	1350
	60	4300	2100	3500	1700	3000	1500	2700	1300	2500	1200
	90	3900	1900	3100	1500	2700	1300	2400	1200	2200	1100
240x90	10	6800	2450	5600	2250	4800	1850	4200	1600	3800	1450
	20	6000	2450	4900	2300	4200	1850	3800	1600	3400	1450
	40	5200	2450	4200	2100	3600	1800	3200	1600	3000	1500
	60	4700	2350	3700	1800	3300	1600	2900	1400	2700	1300
	90	4200	2100	3300	1600	2900	1400	2600	1300	2400	1200
290x45	10	6900	2350	5500	2000	4700	1650	4100	1400	3700_{5}	1300
	20	6000	2350	4800	2000	4100	1650	3600	1450	3300	1300
	40	5100	2350	4000	2000	3500	1700	3100	1450	2800_{5}	1300
	60	4600	2300	3600	1800	3100	1500	2800	1400	2600_{5}	1300
	90	4000	2000	3200	1600	2800	1400	2500	1200	2300_{10}	1100
290x70	10	7200	2750	6200	2450	5400	2000	4700	1750	4200	1550
	20	6800	2750	5500	2500	4700	2050	4200	1750	3800	1600
	40	5800	2750	4700	2300	4000	2000	3600	1800	3300	1650
	60	5200	2550	4200	2100	3600	1800	3300	1600	3000	1500
	90	4700	2300	3700	1800	3200	1600	2900	1400	2700	1300
290x90	10	7200	3000	6600	2750	5700	2250	5100	1950	4600	1750
	20	7100	3000	5900	2700	5100	2250	4600	1950	4100	1750
	40	6200	2900	5000	2450	4400	2200	3900	1900	3600	1800
	60	5600	2700	4500	2200	3900	1900	3500	1700	3200	1600
	90	5000	2500	4000	2000	3500	1700	3200	1600	2900	1400

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or veranda beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span									
170x45	10	5300	1400	3600	1150	2900	950	2600	850	2300	750
	20	5000	1400	3700	1200	3000	950	2600	850	2400	750
	40	4100	1400	3200	1200	2800	1000	2500	850	2200	800
	60	3600	1400	2900	1250	2500	1000	2200	900	2000	800
	90	3200	1400	2500	1150	2200	1050	2000	900	1800	850
170x70	10	6400	1600	4400	1450	3600	1200	3200	1000	2800	900
	20	5600	1600	4500	1450	3700	1200	3200	1050	2900	950
	40	4700	1600	3700	1500	3200	1200	2900	1050	2600	950
	60	4200	1600	3300	1400	2900	1250	2600	1100	2400	1000
	90	3700	1600	2900	1300	2600	1200	2300	1100	2100	1000
170x90	10	6800	1750	4900	1600	4000	1300	3500	1150	3200	1000
	20	6000	1750	4800	1600	4100	1300	3600	1150	3300	1050
	40	5100	1750	4100	1600	3500	1350	3100	1200	2800	1050
	60	4500	1750	3600	1500	3100	1350	2800	1200	2600	1100
	90	4000	1700	3200	1400	2800	1250	2500	1150	2300	1100
190x45	10	5900	1550	4000	1300	3300	1050	2900	950	2600	850
	20	5500	1550	4100	1300	3400	1100	2900	950	2600	850
	40	4600	1550	3600	1350	3100	1100	2800	950	2500	850
	60	4100	1550	3200	1350	2800	1150	2500	1000	2300_{5}	900
	90	3600	1550	2800	1300	2500	1150	2200	1050	2000_{10}	900
190x70	10	7100	1800	4900	1600	4100	1300	3500	1150	3200	1050
	20	6200	1800	5000	1600	4200	1350	3600	1150	3300	1050
	40	5300	1800	4200	1650	3600	1350	3200	1200	2900	1050
	60	4700	1800	3700	1550	3200	1400	2900	1200	2600	1100
	90	4200	1700	3300	1450	2900	1300	2600	1200	2400	1100
190x90	10	7200	1950	5500	1800	4500	1450	3900	1250	3500	1150
	20	6600	1950	5400	1800	4600	1500	4000	1300	3600	1150
	40	5700	1950	4500	1750	3900	1500	3500	1300	3200	1200
	60	5100	1950	4000	1650	3500	1450	3100	1350	2900	1200
	90	4500	1850	3600	1550	3100	1350	2800	1250	2600	1200

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or veranda beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span									
240x45	10	7200	1950	5100	1650	4200	1350	3600	1200	3300	1050
	20	6900	1950	5200	1650	4300	1350	3700	1200	3400_{10}	1050
	40	5800	1950	4600	1700	3900	1400	3500_{5}	1200	3200_{20}	1100
	60	5100	1950	4100	1650	3500	1450	3100_{10}	1250	2900_{25}	1100
	90	4600	1850	3600	1550	3100	1350	2800_{20}	1250	2600_{35}	1150
240x70	10	7200	2250	6300	2050	5100	1650	4500	1450	4000	1300
	20	7200	2250	6200	2050	5300	1700	4600	1450	4200	1300
	40	6600	2250	5300	2000	4500	1700	4100	1500	3700	1350
	60	5900	2200	4700	1850	4100	1650	3700	1550	3400	1400
	90	5300	2050	4200	1750	3600	1550	3300	1450	3000_{10}	1350
240x90	10	7200	2450	7100	2250	5700	1850	5000	1600	4500	1450
	20	7200	2450	6700	2300	5800	1850	5100	1600	4600	1450
	40	7000	2450	5700	2100	4900	1900	4400	1650	4000	1500
	60	6400	2350	5100	2000	4400	1750	4000	1650	3700	1550
	90	5700	2200	4500	1850	3900	1650	3600	1500	3300	1450
290x45	10	7200	2350	6200	2000	5100	1650	4400	1400	4000_{15}	1300
	20	7200	2350	6400	2000	5200	1650	4500_{15}	1450	4100_{30}	1300
	40	6900	2350	5500	2050	4700_{5}	1700	4200_{25}	1450	3800_{45}	1300
	60	6200	2300	4900	1900	4300_{10}	1700	3800_{30}	1500	3500_{50}	1350
	90	5500	2150	4400	1800	3800_{20}	1600	3400_{40}	1450	3100_{65}	1400
290x70	10	7200	2750	7200	2450	6200	2000	5400	1750	4900	1550
	20	7200	2750	7200	2500	6400	2050	5600	1750	5000_{10}	1600
	40	7200	2750	6300	2300	5500	2050	4900	1800	4500_{15}	1650
	60	7100	2550	5700	2150	4900	1950	4400_{5}	1800	4100_{20}	1650
	90	6300	2400	5100	2000	4400	1800	4000_{10}	1650	3600_{30}	1550
290x90	10	7200	3000	7200	2750	6900	2250	6000	1950	5400	1750
	20	7200	3000	7200	2700	6900	2250	6200	1950	5600	1750
	40	7200	2900	6800	2450	5900	2200	5300	2000	4900_{5}	1800
	60	7200	2700	6100	2300	5300	2050	4800	1900	4400_{10}	1800
	90	6800	2550	5500	2150	4800	1900	4300	1750	4000_{15}	1650

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or veranda beams.

RECYCLED HARDWOOD
SPAN TABLES

SUPPLEMENT 3

Wind Classifications N1, N2 and N3

Recycled Species Group C
Recycled Grade, RG1

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1.0 INTRODUCTION

This Supplement was prepared under a project supported by Forest and Wood Products Australia and provides span tables for some common applications and uses for recycled structural hardwood timber. The span tables provided include some commercial as well as some domestic construction uses. The span tables are specific to recycled timber which will include recycled timber features.

2.0 APPLICATION

The span tables included in this Supplement are only applicable for use with timber graded in accordance with 'FWPA Standard G01, Recycled Timber – Visually Graded for Structural Purposes' available from www.fwpa.com.au for the Wind Classifications designated in this Supplement.

The Tables in this Supplement apply to Recycled Timber Species Group C - Recycled Grade, RG1.

For domestic applications, the requirements of AS 1684 are also applicable for use in conjunction with the Tables in this Supplement.

3.0 ALTERNATIVE GRADE

In addition to Species Group C, RG1, the tables in this Supplement apply to Recycled Timber Species Group B - Recycled Grade, RG2.

4.0 TOLERANCES

The depth (D) and breadth (B) shall not be more than 2mm under the sizes given.

5.0 CONTENTS

Table 1

Decking Boards - Commercial Applications Supporting 5.0 kPa Uniform Live Load

	Point Live Load (kN)			
	3	5	9	13
Size DxB (mm)	**Span**			
35x70	680	480	NS	NS
35x90	740	580	320	NS
35x120	820	760	420	NS
35x140	860	860	500	340
45x70	900	800	440	NS
45x90	980	960	540	380
45x120	1080	1060	720	500
45x140	1140	1120	840	580

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum DL of 60 (kg/m2), Floor Live Load of 5 (kPa).

iii) End bearing lengths = 20 mm at end supports and 20 mm at internal supports for continuous members.

iv) Point loads are assumed to be shared by two deck boards.

v) Live load deflection limit = span/150 or 4 mm.

vi) Decking shall be two or more continuous span.

Table 2

Deck Bearers - Domestic Applications
May Support Decks Greater than 1000mm above the Ground

	Floor Load Width (mm)											
	1200		2400		4800		1200		2400		4800	
	Bearer Span (mm)											
	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
Size DxB (mm)	**Single Span**						**Continuous Span**					
90x45	1500	400	1000	300	NS	NS	1500	400	1000	300	NS	NS
90x70	1800	500	1300	300	NS	NS	1800	500	1300	300	NS	NS
90x90	2000	600	1400	400	1000	300	2000	600	1400	400	1000	300
120x45	2000	600	1400	400	1000	300	2000	600	1400	400	NS	NS
120x70	2500	700	1700	500	1200	300	2500	700	1700	500	1200	300
120x90	2700	800	1900	500	1300	300	2700	800	1900	500	1300	300
140x45	2400	700	1600	400	1100	300	2400	700	1600	400	1100	300
140x70	2900	800	2000	600	1400	400	2900	800	2000	600	1400	400
140x90	3200	900	2300	600	1600	400	3200	900	2300	600	1600	400
170x45	2900	800	2000	600	1400	400	2900	800	2000	600	1300_{5}	300_{5}
170x70	3400	1000	2500	700	1700	500	3500	1000	2500	700	1700	500
170x90	3700	1100	2800	800	1900	500	3900	1100	2800	800	1900	500
190x45	3200	900	2300	600	1600_{5}	400_{5}	3200	900	2300	600	1500_{20}	400_{20}
190x70	3700	1100	2800	800	1900	500	3900	1100	2800	800	1900	500
190x90	4000	1200	3100	900	2200	600	4400	1300	3100	900	2200	600
240x45	4000	1200	2900	800	2000_{20}	600_{20}	4100	1200	2900_{15}	800	1800_{60}	500_{60}
240x70	4500	1300	3500	1000	2500_{10}	700_{10}	5000	1500	3500	1000	2500_{40}	700_{40}
240x90	4800	1400	3900	1100	2700	800	5500	1600	3900	1100	2700_{20}	800_{20}
290x45	4600	1300	3500_{10}	1000_{10}	2400_{35}	700_{35}	4900	1400	3500_{45}	1000_{45}	2200_{90}	600_{90}
290x70	5200	1500	4300	1200	3000_{20}	900_{20}	6000	1800	4300_{10}	1200	3000_{70}	900_{70}
290x90	5500	1600	4600	1300	3300_{15}	900_{15}	6600	1900	4700	1400	3300_{55}	900_{55}

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Cantilever (mm).

ii) The above table was based on a maximum DL of 30 (kg/m2), Floor Point Load of 1.8 (kN), Balcony Live Load of 3 (kPa).

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 30 % of Backspan.

v) End bearing lengths = 50 mm at end supports and 100 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 50 mm at end supports and 100 mm at internal supports.

Table 3

Deck Joists - Domestic Applications
May Support Decks greater than 1000mm above the Ground

	Joist Spacing (mm)											
	300		450		600		300		450		600	
	Max Joist Span (mm)											
	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever
Size DxB (mm)	**Single Span**						**Continuous Span**					
90x35	1500	400	1400	400	1400	400	1800	500	1700	500	1600	400
90x45	1700	500	1600	400	1600	400	2100	600	1900	500	1900	500
120x35	2400	700	2200	600	2100	600	2900	800	2700	800	2500	700
120x45	2700	800	2500	700	2500	700	3300	900	3100	850	2900	800
140x35	3000	900	2800	800	2700	800	3500	1050	3400	900	3000	850
140x45	3400	1000	3200	900	3100	900	3900	1150	3700	1000	3400	900
170x35	3800	1100	3600	1000	3400	1000	4300	1250	4100	1100	3600	1000
170x45	4100	1200	3900	1100	3700	1100	4700	1400	4500	1200	4100	1100
190x35	4200	1200	4000	1200	3700	1100	4800	1400	4600	1250	4100	1150
190x45	4600	1300	4300	1200	4000	1200	5300	1550	5000	1350	4500	1250
240x35	5300	1500	4800	1400	4500	1300	6100	1750	5800	1550	5100	1400
240x45	5700	1700	5100	1500	4800	1400	6700	1950	6300	1700	5700	1550
290x45	6500	1900	5900	1700	5500	1600	7200	2100	7200	2050	6900	1850

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, C'lever = Cantilever (mm).

ii) The above table was based on a maximum Deck Mass of 30 (kg/m2), Floor Point Load of 1.8 (kN), Balcony Live Load of 3 (kPa).

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 30 % of Backspan.

v) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members.

Table 4

Stair Stringers

Size DxB (mm)	Stair Width (mm)					
	750	900	1200	1500	1800	2400
	Maximum Stringer Span (mm)					
190x35	3400	3400	3200	3000	2800	2500
190x45	3800	3800	3500	3200	3000	2700
240x35	4400	4200	3900	3700	3500	3200
240x45	4600	4500	4200	3900	3800	3500
290x45	5300	5100	4800	4500	4300	4000

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Floor Mass of 40 (kg/m2), Floor Live Load of 2.0 (kPa), Floor Point Load of 2.7 (kN).

iii) Minimum bearing length = 50 mm at end supports.

iv) Maximum trench depth to accommodate treads - 10 mm.

Table 5 Stair Treads (with open flights)

Size DxB (mm)	Max. Tread Span (mm)
35x240	NS
35x290	800
40x240	900
40x290	1000
45x240	1100
45x290	1200
50x240	1300
50x290	1500
60x240	1800
60x290	1900

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Deck Mass of 40 (kg/m2), Floor Point Load of 2.7 (kN).

iii) Minimum bearing length = 35 mm at end supports.

Table 6

Posts
Supporting Roof and/or Floor Loads

	Floor Load Area (m2)											
	0				10				20			
Roof Load Area (m2)	0	10	20	40	0	10	20	40	0	10	20	40
Size DxB (mm)	**Maximum Post Height (mm)**											
Sheet Roof												
70x70	4800	3300	2300	1600	2300	2000	1900	1500	1600	1500	1400	1200
90x90	4800	4800	3700	2600	3700	3300	3000	2500	2600	2500	2300	2100
120x120	4800	4800	4800	4700	4800	4800	4800	4400	4600	4400	4200	3800
140x140	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
170x170	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
190x190	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
Tile Roof												
70x70	4800	2500	1800	NS	2300	1800	1500	NS	1600	1300	NS	NS
90x90	4800	4100	2900	2100	3700	3000	2500	2000	2600	2300	2100	1700
120x120	4800	4800	4800	3700	4800	4800	4500	3500	4600	4100	3700	3200
140x140	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4400
170x170	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
190x190	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Sheet Roof Mass of 40 (kg/m2), Tile Roof Mass of 90 (kg/m2), Total Upper Floor Mass of 50 (kg/m2), Floor Live Load of 1.5 (kPa).

iii) Posts are free standing, i.e. not supporting lateral wind loads from walls etc.

Table 7

Window or Door Mullions
Single or Upper Storey Load Bearing Walls

Size DxB (mm)	Mullion Height (mm)	Roof Load Width (mm)							
		3000	4500	6000	7500	3000	4500	6000	7500
		Mullion Spacing (mm)							
		Sheet Roof				Tile Roof			
70x70	2400	1100	NS	NS	NS	NS	NS	NS	NS
70x90	2400	1400	1200	1100	NS	1100	NS	NS	NS
	2700	1000	NS	NS	NS	NS	NS	NS	NS
70x120	2400	1800	1600	1500	1300	1600	1300	1100	NS
	2700	1400	1300	1100	1000	1200	900	NS	NS
	3000	1000	900	NS	NS	NS	NS	NS	NS
70x140	2400	2200	1900	1700	1600	1800	1500	1300	1100
	2700	1700	1500	1400	1200	1500	1200	900	NS
	3000	1200	1100	1000	NS	1100	NS	NS	NS
90x70	2400	2100	1800	1700	1500	1800	1500	1300	1100
	2700	1600	1500	1300	1200	1400	1200	900	NS
	3000	1200	1100	1000	NS	1100	NS	NS	NS
90x90	2400	2600	2300	2100	1900	2200	1800	1600	1500
	2700	2000	1800	1600	1500	1700	1500	1300	1100
	3000	1500	1400	1300	1200	1400	1100	900	NS
90x120	2400	3500	3100	2800	2500	3000	2500	2200	1900
	2700	2700	2400	2200	2000	2300	1900	1700	1500
	3000	2200	1900	1700	1600	1800	1600	1400	1200
	3600	1100	1100	1000	1000	1000	1000	NS	NS
90x140	2400	4100	3700	3300	3000	3500	3000	2600	2300
	2700	3200	2800	2600	2300	2700	2300	2000	1700
	3000	2600	2300	2000	1800	2200	1800	1600	1400
	3600	1400	1300	1200	1200	1300	1200	1000	NS
120x70	2400	4100	3800	3500	3200	3700	3200	2800	2500
	2700	3200	2900	2700	2500	2800	2500	2200	1900
	3000	2600	2300	2100	2000	2300	2000	1700	1600
	3600	1600	1500	1400	1300	1400	1300	1200	1000
120x90	2400	4800	4700	4300	4000	4600	4000	3500	3200
	2700	4000	3700	3400	3100	3600	3100	2700	2400
	3000	3200	2900	2700	2500	2800	2500	2200	1900
	3600	2100	2000	1800	1600	1900	1600	1500	1300
	4200	1100	1100	1000	1000	1000	1000	1000	NS

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Sheet Roof Mass of 40 (kg/m2), Tile Roof Mass of 90 (kg/m2).

iii) Maximum tension load in mullion not to exceed 20 kN.

iv) Mullion Spacing is half the width of opening either side of mullion, or for mullions/studs at side of opening, half opening width.

Table 7 (cont)

Window or Door Mullions
Single or Upper Storey Load Bearing Walls

Size DxB (mm)	Mullion Height (mm)	Roof Load Width (mm)							
		3000	4500	6000	7500	3000	4500	6000	7500
		Mullion Spacing (mm)							
		Sheet Roof				Tile Roof			
120x120	2400	4800	4800	4800	4800	4800	4800	4700	4200
	2700	4800	4800	4500	4100	4800	4100	3700	3300
	3000	4300	3900	3600	3300	3800	3300	2900	2600
	3600	2900	2700	2400	2200	2600	2200	2000	1800
	4200	1500	1500	1500	1500	1500	1500	1300	1200
120x140	2400	4800	4800	4800	4800	4800	4800	4800	4800
	2700	4800	4800	4800	4800	4800	4800	4300	3900
	3000	4800	4600	4200	3900	4500	3900	3500	3100
	3600	3400	3100	2900	2700	3000	2600	2300	2100
	4200	1800	1800	1800	1800	1800	1800	1600	1500
	4800	900	900	900	900	900	900	900	900
140x70	2400	4800	4800	4800	4600	4800	4600	4100	3800
	2700	4600	4200	3900	3700	4100	3700	3300	3000
	3000	3700	3400	3100	2900	3300	2900	2600	2300
	3600	2500	2300	2100	2000	2200	2000	1700	1600
	4200	1400	1400	1300	1300	1400	1300	1200	1100
140x90	2400	4800	4800	4800	4800	4800	4800	4800	4700
	2700	4800	4800	4800	4600	4800	4600	4100	3700
	3000	4600	4300	3900	3700	4100	3700	3300	2900
	3600	3100	2900	2700	2500	2800	2500	2200	2000
	4200	1800	1800	1800	1700	1800	1700	1500	1400
	4800	900	900	900	900	900	900	900	900
140x120	2700	4800	4800	4800	4800	4800	4800	4800	4800
	3000	4800	4800	4800	4800	4800	4800	4400	4000
	3600	4200	3900	3600	3300	3800	3300	3000	2700
	4200	2500	2500	2500	2300	2500	2300	2100	1900
	4800	900	900	900	900	900	900	900	900
140x140	2700	4800	4800	4800	4800	4800	4800	4800	4800
	3000	4800	4800	4800	4800	4800	4800	4800	4700
	3600	4800	4600	4200	3900	4400	3900	3500	3200
	4200	3000	3000	3000	2800	3000	2800	2500	2300
	4800	900	900	900	900	900	900	900	900

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Sheet Roof Mass of 40 (kg/m2), Tile Roof Mass of 90 (kg/m2).

iii) Maximum tension load in mullion not to exceed 20 kN.

iv) Mullion Spacing is half the width of opening either side of mullion, or for mullions/studs at side of opening, half opening width.

Table 8 Lintels (Window Heads) - Sheet Roof Supporting Single or Upper Storey Loadbearing Walls

	Roof Load Width (mm)									
	1500		3000		4500		6000		7500	
Rafter/Truss Spacing (mm)	600	1200	600	1200	600	1200	600	1200	600	1200
	Maximum Lintel Span (mm)									
Size DxB (mm)	**Single Span**									
140x35	2400	2400	1900	1900	1600	1600	1500	1300	1400	NS
140x45	2600	2600	2100	2000	1800	1800	1600	1500	1500	1400
140x70	3000	3000	2400	2400	2100	2100	1900	1900	1700	1700
140x90	3100	3100	2600	2600	2300	2300	2100	2100	1900	1900
170x35	2900	2900	2300	2300	2000	2000	1800	1800	1700	1500
170x45	3100	3100	2500	2600	2200	2200	2000	2000	1800	1800
170x70	3400	3400	2900	2900	2600	2600	2300	2300	2200	2100
170x90	3600	3600	3100	3100	2800	2800	2500	2600	2300	2400
190x35	3100	3100	2600	2600	2200	2200	2100	2000	1900	1700
190x45	3400	3300	2800	2800	2500	2500	2200	2200	2100	2000
190x70	3700	3700	3200	3100	2900	2900	2600	2700	2400	2400
190x90	3900	3900	3400	3300	3100	3000	2800	2800	2600	2700
240x35	3800	3700	3200	3200	2900	2900	2600	2600	2400	2400
240x45	4000	4000	3400	3400	3100	3100	2800	2800	2600	2700
240x70	4400	4400	3800	3700	3400	3400	3200	3200	3000	3000
240x90	4600	4600	4000	4000	3600	3600	3400	3400	3200	3200
290x45	4600	4600	3900	3900	3600	3500	3300	3300	3100	3100
290x70	5000	5000	4300	4300	4000	3900	3700	3700	3500	3500
290x90	5300	5300	4600	4600	4200	4200	3900	3900	3700	3700
Continuous Span										
140x35	3100	3100	2600	2500	2100	2000	1600	1500	1600	1200
140x45	3300	3300	2800	2800	2300	2300	2000	2000	1600	1600
140x70	3700	3700	3100	3100	2800	2800	2500	2600	2200	2200
140x90	3900	3900	3300	3300	3000	3000	2800	2800	2500	2600
170x35	3600	3600	3100	3000	2600	2600	2200	1700	1700	1500
170x45	3900	3800	3300	3200	2900	2900	2500	2600	2200	1900
170x70	4300	4300	3600	3600	3300	3300	3100	3000	2700	2800
170x90	4500	4500	3900	3900	3500	3500	3300	3300	3000	3000
90x35	3900	3900	3300	3300	2800	2900	2400	2600_{10}	2100_{15}	1600_{10}
190x45	4200	4200	3600	3500	3200	3200	2800	2800	2500_{5}	2600_{10}
190x70	4600	4600	4000	3900	3600	3600	3400	3300	3100	3000
190x90	4900	4900	4200	4200	3800	3800	3600	3600	3400	3300
240x35	4700	4700	4000	4000	3600_{15}	3500_{15}	3100_{30}	3100_{30}	2500_{30}	2800_{45}
240x45	5000	5000	4300	4200	3800	3800	3500_{20}	3500_{15}	3100_{30}	3100_{25}
240x70	5500	5500	4700	4700	4300	4300	4000	4000	3800_{5}	3800_{5}
240x90	5800	5800	5000	5000	4600	4600	4300	4300	4000	4000
290x45	5700	5700	4900	4900	4400_{15}	4400_{10}	4100_{35}	4100_{35}	3800_{55}	3500_{45}
290x70	6300	6300	5400	5400	4900	5000	4600_{5}	4600_{5}	4400_{20}	4400_{20}
290x90	6500	6600	5700	5700	5200	5300	4900	4900	4700_{5}	4700_{10}

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Roof Mass of 40 (kg/m2).

iii) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

Table 9

Lintels (Window Heads) - Tile Roof
Supporting Single or Upper Storey Loadbearing Walls

	Roof Load Width (mm)									
	1500		3000		4500		6000		7500	
Rafter/Truss Spacing (mm)	600	1200	600	1200	600	1200	600	1200	600	1200
	Maximum Lintel Span (mm)									
Size DxB (mm)	**Single Span**									
140x35	1800	1800	1400	1300	1200	NS	NS	NS	NS	NS
140x45	2000	2000	1600	1400	1400	1200	1200	NS	NS	NS
140x70	2300	2300	1800	1800	1600	1500	1400	1300	1400	NS
140x90	2500	2600	2000	2000	1700	1700	1600	1500	1500	1300
170x35	2200	2200	1700	1700	1500	1400	1400	NS	1300	NS
170x45	2400	2400	1900	1900	1700	1600	1500	1400	1400	NS
170x70	2800	2800	2200	2200	1900	1900	1800	1700	1600	1600
170x90	3000	3000	2400	2500	2100	2100	1900	1900	1800	1800
190x35	2500	2500	2000	1900	1700	1700	1500	1400	1400	NS
190x45	2700	2700	2200	2100	1900	1800	1700	1600	1600	1500
190x70	3100	3100	2500	2600	2200	2200	2000	1900	1800	1800
190x90	3300	3200	2700	2800	2400	2400	2200	2100	2000	2000
240x35	3100	3100	2500	2500	2200	2100	2000	1900	1800	1700
240x45	3300	3300	2700	2800	2400	2400	2200	2100	2000	2000
240x70	3700	3600	3100	3100	2800	2800	2500	2500	2300	2300
240x90	3900	3900	3300	3300	3000	3000	2800	2800	2600	2600
290x45	3800	3800	3200	3200	2900	2900	2600	2600	2400	2400
290x70	4200	4200	3600	3600	3300	3200	3000	3000	2800	2900
290x90	4500	4500	3800	3800	3500	3400	3200	3200	3100	3000
	Continuous Span									
140x35	2500	2500	1900	1800	1600	1400	1400	NS	NS	NS
140x45	2700	2700	2100	2000	1800	1600	1600	1300_{5}	NS	NS
140x70	3100	3000	2500	2500	2100	2100	1900	1800	1800	1600
140x90	3300	3200	2700	2700	2400	2400	2100	2100	2000	1900
170x35	3000	3000	2400	2400	2100	1600_{5}	1600_{5}	1300	1400_{10}	NS
170x45	3200	3100	2600	2600	2300	2200	1900	1600_{5}	1600	1300
170x70	3500	3500	3000	3000	2600	2600	2400	2400	2200	2100
170x90	3800	3800	3200	3100	2900	2900	2600	2600	2400	2400
0x35	3200	3200	2700	2600	2300_{10}	1700	1700_{5}	1400_{10}	1500_{15}	NS
190x45	3500	3400	2900	2900	2600	2500_{5}	2200_{10}	1700	1700_{5}	1400_{5}
190x70	3900	3800	3300	3200	3000	3000	2700	2700	2500	2500_{5}
190x90	4100	4100	3500	3500	3100	3100	3000	3000	2700	2700
240x35	3900	3800	3300_{5}	3200_{5}	3000_{35}	3000_{35}	2400_{50}	2400_{45}	1900_{45}	1900_{45}
240x45	4100	4100	3500	3500	3200_{15}	3100_{15}	2800_{35}	2900_{40}	2500_{50}	2700_{60}
240x70	4600	4600	3900	3900	3500	3500	3300_{10}	3300_{10}	3100_{25}	3100_{25}
240x90	4900	4900	4200	4200	3800	3700	3500	3500	3300_{10}	3300_{10}
290x45	4800	4700	4000	4000	3600_{35}	3600_{30}	3400_{60}	3200_{55}	3200_{90}	3000_{80}
290x70	5300	5300	4500	4500	4100	4100	3800_{25}	3800_{20}	3600_{40}	3600_{45}
290x90	5600	5600	4800	4800	4400	4300	4000_{10}	4000_{5}	3800_{25}	3800_{25}

OTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Roof Mass of 90 (kg/m2).

iii) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

Table 10

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
90x35	10	2400	500	2300	400	2200	350	2000	250
	20	2300	500	2100	400	1900	350	1700	300
	40	1900	500	1700	400	1500	350	1300	300
	60	1700	450	1500	450	1300	350	1200	300
	90	1500	450	1300	400	1200	400	1000	300
90x45	10	3000	600	2700	450	2500	400	2200	300
	20	2500	600	2200	450	2100	400	1800	300
	40	2100	600	1800	500	1700	400	1500	350
	60	1800	600	1600	500	1500	400	1300	350
	90	1600	550	1400	500	1300	450	1100	350
90x70	10	3300	700	3000	600	2800	500	2600	400
	20	2800	750	2600	600	2400	500	2100	400
	40	2400	750	2100	600	1900	500	1700	400
	60	2100	750	1800	600	1700	550	1500	400
	90	1800	800	1600	650	1500	550	1300	450
90x90	10	3400	800	3200	650	3000	550	2700	450
	20	3000	800	2700	650	2500	550	2300	450
	40	2500	850	2300	650	2100	600	1800	450
	60	2300	850	2000	700	1800	600	1600	450
	90	2000	900	1800	700	1600	600	1400	500
120x35	10	3700	650	3300	500	3100	450	2600	350
	20	3100	650	2800	500	2500	450	2200	350
	40	2500	650	2200	550	2000	450	1800	350
	60	2200	700	2000	550	1800	450	1600	350
	90	2000	700	1700	550	1600	500	1400	400
120x45	10	3900	750	3500	600	3300	500	3000	400
	20	3300	750	3000	600	2700	500	2400	400
	40	2700	750	2400	600	2200	500	2000	400
	60	2400	800	2100	600	2000	550	1700	400
	90	2100	800	1900	650	1700	550	1500	450
120x70	10	4200	900	3900	750	3700	650	3400	500
	20	3700	950	3400	750	3100	650	2800	500
	40	3100	950	2800	750	2600	650	2300	500
	60	2800	1000	2500	800	2300	650	2000	550
	90	2500	1000	2200	800	2000	700	1700	550

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
120x90	10	4400	1000	4100	850	3900	700	3600	550
	20	3900	1050	3600	850	3300	700	3000	550
	40	3300	1050	3000	850	2800	750	2500	600
	60	3000	1100	2700	900	2500	750	2200	600
	90	2700	1150	2400	900	2200	800	1900	650
140x35	10	4200	750	3800	600	3600	500	3100	400
	20	3600	750	3200	600	3000	500	2600	400
	40	3000	750	2600	600	2400	500	2100	400
	60	2600	800	2300	600	2100	550	1800	400
	90	2300	800	2000	650	1800	550	1600	450
140x45	10	4400	850	4100	650	3800	550	3500	450
	20	3800	850	3500	650	3200	550	2800	450
	40	3200	850	2800	700	2600	600	2300	450
	60	2800	900	2500	700	2300	600	2000	500
	90	2500	950	2200	750	2000	650	1800	500
140x70	10	4800	1050	4500	850	4200	700	3900	550
	20	4200	1050	3900	850	3600	700	3200	600
	40	3600	1100	3200	850	3000	750	2600	600
	60	3200	1100	2900	900	2600	750	2300	600
	90	2900	1150	2500	950	2300	800	2000	650
140x90	10	5000	1150	4700	950	4500	800	4100	650
	20	4500	1200	4100	950	3800	800	3500	650
	40	3800	1200	3500	1000	3200	850	2900	650
	60	3500	1250	3100	1000	2900	850	2500	700
	90	3100	1300	2800	1050	2500	900	2200	700
170x35	10	5000	850	4600	700	4300	600	3800	450
	20	4300	850	3900	700	3600	600	3200	450
	40	3600	900	3200	700	2900	600	2600	500
	60	3200	900	2800	750	2600	600	2200	500
	90	2800	950	2500	750	2200	650	2000	500
170x45	10	5200	1000	4900	800	4600	650	4100	500
	20	4600	1000	4100	800	3800	650	3400	550
	40	3800	1000	3400	800	3200	700	2800	550
	0	3400	1050	3000	850	2800	700	2400	550
	90	3000	1100	2700	850	2400	750	2100	600

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
170x70	10	5600	1250	5300	1000	5000	850	4600	650
	20	5000	1250	4600	1000	4300	850	3900	700
	40	4300	1250	3900	1000	3600	850	3200	700
	60	3900	1300	3500	1050	3200	900	2800	700
	90	3500	1350	3100	1100	2800	950	2500	750
170x90	10	5800	1400	5500	1100	5300	950	4900	750
	20	5300	1400	4900	1100	4600	950	4200	750
	40	4600	1450	4200	1150	3900	1000	3500	800
	60	4200	1450	3700	1150	3500	1000	3100	800
	90	3700	1550	3300	1200	3100	1050	2700	850
190x35	10	5500	950	5100	750	4800	650	4300	500
	20	4800	950	4300	750	4000	650	3500	500
	40	4000	1000	3500	800	3300	650	2900	500
	60	3500	1000	3100	800	2900	700	2500	550
	90	3100	1050	2800	850	2500	700	2200	550
190x45	10	5700	1050	5400	850	5100	700	4600	550
	20	5100	1100	4600	850	4300	750	3800	600
	40	4300	1100	3800	900	3500	750	3100	600
	60	3800	1150	3400	900	3100	800	2700	600
	90	3400	1200	3000	950	2700	800	2400	650
190x70	10	6100	1350	5800	1050	5500	900	5100	750
	20	5500	1350	5100	1100	4800	950	4300	750
	40	4800	1400	4300	1100	4000	950	3600	750
	60	4300	1450	3900	1150	3600	1000	3200	800
	90	3900	1500	3500	1200	3200	1000	2800	800
190x90	10	6300	1500	6000	1200	5800	1050	5400	800
	20	5800	1550	5400	1200	5100	1050	4600	850
	40	5100	1600	4600	1250	4300	1050	3900	850
	60	4600	1600	4200	1300	3900	1100	3400	900
	90	4200	1700	3700	1350	3400	1150	3000	900
240x35	10	6700	1150	6200	900	5900	750	5400	600
	20	5900	1150	5400	900	5000	750	4500	600
	40	5000	1200	4500	950	4100	800	3600	650
	60	4500	1200	4000	950	3600	800	3200	650
	90	4000	1250	3500	1000	3200	850	2800	700

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
240x45	10	7000	1300	6500	1050	6200	900	5700	700
	20	6200	1300	5700	1050	5300	900	4800	700
	40	5300	1350	4800	1050	4400	900	3900	700
	60	4800	1400	4300	1100	3900	950	3500	750
	90	4300	1450	3800	1150	3500	1000	3000	800
240x70	10	7200	1650	7000	1300	6700	1100	6300	900
	20	6700	1650	6300	1300	5900	1100	5400	900
	40	5900	1700	5400	1350	5000	1150	4500	900
	60	5400	1750	4900	1400	4500	1200	4000	950
	90	4900	1850	4300	1450	4000	1250	3500	1000
240x90	10	7200	1850	7200	1450	7000	1250	6600	1000
	20	7000	1900	6600	1500	6200	1250	5700	1000
	40	6200	1950	5700	1550	5400	1300	4800	1050
	60	5700	2000	5200	1550	4800	1350	4300	1050
	90	5200	2100	4700	1650	4300	1400	3800	1100
290x45	10	7200	1500	7200	1200	7200	1000	6700	800
	20	7200	1550	6700	1200	6300	1050	5700	800
	40	6300	1600	5700	1250	5300	1050	4700	850
	60	5700	1600	5100	1300	4700	1100	4200	850
	90	5100	1700	4600	1350	4200	1150	3700	900
290x70	10	7200	1950	7200	1550	7200	1300	7200	1000
	20	7200	1950	7200	1550	7000	1300	6400	1050
	40	7000	2000	6400	1600	6000	1350	5400	1050
	60	6400	2050	5800	1650	5400	1400	4800	1100
	90	5800	2150	5200	1700	4800	1450	4200	1150
290x90	10	7200	2200	7200	1750	7200	1450	7200	1150
	20	7200	2200	7200	1750	7200	1500	6800	1150
	40	7200	2300	6800	1800	6400	1500	5800	1200
	60	6800	2350	6200	1850	5800	1550	5200	1250
	90	6200	2450	5600	1950	5200	1650	4600	1300

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
90x35	10	3200	500	2900	400	2400	350	2000	250
	20	3200	500	2800	400	2500	350	2000	300
	40	2600	500	2300	400	2100	350	1800	300
	60	2300	450	2000	450	1800	350	1600	300
	90	2000	450	1800	400	1600	400	1400	300
90x45	10	3800	600	3400	450	2800	400	2200	300
	20	3400	600	3100	450	2800	400	2300	300
	40	2800	600	2500	500	2300	400	2000	350
	60	2500	600	2200	500	2000	400	1700	350
	90	2200	550	1900	500	1700	450	1500	350
90x70	10	4500	700	4100	600	3500	500	2700	400
	20	3900	750	3500	600	3200	500	2800	400
	40	3200	750	2900	600	2600	500	2300	400
	60	2900	750	2500	600	2300	550	2000	400
	90	2500	800	2200	650	2000	550	1800	450
90x90	10	4700	800	4300	650	4000	550	3100	450
	20	4100	800	3700	650	3500	550	3100	450
	40	3500	850	3100	650	2800	600	2500	450
	60	3100	850	2700	700	2500	600	2200	450
	90	2700	900	2400	700	2200	600	1900	500
120x35	10	5000	650	4000	500	3400	450	2600	350
	20	4200	650	3800	500	3500	450	2700	350
	40	3500	650	3100	550	2800	450	2500	350
	60	3100	700	2700	550	2500	450	2100	350
	90	2700	700	2400	550	2100	500	1900	400
120x45	10	5300	750	4600	600	3800	500	3000	400
	20	4500	750	4100	600	3700	500	3100	400
	40	3700	750	3300	600	3000	500	2700	400
	60	3300	800	2900	600	2700	550	2300	400
	90	2900	800	2600	650	2300	550	2100	450
120x70	10	5700	900	5300	750	4800	650	3700	500
	20	5000	950	4600	750	4200	650	3800	500
	40	4200	950	3800	750	3500	650	3100	500
	60	3800	1000	3400	800	3100	650	2700	550
	90	3400	1000	3000	800	2700	700	2400	550

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
120x90	10	5900	1000	5600	850	5300	700	4200	550
	20	5300	1050	4900	850	4500	700	4100	550
	40	4500	1050	4100	850	3800	750	3300	600
	60	4100	1100	3600	900	3300	750	3000	600
	90	3600	1150	3200	900	3000	800	2600	650
140x35	10	5700	750	4800	600	4000	500	3100	400
	20	4900	750	4400	600	4000	500	3200	400
	40	4000	750	3600	600	3300	500	2900	400
	60	3600	800	3100	600	2900	550	2500	400
	90	3100	800	2800	650	2500	550	2200	450
140x45	10	6000	850	5400	650	4600	550	3500	450
	20	5200	850	4700	650	4300	550	3600	450
	40	4300	850	3900	700	3500	600	3100	450
	60	3900	900	3400	700	3100	600	2700	500
	90	3400	950	3000	750	2700	650	2400	500
140x70	10	6500	1050	6100	850	5700	700	4400	550
	20	5800	1050	5300	850	4900	700	4400	600
	40	4900	1100	4400	850	4100	750	3600	600
	60	4400	1100	3900	900	3600	750	3200	600
	90	3900	1150	3500	950	3200	800	2800	650
140x90	10	6700	1150	6400	950	6000	800	5000	650
	20	6000	1200	5600	950	5200	800	4700	650
	40	5200	1200	4700	1000	4400	850	3900	650
	60	4700	1250	4200	1000	3900	850	3400	700
	90	4200	1300	3800	1050	3400	900	3000	700
170x35	10	6800	850	5900	700	5000	600	3800	450
	20	5800	850	5300	700	4900	600	3900	450
	40	4900	900	4300	700	4000	600	3500	500
	60	4300	900	3800	750	3500	600	3100	500
	90	3800	950	3400	750	3100	650	2700	500
170x45	10	7100	1000	6600	800	5600	650	4400	500
	20	6200	1000	5600	800	5200	650	4500	550
	40	5200	1000	4700	800	4300	700	3800	550
	60	4700	1050	4100	850	3800	700	3300	550
	90	4100	1100	3700	850	3300	750	2900	600

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
170x70	10	7200	1250	7200	1000	6800	850	5500	650
	20	6800	1250	6300	1000	5900	850	5300	700
	40	5900	1250	5300	1000	4900	850	4400	700
	60	5300	1300	4800	1050	4400	900	3900	700
	90	4800	1350	4200	1100	3900	950	3400	750
170x90	10	7200	1400	7200	1100	7100	950	6200	750
	20	7100	1400	6600	1100	6200	950	5700	750
	40	6200	1450	5700	1150	5300	1000	4700	800
	60	5700	1450	5100	1150	4700	1000	4200	800
	90	5100	1550	4600	1200	4200	1050	3700	850
190x35	10	7200	950	6600	750	5600	650	4300	500
	20	6500	950	5900	750	5400	650	4500	500
	40	5400	1000	4800	800	4400	650	3900	500
	60	4800	1000	4300	800	3900	700	3400	550
	90	4300	1050	3800	850	3400	700	3000	550
190x45	10	7200	1050	7200	850	6300	700	4900	550
	20	6900	1100	6300	850	5800	750	5100	600
	40	5800	1100	5200	900	4800	750	4200	600
	60	5200	1150	4600	900	4200	800	3700	600
	90	4600	1200	4100	950	3700	800	3300	650
190x70	10	7200	1350	7200	1050	7200	900	6200	750
	20	7200	1350	6900	1100	6500	950	5900	750
	40	6500	1400	5900	1100	5500	950	4900	750
	60	5900	1450	5300	1150	4900	1000	4300	800
	90	5300	1500	4700	1200	4300	1000	3800	800
190x90	10	7200	1500	7200	1200	7200	1050	7000	800
	20	7200	1550	7200	1200	6900	1050	6300	850
	40	6900	1600	6300	1250	5900	1050	5200	850
	60	6300	1600	5700	1300	5200	1100	4700	900
	90	5700	1700	5100	1350	4700	1150	4100	900
240x35	10	7200	1150	7200	900	7200	750	5600	600
	20	7200	1150	7200	900	6800	750	5800	600
	40	6800	1200	6000	950	5600	800	4900_{5}	650
	60	6000	1200	5400	950	4900	800	4300_{5}	650
	90	5400	1250	4800	1000	4300	850	3800_{10}	700

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
240x45	10	7200	1300	7200	1050	7200	900	6400	700
	20	7200	1300	7200	1050	7200	900	6500	700
	40	7200	1350	6500	1050	6000	900	5300	700
	60	6500	1400	5800	1100	5300	950	4700	750
	90	5800	1450	5200	1150	4700	1000	4200	800
240x70	10	7200	1650	7200	1300	7200	1100	7200	900
	20	7200	1650	7200	1300	7200	1100	7200	900
	40	7200	1700	7200	1350	6800	1150	6100	900
	60	7200	1750	6600	1400	6100	1200	5400	950
	90	6600	1850	5900	1450	5400	1250	4800	1000
240x90	10	7200	1850	7200	1450	7200	1250	7200	1000
	20	7200	1900	7200	1500	7200	1250	7200	1000
	40	7200	1950	7200	1550	7200	1300	6500	1050
	60	7200	2000	7100	1550	6500	1350	5800	1050
	90	7100	2100	6300	1650	5800	1400	5200	1100
290x45	10	7200	1500	7200	1200	7200	1000	7200	800
	20	7200	1550	7200	1200	7200	1050	7200	800
	40	7200	1600	7200	1250	7200	1050	6400_{5}	850
	60	7200	1600	7000	1300	6400	1100	5700_{5}	850
	90	7000	1700	6200	1350	5700	1150	5000_{15}	900
290x70	10	7200	1950	7200	1550	7200	1300	7200	1000
	20	7200	1950	7200	1550	7200	1300	7200	1050
	40	7200	2000	7200	1600	7200	1350	7200	1050
	60	7200	2050	7200	1650	7200	1400	6500	1100
	90	7200	2150	7100	1700	6500	1450	5800	1150
290x90	10	7200	2200	7200	1750	7200	1450	7200	1150
	20	7200	2200	7200	1750	7200	1500	7200	1150
	40	7200	2300	7200	1800	7200	1500	7200	1200
	60	7200	2350	7200	1850	7200	1550	7000	1250
	90	7200	2450	7200	1950	7000	1650	6200	1300

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 11

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span									
170x45	10	4100	1350	3100	1100	2600	900	2300	800	2000	700
	20	3500	1350	2700	1100	2300	900	2000	800	1800	700
	40	2900	1350	2300	1150	1900	950	1700	800	1600	750
	60	2600	1300	2000	1000	1700	800	1500	700	1400	700
	90	2300	1100	1800	900	1500	700	1400	700	1300	600
170x70	10	4500	1550	3600	1350	3000	1100	2600	950	2400	850
	20	3900	1550	3100	1350	2700	1100	2400	950	2100	850
	40	3300	1550	2600	1300	2300	1150	2000	1000	1800	900
	60	3000	1500	2300	1100	2000	1000	1800	900	1600	800
	90	2600	1300	2100	1000	1800	900	1600	800	1500	700
170x90	10	4800	1700	3900	1500	3300	1200	2900	1050	2600	950
	20	4200	1700	3400	1500	2900	1250	2600	1100	2300	950
	40	3600	1700	2800	1400	2400	1200	2200	1100	2000	1000
	60	3200	1600	2500	1200	2200	1100	2000	1000	1800	900
	90	2800	1400	2200	1100	1900	900	1700	800	1600	800
190x45	10	4500	1500	3500	1200	2900	1000	2600	850	2300	800
	20	3900	1500	3000	1250	2600	1000	2300	900	2000	800
	40	3200	1500	2500	1250	2200	1050	1900	900	1800	800
	60	2900	1400	2200	1100	1900	900	1700	800	1600	800
	90	2500	1200	2000	1000	1700	800	1500	700	1400	700
190x70	10	5000	1750	4000	1500	3400	1250	3000	1050	2600	950
	20	4400	1750	3500	1500	3000	1250	2600	1100	2400	950
	40	3700	1750	2900	1400	2500	1200	2200	1100	2000	1000
	60	3300	1600	2600	1300	2300	1100	2000	1000	1800	900
	90	2900	1400	2300	1100	2000	1000	1800	900	1700	800
190x90	10	5300	1900	4300	1650	3700	1350	3200	1200	2900	1050
	20	4700	1900	3800	1700	3200	1400	2900	1200	2600	1100
	40	4000	1900	3200	1600	2700	1300	2400	1200	2200	1100
	60	3600	1800	2800	1400	2500	1200	2200	1100	2000	1000
	90	3200	1600	2500	1200	2200	1100	2000	1000	1800	900

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span									
240x45	10	5600	1850	4400	1550	3700	1250	3200	1100	2900	1000
	20	4800	1850	3800	1550	3300	1300	2900	1100	2600	1000
	40	4100	1850	3200	1600	2800	1300	2500	1150	2200_{5}	1000
	60	3600	1800	2900	1400	2500	1200	2200	1100	2000_{5}	1000
	90	3200	1600	2500	1200	2200	1100	2000	1000	1800_{5}	900
240x70	10	6200	2150	5000	1900	4300	1550	3700	1350	3400	1200
	20	5400	2150	4400	1900	3800	1600	3300	1350	3000	1250
	40	4600	2150	3700	1800	3200	1600	2900	1400	2600	1250
	60	4100	2000	3300	1600	2900	1400	2600	1300	2300	1100
	90	3700	1800	2900	1400	2500	1200	2300	1100	2100	1000
240x90	10	6500	2350	5300	2100	4600	1750	4000	1500	3600	1350
	20	5800	2350	4700	2150	4100	1750	3600	1500	3300	1350
	40	5000	2350	4000	2000	3500	1700	3100	1550	2800	1400
	60	4500	2200	3600	1800	3100	1500	2800	1400	2600	1300
	90	4000	2000	3200	1600	2800	1400	2500	1200	2300	1100
290x45	10	6600	2250	5300	1850	4500	1550	3900_{5}	1350	3500_{10}	1200
	20	5800	2250	4600	1900	3900	1550	3500_{5}	1350	3100_{10}	1200
	40	4900	2250	3900	1950	3300	1600	3000_{5}	1400	2700_{10}	1250
	60	4400	2200	3500	1700	3000	1500	2700_{5}	1300	2400_{10}	1200
	90	3900	1900	3100	1500	2600	1300	2400_{10}	1200	2200_{15}	1100_{15}
290x70	10	7200	2600	6000	2300	5100	1900	4500	1650	4000	1450
	20	6500	2600	5300	2350	4500	1900	4000	1650	3600	1500
	40	5500	2600	4500	2200	3900	1950	3500	1700	3200	1500
	60	5000	2500	4000	2000	3500	1700	3100	1500	2800	1400
	90	4400	2200	3500	1700	3100	1500	2800	1400	2500_{5}	1200
290x90	10	7200	2850	6400	2550	5500	2100	4900	1800	4400	1650
	20	6800	2850	5600	2600	4900	2100	4400	1850	4000	1650
	40	5900	2800	4800	2350	4200	2100	3700	1800	3400	1700
	60	5400	2650	4300	2100	3800	1900	3400	1700	3100	1500
	90	4800	2400	3800	1900	3300	1600	3000	1500	2800	1400

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span									
170x45	10	4900	1350	3300	1100	2700	900	2400	800	2100	700
	20	4700	1350	3400	1100	2800	900	2500	800	2200	700
	40	3900	1350	3100	1150	2600	950	2400	800	2100	750
	60	3500	1350	2700	1150	2400	950	2100	850	1900_{10}	750
	90	3100	1350	2400	1150	2100	1000	1900	850	1700_{15}	750
170x70	10	6100	1550	4100	1350	3400	1100	3000	950	2700	850
	20	5400	1550	4200	1350	3500	1100	3000	950	2700	850
	40	4500	1550	3600	1400	3100	1150	2700	1000	2500	900
	60	4000	1550	3200	1350	2700	1150	2500	1000	2300	900
	90	3600	1550	2800	1250	2400	1150	2200	1050	2000	950
170x90	10	6500	1700	4600	1500	3800	1200	3300	1050	3000	950
	20	5700	1700	4600	1500	3900	1250	3400	1100	3000	950
	40	4900	1700	3900	1550	3300	1250	3000	1100	2700	1000
	60	4300	1700	3500	1450	3000	1300	2700	1150	2500	1000
	90	3900	1600	3100	1350	2700	1200	2400	1100	2200	1050
190x45	10	5500	1500	3700	1200	3100	1000	2700	850	2400	800
	20	5300	1500	3800	1250	3200	1000	2800	900	2500	800
	40	4400	1500	3500	1250	3000	1050	2600	900	2300_{10}	800
	60	3900	1500	3100	1300	2600	1050	2400_{5}	900	2200_{20}	850
	90	3400	1500	2700	1250	2300	1100	2100_{10}	950	1900_{30}	850
190x70	10	6800	1750	4600	1500	3800	1250	3300	1050	3000	950
	20	6000	1750	4800	1500	3900	1250	3400	1100	3100	950
	40	5000	1750	4000	1550	3400	1300	3100	1100	2800	1000
	60	4500	1750	3600	1500	3100	1300	2800	1150	2500	1000
	90	4000	1650	3200	1400	2700	1250	2500	1150	2300	1050
190x90	10	7200	1900	5200	1650	4200	1350	3700	1200	3300	1050
	20	6300	1900	5100	1700	4300	1400	3800	1200	3400	1100
	40	5400	1900	4300	1700	3700	1400	3300	1250	3000	1100
	60	4800	1900	3900	1600	3300	1400	3000	1250	2800	1150
	90	4300	1750	3400	1500	3000	1350	2700	1200	2500	1150

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span									
240x45	10	7100	1850	4800	1550	3900	1250	3400	1100	3100_{10}	1000
	20	6600	1850	4900	1550	4000	1300	3500_{10}	1100	3100_{25}	1000
	40	5500	1850	4400	1600	3800_{5}	1300	3300_{25}	1150	3000_{40}	1000
	60	4900	1850	3900	1600	3400_{10}	1350	3000_{30}	1150	2800_{50}	1050
	90	4400	1800	3400	1500	3000_{15}	1350	2700_{40}	1200	2500_{60}	1100
240x70	10	7200	2150	5900	1900	4800	1550	4200	1350	3800	1200
	20	7200	2150	6000	1900	5000	1600	4300	1350	3900_{5}	1250
	40	6300	2150	5000	1900	4300	1600	3900	1400	3600_{15}	1250
	60	5600	2150	4500	1800	3900	1600	3500	1450	3200_{15}	1300
	90	5000	2000	4000	1650	3500	1500	3100_{10}	1400	2900_{25}	1300
240x90	10	7200	2350	6600	2100	5400	1750	4700	1500	4200	1350
	20	7200	2350	6400	2150	5500	1750	4800	1500	4300	1350
	40	6700	2350	5400	2050	4700	1800	4200	1550	3900	1400
	60	6100	2300	4900	1900	4200	1700	3800	1600	3500_{5}	1450
	90	5400	2100	4300	1800	3800	1600	3400	1450	3100_{15}	1400
290x45	10	7200	2250	5800	1850	4700	1550	4100_{15}	1350	3700_{30}	1200
	20	7200	2250	5900	1900	4900_{10}	1550	4200_{30}	1350	3800_{50}	1200
	40	6600	2250	5300	1950	4500_{25}	1600	4100_{50}	1400	3600_{65}	1250
	60	5900	2250	4700	1850	4100_{30}	1600	3600_{55}	1400	3300_{80}	1250
	90	5300	2050	4200_{10}	1700	3600_{35}	1550	3200_{70}	1400	3000_{95}	1300_{95}
290x70	10	7200	2600	7200	2300	5800	1900	5100	1650	4600_{10}	1450
	20	7200	2600	7100	2350	6000	1900	5200_{10}	1650	4700_{25}	1500
	40	7200	2600	6100	2200	5200	1950	4700_{15}	1700	4300_{35}	1500
	60	6800	2500	5400	2100	4700	1850	4200_{20}	1700	3900_{40}	1550
	90	6000	2300	4800	1950	4200_{10}	1750	3800_{30}	1600	3500_{50}	1500
290x90	10	7200	2850	7200	2550	6500	2100	5700	1800	5100	1650
	20	7200	2850	7200	2600	6600	2100	5800	1850	5200_{15}	1650
	40	7200	2800	6500	2350	5700	2100	5100_{5}	1900	4700_{20}	1700
	60	7200	2650	5900	2200	5100	2000	4600_{10}	1850	4200_{25}	1700
	90	6500	2450	5200	2050	4600	1850	4100_{15}	1700	3800_{35}	1600

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

RECYCLED HARDWOOD
SPAN TABLES

SUPPLEMENT 4

Wind Classifications N1, N2 and N3

Recycled Species Group D
Recycled Grade, RG1

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1.0 INTRODUCTION

This Supplement was prepared under a project supported by Forest and Wood Products Australia and provides span tables for some common applications and uses for recycled structural hardwood timber. The span tables provided include some commercial as well as some domestic construction uses. The span tables are specific to recycled timber which will include recycled timber features.

2.0 APPLICATION

The span tables included in this Supplement are only applicable for use with timber graded in accordance with 'Interim Industry Standard, Recycled Timber – Visually Stress Graded Recycled Timber for Structural Purposes' available from www.fwpa.com.au for the Wind Classifications designated in this Supplement.

The Tables in this Supplement apply to Recycled Timber Species Group D - Recycled Grade, RG1.

For domestic applications, the requirements of AS 1684 are also applicable for use in conjunction with the Tables in this Supplement.

3.0 ALTERNATIVE GRADE

In addition to Species Group D, RG1, the tables in this Supplement apply to Recycled Timber Species Group C - Recycled Grade, RG2.

4.0 TOLERANCES

The depth (D) and breadth (B) shall not be more than 2mm under the sizes given.

5.0 CONTENTS

Table 1

Decking Boards - Commercial Applications Supporting 5.0 kPa Uniform Live Load

	Point Live Load (kN)			
	3	5	9	13
Size DxB (mm)	**Span**			
35x70	560	340	NS	NS
35x90	680	420	NS	NS
35x120	780	540	300	NS
35x140	820	640	360	NS
45x70	840	580	320	NS
45x90	920	700	380	NS
45x120	1020	920	520	360
45x140	1080	1060	600	420

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum DL of 60 (kg/m2), Floor Live Load of 5 (kPa).

iii) End bearing lengths = 20 mm at end supports and 20 mm at internal supports for continous members.

iv) Point loads are assumed to be shared by two deck boards.

v) Live load deflection limit = span/150 or 4 mm.

vi) Decking shall be two or more continuous span.

Table 2

Deck Bearers - Domestic Applications
May Support Decks Greater than 1000mm above the Ground

	Floor Load Width (mm)											
	1200		2400		4800		1200		2400		4800	
	Bearer Span (mm)											
	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
Size DxB (mm)	**Single Span**						**Continuous Span**					
90x45	1200	300	NS	NS	NS	NS	1200	300	NS	NS	NS	NS
90x70	1500	400	1100	300	NS	NS	1500	400	1100	300	NS	NS
90x90	1700	500	1200	300	NS	NS	1700	500	1200	300	NS	NS
120x45	1700	500	1200	300	NS	NS	1700	500	1200	300	NS	NS
120x70	2100	600	1500	400	1000	300	2100	600	1500	400	1000	300
120x90	2300	600	1600	400	1100	300	2300	600	1600	400	1100	300
140x45	2000	600	1400	400	NS	NS	2000	600	1400	400	NS	NS
140x70	2400	700	1700	500	1200	300	2400	700	1700	500	1200	300
140x90	2700	800	1900	500	1300	300	2700	800	1900	500	1300	300
170x45	2400	700	1700	500	1200_{5}	300_{5}	2400	700	1700	500	1100_{20}	300_{20}
170x70	3000	900	2100	600	1400	400	3000	900	2100	600	1400	400
170x90	3300	900	2300	600	1600	400	3300	900	2300	600	1600	400
190x45	2700	800	1900	500	1300_{10}	300_{10}	2700	800	1900	500	1300_{35}	300_{35}
190x70	3300	900	2300	600	1600	400	3300	900	2300	600	1600_{10}	400_{10}
190x90	3700	1100	2600	700	1800	500	3700	1100	2600	700	1800	500
240x45	3400	1000	2400_{5}	700_{5}	1700_{25}	500_{25}	3400	1000	2400_{20}	700_{20}	1600_{75}	400_{75}
240x70	4200	1200	3000	900	2100_{10}	600_{10}	4200	1200	3000	900	2100_{50}	600_{50}
240x90	4600	1300	3300	900	2300_{5}	600_{5}	4700	1400	3300	900	2300_{30}	600_{30}
290x45	4200	1200	2900_{15}	800_{15}	2000_{40}	600_{40}	4200	1200	2900_{55}	800_{55}	1900_{110}	500_{110}
290x70	5000	1500	3600	1000	2500_{25}	700_{25}	5100	1500	3600_{20}	1000_{20}	2500_{80}	700_{80}
290x90	5300	1500	4000	1200	2800_{15}	800_{15}	5600	1600	4000_{5}	1200	2800_{65}	800_{65}

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Cantilever (mm).

ii) The above table was based on a maximum DL of 30 (kg/m2), Floor Point Load of 1.8 (kN), Balcony Live Load of 3 (kPa).

iii) Minimum BackSpan = 200 % of Overhang.

iv) Maximum Overhang = 30 % of Backspan.

v) End bearing lengths = 50 mm at end supports and 100 mm at internal supports for continous members. Subscript values indicate the minimium additional bearing length where required to be greater than 50 mm at end supports and 100 mm at internal supports.

Table 3

Deck Joists - Domestic Applications
May Support Decks greater than 1000mm above the Ground

	Joist Spacing (mm)											
	300		450		600		300		450		600	
	Max Joist Span (mm)											
	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever
Size DxB (mm)	**Single Span**						**Continuous Span**					
90x35	1300	300	1300	300	1300	300	1600	400	1500	400	1500	400
90x45	1600	400	1500	400	1400	400	1900	500	1800	500	1700	500
120x35	2200	600	2000	600	2000	600	2700	800	2500	750	2100	600
120x45	2500	700	2300	600	2300	600	3100	900	2800	800	2400	700
140x35	2800	800	2600	700	2500	700	3300	900	2900	850	2500	700
140x45	3200	900	3000	900	2800	800	3700	1100	3300	950	2800	800
170x35	3600	1000	3400	1000	3100	900	4100	1200	3500	1050	3100	900
170x45	3900	1100	3800	1100	3400	1000	4500	1300	4000	1150	3400	1000
190x35	4000	1200	3800	1100	3400	1000	4600	1350	3900	1100	3400	1000
190x45	4400	1300	4100	1200	3800	1100	5000	1450	4400	1300	3800	1100
240x35	5100	1500	4600	1300	4300	1200	5800	1700	5000	1500	4300	1200
240x45	5500	1600	4900	1400	4600	1300	6300	1850	5600	1600	4800	1400
290x45	6300	1800	5700	1700	5300	1500	7200	2100	6700	1950	5800	1700

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, C'lever = Cantilever (mm).

ii) The above table was based on a maximum Deck Mass of 30 (kg/m2), Floor Point Load of 1.8 (kN), Balcony Live Load of 3 (kPa).

iii) Minimum BackSpan = 200 % of Overhang.

iv) Maximum Overhang = 30 % of Backspan.

v) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continous members.

Table 4

Stair Stringers

Size DxB (mm)	Stair Width (mm)					
	750	900	1200	1500	1800	2400
	Maximum Stringer Span (mm)					
190x35	3300	3300	3100	2800	2600	2400
190x45	3600	3600	3300	3100	2900	2600
240x35	4100	4100	3800	3600	3300	3000
240x45	4500	4300	4000	3800	3600	3300
290x45	5100	4900	4600	4400	4200	3900

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Floor Mass of 40 (kg/m2), Floor Live Load of 2.0 (kPa), Floor Point Load of 2.7 (kN).

iii) Minimuim bearing length = 50 mm at end supports.

iv) Maximum trench depth to accommodate treads - 10 mm.

Table 5 Stair Treads (with open flights)

Size DxB (mm)	Max Tread Span (mm)
35x240	NS
35x290	NS
40x240	800
40x290	900
45x240	1000
45x290	1100
50x240	1200
50x290	1300
60x240	1600
60x290	1800

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Deck Mass of 40 (kg/m2), Floor Point Load of 2.7 (kN).

iii) Minimuim bearing length = 35 mm at end supports.

Table 6

Posts
Supporting Roof and/or Floor Loads

	Floor Load Area (m2)											
	0				10				20			
Roof Load Area (m2)	0	10	20	40	0	10	20	40	0	10	20	40
Size DxB (mm)	**Maximum Post Height (mm)**											
Sheet Roof												
70x70	4800	3000	2100	NS	2100	1900	1700	NS	1300	1200	NS	NS
90x90	4800	4800	3400	2400	3400	3100	2800	2200	2400	2300	2100	1900
120x120	4800	4800	4800	4300	4800	4800	4800	4000	4200	4000	3800	3500
140x140	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
170x170	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
190x190	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
Tile Roof												
70x70	4800	2300	1600	NS	2100	1700	1400	NS	1300	NS	NS	NS
90x90	4800	3800	2700	1900	3400	2700	2300	1700	2400	2100	1900	1400
120x120	4800	4800	4800	3400	4800	4800	4100	3200	4200	3800	3400	2900
140x140	4800	4800	4800	4600	4800	4800	4800	4400	4800	4800	4700	4000
170x170	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
190x190	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Sheet Roof Mass of 40 (kg/m2), Tile Roof Mass of 90 (kg/m2), Total Upper Floor Mass of 50 (kg/m2), Floor Live Load of 1.5 (kPa).

iii) Posts are free standing, i.e. not supporting lateral wind loads from walls etc.

Table 7

Window or Door Mullions
Single or Upper Storey Load Bearing Walls

Size DxB (mm)	Mullion Height (mm)	Roof Load Width (mm)							
		3000	4500	6000	7500	3000	4500	6000	7500
		Mullion Spacing (mm)							
		Sheet Roof				Tile Roof			
70x90	2400	900	NS	NS	NS	NS	NS	NS	NS
70x120	2400	1400	1200	1100	900	1100	NS	NS	NS
	2700	1000	NS	NS	NS	NS	NS	NS	NS
70x140	2400	1600	1500	1300	1200	1400	1100	NS	NS
	2700	1300	1100	900	NS	1000	NS	NS	NS
	3000	900	NS	NS	NS	NS	NS	NS	NS
90x70	2400	1500	1400	1300	1100	1300	1100	NS	NS
	2700	1200	1000	NS	NS	900	NS	NS	NS
90x90	2400	1800	1700	1600	1500	1600	1400	1200	1100
	2700	1500	1300	1200	1100	1300	1100	NS	NS
	3000	1200	1000	NS	NS	900	NS	NS	NS
90x120	2400	2500	2300	2100	1900	2200	1900	1700	1500
	2700	1900	1700	1600	1500	1700	1500	1300	1100
	3000	1500	1400	1300	1200	1400	1200	900	NS
90x140	2400	3000	2700	2400	2200	2600	2200	1900	1700
	2700	2300	2100	1900	1700	2000	1700	1500	1400
	3000	1800	1700	1500	1400	1600	1400	1200	1000
	3600	1000	1000	1000	NS	1000	NS	NS	NS
120x70	2400	3000	2700	2500	2300	2700	2300	2100	1900
	2700	2300	2100	2000	1800	2100	1800	1600	1500
	3000	1800	1700	1600	1500	1700	1500	1300	1200
	3600	1200	1100	1000	900	1100	NS	NS	NS
120x90	2400	3700	3400	3200	3000	3400	3000	2600	2400
	2700	2900	2700	2400	2300	2600	2300	2000	1800
	3000	2300	2100	2000	1800	2100	1800	1600	1500
	3600	1500	1400	1400	1300	1400	1200	1100	900
120x120	2400	4800	4600	4200	3900	4500	4000	3500	3200
	2700	3900	3600	3300	3100	3500	3100	2800	2500
	3000	3100	2900	2600	2400	2800	2400	2200	2000
	3600	2100	1900	1800	1700	1800	1600	1500	1400
	4200	1300	1200	1200	1100	1200	1100	1000	NS

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Sheet Roof Mass of 40 (kg/m2), Tile Roof Mass of 90 (kg/m2).

iii) Maximum tension load in mullion not to exceed 20 kN.

iv) Mullion Spacing is half the width of opening either side of mullion, or for mullions/studs at sides of opening, half width of opening.

Table 7 (cont)

Window or Door Mullions
Single or Upper Storey Load Bearing Walls

Size DxB (mm)	Mullion Height (mm)	Roof Load Width (mm)							
		3000	4500	6000	7500	3000	4500	6000	7500
		Mullion Spacing (mm)							
		Sheet Roof				Tile Roof			
120x140	2400	4800	4800	4800	4600	4800	4700	4200	3800
	2700	4600	4200	3900	3600	4100	3600	3300	2900
	3000	3700	3400	3100	2900	3300	2900	2600	2300
	3600	2500	2300	2100	2000	2200	1900	1700	1600
	4200	1500	1500	1400	1300	1400	1300	1200	1100
140x70	2400	4200	3900	3600	3400	3900	3400	3100	2800
	2700	3300	3100	2900	2700	3000	2700	2400	2200
	3000	2700	2400	2300	2200	2400	2100	1900	1800
	3600	1700	1600	1600	1500	1600	1500	1300	1200
	4200	1100	1100	1000	1000	1000	1000	NS	NS
140x90	2400	4800	4800	4500	4200	4800	4300	3900	3500
	2700	4100	3900	3600	3400	3800	3400	3000	2800
	3000	3300	3100	2900	2700	3000	2700	2400	2200
	3600	2200	2100	1900	1800	2000	1800	1600	1500
	4200	1500	1400	1300	1300	1400	1300	1200	1000
140x120	2400	4800	4800	4800	4800	4800	4800	4800	4700
	2700	4800	4800	4800	4500	4800	4500	4100	3700
	3000	4500	4100	3900	3600	4000	3600	3300	3000
	3600	3000	2800	2600	2400	2700	2400	2200	2000
	4200	2000	2000	1800	1700	1900	1700	1500	1400
	4800	900	900	900	900	900	900	900	900
140x140	2400	4800	4800	4800	4800	4800	4800	4800	4800
	2700	4800	4800	4800	4800	4800	4800	4800	4400
	3000	4800	4800	4500	4300	4800	4300	3900	3500
	3600	3600	3300	3100	2900	3200	2900	2600	2400
	4200	2500	2300	2200	2100	2300	2100	1800	1600
	4800	900	900	900	900	900	900	900	900

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Sheet Roof Mass of 40 (kg/m2), Tile Roof Mass of 90 (kg/m2).

iii) Maximum tension load in mullion not to exceed 20 kN.

iv) Mullion Spacing is half the width of opening either side of mullion, or for mullions/studs at sides of opening, half width of opening.

Table 8 Lintels (Window Heads) - Sheet Roof Supporting Single or Upper Storey Loadbearing Walls

	Roof Load Width (mm)									
	1500		3000		4500		6000		7500	
Rafter/Truss Spacing (mm)	600	1200	600	1200	600	1200	600	1200	600	1200
	Maximum Lintel Span (mm)									
Size DxB (mm)	**Single Span**									
140x35	2200	2300	1800	1800	1500	1300	1400	NS	1300	NS
140x45	2400	2500	1900	1900	1700	1600	1500	1300	1400	NS
140x70	2800	2800	2300	2300	2000	2000	1800	1800	1700	1500
140x90	3000	3000	2500	2500	2200	2200	2000	1900	1800	1800
170x35	2700	2800	2200	2200	1900	1900	1700	1500	1600	NS
170x45	3000	3000	2400	2400	2100	2100	1900	1900	1700	1500
170x70	3300	3300	2800	2800	2400	2500	2200	2200	2100	2000
170x90	3500	3400	3000	3000	2600	2700	2400	2400	2200	2200
190x35	3000	3000	2400	2500	2100	2100	1900	1700	1800	1400
190x45	3200	3200	2700	2700	2300	2300	2100	2100	2000	1900
190x70	3600	3500	3000	3000	2700	2700	2500	2500	2300	2300
190x90	3800	3700	3200	3200	2900	2900	2700	2700	2500	2500
240x35	3600	3600	3100	3000	2700	2700	2500	2500	2300	2200
240x45	3800	3800	3300	3200	3000	3000	2700	2700	2500	2500
240x70	4200	4200	3600	3600	3300	3300	3100	3100	2900	2900
240x90	4500	4400	3900	3800	3500	3500	3300	3300	3100	3100
290x45	4400	4400	3800	3700	3400	3400	3200	3200	3000	3000
290x70	4800	4800	4200	4200	3800	3800	3600	3500	3400	3300
290x90	5100	5100	4400	4400	4000	4000	3800	3800	3600	3600
Continuous Span										
140x35	3000	3000	2200	2100	1700	1600	1500	1200	1400	NS
140x45	3200	3200	2400	2600	2000	1900	1600	1600	1500	1200
140x70	3600	3500	3000	3000	2500	2600	2100	2000	1900	1600
140x90	3800	3800	3200	3200	2700	2700	2300	2300	2100	2000
170x35	3500	3500	2600	2700	2200	2000	1700	1500	1500_{5}	1200
170x45	3700	3700	2900	2900	2400	2500	2100	2000	1700	1500
170x70	4100	4100	3500	3500	3000	3000	2600	2600	2300	2200
170x90	4300	4300	3700	3700	3300	3200	2900	2900	2600	2600
190x35	3800	3800	2900	2900	2400	2400_{10}	2100_{10}	1600_{10}	1600_{10}	1300_{5}
190x45	4000	4000	3300	3300	2700	2700	2300	2200	2100_{10}	1600_{10}
190x70	4500	4400	3800	3800	3300	3300	2900	2900	2600	2700
190x90	4700	4700	4100	4000	3700	3600	3200	3200	2900	2900
240x35	4500	4500	3700	3700	3000_{20}	3000_{20}	2600_{40}	2700_{40}	2200_{45}	1900_{25}
240x45	4800	4800	4100	4100	3500_{10}	3400_{10}	3000_{25}	3000_{25}	2700_{40}	2700_{40}
240x70	5300	5300	4500	4500	4100	4100	3700_{5}	3600	3300_{15}	3200_{10}
240x90	5600	5600	4800	4800	4400	4400	4100	4000	3600_{5}	3600_{5}
290x45	5500	5500	4700	4700	4200_{30}	4100_{30}	3600_{50}	3500_{45}	3200_{70}	3200_{65}
290x70	6000	6000	5200	5200	4800_{5}	4700_{5}	4400_{20}	4400_{20}	4000_{35}	4000_{35}
290x90	6300	6300	5500	5500	5000	5100	4700_{10}	4700_{10}	4400_{25}	4400_{25}

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Roof Mass of 40 (kg/m2).

iii) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continous members. Subscript values indicate the minimium additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

Table 9

Lintels (Window Heads) - Tile Roof
Supporting Single or Upper Storey Loadbearing Walls

	Roof Load Width (mm)									
	1500		3000		4500		6000		7500	
Rafter/Truss Spacing (mm)	600	1200	600	1200	600	1200	600	1200	600	1200
	Maximum Lintel Span (mm)									
Size DxB (mm)	**Single Span**									
140x35	1700	1700	1400	1200	NS	NS	NS	NS	NS	NS
140x45	1900	1900	1500	1300	1300	NS	NS	NS	NS	NS
140x70	2200	2200	1700	1700	1500	1400	1400	1200	1300	NS
140x90	2400	2400	1900	1900	1600	1600	1500	1400	1400	1200
170x35	2100	2100	1600	1600	1400	1300	1300	NS	NS	NS
170x45	2300	2300	1800	1800	1600	1500	1400	NS	1300	NS
170x70	2700	2700	2100	2100	1800	1800	1700	1600	1500	1400
170x90	2900	2900	2300	2300	2000	2000	1800	1800	1700	1600
190x35	2300	2300	1900	1800	1600	1500	1500	NS	1400	NS
190x45	2600	2600	2000	2000	1800	1800	1600	1500	1500	NS
190x70	3000	3000	2400	2400	2100	2000	1900	1900	1700	1700
190x90	3100	3100	2600	2600	2300	2200	2100	2000	1900	1900
240x35	3000	3000	2400	2300	2100	2000	1900	1700	1700	NS
240x45	3200	3100	2600	2600	2300	2200	2100	2000	1900	1700
240x70	3500	3500	3000	3000	2600	2700	2400	2400	2200	2200
240x90	3700	3700	3200	3200	2900	2900	2600	2700	2400	2400
290x45	3700	3600	3100	3100	2700	2800	2500	2500	2300	2300
290x70	4100	4100	3500	3400	3100	3100	2900	2900	2700	2700
290x90	4300	4300	3700	3600	3300	3300	3100	3100	2900	2900
	Continuous Span									
140x35	2300	2300	1700	1600	1400	NS	NS	NS	NS	NS
140x45	2600	2500	2000	1900	1600	1400	1400	NS	NS	NS
140x70	3000	2900	2300	2300	2000	1900	1700	1600	1600	1300
140x90	3100	3100	2600	2600	2200	2100	1900	1800	1700	1600
170x35	2900	2800	2200	2100	1600	1300_{10}	1400_{15}	NS	NS	NS
170x45	3100	3000	2500	2500	2000	1600	1600	1300	1400_{10}	NS
170x70	3400	3400	2900	2900	2500	2500	2100	2000	1700	1600
170x90	3600	3600	3100	3100	2700	2700	2300	2300	2100	2000
190x35	3100	3100	2400	2500_{5}	1700_{5}	1500	1500_{20}	NS	NS	NS
190x45	3300	3300	2800	2700	2200_{5}	2100	1700_{5}	1400_{5}	1400_{25}	1200_{5}
190x70	3700	3700	3100	3100	2800	2800	2400	2400_{10}	2100_{10}	1600_{5}
190x90	3900	3900	3300	3300	3000	3000	2700	2700	2300	2200
240x35	3700	3700	3100_{20}	3100_{20}	2500_{45}	2600_{50}	1900_{45}	1900_{45}	1900_{85}	1200_{25}
240x45	4000	3900	3300_{5}	3300_{5}	2800_{30}	2800_{30}	2400_{45}	2400_{45}	1900_{45}	1900_{45}
240x70	4400	4400	3700	3700	3400_{5}	3400_{5}	3000_{25}	3000_{20}	2700_{35}	2700_{40}
240x90	4700	4700	4000	4000	3600	3600	3400_{15}	3300_{10}	3000_{25}	3000_{25}
290x45	4600	4600	3900_{20}	3800_{20}	3500_{55}	3200_{50}	3000_{80}	3000_{85}	2600_{100}	2000_{55}
290x70	5100	5100	4300	4300	3900_{20}	3900_{20}	3700_{45}	3600_{45}	3300_{65}	3200_{65}
290x90	5400	5400	4600	4600	4200_{5}	4200_{5}	3900_{30}	3900_{25}	3600_{45}	3600_{45}

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Roof Mass of 90 (kg/m2).

iii) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continous members. Subscript values indicate the minimium additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

Table 10

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
90x35	10	2200	350	2100	350	2000	300	1600	250
	20	2200	350	2000	350	1800	300	1600	250
	40	1800	350	1600	350	1400	350	1300	250
	60	1600	350	1400	350	1300	350	1100	250
	90	1400	350	1200	350	1100	300	1000	300
90x45	10	2600	450	2400	400	2300	350	1900	300
	20	2400	450	2100	450	2000	350	1700	300
	40	2000	450	1700	400	1600	400	1400	300
	60	1700	450	1500	400	1400	400	1200	300
	90	1500	400	1300	400	1200	400	1000	300
90x70	10	3100	650	2900	550	2700	450	2300	350
	20	2700	650	2400	550	2200	450	2000	350
	40	2200	650	2000	550	1800	450	1600	400
	60	2000	600	1800	550	1600	500	1400	400
	90	1800	600	1500	550	1400	500	1200	400
90x90	10	3300	750	3000	600	2800	500	2600	400
	20	2800	750	2600	600	2400	500	2100	400
	40	2400	800	2100	600	2000	550	1700	400
	60	2100	750	1900	650	1700	550	1500	450
	90	1900	700	1700	600	1500	550	1300	450
120x35	10	3500	600	3200	450	2800	400	2200	300
	20	2900	600	2600	500	2400	400	2100	300
	40	2400	600	2100	500	1900	400	1700	350
	60	2100	550	1900	500	1700	450	1500	350
	90	1900	550	1600	500	1500	450	1300	350
120x45	10	3700	650	3400	550	3100	450	2500	350
	20	3100	700	2800	550	2600	450	2300	350
	40	2600	700	2300	550	2100	500	1900	400
	60	2300	700	2000	600	1900	500	1600	400
	90	2000	700	1800	600	1600	500	1400	400
120x70	10	4000	850	3700	700	3500	600	3100	450
	20	3500	850	3200	700	3000	600	2600	450
	40	3000	900	2600	700	2400	600	2100	500
	60	2600	900	2300	700	2100	600	1900	500
	90	2300	950	2100	750	1900	650	1700	500

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continous members. Subscript values indicate the minimium additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
120x90	10	4100	950	3900	750	3700	650	3400	500
	20	3700	950	3400	750	3200	650	2800	500
	40	3200	1000	2800	800	2600	700	2300	550
	60	2800	1000	2500	800	2300	700	2100	550
	90	2500	1050	2200	850	2100	700	1800	600
140x35	10	4000	650	3700	550	3300	450	2600	350
	20	3400	700	3000	550	2800	450	2500	350
	40	2800	700	2500	550	2300	450	2000	350
	60	2500	700	2200	550	2000	500	1700	400
	90	2200	750	1900	600	1700	500	1500	400
140x45	10	4200	750	3900	600	3600	500	3000	400
	20	3600	800	3300	600	3000	500	2700	400
	40	3000	800	2700	650	2500	550	2200	450
	60	2700	800	2400	650	2200	550	1900	450
	90	2400	850	2100	700	1900	600	1700	450
140x70	10	4500	950	4200	750	4000	650	3700	500
	20	4000	1000	3700	800	3400	650	3100	550
	40	3400	1000	3100	800	2800	700	2500	550
	60	3100	1000	2700	800	2500	700	2200	550
	90	2700	1050	2400	850	2200	750	1900	600
140x90	10	4700	1100	4400	850	4200	750	3900	600
	20	4200	1100	3900	900	3700	750	3300	600
	40	3700	1100	3300	900	3000	750	2700	600
	60	3300	1150	2900	950	2700	800	2400	650
	90	2900	1200	2600	950	2400	800	2100	650
170x35	10	4700	800	4400	650	4100	550	3200	400
	20	4100	800	3700	650	3400	550	3000	400
	40	3400	800	3000	650	2800	550	2400	450
	60	3000	850	2700	650	2400	550	2100	450
	90	2700	900	2300	700	2100	600	1900	450
170x45	10	5000	900	4600	700	4300	600	3600	500
	20	4300	900	3900	750	3700	600	3300	500
	40	3700	950	3300	750	3000	650	2600	500
	60	3300	950	2900	750	2600	650	2300	500
	90	2900	1000	2500	800	2300	700	2000	550

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum BackSpan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continous members. Subscript values indicate the minimium additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
170x70	10	5300	1150	5000	900	4800	750	4400	600
	20	4800	1150	4400	900	4100	800	3700	600
	40	4100	1200	3700	950	3400	800	3000	650
	60	3700	1200	3300	950	3000	800	2700	650
	90	3300	1250	2900	1000	2700	850	2400	700
170x90	10	5500	1250	5200	1000	5000	850	4600	700
	20	5000	1300	4600	1050	4400	900	4000	700
	40	4400	1300	4000	1050	3700	900	3300	700
	60	4000	1350	3600	1100	3300	950	2900	750
	90	3600	1400	3200	1150	2900	950	2600	750
190x35	10	5200	850	4800	700	4500	600	3600	450
	20	4500	900	4100	700	3800	600	3400	450
	40	3800	900	3400	700	3100	600	2700	500
	60	3400	950	3000	750	2700	600	2400	500
	90	3000	950	2600	750	2400	650	2100	500
190x45	10	5500	1000	5100	800	4800	650	4100	500
	20	4800	1000	4400	800	4100	700	3600	550
	40	4100	1000	3600	800	3300	700	3000	550
	60	3600	1050	3200	850	3000	700	2600	550
	90	3200	1100	2800	900	2600	750	2300	600
190x70	10	5800	1250	5500	1000	5300	850	4900	650
	20	5200	1250	4900	1000	4600	850	4100	700
	40	4600	1300	4100	1050	3800	900	3400	700
	60	4100	1350	3700	1050	3400	900	3000	700
	90	3700	1400	3300	1100	3000	950	2600	750
190x90	10	6000	1400	5700	1100	5500	950	5100	750
	20	5500	1400	5100	1150	4800	950	4400	750
	40	4800	1450	4400	1150	4100	1000	3700	800
	60	4400	1500	4000	1200	3700	1000	3200	800
	90	4000	1550	3500	1250	3200	1050	2900	850
240x35	10	6400	1050	5900	850	5600	700	4700	550
	20	5600	1050	5100	850	4700	700	4200	550
	40	4700	1100	4200	850	3900	750	3400	550
	60	4200	1100	3800	900	3400	750	3000	600
	90	3800	1150	3300	950	3000	800	2700	600

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continous members. Subscript values indicate the minimium additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
240x45	10	6600	1200	6200	950	5900	800	5300	650
	20	5900	1200	5400	950	5100	800	4500	650
	40	5100	1250	4500	1000	4200	850	3700	650
	60	4500	1250	4100	1000	3700	850	3300	700
	90	4100	1350	3600	1050	3300	900	2900	700
240x70	10	7000	1500	6700	1200	6400	1000	6000	800
	20	6400	1550	6000	1200	5600	1050	5100	800
	40	5600	1600	5100	1250	4800	1050	4300	850
	60	5100	1600	4600	1300	4300	1100	3800	850
	90	4600	1700	4100	1350	3800	1150	3300	900
240x90	10	7200	1700	6900	1350	6600	1150	6200	900
	20	6600	1750	6200	1400	5900	1150	5400	950
	40	5900	1800	5400	1400	5100	1200	4600	950
	60	5400	1850	4900	1450	4600	1250	4100	1000
	90	4900	1900	4400	1500	4100	1300	3600	1000
290x45	10	7200	1400	7200	1100	6900	950	6400	750
	20	6900	1400	6400	1100	6000	950	5400	750
	40	6000	1450	5400	1150	5000	1000	4500	750
	60	5400	1500	4900	1200	4500	1000	4000	800
	90	4900	1550	4300	1250	4000	1050	3500	850
290x70	10	7200	1800	7200	1400	7200	1200	7000	950
	20	7200	1800	7000	1450	6600	1200	6100	950
	40	6600	1850	6100	1450	5700	1250	5100	1000
	60	6100	1900	5500	1500	5100	1300	4600	1000
	90	5500	2000	4900	1550	4600	1350	4000	1050
290x90	10	7200	2000	7200	1600	7200	1350	7200	1050
	20	7200	2050	7200	1600	7000	1350	6400	1100
	40	7000	2100	6400	1650	6000	1400	5500	1100
	60	6400	2150	5900	1700	5500	1450	4900	1150
	90	5900	2250	5300	1800	4900	1500	4400	1200

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continous members. Subscript values indicate the minimium additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
90x35	10	2900	350	2400	350	2000	300	1600	250
	20	2900	350	2500	350	2100	300	1700	250
	40	2500	350	2200	350	2000	350	1700	250
	60	2200	350	1900	350	1700	350	1500	250
	90	1900	350	1700	350	1500	300	1300	300
90x45	10	3400	450	2800	400	2300	350	1900	300
	20	3300	450	2900	450	2400	350	1900	300
	40	2700	450	2400	400	2200	400	1900	300
	60	2400	450	2100	400	1900	400	1700	300
	90	2100	400	1800	400	1700	400	1400	300
90x70	10	4200	650	3500	550	2900	450	2300	350
	20	3700	650	3300	550	3000	450	2400	350
	40	3100	650	2700	550	2500	450	2200	400
	60	2700	600	2400	550	2200	500	1900	400
	90	2400	600	2100	550	1900	500	1700	400
90x90	10	4400	750	3900	600	3300	500	2600	400
	20	3900	750	3500	600	3300	500	2600	400
	40	3300	800	2900	600	2700	550	2400	400
	60	2900	750	2600	650	2400	550	2100	450
	90	2600	700	2300	600	2100	550	1800	450
120x35	10	4300	600	3400	450	2800	400	2200	300
	20	4000	600	3500	500	2900	400	2300	300
	40	3300	600	2900	500	2700	400	2300	350
	60	2900	550	2600	500	2300	450	2000	350
	90	2600	550	2200	500	2000	450	1800	350
120x45	10	4800	650	3800	550	3200	450	2500	350
	20	4300	700	3900	550	3300	450	2600	350
	40	3600	700	3200	550	2900	500	2500	400
	60	3200	700	2800	600	2500	500	2200	400
	90	2800	700	2400	600	2200	500	1900	400
120x70	10	5400	850	4800	700	4000	600	3100	450
	20	4800	850	4300	700	4000	600	3200	450
	40	4000	900	3600	700	3300	600	2900	500
	60	3600	900	3200	700	2900	600	2600	500
	90	3200	950	2800	750	2600	650	2300	500

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continous members. Subscript values indicate the minimium additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
120x90	10	5600	950	5300	750	4500	650	3500	500
	20	5000	950	4600	750	4300	650	3600	500
	40	4300	1000	3900	800	3600	700	3200	550
	60	3900	1000	3500	800	3200	700	2800	550
	90	3500	1050	3100	850	2800	700	2500	600
140x35	10	5000	650	4000	550	3300	450	2600	350
	20	4600	700	4100	550	3400	450	2700	350
	40	3800	700	3400	550	3100	450	2700	350
	60	3400	700	3000	550	2700	500	2400	400
	90	3000	750	2600	600	2400	500	2100	400
140x45	10	5700	750	4500	600	3800	500	3000	400
	20	4900	800	4500	600	3900	500	3000	400
	40	4100	800	3700	650	3400	550	3000	450
	60	3700	800	3200	650	3000	550	2600	450
	90	3200	850	2900	700	2600	600	2300	450
140x70	10	6200	950	5700	750	4800	650	3700	500
	20	5500	1000	5000	800	4700	650	3800	550
	40	4700	1000	4200	800	3900	700	3400	550
	60	4200	1000	3700	800	3400	700	3000	550
	90	3700	1050	3300	850	3000	750	2600	600
140x90	10	6400	1100	6000	850	5400	750	4100	600
	20	5700	1100	5300	900	5000	750	4300	600
	40	5000	1100	4500	900	4200	750	3700	600
	60	4500	1150	4000	950	3700	800	3300	650
	90	4000	1200	3600	950	3300	800	2900	650
170x35	10	6200	800	4900	650	4100	550	3200	400
	20	5500	800	5000	650	4300	550	3300	400
	40	4600	800	4100	650	3800	550	3300	450
	60	4100	850	3600	650	3300	550	2900	450
	90	3600	900	3200	700	2900	600	2500	450
170x45	10	6800	900	5600	700	4700	600	3600	500
	20	5900	900	5400	750	4800	600	3700	500
	40	5000	950	4400	750	4100	650	3600	500
	60	4400	950	3900	750	3600	650	3200	500
	90	3900	1000	3500	800	3200	700	2800	550

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continous members. Subscript values indicate the minimium additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
170x70	10	7200	1150	6800	900	5900	750	4600	600
	20	6500	1150	6000	900	5600	800	4700	600
	40	5600	1200	5000	950	4700	800	4100	650
	60	5000	1200	4500	950	4100	800	3700	650
	90	4500	1250	4000	1000	3700	850	3200	700
170x90	10	7200	1250	7100	1000	6600	850	5200	700
	20	6800	1300	6300	1050	5900	900	5300	700
	40	5900	1300	5400	1050	5000	900	4500	700
	60	5400	1350	4800	1100	4500	950	4000	750
	90	4800	1400	4300	1150	4000	950	3500	750
190x35	10	6900	850	5500	700	4700	600	3600	450
	20	6100	900	5600	700	4800	600	3700	450
	40	5100	900	4600	700	4200	600	3700	500
	60	4600	950	4100	750	3700	600	3300	500
	90	4100	950	3600	750	3300	650	2900_{5}	500
190x45	10	7200	1000	6300	800	5300	650	4100	500
	20	6500	1000	5900	800	5500	700	4200	550
	40	5500	1000	4900	800	4600	700	4000	550
	60	4900	1050	4400	850	4000	700	3500	550
	90	4400	1100	3900	900	3500	750	3100	600
190x70	10	7200	1250	7200	1000	6700	850	5200	650
	20	7100	1250	6600	1000	6200	850	5400	700
	40	6200	1300	5600	1050	5200	900	4600	700
	60	5600	1350	5000	1050	4600	900	4100	700
	90	5000	1400	4500	1100	4100	950	3600	750
190x90	10	7200	1400	7200	1100	7200	950	5900	750
	20	7200	1400	6900	1150	6500	950	6000	750
	40	6500	1450	6000	1150	5600	1000	5000	800
	60	6000	1500	5400	1200	5000	1000	4400	800
	90	5400	1550	4800	1250	4400	1050	3900	850
240x35	10	7200	1050	7100	850	6000	700	4700	550
	20	7200	1050	6900	850	6200	700	4800_{5}	550
	40	6400	1100	5700	850	5300	750	4700_{15}	550
	60	5700	1100	5100	900	4700	750	4100_{15}	600
	90	5100	1150	4500	950	4100_{5}	800	3600_{25}	600

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continous members. Subscript values indicate the minimium additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
240x45	10	7200	1200	7200	950	6800	800	5300	650
	20	7200	1200	7200	950	6900	800	5500	650
	40	6900	1250	6200	1000	5700	850	5100_{5}	650
	60	6200	1250	5500	1000	5100	850	4500_{5}	700
	90	5500	1350	4900	1050	4500	900	3900_{15}	700
240x70	10	7200	1500	7200	1200	7200	1000	6700	800
	20	7200	1550	7200	1200	7200	1050	6900	800
	40	7200	1600	7000	1250	6500	1050	5800	850
	60	7000	1600	6300	1300	5800	1100	5200	850
	90	6300	1700	5600	1350	5200	1150	4600	900
240x90	10	7200	1700	7200	1350	7200	1150	7200	900
	20	7200	1750	7200	1400	7200	1150	7200	950
	40	7200	1800	7200	1400	6900	1200	6200	950
	60	7200	1850	6700	1450	6200	1250	5600	1000
	90	6700	1900	6000	1500	5600	1300	4900	1000
290x45	10	7200	1400	7200	1100	7200	950	6600_{5}	750
	20	7200	1400	7200	1100	7200	950	6800_{10}	750
	40	7200	1450	7200	1150	6800	1000	6100_{15}	750
	60	7200	1500	6600	1200	6100_{5}	1000	5400_{20}	800
	90	6600	1550	5900	1250	5400_{10}	1050	4800_{30}	850
290x70	10	7200	1800	7200	1400	7200	1200	7200	950
	20	7200	1800	7200	1450	7200	1200	7200	950
	40	7200	1850	7200	1450	7200	1250	6900	1000
	60	7200	1900	7200	1500	6900	1300	6200_{5}	1000
	90	7200	2000	6700	1550	6200	1350	5500_{10}	1050
290x90	10	7200	2000	7200	1600	7200	1350	7200	1050
	20	7200	2050	7200	1600	7200	1350	7200	1100
	40	7200	2100	7200	1650	7200	1400	7200	1100
	60	7200	2150	7200	1700	7200	1450	6700	1150
	90	7200	2250	7200	1800	6700	1500	5900_{5}	1200

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continous members. Subscript values indicate the minimium additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 11

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span									
170x45	10	3900	1250	2800	900	2300	750	2000	650	1800	600
	20	3300	1250	2600	950	2200	750	1900	650	1700	600
	40	2700	1250	2100	950	1800	800	1600	700	1500	600
	60	2400	1200	1900	900	1600	800	1500	700	1300	650
	90	2100	1000	1700	800	1400	700	1300	600	1200	600
170x70	10	4300	1450	3400	1150	2900	950	2500	800	2200	750
	20	3700	1450	3000	1150	2500	950	2200	800	2000	750
	40	3100	1450	2500	1200	2100	950	1900	850	1700	750
	60	2800	1400	2200	1100	1900	900	1700	850	1600	800
	90	2500	1200	2000	1000	1700	800	1500	700	1400	700
170x90	10	4600	1600	3700	1250	3100	1050	2700	900	2400	800
	20	4000	1600	3200	1300	2700	1050	2400	900	2200	800
	40	3400	1600	2700	1300	2300	1050	2100	950	1900	850
	60	3000	1500	2400	1200	2100	1000	1900	950	1700	850
	90	2700	1300	2100	1000	1800	900	1700	800	1500	700
190x45	10	4300	1400	3200	1050	2600	850	2300	750	2000	650
	20	3700	1400	2900	1050	2400	850	2200	750	1900	650
	40	3100	1400	2400	1050	2100	900	1800	750	1700	700
	60	2700	1300	2100	1000	1800	900	1600	800	1500	700
	90	2400	1200	1900	900	1600	800	1500	700	1300_5	600_5
190x70	10	4800	1650	3800	1250	3200	1050	2800	900	2500	800
	20	4200	1650	3300	1300	2800	1050	2500	900	2300	800
	40	3500	1650	2800	1300	2400	1100	2100	950	1900	850
	60	3100	1500	2500	1200	2100	1000	1900	950	1800	850
	90	2800	1400	2200	1100	1900	900	1700	800	1600	800
190x90	10	5000	1800	4100	1400	3500	1150	3000	1000	2700	900
	20	4400	1800	3600	1450	3100	1150	2700	1000	2500	900
	40	3800	1800	3000	1450	2600	1200	2300	1050	2100	950
	60	3400	1700	2700	1300	2300	1100	2100	1050	1900	950
	90	3000	1500	2400	1200	2100	1000	1900	900	1700	800

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continous members. Subscript values indicate the minimium additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span									
240x45	10	5300	1800	4000	1300	3300	1050	2900	950	2600_{5}	850
	20	4600	1800	3600	1300	3100	1100	2700_{5}	950	2500_{10}	850
	40	3800	1800	3000	1350	2600	1100	2300_{5}	950	2100_{10}	850
	60	3400	1700	2700	1300	2300	1150	2100_{5}	1000	1900_{10}	900
	90	3000	1500	2400	1200	2100	1000	1900_{10}	900	1700_{15}	800_{15}
240x70	10	5900	2050	4800	1600	4000	1300	3500	1150	3200	1050
	20	5200	2050	4200	1650	3600	1350	3200	1150	2900	1050
	40	4400	2050	3500	1650	3000	1350	2700	1200	2500	1050
	60	3900	1900	3100	1500	2700	1300	2400	1200	2200	1100
	90	3500	1700	2800	1400	2400	1200	2200	1100	2000_{5}	1000
240x90	10	6100	2250	5100	1800	4400	1450	3800	1250	3400	1150
	20	5500	2250	4500	1800	3900	1500	3400	1300	3100	1150
	40	4700	2250	3800	1850	3300	1500	2900	1300	2700	1200
	60	4200	2100	3400	1700	2900	1400	2600	1300	2400	1200
	90	3800	1900	3000	1500	2600	1300	2400	1200	2200	1100
290x45	10	6300	2150	4900	1600	4000	1300	3500_{10}	1150	3100_{15}	1000
	20	5500	2150	4400	1600	3700	1300	3300_{10}	1150	3000_{15}	1000
	40	4600	2150	3700	1650	3200_{5}	1350	2800_{10}	1150	2600_{20}	1050
	60	4100	2000	3300	1600	2800_{5}	1350	2500_{15}	1200	2300_{20}	1050
	90	3700	1800	2900	1400	2500_{10}	1200	2300_{15}	1100_{15}	2100_{25}	1000_{25}
290x70	10	6900	2500	5700	1950	4900	1600	4300	1400	3800_{5}	1250
	20	6100	2500	5000	1950	4300	1600	3800	1400	3500_{5}	1250
	40	5300	2500	4200	2000	3700	1650	3300	1450	3000_{5}	1300
	60	4700	2300	3800	1900	3300	1600	2900_{5}	1450	2700_{10}	1300
	90	4200	2100	3400	1700	2900	1400	2600_{5}	1300	2400_{10}	1200
290x90	10	7200	2700	6000	2150	5200	1750	4600	1550	4200	1400
	20	6500	2700	5400	2200	4600	1800	4100	1550	3800	1400
	40	5600	2700	4600	2250	4000	1850	3600	1600	3300	1450
	60	5100	2500	4100	2000	3600	1800	3200	1600	2900_{5}	1450
	90	4600	2300	3700	1800	3200	1600	2900	1400	2600_{5}	1300

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continous members. Subscript values indicate the minimium additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span									
170x45	10	4100	1250	2800	900	2300	750	2000	650	1800	600
	20	4200	1250	2900	950	2400	750	2100	650	1900	600
	40	3700	1250	2900	950	2300	800	2000	700	1800_{10}	600
	60	3300	1250	2600	1000	2200	800	1800_{5}	700	1600_{15}	650
	90	2900	1250	2300	1000	1900	850	1700_{10}	750	1500_{25}	650_{25}
170x70	10	5100	1450	3500	1150	2900	950	2500	800	2200	750
	20	5100	1450	3600	1150	2900	950	2600	800	2300	750
	40	4300	1450	3400	1200	2900	950	2500	850	2200	750
	60	3800	1450	3000	1200	2600	1000	2300	850	2000	800
	90	3400	1450	2700	1200	2300	1050	2100	900	1800_{5}	800
170x90	10	5800	1600	3900	1250	3200	1050	2800	900	2500	800
	20	5400	1600	4000	1300	3300	1050	2800	900	2600	800
	40	4600	1600	3700	1300	3200	1050	2700	950	2400	850
	60	4100	1600	3300	1350	2800	1100	2500	950	2200	850
	90	3700	1550	2900	1300	2500	1150	2300	1000	2000	900
190x45	10	4600	1400	3200	1050	2600	850	2300	750	2000	650
	20	4800	1400	3300	1050	2700	850	2300	750	2100_{5}	650
	40	4200	1400	3200	1050	2600	900	2200_{5}	750	2000_{20}	700
	60	3700	1400	2900	1100	2400	900	2100_{15}	800	1800_{25}	700
	90	3300	1400	2600	1150	2200_{10}	950	1900_{25}	800	1700_{40}	750_{40}
190x70	10	5800	1650	3900	1250	3200	1050	2800	900	2500	800
	20	5700	1650	4000	1300	3300	1050	2900	900	2600	800
	40	4800	1650	3800	1300	3200	1100	2800	950	2400	850
	60	4300	1650	3400	1350	2900	1100	2500	950	2300_{5}	850
	90	3800	1600	3000	1350	2600	1150	2300	1000	2000_{15}	900
190x90	10	6500	1800	4400	1400	3600	1150	3100	1000	2800	900
	20	6000	1800	4500	1450	3700	1150	3200	1000	2900	900
	40	5100	1800	4100	1450	3500	1200	3100	1050	2700	950
	60	4600	1800	3700	1500	3200	1250	2800	1050	2500	950
	90	4100	1700	3300	1400	2800	1250	2500	1100	2300_{5}	1000

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continous members. Subscript values indicate the minimium additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span									
240x45	10	5900	1800	4000	1300	3300	1050	2900_{5}	950	2600_{15}	850
	20	6100	1800	4100	1300	3400	1100	2900_{15}	950	2700_{30}	850
	40	5200	1800	4100	1350	3300_{15}	1100	2800_{30}	950	2500_{45}	850
	60	4700	1800	3700	1400	3100_{20}	1150	2600_{40}	1000	2300_{60}	900
	90	4100	1700	3300_{5}	1450	2800_{35}	1200	2400_{55}	1050	2100_{75}	900_{75}
240x70	10	7200	2050	5000	1600	4100	1300	3500	1150	3200	1050
	20	7000	2050	5100	1650	4200	1350	3600	1150	3300_{10}	1050
	40	6000	2050	4800	1650	4100	1350	3500_{10}	1200	3100_{20}	1050
	60	5400	2050	4300	1700	3700	1400	3200_{15}	1200	2900_{30}	1100
	90	4800	1900	3800	1600	3300_{10}	1450	2900_{25}	1250	2600_{40}	1150
240x90	10	7200	2250	5500	1800	4500	1450	3900	1250	3600	1150
	20	7200	2250	5700	1800	4700	1500	4100	1300	3700	1150
	40	6400	2250	5200	1850	4500	1500	3900	1300	3400_{10}	1200
	60	5800	2200	4600	1850	4000	1550	3600_{5}	1350	3200_{20}	1200
	90	5200	2050	4100	1700	3600	1550	3200_{15}	1400	2900_{30}	1250
290x45	10	7200	2150	4900	1600	4000_{5}	1300	3500_{20}	1150	3100_{40}	1000
	20	7200	2150	5000	1600	4100_{15}	1300	3600_{40}	1150	3200_{60}	1000
	40	6300	2150	4900_{10}	1650	4000_{35}	1350	3400_{55}	1150	3000_{80}	1050
	60	5600	2150	4500_{20}	1700	3700_{45}	1350	3200_{70}	1200	2800_{90}	1050
	90	5000	2000	4000_{25}	1650	3400_{60}	1450	2900_{90}	1250_{90}	2600_{110}	1100_{110}
290x70	10	7200	2500	6000	1950	4900	1600	4300	1400	3900_{15}	1250
	20	7200	2500	6200	1950	5100	1600	4400_{15}	1400	4000_{30}	1250
	40	7100	2500	5800	2000	4900_{15}	1650	4200_{30}	1450	3700_{45}	1300
	60	6400	2400	5200	2000	4500_{20}	1700	3900_{40}	1450	3500_{55}	1300
	90	5700	2200	4600	1850	4000_{25}	1650	3600_{55}	1550	3200_{75}	1350
290x90	10	7200	2700	6800	2150	5500	1750	4800	1550	4300_{10}	1400
	20	7200	2700	7000	2200	5600	1800	4900_{5}	1550	4400_{20}	1400
	40	7200	2700	6200	2250	5400	1850	4700_{20}	1600	4100_{30}	1450
	60	6900	2500	5600	2150	4900_{10}	1900	4300_{25}	1650	3800_{40}	1450
	90	6200	2350	5000	2000	4300_{15}	1800	3900_{35}	1650	3500_{55}	1500

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continous members. Subscript values indicate the minimium additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

RECYCLED HARDWOOD
SPAN TABLES

SUPPLEMENT 5

Wind Classifications C1 and C2

Recycled Species Group A
Recycled Grade, RG1

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1.0 INTRODUCTION

This Supplement was prepared under a project supported by Forest and Wood Products Australia and provides span tables for some common applications and uses for recycled structural hardwood timber. The span tables provided include some commercial as well as some domestic construction uses. The span tables are specific to recycled timber which will include recycled timber features.

2.0 APPLICATION

The span tables included in this Supplement are only applicable for use with timber graded in accordance 'FWPA Standard G01, Recycled Timber – Visually Graded for Structural Purposes' available from www.fwpa.com.au for the Wind Classifications designated in this Supplement.

The Tables in this Supplement apply to Recycled Timber Species Group A - Recycled Grade, RG1.

For domestic applications, the requirements of AS 1684 are also applicable for use in conjunction with the Tables in this Supplement.

3.0 ALTERNATIVE GRADE

Not applicable.

4.0 TOLERANCES

The depth (D) and breadth (B) shall not be more than 2mm under the sizes given.

5.0 CONTENTS

Table 1

Decking Boards - Commercial Applications Supporting 5.0 kPa Uniform Live Load

	Point Live Load (kN)			
	3	5	9	13
Size DxB (mm)	**Span**			
35x70	760	680	380	NS
35x90	820	800	460	320
35x120	900	880	600	420
35x140	960	940	700	480
45x70	980	960	640	440
45x90	1080	1040	780	540
45x120	1180	1160	940	720
45x140	1200	1200	1000	840

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum DL of 60 (kg/m2), Floor Live Load of 5 (kPa).

iii) End bearing lengths = 20 mm at end supports and 20 mm at internal supports for continuous members.

iv) Point loads are assumed to be shared by two deck boards.

v) Live load deflection limit = span/150 or 4 mm.

vi) Decking shall be two or more continuous span.

Table 2

Deck Bearers - Domestic Applications
May Support Decks Greater than 1000mm above the Ground

	Floor Load Width (mm)											
	1200		2400		4800		1200		2400		4800	
	Bearer Span (mm)											
	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
Size DxB (mm)	**Single Span**						**Continuous Span**					
90x45	1700	500	1200	300	NS	NS	1800	500	1200	300	NS	NS
90x70	2000	600	1500	400	1100	300	2200	600	1500	400	1100	300
90x90	2200	600	1700	500	1200	300	2400	700	1700	500	1200	300
120x45	2300	600	1700	500	1200	300	2400	700	1700	500	1200	300
120x70	2700	800	2100	600	1400	400	3000	900	2100	600	1400	400
120x90	3000	900	2300	600	1600	400	3300	900	2300	600	1600	400
140x45	2700	800	2000	600	1400	400	2800	800	2000	600	1400	400
140x70	3200	900	2400	700	1700	500	3500	1000	2400	700	1700	500
140x90	3400	1000	2700	800	1900	500	3800	1100	2700	800	1900	500
170x45	3300	900	2400	700	1700	500	3400	1000	2400	700	1700	500
170x70	3700	1100	3000	900	2100	600	4200	1200	3000	900	2100	600
170x90	3900	1100	3300	900	2300	600	4700	1400	3300	900	2300	600
190x45	3600	1000	2700	800	1900	500	3800	1100	2700	800	1800	500
190x70	4000	1200	3300	900	2300	600	4700	1400	3300	900	2300	600
190x90	4300	1200	3600	1000	2600	700	5200	1500	3700	1100	2600	700
240x45	4300	1200	3400	1000	2400_{5}	700_{5}	4900	1400	3400	1000	2300_{25}	600_{25}
240x70	4800	1400	4000	1200	3000	900	6000	1800	4200	1200	3000	900
240x90	5100	1500	4300	1200	3300	900	6500	1900	4700	1400	3300	900
290x45	5000	1500	4200	1200	2900_{15}	800_{15}	5900	1700	4200_{5}	1200	2800_{55}	800_{55}
290x70	5600	1600	4700	1400	3600_{5}	1000_{5}	7000	2100	5100	1500	3600_{25}	1000_{25}
290x90	5900	1700	5000	1500	4000	1200	7200	2100	5600	1600	4000_{10}	1200

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Cantilever (mm).

ii) The above table was based on a maximum DL of 30 (kg/m2), Floor Point Load of 1.8 (kN), Balcony Live Load of 3 (kPa).

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 30 % of Backspan.

v) End bearing lengths = 50 mm at end supports and 100 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 50 mm at end supports and 100 mm at internal supports.

Table 3

Deck Joists - Domestic Applications
May Support Decks greater than 1000mm above the Ground

	Joist Spacing (mm)											
	300		450		600		300		450		600	
	Max Joist Span (mm)											
	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever
Size DxB (mm)	**Single Span**						**Continuous Span**					
90x35	1700	500	1600	400	1600	400	2100	600	1900	500	1900	500
90x45	2000	600	1800	500	1800	500	2400	700	2200	600	2100	600
120x35	2700	800	2600	700	2500	700	3300	900	3100	850	3000	800
120x45	3200	900	3000	900	2800	800	3600	1050	3400	950	3300	850
140x35	3400	1000	3300	900	3100	900	3900	1150	3700	1000	3600	900
140x45	3700	1100	3600	1000	3400	1000	4200	1250	4000	1100	3900	1000
170x35	4200	1200	3900	1100	3700	1100	4700	1400	4500	1200	4300	1100
170x45	4600	1300	4200	1200	3900	1100	5200	1500	4900	1300	4800	1200
190x35	4700	1400	4300	1200	4000	1200	5300	1550	5000	1350	4800	1250
190x45	5100	1500	4600	1300	4300	1200	5800	1700	5500	1450	5300	1350
240x35	5700	1700	5100	1500	4800	1400	6700	1950	6400	1700	6000	1550
240x45	6100	1800	5500	1600	5100	1500	7200	2100	6900	1850	6400	1700
290x45	7000	2100	6300	1800	5900	1700	7200	2100	7200	2100	7200	2050

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, C'lever = Cantilever (mm).

ii) The above table was based on a maximum Deck Mass of 30 (kg/m2), Floor Point Load of 1.8 (kN), Balcony Live Load of 3 (kPa).

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 30 % of Backspan.

v) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members.

Table 4

Stair Stringers

Size DxB (mm)	Stair Width (mm)					
	750	900	1200	1500	1800	2400
	Maximum Stringer Span (mm)					
190x35	3800	3800	3500	3300	3100	2800
190x45	4100	4000	3800	3600	3300	3000
240x35	4700	4500	4200	4000	3800	3500
240x45	5000	4800	4500	4200	4000	3700
290x45	5700	5500	5100	4900	4600	4300

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Floor Mass of 40 (kg/m2), Floor Live Load of 2.0 (kPa), Floor Point Load of 2.7 (kN).

iii) Minimum bearing length = 50 mm at end supports.

iv) Maximum trench depth to accommodate treads - 10 mm.

Table 5 Stair Treads (with open flights)

Size DxB (mm)	Max. Tread Span (mm)
35x240	800
35x290	900
40x240	1100
40x290	1200
45x240	1300
45x290	1400
50x240	1500
50x290	1700
60x240	2000
60x290	2100

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Deck Mass of 40 (kg/m2), Floor Point Load of 2.7 (kN).

iii) Minimum bearing length = 35 mm at end supports.

Table 6

Posts
Supporting Roof and/or Floor Loads

	Floor Load Area (m2)											
	0				10				20			
Roof Load Area (m2)	0	10	20	40	0	10	20	40	0	10	20	40
Size DxB (mm)	**Maximum Post Height (mm)**											
Sheet Roof												
70x70	4800	3100	2200	NS	2700	2400	2000	NS	1900	1800	1700	NS
90x90	4800	4800	3600	2500	4400	3900	3300	2400	3100	2900	2800	2300
120x120	4800	4800	4800	4500	4800	4800	4800	4300	4800	4800	4800	4100
140x140	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
170x170	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
190x190	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
Tile Roof												
70x70	4800	2700	1900	1300	2700	2200	1700	1200	1900	1700	1500	NS
90x90	4800	4300	3100	2200	4400	3500	2900	2100	3100	2700	2500	2000
120x120	4800	4800	4800	3800	4800	4800	4800	3700	4800	4800	4400	3600
140x140	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
170x170	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
190x190	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Sheet Roof Mass of 40 (kg/m2), Tile Roof Mass of 90 (kg/m2), Total Upper Floor Mass of 50 (kg/m2), Floor Live Load of 1.5 (kPa).

iii) Posts are free standing, i.e. not supporting lateral wind loads from walls etc.

Table 7

Window or Door Mullions
Single or Upper Storey Load Bearing Walls

Size DxB (mm)	Mullion Height (mm)	Roof Load Width (mm)							
		3000	4500	6000	7500	3000	4500	6000	7500
		Mullion Spacing (mm)							
		Sheet Roof				Tile Roof			
70x90	2400	900	NS	NS	NS	NS	NS	NS	NS
70x120	2400	1400	1300	1100	1000	1300	1100	NS	NS
70x140	2400	1600	1500	1400	1300	1500	1300	1100	1000
	2700	1100	1100	1000	NS	1100	900	NS	NS
90x70	2400	1500	1400	1300	1200	1400	1300	1100	1000
	2700	1100	1100	900	NS	1100	NS	NS	NS
90x90	2400	1900	1700	1600	1500	1800	1600	1400	1300
	2700	1500	1400	1300	1200	1400	1200	1100	900
	3000	1000	1000	900	NS	1000	NS	NS	NS
90x120	2400	2600	2300	2200	2000	2400	2100	1900	1700
	2700	2000	1800	1700	1600	1800	1600	1500	1400
	3000	1500	1400	1300	1300	1400	1300	1200	1000
90x140	2400	3100	2800	2600	2300	2800	2500	2200	2000
	2700	2300	2200	2000	1800	2200	1900	1700	1600
	3000	1800	1700	1500	1400	1700	1500	1400	1300
120x70	2400	3000	2800	2600	2400	2900	2600	2300	2200
	2700	2400	2200	2000	1900	2200	2000	1800	1700
	3000	1800	1700	1600	1500	1700	1600	1500	1400
	3600	900	900	900	900	900	900	NS	NS
120x90	2400	3800	3500	3300	3100	3500	3200	2900	2700
	2700	2900	2700	2600	2400	2800	2500	2300	2100
	3000	2300	2200	2000	1900	2200	2000	1800	1700
	3600	1400	1300	1200	1200	1300	1200	1200	1100
120x120	2400	4800	4700	4400	4100	4800	4300	3900	3600
	2700	4000	3700	3400	3200	3700	3400	3100	2800
	3000	3200	2900	2700	2500	2900	2700	2400	2200
	3600	1900	1800	1800	1700	1800	1800	1600	1500
120x140	2400	4800	4800	4800	4800	4800	4800	4600	4300
	2700	4700	4300	4000	3800	4400	4000	3600	3300
	3000	3700	3500	3200	3000	3500	3200	2900	2700
	3600	2200	2200	2100	2000	2200	2100	1900	1800
	4200	1100	1100	1100	1100	1100	1100	1100	1100
140x70	2400	4300	4000	3800	3500	4100	3700	3400	3200
	2700	3400	3200	3000	2800	3200	2900	2700	2500
	3000	2700	2500	2400	2200	2500	2300	2100	2000
	3600	1700	1600	1500	1400	1600	1500	1400	1300
140x90	2400	4800	4800	4700	4400	4800	4600	4300	4000
	2700	4200	4000	3700	3500	4000	3600	3400	3100
	3000	3400	3200	2900	2800	3200	2900	2700	2500
	3600	2200	2100	2000	1900	2100	2000	1800	1600
	4200	1100	1100	1100	1100	1100	1100	1100	1000
140x120	2400	4800	4800	4800	4800	4800	4800	4800	4800
	2700	4800	4800	4800	4700	4800	4800	4500	4100
	3000	4500	4200	4000	3700	4300	3900	3600	3300
	3600	3000	2800	2700	2500	2900	2600	2400	2200
	4200	1600	1600	1600	1600	1600	1600	1600	1500
140x140	2700	4800	4800	4800	4800	4800	4800	4800	4800
	3000	4800	4800	4700	4400	4800	4600	4200	3900
	3600	3600	3400	3200	3000	3400	3100	2900	2700
	4200	1900	1900	1900	1900	1900	1900	1900	1800
	4800	900	900	900	900	900	900	900	900

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Sheet Roof Mass of 40 (kg/m2), Tile Roof Mass of 90 (kg/m2).

iii) Maximum tension load in mullion not to exceed 60 kN.

iv) Mullion Spacing is half the width of opening either side of mullion or for mullions/studs at sides of openings, half the width of opening.

Table 8

Lintels (Window Heads) - Sheet Roof
Supporting Single or Upper Storey Loadbearing Walls

	Roof Load Width (mm)									
	1500		3000		4500		6000		7500	
Rafter/Truss Spacing (mm)	600	1200	600	1200	600	1200	600	1200	600	1200
	Maximum Lintel Span (mm)									
Size DxB (mm)	**Single Span**									
140x35	2600	2700	1900	1600	1500	NS	1300	NS	NS	NS
140x45	2800	2800	2200	2100	1700	1400	1500	NS	1300	NS
140x70	3200	3200	2600	2600	2200	2100	1800	1600	1600	NS
140x90	3400	3300	2800	2900	2500	2400	2100	2000	1800	1500
170x35	3100	3100	2400	2300	1900	1400	1600	NS	NS	NS
170x45	3300	3300	2700	2600	2200	2100	1800	1200	1600	NS
170x70	3700	3600	3100	3100	2700	2600	2300	2200	2000	1600
170x90	3900	3900	3300	3300	3000	2900	2600	2500	2300	2200
190x35	3400	3300	2700	2600	2100	1600	1700	NS	1600	NS
190x45	3600	3600	3000	2900	2500	2300	2100	1600	1700	NS
190x70	4000	4000	3400	3400	3000	2900	2600	2500	2400	2200
190x90	4200	4200	3600	3600	3300	3200	2900	2800	2600	2500
240x35	4000	4000	3400	3200	2700	2700	2400	1700	1900	1200
240x45	4300	4300	3600	3600	3100	3000	2700	2600	2400	1700
240x70	4700	4700	4100	4000	3700	3700	3300	3200	2900	2800
240x90	5000	5000	4300	4300	3900	3900	3700	3500	3300	3100
290x45	4900	4900	4200	4200	3800	3600	3300	3100	2900	2800
290x70	5400	5400	4700	4600	4200	4200	4000	3900	3600	3400
290x90	5700	5700	4900	4900	4500	4500	4200	4200	4000	3900
	Continuous Span									
140x35	2800	2800	2000	1600	1500	NS	NS	NS	NS	NS
140x45	3200	3100	2200	2100	1600	1400	1500	NS	NS	NS
140x70	3900	3900	2700	2800	2200	2100	1900	1600	1600	1300
140x90	4200	4200	3000	3000	2500	2600	2100	2000	1800	1600
170x35	3400	3300	2400	2400	1700	1400	1500	NS	NS	NS
170x45	3900	3800	2700	2700	2200	1700	1600	1300	1400	NS
170x70	4600	4600	3400	3300	2700	2700	2300	2100	2000	1600
170x90	4800	4900	3700	3600	3000	3000	2600	2700	2300	2100
190x35	3800	3800	2700	2700	1800	1600	1500	NS	NS	NS
190x45	4300	4300	3000	3000	2300	2100	1700	1500	1500	1200
190x70	5000	5000	3800	3700	3000	3000	2600	2700	2200	1700
190x90	5300	5300	4200	4200	3400	3300	2900	2900	2600	2700
240x35	4900	4900	3400	3100	2700	2800	1900	1900	1900_{5}	1700_{5}
240x45	5300	5300	3900	3800	3100	3100	2300	1900	1900	1900
240x70	5900	5900	4800	4700	3900	3800	3400	3100	3000	3000
240x90	6200	6200	5300	5300	4300	4300	3700	3600	3300	3100
290x45	6100	6100	4700	4600	3800	3300	3200_{10}	3000_{5}	2500_{5}	2000
290x70	6700	6700	5800	5700	4700	4600	4100	4000	3500	3200
290x90	7000	7100	6200	6100	5200	5200	4500	4500	4000	4000

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Roof Mass of 40 (kg/m2).

iii) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

Table 9

Lintels (Window Heads) - Tile Roof
Supporting Single or Upper Storey Loadbearing Walls

	Roof Load Width (mm)									
	1500		3000		4500		6000		7500	
Rafter/Truss Spacing (mm)	600	1200	600	1200	600	1200	600	1200	600	1200
	Maximum Lintel Span (mm)									
Size DxB (mm)	**Single Span**									
140x35	2000	2000	1600	1500	1400	NS	1200	NS	NS	NS
140x45	2200	2200	1700	1700	1500	1400	1400	NS	1300	NS
140x70	2500	2600	2000	2000	1700	1700	1600	1500	1500	1300
140x90	2700	2800	2200	2200	1900	1900	1700	1700	1600	1500
170x35	2400	2500	1900	1900	1700	1600	1500	NS	1400	NS
170x45	2700	2700	2100	2100	1800	1800	1700	1500	1500	NS
170x70	3000	3000	2500	2500	2100	2100	1900	1900	1800	1800
170x90	3200	3200	2700	2700	2300	2300	2100	2100	2000	1900
190x35	2700	2800	2200	2100	1900	1900	1700	1400	1600	NS
190x45	3000	3000	2400	2400	2100	2000	1900	1800	1700	1400
190x70	3300	3300	2800	2800	2400	2400	2200	2200	2000	2000
190x90	3500	3500	3000	3000	2600	2700	2400	2400	2200	2200
240x35	3300	3300	2800	2800	2400	2400	2200	2100	2000	1600
240x45	3500	3500	3000	3000	2600	2700	2400	2400	2200	2200
240x70	3900	3900	3400	3300	3000	3000	2800	2800	2600	2600
240x90	4200	4200	3600	3500	3200	3200	3000	3000	2800	2800
290x45	4100	4100	3500	3400	3100	3100	2900	2900	2700	2700
290x70	4500	4500	3900	3800	3500	3500	3300	3200	3100	3100
290x90	4800	4800	4100	4100	3700	3700	3500	3400	3300	3300
	Continuous Span									
140x35	2700	2700	2100	2000	1600	1300	1400	NS	NS	NS
140x45	2900	2900	2300	2300	1800	1600	1600	1200	1400	NS
140x70	3300	3200	2700	2700	2400	2400	2000	2000	1600	1500
140x90	3500	3500	3000	3000	2600	2600	2300	2200	2000	2000
170x35	3200	3200	2600	2600	1900	1600	1500	1200	NS	NS
170x45	3400	3400	2900	2900	2300	2100	1700	1500	1600	1200
170x70	3800	3800	3200	3200	2900	2900	2500	2600	2200	1700
170x90	4100	4000	3400	3400	3100	3100	2800	2800	2500	2600
190x35	3500	3500	2900	2900	2200	1700	1600	1300	1400_{5}	NS
190x45	3700	3700	3100	3100	2600	2700	2200	1600	1600	1300_{10}
190x70	4200	4200	3500	3500	3200	3100	2800	2800	2500	2600
190x90	4400	4400	3700	3700	3400	3300	3100	3100	2800	2800
240x35	4200	4200	3500	3500	2800_{15}	3000_{25}	2200_{25}	1900_{10}	1900_{30}	1900_{30}
240x45	4400	4400	3700	3700	3400_{10}	3100_{5}	2700_{20}	2900_{25}	2200_{25}	1900_{10}
240x70	4900	5000	4200	4200	3800	3800	3500_{5}	3500_{5}	3100_{15}	3100_{10}
240x90	5200	5200	4500	4400	4000	4000	3800	3700	3500_{5}	3500_{5}
290x45	5100	5100	4300	4300	3900_{25}	3900_{25}	3200_{40}	3200_{40}	3100_{70}	3100_{45}
290x70	5700	5700	4800	4800	4400	4300	4100_{20}	4100_{20}	3900_{40}	3400_{25}
290x90	6000	6000	5100	5200	4700	4700	4400_{5}	4300_{5}	4100_{20}	4100_{20}

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Roof Mass of 90 (kg/m2).

iii) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

Table 10

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
90x35	10	2900	500	2300	400	1900	350	1600	250
	20	2600	500	2300	400	1900	350	1600	250
	40	2100	500	1800	400	1700	350	1500	250
	60	1800	500	1600	400	1500	350	1300	250
	90	1600	500	1400	400	1300	350	1100	300
90x45	10	3300	550	2600	450	2200	400	1800	300
	20	2800	550	2500	450	2200	400	1800	300
	40	2300	550	2000	450	1800	400	1600	300
	60	2000	600	1800	450	1600	400	1400	300
	90	1800	600	1500	450	1400	400	1200	300
90x70	10	3600	700	3300	550	2700	500	2200	400
	20	3100	700	2800	550	2600	500	2200	400
	40	2600	700	2300	550	2100	500	1900	400
	60	2300	700	2000	600	1900	500	1600	400
	90	2000	750	1800	600	1600	500	1400	400
90x90	10	3800	800	3500	600	3100	550	2400	450
	20	3300	800	3000	650	2800	550	2500	450
	40	2800	800	2500	650	2300	550	2000	450
	60	2500	800	2200	650	2000	550	1800	450
	90	2200	850	1900	650	1800	550	1600	450
120x35	10	4000	600	3200	500	2600	400	2100	350
	20	3400	600	3000	500	2700	400	2100	350
	40	2800	650	2500	500	2300	450	2000	350
	60	2500	650	2200	500	2000	450	1700	350
	90	2200	650	1900	550	1700	450	1500	350
120x45	10	4300	700	3600	550	3000	500	2400	400
	20	3600	700	3300	550	3000	500	2400	400
	40	3000	700	2700	600	2400	500	2200	400
	60	2700	750	2400	600	2200	500	1900	400
	90	2400	750	2100	600	1900	500	1600	400
120x70	10	4600	900	4300	700	3800	600	2900	500
	20	4000	900	3700	700	3400	600	3000	500
	40	3400	900	3100	750	2800	600	2500	500
	60	3100	900	2700	750	2500	650	2200	500
	90	2700	950	2400	750	2200	650	1900	500

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
120x90	10	4800	1000	4500	800	4200	700	3300	550
	20	4300	1000	3900	800	3700	700	3300	550
	40	3700	1000	3300	800	3000	700	2700	550
	60	3300	1050	2900	850	2700	700	2400	550
	90	2900	1050	2600	850	2400	750	2100	600
140x35	10	4600	700	3800	550	3100	450	2500	400
	20	3900	700	3500	550	3200	500	2500	400
	40	3300	700	2900	600	2600	500	2300	400
	60	2900	750	2500	600	2300	500	2000	400
	90	2500	750	2200	600	2000	500	1800	400
140x45	10	4900	800	4300	650	3600	550	2800	450
	20	4200	800	3800	650	3500	550	2800	450
	40	3500	800	3100	650	2900	550	2500	450
	60	3100	850	2800	650	2500	550	2200	450
	90	2800	850	2400	700	2200	600	1900	450
140x70	10	5200	1000	4900	800	4500	700	3400	550
	20	4700	1000	4300	800	4000	700	3500	550
	40	4000	1050	3600	850	3300	700	2900	550
	60	3600	1050	3200	850	2900	700	2600	550
	90	3200	1050	2800	850	2600	750	2200	600
140x90	10	5400	1150	5100	900	4900	750	3900	600
	20	4900	1150	4500	900	4200	800	3800	600
	40	4200	1150	3800	950	3500	800	3100	650
	60	3800	1150	3400	950	3100	800	2800	650
	90	3400	1200	3000	950	2800	850	2400	650
170x35	10	5500	850	4600	650	3900	550	3000	450
	20	4700	850	4300	650	3900	550	3100	450
	40	3900	850	3500	650	3200	550	2800	450
	60	3500	850	3100	700	2800	600	2500	450
	90	3100	900	2700	700	2500	600	2200	450
170x45	10	5700	950	5200	750	4400	650	3400	500
	20	5000	950	4600	750	4200	650	3400	500
	40	4200	950	3800	750	3500	650	3100	500
	60	3800	1000	3300	800	3100	650	2700	500
	90	3300	1000	2900	800	2700	700	2400	550

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
170x70	10	6100	1200	5800	950	5500	800	4300	650
	20	5500	1200	5100	950	4800	800	4300	650
	40	4800	1200	4300	950	4000	850	3500	650
	60	4300	1250	3800	1000	3500	850	3100	650
	90	3800	1250	3400	1000	3100	850	2700	700
170x90	10	6300	1350	6000	1050	5800	900	4800	700
	20	5800	1350	5400	1050	5000	900	4600	750
	40	5000	1350	4600	1100	4300	950	3800	750
	60	4600	1400	4100	1100	3800	950	3400	750
	90	4100	1400	3700	1150	3400	950	3000	750
190x35	10	6000	900	5200	700	4400	600	3400	500
	20	5200	900	4700	700	4400	600	3400	500
	40	4400	950	3900	750	3600	650	3100	500
	60	3900	950	3400	750	3100	650	2800	500
	90	3400	950	3000	750	2800	650	2400	500
190x45	10	6300	1050	5900	800	5000	700	3800	550
	20	5500	1050	5100	850	4700	700	3900	550
	40	4700	1050	4200	850	3900	700	3400	550
	60	4200	1050	3700	850	3400	750	3000	600
	90	3700	1100	3300	900	3000	750	2600	600
190x70	10	6700	1300	6400	1050	6100	900	4900	700
	20	6100	1300	5600	1050	5300	900	4800	700
	40	5300	1350	4800	1050	4400	900	3900	700
	60	4800	1350	4300	1100	3900	900	3500	750
	90	4300	1400	3800	1100	3500	950	3100	750
190x90	10	6900	1450	6600	1150	6300	1000	5500	800
	20	6300	1450	5900	1150	5600	1000	5100	800
	40	5600	1500	5100	1200	4700	1000	4200	800
	60	5100	1500	4600	1200	4200	1050	3800	850
	90	4600	1550	4100	1250	3800	1050	3300	850
240x35	10	7200	1100	6600	850	5600	750	4400	600
	20	6400	1100	5900	900	5500	750	4400	600
	40	5500	1100	4900	900	4500	750	4000	600
	60	4900	1150	4300	900	4000	750	3500	600
	90	4300	1150	3800	950	3500	800	3100	600

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
240x45	10	7200	1250	7200	1000	6400	850	5000	650
	20	6800	1250	6300	1000	5800	850	5100	650
	40	5800	1300	5300	1000	4900	850	4300	700
	60	5300	1300	4700	1050	4300	900	3800	700
	90	4700	1350	4200	1050	3800	900	3300	700
240x70	10	7200	1600	7200	1250	7200	1050	6300	850
	20	7200	1600	6900	1250	6500	1050	5900	850
	40	6500	1600	5900	1300	5500	1100	4900	850
	60	5900	1650	5300	1300	4900	1100	4400	900
	90	5300	1700	4800	1350	4400	1150	3900	900
240x90	10	7200	1800	7200	1400	7200	1200	7100	950
	20	7200	1800	7200	1450	6800	1200	6300	950
	40	6800	1800	6300	1450	5900	1250	5300	1000
	60	6300	1850	5700	1500	5300	1250	4700	1000
	90	5700	1900	5100	1500	4700	1300	4200	1000
290x45	10	7200	1450	7200	1150	7200	1000	6200	800
	20	7200	1450	7200	1150	6900	1000	6200	800
	40	6900	1500	6300	1200	5800	1000	5200	800
	60	6300	1500	5600	1200	5200	1000	4600	800
	90	5600	1550	5000	1250	4600	1050	4000	850
290x70	10	7200	1850	7200	1450	7200	1250	7200	1000
	20	7200	1850	7200	1500	7200	1250	7000	1000
	40	7200	1900	7000	1500	6600	1300	5900	1000
	60	7000	1950	6400	1550	5900	1300	5300	1050
	90	6400	2000	5700	1600	5300	1350	4700	1050
290x90	10	7200	2100	7200	1650	7200	1400	7200	1100
	20	7200	2100	7200	1650	7200	1400	7200	1100
	40	7200	2150	7200	1700	7000	1450	6300	1150
	60	7200	2200	6800	1750	6300	1450	5700	1150
	90	6800	2250	6100	1800	5700	1500	5000	1200

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
90x35	10	2900	500	2300	400	1900	350	1600	250
	20	3000	500	2300	400	1900	350	1600	250
	40	2900	500	2400	400	2000	350	1600	250
	60	2500	500	2200	400	2000	350	1700	250
	90	2200	500	1900	400	1800	350	1500	300
90x45	10	3300	550	2600	450	2200	400	1800	300
	20	3400	550	2700	450	2200	400	1800	300
	40	3100	550	2700	450	2200	400	1800	300
	60	2700	600	2400	450	2200	400	1900	300
	90	2400	600	2100	450	1900	400	1700	300
90x70	10	4200	700	3300	550	2700	500	2200	400
	20	4200	700	3300	550	2800	500	2200	400
	40	3500	700	3100	550	2800	500	2300	400
	60	3100	700	2800	600	2500	500	2200	400
	90	2800	750	2400	600	2200	500	1900	400
90x90	10	4700	800	3700	600	3100	550	2400	450
	20	4500	800	3700	650	3100	550	2500	450
	40	3800	800	3400	650	3100	550	2500	450
	60	3400	800	3000	650	2800	550	2400	450
	90	3000	850	2700	650	2400	550	2100	450
120x35	10	4000	600	3200	500	2600	400	2100	350
	20	4100	600	3200	500	2700	400	2100	350
	40	3800	650	3300	500	2700	450	2200	350
	60	3400	650	3000	500	2700	450	2200	350
	90	3000	650	2600	550	2400	450	2100	350
120x45	10	4500	700	3600	550	3000	500	2400	400
	20	4600	700	3600	550	3000	500	2400	400
	40	4100	700	3600	600	3100	500	2500	400
	60	3600	750	3200	600	2900	500	2500	400
	90	3200	750	2800	600	2600	500	2300	400
120x70	10	5700	900	4500	700	3800	600	2900	500
	20	5500	900	4600	700	3800	600	3000	500
	40	4700	900	4200	750	3800	600	3000	500
	60	4200	900	3700	750	3400	650	3000	500
	90	3700	950	3300	750	3000	650	2600	500

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
120x90	10	6300	1000	5000	800	4200	700	3300	550
	20	5800	1000	5100	800	4300	700	3300	550
	40	5000	1000	4500	800	4100	700	3400	550
	60	4500	1050	4000	850	3700	700	3200	550
	90	4000	1050	3500	850	3200	750	2900	600
140x35	10	4700	700	3800	550	3100	450	2500	400
	20	4800	700	3800	550	3200	500	2500	400
	40	4400	700	3900	600	3300	500	2600	400
	60	3900	750	3500	600	3200	500	2600	400
	90	3500	750	3000	600	2800	500	2400	400
140x45	10	5300	800	4300	650	3600	550	2800	450
	20	5400	800	4300	650	3600	550	2800	450
	40	4800	800	4300	650	3700	550	2900	450
	60	4300	850	3800	650	3400	550	3000	450
	90	3800	850	3300	700	3000	600	2600	450
140x70	10	6600	1000	5300	800	4500	700	3400	550
	20	6300	1000	5400	800	4500	700	3500	550
	40	5400	1050	4800	850	4500	700	3600	550
	60	4800	1050	4300	850	4000	700	3500	550
	90	4300	1050	3800	850	3500	750	3100	600
140x90	10	7200	1150	5900	900	5000	750	3900	600
	20	6600	1150	6000	900	5100	800	3900	600
	40	5700	1150	5200	950	4800	800	4000	650
	60	5200	1150	4700	950	4300	800	3800	650
	90	4700	1200	4100	950	3800	850	3300	650
170x35	10	5800	850	4600	650	3900	550	3000	450
	20	5900	850	4700	650	3900	550	3100	450
	40	5300	850	4800	650	4000	550	3100	450
	60	4800	850	4200	700	3800	600	3200	450
	90	4200	900	3700	700	3400	600	3000	450
170x45	10	6500	950	5200	750	4400	650	3400	500
	20	6600	950	5300	750	4500	650	3400	500
	40	5700	950	5100	750	4600	650	3500	500
	60	5100	1000	4600	800	4200	650	3600	500
	90	4600	1000	4000	800	3700	700	3200	550

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
170x70	10	7200	1200	6500	950	5500	800	4300	650
	20	7200	1200	6600	950	5600	800	4300	650
	40	6500	1200	5800	950	5400	850	4500	650
	60	5800	1250	5200	1000	4800	850	4200	650
	90	5200	1250	4600	1000	4200	850	3700	700
170x90	10	7200	1350	7200	1050	6200	900	4800	700
	20	7200	1350	7200	1050	6300	900	4900	750
	40	6800	1350	6200	1100	5800	950	5000	750
	60	6200	1400	5600	1100	5200	950	4600	750
	90	5600	1400	5000	1150	4600	950	4100	750
190x35	10	6500	900	5200	700	4400	600	3400	500
	20	6600	900	5300	700	4400	600	3400	500
	40	5900	950	5300	750	4600	650	3500	500
	60	5300	950	4700	750	4300	650	3600	500
	90	4700	950	4100	750	3800	650	3300	500
190x45	10	7200	1050	5900	800	5000	700	3800	550
	20	7200	1050	6000	850	5000	700	3900	550
	40	6400	1050	5700	850	5200	700	4000	550
	60	5700	1050	5100	850	4700	750	4100	600
	90	5100	1100	4500	900	4100	750	3600	600
190x70	10	7200	1300	7200	1050	6200	900	4900	700
	20	7200	1300	7200	1050	6300	900	4900	700
	40	7100	1350	6500	1050	6000	900	5100	700
	60	6500	1350	5800	1100	5300	900	4700	750
	90	5800	1400	5200	1100	4700	950	4200	750
190x90	10	7200	1450	7200	1150	7000	1000	5500	800
	20	7200	1450	7200	1150	7100	1000	5500	800
	40	7200	1500	6900	1200	6400	1000	5700	800
	60	6900	1500	6200	1200	5800	1050	5100	850
	90	6200	1550	5600	1250	5100	1050	4500	850
240x35	10	7200	1100	6600	850	5600	750	4400	600
	20	7200	1100	6700	900	5700	750	4400	600
	40	7200	1100	6600	900	5900	750	4600	600
	60	6600	1150	5900	900	5400	750	4700_5	600
	90	5900	1150	5200	950	4800	800	4200_{10}	600

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
240x45	10	7200	1250	7200	1000	6400	850	5000	650
	20	7200	1250	7200	1000	6500	850	5100	650
	40	7200	1300	7100	1000	6600	850	5200	700
	60	7100	1300	6400	1050	5900	900	5200	700
	90	6400	1350	5700	1050	5200	900	4600	700
240x70	10	7200	1600	7200	1250	7200	1050	6300	850
	20	7200	1600	7200	1250	7200	1050	6400	850
	40	7200	1600	7200	1300	7200	1100	6500	850
	60	7200	1650	7200	1300	6700	1100	6000	900
	90	7200	1700	6500	1350	6000	1150	5300	900
240x90	10	7200	1800	7200	1400	7200	1200	7100	950
	20	7200	1800	7200	1450	7200	1200	7100	950
	40	7200	1800	7200	1450	7200	1250	7200	1000
	60	7200	1850	7200	1500	7200	1250	6400	1000
	90	7200	1900	7000	1500	6400	1300	5700	1000
290x45	10	7200	1450	7200	1150	7200	1000	6200	800
	20	7200	1450	7200	1150	7200	1000	6200	800
	40	7200	1500	7200	1200	7200	1000	6400_{5}	800
	60	7200	1500	7200	1200	7000	1000	6200_{10}	800
	90	7200	1550	6800	1250	6200	1050	5500_{10}	850
290x70	10	7200	1850	7200	1450	7200	1250	7200	1000
	20	7200	1850	7200	1500	7200	1250	7200	1000
	40	7200	1900	7200	1500	7200	1300	7200	1000
	60	7200	1950	7200	1550	7200	1300	7200	1050
	90	7200	2000	7200	1600	7200	1350	6300	1050
290x90	10	7200	2100	7200	1650	7200	1400	7200	1100
	20	7200	2100	7200	1650	7200	1400	7200	1100
	40	7200	2150	7200	1700	7200	1450	7200	1150
	60	7200	2200	7200	1750	7200	1450	7200	1150
	90	7200	2250	7200	1800	7200	1500	6800	1200

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 11

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span									
170x45	10	3800	1450	2600	1050	2200	850	1900	750	1700	700
	20	3800	1450	2700	1050	2200	900	1900	750	1700	700
	40	3200	1450	2500	1100	2100	900	1900	750	1700	700
	60	2800	1400	2200	1100	1900	900	1700	800	1600	700
	90	2500	1200	1900	900	1700	800	1500	700	1400	700
170x70	10	4800	1700	3300	1300	2700	1050	2300	950	2100	850
	20	4300	1700	3300	1300	2700	1100	2300	950	2100	850
	40	3600	1700	2900	1350	2500	1100	2200	950	2000	850
	60	3200	1600	2600	1300	2200	1100	2000	950	1800	850
	90	2900	1400	2300	1100	2000	1000	1800	900	1600	800
170x90	10	5300	1850	3600	1450	3000	1200	2600	1050	2300	900
	20	4600	1850	3700	1450	3000	1200	2600	1050	2300	950
	40	3900	1850	3100	1500	2700	1200	2400	1050	2200	950
	60	3500	1700	2800	1400	2400	1200	2200	1050	2000	950
	90	3100	1500	2500	1200	2100	1000	1900	900	1800	900
190x45	10	4300	1650	3000	1200	2400	950	2100	850	1900	750
	20	4300	1650	3000	1200	2400	1000	2100	850	1900	750
	40	3500	1650	2800	1200	2400	1000	2100	850	1900	750
	60	3100	1500	2500	1250	2100	1000	1900	900	1700	800
	90	2800	1400	2200	1100	1900	900	1700	800	1600	800
190x70	10	5400	1900	3700	1450	3000	1200	2600	1050	2300	950
	20	4800	1900	3700	1450	3000	1200	2600	1050	2300	950
	40	4100	1900	3200	1500	2800	1200	2500	1050	2300	950
	60	3600	1800	2900	1400	2500	1250	2200	1100	2000	950
	90	3200	1600	2500	1200	2200	1100	2000	1000	1800	900
190x90	10	5800	2050	4100	1600	3300	1350	2900	1150	2600	1050
	20	5100	2050	4100	1650	3400	1350	2900	1150	2600	1050
	40	4400	2050	3500	1650	3000	1350	2700	1200	2500	1050
	60	3900	1900	3100	1500	2700	1300	2400	1200	2200	1050
	90	3500	1700	2800	1400	2400	1200	2200	1100	2000	1000

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span									
240x45	10	5600	2050	3800	1500	3100	1250	2700	1050	2400	950
	20	5300	2050	3800	1500	3100	1250	2700	1050	2400	950
	40	4500	2050	3500	1550	3000	1250	2700	1100	2500_{5}	1000
	60	4000	2000	3100	1550	2700	1300	2400	1100	2200_{5}	1000
	90	3500	1700	2800	1400	2400	1200	2200	1100	2000_{5}	1000
240x70	10	6800	2400	4600	1850	3800	1500	3300	1300	2900	1200
	20	6000	2400	4700	1850	3800	1500	3300	1300	3000	1200
	40	5100	2400	4100	1900	3500	1550	3100	1350	2900	1200
	60	4600	2300	3600	1800	3100	1550	2800	1350	2600	1200
	90	4100	2000	3200	1600	2800	1400	2500	1200	2300	1100
240x90	10	7100	2600	5200	2050	4200	1700	3700	1450	3300	1300
	20	6300	2600	5200	2050	4300	1700	3700	1450	3300	1300
	40	5400	2600	4400	2100	3800	1700	3400	1500	3100	1350
	60	4900	2450	3900	1900	3400	1700	3100	1500	2800	1350
	90	4400	2200	3500	1700	3000	1500	2700	1300	2500	1200
290x45	10	6800	2450	4600	1800	3700	1500	3200	1300	2900_{5}	1150
	20	6300	2450	4600	1850	3800	1500	3300	1300	2900_{5}	1150
	40	5400	2450	4300	1850	3700	1500	3300_{5}	1300	3000_{10}	1200
	60	4800	2400	3800	1900	3300	1550	2900_{5}	1350	2700_{10}	1200
	90	4200	2100	3400	1700	2900	1400	2600_{5}	1300	2400_{15}	1200
290x70	10	7200	2850	5600	2250	4600	1850	4000	1600	3600	1400
	20	7100	2850	5700	2250	4600	1850	4000	1600	3600	1450
	40	6100	2850	4900	2300	4200	1850	3800	1600	3500	1450
	60	5500	2650	4400	2200	3800	1900	3400	1650	3100_{5}	1500
	90	4900	2400	3900	1900	3400	1700	3000	1500	2800_{5}	1400
290x90	10	7200	3150	6300	2500	5100	2050	4400	1750	4000	1600
	20	7200	3150	6200	2500	5200	2050	4500	1800	4000	1600
	40	6500	3000	5300	2550	4600	2100	4100	1800	3800	1600
	60	5900	2850	4700	2300	4100	2000	3700	1850	3400	1650
	90	5300	2650	4200	2100	3700	1800	3300	1600	3100	1500

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span									
170x45	10	3800	1450	2600	1050	2200	850	1900	750	1600	700
	20	3900	1450	2700	1050	2200	900	1900	750	1700	700
	40	4000	1450	2700	1100	2200	900	1900	750	1700	700
	60	3800	1450	2800	1100	2300	900	2000	800	1800	700
	90	3400	1450	2700	1150	2300	900	2000	800	1800_{5}	700
170x70	10	4800	1700	3300	1300	2700	1050	2300	950	2100	850
	20	4900	1700	3300	1300	2700	1100	2300	950	2100	850
	40	5000	1700	3400	1350	2800	1100	2400	950	2100	850
	60	4400	1700	3500	1350	2800	1100	2500	950	2200	850
	90	3900	1650	3100	1350	2700	1150	2400	1000	2200	900
170x90	10	5400	1850	3600	1450	3000	1200	2600	1050	2300	900
	20	5400	1850	3700	1450	3000	1200	2600	1050	2300	950
	40	5300	1850	3800	1500	3100	1200	2700	1050	2400	950
	60	4800	1850	3800	1500	3200	1250	2700	1050	2500	950
	90	4200	1750	3400	1450	2900	1250	2600	1100	2400	1000
190x45	10	4300	1650	3000	1200	2400	950	2100	850	1800	750
	20	4400	1650	3000	1200	2400	1000	2100	850	1800	750
	40	4500	1650	3100	1200	2500	1000	2200	850	1900	750
	60	4300	1650	3200	1250	2600	1000	2200	900	2000	800
	90	3800	1600	3000	1250	2600	1050	2300_{5}	900	2000_{20}	800
190x70	10	5400	1900	3700	1450	3000	1200	2600	1050	2300	950
	20	5500	1900	3700	1450	3000	1200	2600	1050	2300	950
	40	5500	1900	3800	1500	3100	1200	2700	1050	2400	950
	60	4900	1900	3900	1500	3200	1250	2800	1100	2500	950
	90	4400	1800	3500	1500	3000	1250	2700	1100	2500	1000
190x90	10	6000	2050	4100	1600	3300	1350	2900	1150	2600	1050
	20	6100	2050	4100	1650	3400	1350	2900	1150	2600	1050
	40	5900	2050	4200	1650	3400	1350	3000	1200	2700	1050
	60	5300	2050	4200	1700	3500	1400	3100	1200	2700	1050
	90	4700	1900	3800	1600	3300	1400	2900	1200	2700	1100

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span									
240x45	10	5600	2050	3800	1500	3100	1250	2700	1050	2300	950
	20	5600	2050	3800	1500	3100	1250	2700	1050	2300	950
	40	5800	2050	3900	1550	3200	1250	2800	1100	2400_{10}	1000
	60	5400	2050	4000	1550	3300	1300	2800_{15}	1100	2500_{25}	1000
	90	4800	1900	3800	1600	3300_{15}	1300	2900_{30}	1150	2600_{50}	1000
240x70	10	6900	2400	4600	1850	3800	1500	3300	1300	2900	1200
	20	7000	2400	4700	1850	3800	1500	3300	1300	3000	1200
	40	6900	2400	4800	1900	3900	1550	3400	1350	3100	1200
	60	6200	2300	4900	1900	4000	1550	3500	1350	3100_{5}	1200
	90	5500	2150	4400	1800	3800	1600	3400_{5}	1400	3200_{20}	1250
240x90	10	7200	2600	5200	2050	4200	1700	3700	1450	3300	1300
	20	7200	2600	5200	2050	4300	1700	3700	1450	3300	1300
	40	7200	2600	5300	2100	4400	1700	3800	1500	3400	1350
	60	6700	2450	5400	2050	4500	1750	3900	1500	3500	1350
	90	6000	2300	4800	1900	4100	1700	3700	1550	3400_{10}	1400
290x45	10	6800	2450	4600	1800	3700	1500	3200	1300	2800_{10}	1150
	20	6900	2450	4600	1850	3800	1500	3300_{10}	1300	2800_{15}	1150
	40	7000	2450	4700	1850	3900_{5}	1500	3400_{20}	1300	2900_{30}	1200
	60	6500	2400	4800	1900	4000_{20}	1550	3400_{35}	1350	3000_{50}	1200
	90	5800	2200	4600_{5}	1850	4000_{35}	1600	3500_{60}	1350	3100_{80}	1250
290x70	10	7200	2850	5600	2250	4600	1850	4000	1600	3600	1400
	20	7200	2850	5700	2250	4600	1850	4000	1600	3600	1450
	40	7200	2850	5800	2300	4800	1850	4100	1600	3700_{15}	1450
	60	7200	2650	6000	2250	4900	1900	4200_{15}	1650	3800_{25}	1500
	90	6600	2500	5300	2100	4600_{5}	1850	4200_{25}	1700	3800_{45}	1500
290x90	10	7200	3150	6300	2500	5100	2050	4400	1750	4000	1600
	20	7200	3150	6400	2500	5200	2050	4500	1800	4000	1600
	40	7200	3000	6500	2550	5300	2100	4600	1800	4100_{5}	1600
	60	7200	2850	6400	2400	5400	2100	4700_{5}	1850	4200_{15}	1650
	90	7200	2650	5700	2200	5000	2000	4500_{15}	1850	4200_{30}	1700

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

RECYCLED HARDWOOD
SPAN TABLES

SUPPLEMENT 6

Wind Classifications C1 and C2

Recycled Species Group B
Recycled Grade, RG1

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1.0 INTRODUCTION

This Supplement was prepared under a project supported by Forest and Wood Products Australia and provides span tables for some common applications and uses for recycled structural hardwood timber. The span tables provided include some commercial as well as some domestic construction uses. The span tables are specific to recycled timber which will include recycled timber features.

2.0 APPLICATION

The span tables included in this Supplement are only applicable for use with timber graded in accordance with 'Interim Industry Standard, Recycled Timber – Visually Stress Graded Recycled Timber for Structural Purposes' available from www.fwpa.com.au for the Wind Classifications designated in this Supplement.

The Tables in this Supplement apply to Recycled Timber Species Group B - Recycled Grade, RG1.

For domestic applications, the requirements of AS 1684 are also applicable for use in conjunction with the Tables in this Supplement.

3.0 ALTERNATIVE GRADE

In addition to Species Group B, RG1, the tables in this Supplement apply to Recycled Timber Species Group A - Recycled Grade, RG2.

4.0 TOLERANCES

The depth (D) and breadth (B) shall not be more than 2mm under the sizes given.

5.0 CONTENTS

Table 1

Decking Boards - Commercial Applications Supporting 5.0 kPa Uniform Live Load

	Point Live Load (kN)			
	3	5	9	13
Size DxB (mm)	**Span**			
35x70	720	540	300	NS
35x90	780	660	360	NS
35x120	860	840	480	340
35x140	900	880	560	380
45x70	940	920	500	340
45x90	1020	1000	620	440
45x120	1120	1100	820	560
45x140	1180	1160	960	660

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum DL of 60 (kg/m2), Floor Live Load of 5 (kPa).

iii) End bearing lengths = 20 mm at end supports and 20 mm at internal supports for continuous members.

iv) Point loads are assumed to be shared by two deck boards.

v) Live load deflection limit = span/150 or 4 mm.

vi) Decking shall be two or more continuous span.

Table 2

Deck Bearers - Domestic Applications
May Support Decks Greater than 1000mm above the Ground

	Floor Load Width (mm)											
	1200		2400		4800		1200		2400		4800	
	Bearer Span (mm)											
	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
Size DxB (mm)	**Single Span**						**Continuous Span**					
90x45	1600	400	1100	300	NS	NS	1600	400	1100	300	NS	NS
90x70	1900	500	1400	400	NS	NS	2000	600	1400	400	NS	NS
90x90	2100	600	1500	400	1100	300	2200	600	1500	400	1100	300
120x45	2100	600	1500	400	1000	300	2100	600	1500	400	1000	300
120x70	2600	700	1900	500	1300	300	2600	700	1900	500	1300	300
120x90	2800	800	2100	600	1400	400	2900	800	2100	600	1400	400
140x45	2500	700	1800	500	1200	300	2500	700	1800	500	1200	300
140x70	3000	900	2200	600	1500	400	3100	900	2200	600	1500	400
140x90	3300	900	2400	700	1700	500	3400	1000	2400	700	1700	500
170x45	3100	900	2200	600	1500	400	3100	900	2200	600	1500	400
170x70	3600	1000	2700	800	1800	500	3800	1100	2700	800	1800	500
170x90	3800	1100	3000	900	2100	600	4200	1200	3000	900	2100	600
190x45	3400	1000	2400	700	1700	500	3400	1000	2400	700	1700_{10}	500_{10}
190x70	3900	1100	3000	900	2100	600	4200	1200	3000	900	2100	600
190x90	4100	1200	3300	900	2300	600	4700	1400	3300	900	2300	600
240x45	4100	1200	3100	900	2100_{10}	600_{10}	4300	1200	3100	900	2100_{45}	600_{45}
240x70	4600	1300	3800	1100	2600	700	5300	1500	3800	1100	2600_{10}	700
240x90	5000	1500	4200	1200	2900	800	5900	1700	4200	1200	2900	800
290x45	4800	1400	3700	1100	2600_{25}	700_{25}	5300	1500	3700_{20}	1100_{20}	2500_{75}	700_{75}
290x70	5400	1600	4500	1300	3200_{10}	900_{10}	6400	1900	4600	1300	3200_{45}	900_{45}
290x90	5700	1700	4800	1400	3500_{5}	1000_{5}	7100	2100	5000	1500	3500_{25}	1000_{25}

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Cantilever (mm).

ii) The above table was based on a maximum DL of 30 (kg/m2), Floor Point Load of 1.8 (kN), Balcony Live Load of 3 (kPa).

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 30 % of Backspan.

v) End bearing lengths = 50 mm at end supports and 100 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 50 mm at end supports and 100 mm at internal supports.

Table 3

Deck Joists - Domestic Applications
May Support Decks greater than 1000mm above the Ground

	Joist Spacing (mm)											
	300		450		600		300		450		600	
	Max Joist Span (mm)											
	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever
Size DxB (mm)	**Single Span**						**Continuous Span**					
90x35	1600	400	1500	400	1500	400	1900	500	1800	500	1700	500
90x45	1800	500	1700	500	1700	500	2200	600	2100	600	2000	600
120x35	2500	700	2400	700	2300	600	3100	900	2900	800	2700	750
120x45	2900	800	2700	800	2600	700	3400	1000	3300	900	3100	800
140x35	3200	900	3100	900	2900	850	3700	1100	3500	950	3200	850
140x45	3600	1000	3400	1000	3300	950	4000	1200	3800	1050	3600	950
170x35	4000	1200	3800	1100	3500	1050	4500	1300	4300	1150	3900	1050
170x45	4300	1200	4100	1200	3800	1100	4900	1450	4700	1250	4400	1150
190x35	4400	1300	4100	1200	3800	1100	5000	1450	4800	1300	4300	1200
190x45	4900	1400	4400	1300	4100	1200	5500	1600	5200	1400	4900	1300
240x35	5500	1600	5000	1500	4600	1300	6400	1850	6100	1600	5500	1500
240x45	5900	1700	5300	1500	4900	1400	7000	2000	6600	1750	6100	1600
290x45	6800	2000	6100	1800	5700	1700	7200	2100	7200	2150	7100	1950

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, C'lever = Cantilever (mm).

ii) The above table was based on a maximum Deck Mass of 30 (kg/m2), Floor Point Load of 1.8 (kN), Balcony Live Load of 3 (kPa).

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 30 % of Backspan.

v) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members.

Table 4

Stair Stringers

Size DxB (mm)	Stair Width (mm)					
	750	900	1200	1500	1800	2400
	Maximum Stringer Span (mm)					
190x35	3600	3600	3400	3100	2900	2600
190x45	3900	3900	3600	3400	3200	2900
240x35	4500	4400	4100	3800	3700	3300
240x45	4800	4600	4300	4100	3900	3600
290x45	5500	5300	4900	4700	4500	4100

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Floor Mass of 40 (kg/m2), Floor Live Load of 2.0 (kPa), Floor Point Load of 2.7 (kN).

iii) Minimum bearing length = 50 mm at end supports.

iv) Maximum trench depth to accommodate treads - 10 mm.

Table 5 Stair Treads (with open flights)

Size DxB (mm)	Max. Tread Span (mm)
35x240	800
35x290	900
40x240	1000
40x290	1100
45x240	1200
45x290	1300
50x240	1400
50x290	1600
60x240	1900
60x290	2000

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Deck Mass of 40 (kg/m2), Floor Point Load of 2.7 (kN).

iii) Minimum bearing length = 35 mm at end supports.

Table 6

Posts
Supporting Roof and/or Floor Loads

	Floor Load Area (m2)											
	0				10				20			
Roof Load Area (m2)	0	10	20	40	0	10	20	40	0	10	20	40
Size DxB (mm)	**Maximum Post Height (mm)**											
Sheet Roof												
70x70	4800	2900	2000	NS	2400	2200	1800	NS	1700	1600	1500	NS
90x90	4800	4700	3300	2300	4000	3600	3000	2200	2800	2700	2500	2100
120x120	4800	4800	4800	4100	4800	4800	4800	3900	4800	4700	4500	3800
140x140	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
170x170	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
190x190	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
Tile Roof												
70x70	4800	2400	1700	NS	2400	2000	1600	NS	1700	1500	1300	NS
90x90	4800	4000	2800	1900	4000	3200	2600	1900	2800	2500	2300	1800
120x120	4800	4800	4800	3500	4800	4800	4600	3400	4800	4400	4000	3300
140x140	4800	4800	4800	4800	4800	4800	4800	4600	4800	4800	4800	4500
170x170	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
190x190	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Sheet Roof Mass of 40 (kg/m2), Tile Roof Mass of 90 (kg/m2), Total Upper Floor Mass of 50 (kg/m2), Floor Live Load of 1.5 (kPa).

iii) Posts are free standing, i.e. not supporting lateral wind loads from walls etc.

Table 7

Window or Door Mullions
Single or Upper Storey Load Bearing Walls

Size DxB (mm)	Mullion Height (mm)	Roof Load Width (mm)							
		3000	4500	6000	7500	3000	4500	6000	7500
		Mullion Spacing (mm)							
		Sheet Roof				Tile Roof			
70x120	2400	1100	900	NS	NS	900	NS	NS	NS
70x140	2400	1300	1200	1100	900	1200	1000	NS	NS
90x70	2400	1200	1100	1000	NS	1100	900	NS	NS
90x90	2400	1600	1400	1300	1200	1400	1300	1100	1000
	2700	1200	1100	900	NS	1100	NS	NS	NS
90x120	2400	2000	1800	1700	1600	1900	1700	1500	1400
	2700	1600	1500	1400	1300	1500	1300	1200	1000
	3000	1200	1100	1000	900	1200	1000	NS	NS
90x140	2400	2400	2200	2000	1900	2200	2000	1800	1600
	2700	1900	1700	1600	1500	1700	1600	1400	1300
	3000	1400	1300	1300	1200	1300	1200	1100	900
120x70	2400	2400	2200	2100	1900	2200	2000	1800	1700
	2700	1800	1700	1600	1600	1700	1600	1500	1400
	3000	1500	1400	1300	1200	1400	1300	1200	1000
120x90	2400	3000	2800	2600	2400	2800	2600	2300	2200
	2700	2300	2200	2000	1900	2200	2000	1800	1700
	3000	1800	1700	1600	1600	1700	1600	1500	1400
	3600	1100	1000	1000	1000	1000	1000	NS	NS
120x120	2400	4000	3700	3500	3300	3800	3400	3100	2900
	2700	3100	2900	2700	2600	2900	2700	2400	2200
	3000	2500	2300	2200	2000	2300	2100	1900	1800
	3600	1600	1500	1400	1300	1500	1400	1300	1200
120x140	2400	4800	4400	4100	3900	4500	4100	3700	3400
	2700	3700	3400	3200	3000	3500	3200	2900	2700
	3000	2900	2700	2600	2400	2800	2500	2300	2100
	3600	1900	1800	1700	1600	1800	1600	1500	1400
140x70	2400	3400	3200	3000	2800	3200	2900	2700	2500
	2700	2700	2500	2300	2200	2500	2300	2100	2000
	3000	2100	2000	1800	1800	2000	1800	1700	1600
	3600	1300	1300	1200	1200	1300	1200	1100	1000
140x90	2400	4200	4000	3700	3500	4000	3700	3400	3100
	2700	3300	3100	2900	2800	3200	2900	2700	2500
	3000	2700	2500	2300	2200	2500	2300	2100	2000
	3600	1700	1600	1500	1500	1600	1500	1500	1400
	4200	900	900	900	900	900	900	900	NS
140x120	2400	4800	4800	4800	4700	4800	4800	4500	4200
	2700	4500	4200	3900	3700	4200	3900	3600	3300
	3000	3600	3400	3100	3000	3400	3100	2900	2700
	3600	2400	2200	2100	2000	2300	2100	1900	1800
	4200	1400	1400	1300	1300	1400	1300	1200	1200
140x140	2400	4800	4800	4800	4800	4800	4800	4800	4800
	2700	4800	4800	4600	4400	4800	4600	4200	3900
	3000	4200	4000	3700	3500	4000	3700	3400	3100
	3600	2800	2700	2500	2400	2700	2500	2300	2100
	4200	1600	1600	1600	1600	1600	1600	1500	1400

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Sheet Roof Mass of 40 (kg/m2), Tile Roof Mass of 90 (kg/m2).

iii) Maximum tension load in mullion not to exceed 60 kN.

iv) Mullion Spacing is half the width of opening either side of mullion or for mullions/studs at sides of openings, half the width of opening.

Table 8 Lintels (Window Heads) - Sheet Roof Supporting Single or Upper Storey Loadbearing Walls

	Roof Load Width (mm)									
	1500		3000		4500		6000		7500	
Rafter/Truss Spacing (mm)	600	1200	600	1200	600	1200	600	1200	600	1200
	Maximum Lintel Span (mm)									
Size DxB (mm)	**Single Span**									
140x35	2500	2400	1700	1300	1400	NS	NS	NS	NS	NS
140x45	2700	2700	1900	1700	1500	NS	1300	NS	NS	NS
140x70	3100	3000	2400	2300	1900	1700	1600	1200	1400	NS
140x90	3200	3200	2700	2600	2200	2100	1800	1600	1600	1200
170x35	3000	2900	2100	2000	1600	NS	1400	NS	NS	NS
170x45	3200	3200	2400	2300	1900	1500	1600	NS	1400	NS
170x70	3500	3500	2900	2800	2400	2300	2000	1900	1800	1400
170x90	3700	3700	3200	3100	2700	2600	2300	2200	2000	1900
190x35	3300	3200	2400	2300	1900	1400	1600	NS	NS	NS
190x45	3500	3400	2700	2600	2200	2100	1800	1200	1600	NS
190x70	3800	3800	3300	3200	2700	2600	2400	2200	2000	1600
190x90	4000	4000	3500	3500	3000	2900	2600	2500	2300	2200
240x35	3900	3900	3000	2900	2500	2400	2100	1500	1800	NS
240x45	4100	4100	3400	3300	2800	2700	2400	1800	2100	1500
240x70	4600	4500	3900	3900	3500	3300	2900	2800	2600	2600
240x90	4800	4800	4100	4100	3800	3700	3300	3100	2900	2800
290x45	4700	4700	4000	4000	3400	3200	2900	2800	2600	1900
290x70	5200	5200	4500	4500	4100	4100	3600	3400	3200	3100
290x90	5500	5500	4800	4700	4300	4300	4000	3900	3600	3400
	Continuous Span									
140x35	2500	2600	1600	1500	1300	NS	NS	NS	NS	NS
140x45	2800	2800	2000	1900	1600	1200	NS	NS	NS	NS
140x70	3500	3400	2500	2600	2000	1900	1500	1400	1500	NS
140x90	3900	3800	2700	2700	2200	2100	1900	1600	1600	1400
170x35	3000	3000	2100	1700	1600	1200	NS	NS	NS	NS
170x45	3400	3400	2400	2500	1700	1500	1500	NS	NS	NS
170x70	4300	4200	3000	3000	2400	2600	2100	1600	1700	1400
170x90	4700	4700	3300	3300	2700	2700	2300	2200	2100	1600
190x35	3400	3400	2300	2100	1600	1300	1400	NS	NS	NS
190x45	3900	3800	2700	2700	2200	1700	1600	1300	1400	NS
190x70	4800	4800	3400	3300	2700	2700	2300	2100	1800	1600
190x90	5100	5100	3700	3600	3000	3000	2600	2700	2300	1700
240x35	4300	4300	3000	3000	2200	1900	1900_{5}	1800	1900_{25}	NS
240x45	4900	4900	3500	3400	2700	2800	2000	1600	1900_{5}	1900_{5}
240x70	5700	5700	4200	4200	3500	3400	3000	3000	2500	2700
240x90	6000	6000	4700	4700	3900	3800	3300	3100	3000	3000
290x45	5900	5900	4200	4200	3300_{5}	3200_{5}	2600_{10}	2800_{20}	2000_{10}	2000_{10}
290x70	6500	6500	5200	5200	4200	4200	3600_{5}	3200	3200_{15}	3100_{10}
290x90	6700	6800	5700	5700	4700	4600	4000	4000	3600_{5}	3200

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Roof Mass of 40 (kg/m2).

iii) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

Table 9

Lintels (Window Heads) - Tile Roof
Supporting Single or Upper Storey Loadbearing Walls

	Roof Load Width (mm)									
	1500		3000		4500		6000		7500	
Rafter/Truss Spacing (mm)	600	1200	600	1200	600	1200	600	1200	600	1200
	Maximum Lintel Span (mm)									
Size DxB (mm)	**Single Span**									
140x35	1900	1900	1500	1400	1300	NS	1200	NS	NS	NS
140x45	2100	2100	1600	1600	1400	1200	1300	NS	1200	NS
140x70	2400	2500	1900	1900	1700	1600	1500	1400	1400	NS
140x90	2600	2700	2100	2100	1800	1800	1600	1600	1500	1400
170x35	2300	2300	1800	1800	1600	1400	1400	NS	NS	NS
170x45	2500	2600	2000	2000	1700	1700	1600	NS	1500	NS
170x70	2900	2900	2300	2300	2000	2000	1800	1800	1700	1600
170x90	3100	3100	2600	2600	2200	2200	2000	2000	1900	1900
190x35	2600	2700	2100	2000	1800	1600	1600	NS	1500	NS
190x45	2800	2800	2200	2200	2000	1900	1800	1500	1600	NS
190x70	3200	3200	2600	2700	2300	2300	2100	2000	1900	1900
190x90	3400	3400	2800	2900	2500	2500	2300	2200	2100	2100
240x35	3200	3200	2600	2700	2300	2200	2100	1700	1900	NS
240x45	3400	3400	2900	2900	2500	2500	2300	2200	2100	1700
240x70	3800	3800	3200	3200	2900	2900	2700	2700	2400	2400
240x90	4000	4000	3400	3400	3100	3100	2900	2900	2700	2700
290x45	3900	3900	3300	3300	3000	3000	2800	2800	2600	2500
290x70	4400	4400	3700	3700	3400	3300	3100	3100	3000	3000
290x90	4600	4600	4000	3900	3600	3600	3400	3300	3200	3100
	Continuous Span									
140x35	2600	2600	1800	1600	1500	NS	NS	NS	NS	NS
140x45	2800	2800	2100	2000	1600	1400	1400	NS	NS	NS
140x70	3200	3100	2600	2600	2100	2000	1800	1600	1600	1300
140x90	3400	3300	2800	2800	2300	2500	2000	2000	1800	1600
170x35	3100	3100	2300	2100	1600	1300_{5}	1400	NS	NS	NS
170x45	3300	3200	2600	2600	2100	1600	1600	1300	1400	NS
170x70	3700	3700	3100	3100	2600	2700	2200	2100	1800	1600_{5}
170x90	3900	3900	3300	3300	2900	2900	2500	2600	2200	2100
190x35	3300	3300	2600	2600	1700	1500	1500_{10}	1200	NS	NS
190x45	3600	3600	2900	2900	2300	1900	1700	1400	1500_{10}	1200
190x70	4000	4000	3400	3300	2900	2900	2500	2600	2200_{5}	1700
190x90	4200	4200	3600	3600	3200	3200	2800	2800	2500	2600_{5}
240x35	4000	4000	3300_{15}	3100_{10}	2600_{25}	2700_{40}	1900_{30}	1900_{30}	1900_{60}	1700_{50}
240x45	4300	4300	3600	3600	3000_{20}	3000_{25}	2500_{35}	2700_{45}	1900_{30}	1900_{30}
240x70	4700	4700	4000	4000	3700	3600	3200_{15}	3100_{15}	2800_{30}	2800_{30}
240x90	5000	5100	4300	4300	3900	3900	3500_{5}	3500_{5}	3200_{15}	3100_{15}
290x45	4900	4900	4200_{15}	4200_{15}	3600_{45}	3200_{35}	3100_{70}	3000_{65}	2400_{65}	2000_{40}
290x70	5500	5500	4700	4600	4200_{15}	4200_{15}	3900_{40}	3700_{35}	3500_{55}	3200_{45}
290x90	5800	5800	4900	5000	4500	4500	4200_{25}	4200_{25}	3900_{40}	3700_{35}

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Roof Mass of 90 (kg/m2).

iii) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

Table 10

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
90x35	10	2600	450	2000	350	1700	300	1400	250
	20	2400	450	2000	350	1700	300	1400	250
	40	2000	450	1800	350	1600	300	1400	250
	60	1800	450	1500	350	1400	300	1200	250
	90	1500	450	1300	350	1200	300	1100	250
90x45	10	3000	500	2300	400	1900	350	1600	250
	20	2600	500	2300	400	2000	350	1600	250
	40	2200	500	1900	400	1700	350	1500	300
	60	1900	500	1700	400	1500	350	1300	300
	90	1700	550	1500	400	1300	350	1200	300
90x70	10	3400	600	2900	500	2400	450	1900	350
	20	3000	650	2700	500	2400	450	2000	350
	40	2500	650	2200	500	2000	450	1800	350
	60	2200	650	1900	500	1800	450	1500	350
	90	1900	650	1700	550	1500	450	1400	350
90x90	10	3600	700	3300	550	2700	500	2200	400
	20	3100	700	2900	550	2600	500	2200	400
	40	2600	700	2400	600	2200	500	1900	400
	60	2400	750	2100	600	1900	500	1700	400
	90	2100	750	1800	600	1700	500	1500	400
120x35	10	3600	550	2800	450	2300	350	1900	300
	20	3200	550	2800	450	2300	400	1900	300
	40	2700	550	2300	450	2100	400	1900	300
	60	2300	600	2100	450	1900	400	1600	300
	90	2100	600	1800	450	1600	400	1400	300
120x45	10	4000	650	3200	500	2600	450	2100	350
	20	3500	650	3100	500	2700	450	2100	350
	40	2900	650	2500	500	2300	450	2000	350
	60	2500	650	2200	500	2000	450	1800	350
	90	2200	700	2000	550	1800	450	1600	350
120x70	10	4400	800	4000	650	3400	550	2600	450
	20	3900	800	3500	650	3300	550	2700	450
	40	3300	800	2900	650	2700	550	2400	450
	60	2900	850	2600	650	2400	550	2100	450
	90	2600	850	2300	700	2100	600	1800	450

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont) Rafters or Purlins

Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
120x90	10	4600	900	4300	700	3800	600	2900	500
	20	4100	900	3700	700	3500	600	3000	500
	40	3500	900	3100	750	2900	600	2600	500
	60	3100	950	2800	750	2600	650	2300	500
	90	2800	950	2500	750	2300	650	2000	500
140x35	10	4200	650	3300	500	2800	400	2200	350
	20	3700	650	3400	500	2800	450	2200	350
	40	3100	650	2700	500	2500	450	2200	350
	60	2700	650	2400	500	2200	450	1900	350
	90	2400	700	2100	550	1900	450	1700	350
140x45	10	4600	700	3800	550	3200	500	2500	400
	20	4000	700	3600	600	3200	500	2500	400
	40	3300	750	3000	600	2700	500	2400	400
	60	3000	750	2600	600	2400	500	2100	400
	90	2600	750	2300	600	2100	500	1800	400
140x70	10	5000	900	4700	700	4000	600	3100	500
	20	4400	900	4100	750	3800	600	3100	500
	40	3800	950	3400	750	3100	650	2800	500
	60	3400	950	3000	750	2800	650	2400	500
	90	3000	950	2700	800	2400	650	2100	500
140x90	10	5200	1000	4900	800	4500	700	3400	550
	20	4700	1000	4300	800	4000	700	3500	550
	40	4000	1050	3600	850	3400	700	3000	550
	60	3600	1050	3300	850	3000	700	2600	600
	90	3300	1100	2900	850	2600	750	2300	600
170x35	10	5200	750	4100	600	3400	500	2700	400
	20	4500	750	4100	600	3500	500	2700	400
	40	3700	750	3300	600	3000	500	2700	400
	60	3300	750	2900	600	2700	500	2400	400
	90	2900	800	2600	650	2400	550	2100	400
170x45	10	5500	850	4700	650	3900	550	3000	450
	20	4800	850	4300	700	4000	550	3100	450
	40	4000	850	3600	700	3300	600	2900	450
	60	3600	900	3200	700	2900	600	2600	450
	90	3200	900	2800	700	2600	600	2200	500

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
170x70	10	5900	1050	5500	850	4900	700	3800	550
	20	5300	1050	4800	850	4500	750	3800	600
	40	4500	1100	4100	850	3800	750	3400	600
	60	4100	1100	3600	900	3400	750	3000	600
	90	3600	1150	3200	900	3000	750	2600	600
170x90	10	6000	1200	5700	950	5500	800	4300	650
	20	5500	1200	5100	950	4800	800	4300	650
	40	4800	1200	4400	1000	4100	850	3600	650
	60	4400	1250	3900	1000	3600	850	3200	650
	90	3900	1250	3500	1000	3200	850	2800	700
190x35	10	5700	800	4600	650	3900	550	3000	400
	20	5000	800	4500	650	3900	550	3100	450
	40	4200	850	3700	650	3400	550	3000	450
	60	3700	850	3300	650	3000	550	2600	450
	90	3300	850	2900	700	2600	600	2300	450
190x45	10	6000	950	5200	750	4400	600	3400	500
	20	5300	950	4800	750	4500	650	3400	500
	40	4500	950	4000	750	3700	650	3300	500
	60	4000	950	3600	750	3300	650	2900	500
	90	3600	1000	3100	800	2900	650	2500	550
190x70	10	6400	1150	6100	950	5500	800	4300	650
	20	5800	1150	5300	950	5000	800	4400	650
	40	5000	1200	4500	950	4200	800	3700	650
	60	4500	1200	4100	1000	3700	850	3300	650
	90	4100	1250	3600	1000	3300	850	2900	650
190x90	10	6600	1300	6300	1050	6000	900	4800	700
	20	6000	1300	5600	1050	5300	900	4800	700
	40	5300	1350	4800	1050	4500	900	4000	750
	60	4800	1350	4400	1100	4000	950	3600	750
	90	4400	1400	3900	1100	3600	950	3200	750
240x35	10	7000	1000	5900	800	5000	650	3900	500
	20	6100	1000	5600	800	5100	650	3900	500
	40	5200	1000	4700	800	4300	650	3800	550
	60	4700	1000	4100	800	3800	700	3300	550
	90	4100	1050	3600	850	3300	700	2900	550

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
240x45	10	7200	1100	6700	900	5700	750	4400	600
	20	6500	1150	6000	900	5600	750	4500	600
	40	5600	1150	5000	900	4600	750	4100	600
	60	5000	1150	4500	950	4100	800	3600	600
	90	4500	1200	4000	950	3600	800	3200	650
240x70	10	7200	1400	7200	1100	7000	950	5600	750
	20	7000	1450	6600	1150	6200	950	5600	750
	40	6200	1450	5600	1150	5200	1000	4700	800
	60	5600	1500	5100	1150	4700	1000	4200	800
	90	5100	1500	4500	1200	4200	1000	3700	800
240x90	10	7200	1600	7200	1250	7200	1050	6300	850
	20	7200	1600	6900	1300	6500	1100	6000	850
	40	6500	1650	6000	1300	5600	1100	5000	900
	60	6000	1650	5400	1300	5000	1100	4500	900
	90	5400	1700	4900	1350	4500	1150	4000	900
290x45	10	7200	1300	7200	1050	7000	900	5500	700
	20	7200	1300	7100	1050	6600	900	5500	700
	40	6600	1350	6000	1050	5500	900	4900	700
	60	6000	1350	5400	1100	4900	900	4400	700
	90	5400	1400	4800	1100	4400	950	3900	750
290x70	10	7200	1650	7200	1300	7200	1100	6900	900
	20	7200	1650	7200	1350	7200	1100	6700	900
	40	7200	1700	6700	1350	6300	1150	5600	900
	60	6700	1750	6100	1350	5600	1150	5000	950
	90	6100	1800	5400	1400	5000	1200	4400	950
290x90	10	7200	1850	7200	1500	7200	1250	7200	1000
	20	7200	1900	7200	1500	7200	1250	7100	1000
	40	7200	1950	7100	1500	6700	1300	6000	1000
	60	7100	1950	6500	1550	6000	1300	5400	1050
	90	6500	2000	5800	1600	5400	1350	4800	1050

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
90x35	10	2600	450	2000	350	1700	300	1400	250
	20	2600	450	2000	350	1700	300	1400	250
	40	2700	450	2100	350	1800	300	1400	250
	60	2400	450	2100	350	1800	300	1500	250
	90	2100	450	1800	350	1700	300	1500	250
90x45	10	3000	500	2300	400	1900	350	1600	250
	20	3000	500	2300	400	2000	350	1600	250
	40	2900	500	2400	400	2000	350	1600	300
	60	2600	500	2300	400	2100	350	1700	300
	90	2300	550	2000	400	1800	350	1600	300
90x70	10	3700	600	2900	500	2400	450	1900	350
	20	3800	650	3000	500	2400	450	2000	350
	40	3400	650	3000	500	2500	450	2000	350
	60	3000	650	2600	500	2400	450	2100	350
	90	2600	650	2300	550	2100	450	1900	350
90x90	10	4100	700	3300	550	2700	500	2200	400
	20	4200	700	3300	550	2700	500	2200	400
	40	3600	700	3200	600	2800	500	2200	400
	60	3200	750	2900	600	2600	500	2300	400
	90	2900	750	2500	600	2300	500	2000	400
120x35	10	3600	550	2800	450	2300	350	1900	300
	20	3600	550	2800	450	2300	400	1900	300
	40	3600	550	2900	450	2400	400	1900	300
	60	3200	600	2800	450	2500	400	2000	300
	90	2800	600	2500	450	2200	400	2000	300
120x45	10	4000	650	3200	500	2600	450	2100	350
	20	4100	650	3200	500	2700	450	2100	350
	40	3900	650	3300	500	2800	450	2200	350
	60	3500	650	3100	500	2800	450	2300	350
	90	3100	700	2700	550	2500	450	2100	350
120x70	10	5000	800	4000	650	3400	550	2600	450
	20	5100	800	4100	650	3400	550	2700	450
	40	4400	800	4000	650	3500	550	2700	450
	60	4000	850	3500	650	3200	550	2800	450
	90	3500	850	3100	700	2800	600	2500	450

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
120x90	10	5600	900	4500	700	3800	600	2900	500
	20	5500	900	4500	700	3800	600	3000	500
	40	4700	900	4300	750	3900	600	3000	500
	60	4300	950	3800	750	3500	650	3100	500
	90	3800	950	3400	750	3100	650	2700	500
140x35	10	4200	650	3300	500	2800	400	2200	350
	20	4300	650	3400	500	2800	450	2200	350
	40	4200	650	3500	500	2900	450	2300	350
	60	3700	650	3300	500	3000	450	2300	350
	90	3300	700	2900	550	2600	450	2300	350
140x45	10	4800	700	3800	550	3200	500	2500	400
	20	4800	700	3800	600	3200	500	2500	400
	40	4500	750	3900	600	3300	500	2600	400
	60	4000	750	3600	600	3300	500	2600	400
	90	3600	750	3100	600	2900	500	2500	400
140x70	10	5900	900	4700	700	4000	600	3100	500
	20	6000	900	4800	750	4000	600	3100	500
	40	5100	950	4600	750	4100	650	3200	500
	60	4600	950	4100	750	3800	650	3300	500
	90	4100	950	3600	800	3300	650	2900	500
140x90	10	6600	1000	5300	800	4500	700	3400	550
	20	6300	1000	5400	800	4500	700	3500	550
	40	5500	1050	4900	850	4600	700	3600	550
	60	4900	1050	4400	850	4100	700	3600	600
	90	4400	1100	3900	850	3600	750	3200	600
170x35	10	5200	750	4100	600	3400	500	2700	400
	20	5200	750	4200	600	3500	500	2700	400
	40	5100	750	4300	600	3600	500	2800	400
	60	4500	750	4000	600	3700	500	2900	400
	90	4000	800	3500	650	3200	550	2800	400
170x45	10	5800	850	4700	650	3900	550	3000	450
	20	5900	850	4700	700	4000	550	3100	450
	40	5500	850	4800	700	4100	600	3200	450
	60	4900	900	4300	700	4000	600	3200	450
	90	4300	900	3800	700	3500	600	3100	500

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
170x70	10	7200	1050	5800	850	4900	700	3800	550
	20	7100	1050	5900	850	5000	750	3800	600
	40	6200	1100	5600	850	5100	750	3900	600
	60	5600	1100	5000	900	4600	750	4000	600
	90	5000	1150	4400	900	4000	750	3600	600
170x90	10	7200	1200	6500	950	5500	800	4300	650
	20	7200	1200	6600	950	5600	800	4300	650
	40	6500	1200	5900	1000	5500	850	4400	650
	60	5900	1250	5300	1000	4900	850	4400	650
	90	5300	1250	4800	1000	4400	850	3900	700
190x35	10	5800	800	4600	650	3900	550	3000	400
	20	5900	800	4700	650	3900	550	3100	450
	40	5700	850	4800	650	4000	550	3100	450
	60	5000	850	4500	650	4100	550	3200	450
	90	4500	850	3900	700	3600	600	3100_{5}	450
190x45	10	6600	950	5200	750	4400	600	3400	500
	20	6600	950	5300	750	4500	650	3400	500
	40	6100	950	5400	750	4600	650	3500	500
	60	5400	950	4800	750	4400	650	3600	500
	90	4800	1000	4300	800	3900	650	3400	550
190x70	10	7200	1150	6500	950	5500	800	4300	650
	20	7200	1150	6600	950	5600	800	4400	650
	40	6800	1200	6200	950	5700	800	4500	650
	60	6200	1200	5500	1000	5100	850	4500	650
	90	5500	1250	4900	1000	4500	850	4000	650
190x90	10	7200	1300	7200	1050	6200	900	4800	700
	20	7200	1300	7200	1050	6300	900	4900	700
	40	7200	1350	6600	1050	6100	900	5000	750
	60	6600	1350	5900	1100	5500	950	4900	750
	90	5900	1400	5300	1100	4900	950	4300	750
240x35	10	7200	1000	5900	800	5000	650	3900	500
	20	7200	1000	6000	800	5100	650	3900	500
	40	7100	1000	6100	800	5200	650	4000_{5}	550
	60	6300	1000	5600	800	5200	700	4100_{10}	550
	90	5600	1050	5000	850	4500_{5}	700	4000_{20}	550

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
240x45	10	7200	1100	6700	900	5700	750	4400	600
	20	7200	1150	6800	900	5800	750	4500	600
	40	7200	1150	6800	900	5900	750	4600	600
	60	6800	1150	6100	950	5600	800	4700_{5}	600
	90	6100	1200	5400	950	4900	800	4300_{10}	650
240x70	10	7200	1400	7200	1100	7100	950	5600	750
	20	7200	1450	7200	1150	7200	950	5700	750
	40	7200	1450	7200	1150	7100	1000	5800	800
	60	7200	1500	6900	1150	6400	1000	5700	800
	90	6900	1500	6200	1200	5700	1000	5000	800
240x90	10	7200	1600	7200	1250	7200	1050	6300	850
	20	7200	1600	7200	1300	7200	1100	6300	850
	40	7200	1650	7200	1300	7200	1100	6500	900
	60	7200	1650	7200	1300	6800	1100	6100	900
	90	7200	1700	6600	1350	6100	1150	5400	900
290x45	10	7200	1300	7200	1050	7000	900	5500	700
	20	7200	1300	7200	1050	7000	900	5500_{5}	700
	40	7200	1350	7200	1050	7200	900	5700_{10}	700
	60	7200	1350	7200	1100	6700_{5}	900	5800_{20}	700
	90	7200	1400	6500	1100	5900_{5}	950	5200_{25}	750
290x70	10	7200	1650	7200	1300	7200	1100	6900	900
	20	7200	1650	7200	1350	7200	1100	6900	900
	40	7200	1700	7200	1350	7200	1150	7100	900
	60	7200	1750	7200	1350	7200	1150	6800_{5}	950
	90	7200	1800	7200	1400	6800	1200	6000_{5}	950
290x90	10	7200	1850	7200	1500	7200	1250	7200	1000
	20	7200	1900	7200	1500	7200	1250	7200	1000
	40	7200	1950	7200	1500	7200	1300	7200	1000
	60	7200	1950	7200	1550	7200	1300	7200	1050
	90	7200	2000	7200	1600	7200	1350	6500	1050

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 11

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span									
170x45	10	3400	1350	2400	950	1900	800	1700	700	1500	600
	20	3400	1350	2400	950	1900	800	1700	700	1500	600
	40	3000	1350	2400	950	2000	800	1700	700	1500	600
	60	2700	1300	2100	1000	1800	800	1600	700	1500	650
	90	2400	1200	1900	900	1600	800	1400	700	1300	650
170x70	10	4300	1600	2900	1150	2400	950	2100	850	1800	750
	20	4100	1600	3000	1200	2400	950	2100	850	1900	750
	40	3500	1600	2700	1200	2400	1000	2100	850	1900	750
	60	3100	1500	2400	1200	2100	1000	1900	850	1700	750
	90	2700	1300	2200	1100	1900	900	1700	800	1500	700
170x90	10	4800	1750	3200	1300	2600	1050	2300	900	2100	850
	20	4400	1750	3300	1300	2700	1050	2300	950	2100	850
	40	3700	1750	3000	1350	2600	1100	2300	950	2100	850
	60	3300	1600	2700	1350	2300	1100	2100	950	1900	850
	90	3000	1500	2400	1200	2000	1000	1800	900	1700	800
190x45	10	3800	1500	2600	1050	2200	850	1900	750	1700	700
	20	3900	1500	2700	1050	2200	900	1900	750	1700	700
	40	3400	1550	2600	1100	2200	900	1900	750	1700	700
	60	3000	1500	2400	1100	2000	900	1800	800	1700_5	700
	90	2600	1300	2100	1000	1800	900	1600	800	1500_5	700
190x70	10	4800	1800	3300	1300	2700	1050	2300	950	2100	850
	20	4600	1800	3300	1300	2700	1100	2300	950	2100	850
	40	3900	1800	3100	1350	2600	1100	2400	950	2100	850
	60	3400	1700	2700	1350	2400	1100	2100	950	1900	850
	90	3100	1500	2400	1200	2100	1000	1900	900	1700	800
190x90	10	5400	1950	3600	1450	3000	1200	2600	1050	2300	900
	20	4900	1950	3700	1450	3000	1200	2600	1050	2300	950
	40	4200	1950	3300	1500	2900	1200	2600	1050	2300	950
	60	3700	1800	3000	1500	2600	1250	2300	1050	2100	950
	90	3300	1600	2600	1300	2300	1100	2100	1000	1900	900

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span									
240x45	10	4900	1950	3400	1350	2700	1100	2400	950	2100	850
	20	5000	1950	3400	1350	2800	1100	2400	950	2200_{5}	850
	40	4200	1950	3400	1350	2800	1100	2500_{5}	1000	2200_{10}	900
	60	3800	1900	3000	1400	2600	1150	2300_{5}	1000	2100_{10}	900
	90	3300	1600	2600	1300	2300	1150	2100_{5}	1000	1900_{15}	900
240x70	10	6200	2250	4100	1650	3400	1350	2900	1150	2600	1050
	20	5700	2250	4200	1650	3400	1350	3000	1200	2700	1050
	40	4800	2250	3900	1700	3300	1400	3000	1200	2700	1100
	60	4300	2100	3500	1700	3000	1400	2700	1200	2500	1100
	90	3900	1900	3100	1500	2700	1300	2400	1200	2200	1100
240x90	10	6800	2450	4600	1850	3800	1500	3300	1300	2900	1150
	20	6000	2450	4700	1850	3800	1500	3300	1300	3000	1200
	40	5200	2450	4200	1900	3600	1550	3200	1350	3000	1200
	60	4700	2350	3700	1800	3300	1550	2900	1350	2700	1200
	90	4200	2100	3300	1600	2900	1400	2600	1300	2400	1200
290x45	10	6000	2350	4100	1600	3300	1350	2900_{5}	1150	2600_{10}	1050
	20	6000	2350	4100	1650	3400	1350	2900_{5}	1150	2600_{10}	1050
	40	5100	2350	4000	1650	3500_{5}	1350	3000_{10}	1200	2700_{20}	1050
	60	4600	2300	3600	1700	3100_{5}	1400	2800_{15}	1200	2600_{20}	1100
	90	4000	2000	3200	1600	2800_{5}	1400	2500_{15}	1250	2300_{20}	1100
290x70	10	7200	2750	5000	2000	4100	1650	3600	1400	3200	1250
	20	6800	2750	5100	2000	4200	1650	3600	1450	3200_{5}	1300
	40	5800	2750	4700	2050	4000	1650	3600_{5}	1450	3300_{10}	1300
	60	5200	2550	4200	2100	3600	1700	3300_{5}	1500	3000_{10}	1300
	90	4700	2300	3700	1800	3200	1600	2900_{5}	1400	2700_{10}	1350
290x90	10	7200	3000	5600	2200	4600	1800	4000	1600	3600	1400
	20	7100	3000	5700	2250	4600	1850	4000	1600	3600	1400
	40	6200	2900	5000	2250	4400	1850	3900	1600	3600_{5}	1450
	60	5600	2700	4500	2200	3900	1900	3500	1650	3200_{5}	1450
	90	5000	2500	4000	2000	3500	1700	3200	1600	2900_{5}	1400

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span									
170x45	10	3400	1350	2400	950	1900	800	1700	700	1400	600
	20	3400	1350	2400	950	1900	800	1700	700	1500	600
	40	3500	1350	2400	950	2000	800	1700	700	1500	600
	60	3600	1400	2500	1000	2000	800	1800	700	1600_{5}	650
	90	3200	1400	2500	1000	2100	850	1800_{5}	700	1600_{20}	650
170x70	10	4300	1600	2900	1150	2400	950	2100	850	1800	750
	20	4300	1600	3000	1200	2400	950	2100	850	1900	750
	40	4400	1600	3000	1200	2500	1000	2100	850	1900	750
	60	4200	1600	3100	1200	2500	1000	2200	850	2000	750
	90	3700	1600	2900	1250	2600	1000	2200	900	2000	800
170x90	10	4800	1750	3200	1300	2600	1050	2300	900	2100	850
	20	4800	1750	3300	1300	2700	1050	2300	950	2100	850
	40	5000	1750	3400	1350	2700	1100	2400	950	2100	850
	60	4500	1750	3500	1350	2800	1100	2400	950	2200	850
	90	4000	1700	3200	1400	2800	1150	2500	1000	2200	900
190x45	10	3800	1500	2600	1050	2200	850	1900	750	1600	700
	20	3900	1500	2700	1050	2200	900	1900	750	1600	700
	40	4000	1550	2700	1100	2200	900	1900	750	1700	700
	60	4100	1550	2800	1100	2300	900	2000	800	1800_{15}	700
	90	3600	1550	2800	1150	2400_{5}	900	2000_{15}	800	1800_{30}	700
190x70	10	4800	1800	3300	1300	2700	1050	2300	950	2100	850
	20	4900	1800	3300	1300	2700	1100	2300	950	2100	850
	40	5000	1800	3400	1350	2800	1100	2400	950	2100	850
	60	4700	1800	3500	1350	2800	1100	2500	950	2200	850
	90	4200	1700	3300	1400	2900	1150	2500	1000	2200_{10}	900
190x90	10	5400	1950	3600	1450	3000	1200	2600	1050	2300	900
	20	5400	1950	3700	1450	3000	1200	2600	1050	2300	950
	40	5600	1950	3800	1500	3100	1200	2700	1050	2400	950
	60	5100	1950	3900	1500	3200	1250	2700	1050	2500	950
	90	4500	1850	3600	1550	3100	1250	2800	1100	2500	1000

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span									
240x45	10	4900	1950	3400	1350	2700	1100	2400	950	2000	850
	20	5000	1950	3400	1350	2800	1100	2400	950	2100_{10}	850
	40	5100	1950	3500	1350	2800	1100	2500_{15}	1000	2200_{25}	900
	60	5100	1950	3600	1400	2900_{10}	1150	2500_{25}	1000	2300_{45}	900
	90	4600	1850	3600_{5}	1450	3000_{25}	1150	2600_{45}	1000	2300_{65}	900
240x70	10	6200	2250	4100	1650	3400	1350	2900	1150	2600	1050
	20	6200	2250	4200	1650	3400	1350	3000	1200	2700	1050
	40	6400	2250	4300	1700	3500	1400	3100	1200	2700_{5}	1100
	60	5900	2200	4400	1700	3600	1400	3100_{5}	1200	2800_{20}	1100
	90	5300	2050	4200	1750	3600_{5}	1450	3200_{20}	1250	2800_{35}	1100
240x90	10	6900	2450	4600	1850	3800	1500	3300	1300	2900	1150
	20	7000	2450	4700	1850	3800	1500	3300	1300	3000	1200
	40	7000	2450	4800	1900	3900	1550	3400	1350	3000	1200
	60	6400	2350	4900	1900	4000	1550	3500	1350	3100_{10}	1200
	90	5700	2200	4500	1850	3900	1600	3500_{10}	1400	3100_{20}	1250
290x45	10	6000	2350	4100	1600	3300	1350	2900_{10}	1150	2500_{20}	1050
	20	6100	2350	4100	1650	3400_{5}	1350	2900_{20}	1150	2500_{30}	1050
	40	6300	2350	4200	1650	3500_{15}	1350	3000_{35}	1200	2600_{45}	1050
	60	6200	2300	4300_{10}	1700	3500_{30}	1400	3100_{50}	1200	2700_{70}	1100
	90	5500	2150	4400_{25}	1750	3600_{50}	1400	3100_{80}	1250	2800_{100}	1100
290x70	10	7200	2750	5000	2000	4100	1650	3600	1400	3200_{5}	1250
	20	7200	2750	5100	2000	4200	1650	3600	1450	3200_{10}	1300
	40	7200	2750	5200	2050	4300	1650	3700_{10}	1450	3300_{25}	1300
	60	7100	2550	5300	2100	4400_{10}	1700	3800_{25}	1500	3400_{40}	1300
	90	6300	2400	5100	2000	4400_{25}	1750	3900_{45}	1500	3400_{60}	1350
290x90	10	7200	3000	5600	2200	4600	1800	4000	1600	3600	1400
	20	7200	3000	5700	2250	4600	1850	4000	1600	3600	1400
	40	7200	2900	5800	2250	4700	1850	4100	1600	3700_{15}	1450
	60	7200	2700	5900	2300	4900	1900	4200_{15}	1650	3800_{30}	1450
	90	6800	2550	5500	2150	4800_{10}	1900	4300_{30}	1700	3800_{45}	1500

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

RECYCLED HARDWOOD
SPAN TABLES

SUPPLEMENT 7

Wind Classifications C1 and C2

Recycled Species Group C
Recycled Grade, RG1

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1.0 INTRODUCTION

This Supplement was prepared under a project supported by Forest and Wood Products Australia and provides span tables for some common applications and uses for recycled structural hardwood timber. The span tables provided include some commercial as well as some domestic construction uses. The span tables are specific to recycled timber which will include recycled timber features.

2.0 APPLICATION

The span tables included in this Supplement are only applicable for use with timber graded in accordance with 'Interim Industry Standard, Recycled Timber – Visually Stress Graded Recycled Timber for Structural Purposes' available from www.fwpa.com.au for the Wind Classifications designated in this Supplement.

The Tables in this Supplement apply to Recycled Timber Species Group C - Recycled Grade, RG1.

For domestic applications, the requirements of AS 1684 are also applicable for use in conjunction with the Tables in this Supplement.

3.0 ALTERNATIVE GRADE

In addition to Species Group C, RG1, the tables in this Supplement apply to Recycled Timber Species Group B - Recycled Grade, RG2.

4.0 TOLERANCES

The depth (D) and breadth (B) shall not be more than 2mm under the sizes given.

5.0 CONTENTS

Table 1

Decking Boards - Commercial Applications Supporting 5.0 kPa Uniform Live Load

	Point Live Load (kN)			
	3	5	9	13
Size DxB (mm)	**Span**			
35x70	680	480	NS	NS
35x90	740	580	320	NS
35x120	820	760	420	NS
35x140	860	860	500	340
45x70	900	800	440	NS
45x90	980	960	540	380
45x120	1080	1060	720	500
45x140	1140	1120	840	580

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum DL of 60 (kg/m2), Floor Live Load of 5 (kPa).

iii) End bearing lengths = 20 mm at end supports and 20 mm at internal supports for continuous members.

iv) Point loads are assumed to be shared by two deck boards.

v) Live load deflection limit = span/150 or 4 mm.

vi) Decking shall be two or more continuous span.

Table 2

Deck Bearers - Domestic Applications
May Support Decks Greater than 1000mm above the Ground

	Floor Load Width (mm)											
	1200		2400		4800		1200		2400		4800	
	Bearer Span (mm)											
	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
Size DxB (mm)	**Single Span**						**Continuous Span**					
90x45	1500	400	1000	300	NS	NS	1500	400	1000	300	NS	NS
90x70	1800	500	1300	300	NS	NS	1800	500	1300	300	NS	NS
90x90	2000	600	1400	400	1000	300	2000	600	1400	400	1000	300
120x45	2000	600	1400	400	1000	300	2000	600	1400	400	NS	NS
120x70	2500	700	1700	500	1200	300	2500	700	1700	500	1200	300
120x90	2700	800	1900	500	1300	300	2700	800	1900	500	1300	300
140x45	2400	700	1600	400	1100	300	2400	700	1600	400	1100	300
140x70	2900	800	2000	600	1400	400	2900	800	2000	600	1400	400
140x90	3200	900	2300	600	1600	400	3200	900	2300	600	1600	400
170x45	2900	800	2000	600	1400	400	2900	800	2000	600	1300_{5}	300_{5}
170x70	3400	1000	2500	700	1700	500	3500	1000	2500	700	1700	500
170x90	3700	1100	2800	800	1900	500	3900	1100	2800	800	1900	500
190x45	3200	900	2300	600	1600_{5}	400_{5}	3200	900	2300	600	1500_{20}	400_{20}
190x70	3700	1100	2800	800	1900	500	3900	1100	2800	800	1900	500
190x90	4000	1200	3100	900	2200	600	4400	1300	3100	900	2200	600
240x45	4000	1200	2900	800	2000_{20}	600_{20}	4100	1200	2900_{15}	800	1800_{60}	500_{60}
240x70	4500	1300	3500	1000	2500_{10}	700_{10}	5000	1500	3500	1000	2500_{40}	700_{40}
240x90	4800	1400	3900	1100	2700	800	5500	1600	3900	1100	2700_{20}	800_{20}
290x45	4600	1300	3500_{10}	1000_{10}	2400_{35}	700_{35}	4900	1400	3500_{45}	1000_{45}	2200_{90}	600_{90}
290x70	5200	1500	4300	1200	3000_{20}	900_{20}	6000	1800	4300_{10}	1200	3000_{70}	900_{70}
290x90	5500	1600	4600	1300	3300_{15}	900_{15}	6600	1900	4700	1400	3300_{55}	900_{55}

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Cantilever (mm).

ii) The above table was based on a maximum DL of 30 (kg/m2), Floor Point Load of 1.8 (kN), Balcony Live Load of 3 (kPa).

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 30 % of Backspan.

v) End bearing lengths = 50 mm at end supports and 100 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 50 mm at end supports and 100 mm at internal supports.

Table 3

Deck Joists - Domestic Applications
May Support Decks greater than 1000mm above the Ground

	Joist Spacing (mm)											
	300		450		600		300		450		600	
	Max Joist Span (mm)											
	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever
Size DxB (mm)	**Single Span**						**Continuous Span**					
90x35	1500	400	1400	400	1400	400	1800	500	1700	500	1600	400
90x45	1700	500	1600	400	1600	400	2100	600	1900	500	1900	500
120x35	2400	700	2200	600	2100	600	2900	800	2700	800	2500	700
120x45	2700	800	2500	700	2500	700	3300	900	3100	850	2900	800
140x35	3000	900	2800	800	2700	800	3500	1050	3400	900	3000	850
140x45	3400	1000	3200	900	3100	900	3900	1150	3700	1000	3400	900
170x35	3800	1100	3600	1000	3400	1000	4300	1250	4100	1100	3600	1000
170x45	4100	1200	3900	1100	3700	1100	4700	1400	4500	1200	4100	1100
190x35	4200	1200	4000	1200	3700	1100	4800	1400	4600	1250	4100	1150
190x45	4600	1300	4300	1200	4000	1200	5300	1550	5000	1350	4500	1250
240x35	5300	1500	4800	1400	4500	1300	6100	1750	5800	1550	5100	1400
240x45	5700	1700	5100	1500	4800	1400	6700	1950	6300	1700	5700	1550
290x45	6500	1900	5900	1700	5500	1600	7200	2100	7200	2050	6900	1850

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, C'lever = Cantilever (mm).

ii) The above table was based on a maximum Deck Mass of 30 (kg/m2), Floor Point Load of 1.8 (kN), Balcony Live Load of 3 (kPa).

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 30 % of Backspan.

v) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members.

Table 4

Stair Stringers

Size DxB (mm)	Stair Width (mm)					
	750	900	1200	1500	1800	2400
	Maximum Stringer Span (mm)					
190x35	3400	3400	3200	3000	2800	2500
190x45	3800	3800	3500	3200	3000	2700
240x35	4400	4200	3900	3700	3500	3200
240x45	4600	4500	4200	3900	3800	3500
290x45	5300	5100	4800	4500	4300	4000

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Floor Mass of 40 (kg/m2), Floor Live Load of 2.0 (kPa), Floor Point Load of 2.7 (kN).

iii) Minimum bearing length = 50 mm at end supports.

iv) Maximum trench depth to accommodate treads - 10 mm.

Table 5 Stair Treads (with open flights)

Size DxB (mm)	Max Tread Span (mm)
35x240	NS
35x290	800
40x240	900
40x290	1000
45x240	1100
45x290	1200
50x240	1300
50x290	1500
60x240	1800
60x290	1900

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Deck Mass of 40 (kg/m2), Floor Point Load of 2.7 (kN).

iii) Minimum bearing length = 35 mm at end supports.

Table 6

Posts
Supporting Roof and/or Floor Loads

	Floor Load Area (m2)											
	0				10				20			
Roof Load Area (m2)	0	10	20	40	0	10	20	40	0	10	20	40
Size DxB (mm)	**Maximum Post Height (mm)**											
Sheet Roof												
70x70	4800	2700	NS	NS	2300	2000	NS	NS	1600	1500	1400	NS
90x90	4800	4300	3100	NS	3700	3300	2800	NS	2600	2500	2300	NS
120x120	4800	4800	4800	3800	4800	4800	4800	3700	4600	4400	4200	3500
140x140	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
170x170	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
190x190	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
Tile Roof												
70x70	4800	2200	1600	NS	2300	1800	1400	NS	1600	1300	NS	NS
90x90	4800	3700	2600	NS	3700	3000	2400	NS	2600	2300	2100	NS
120x120	4800	4800	4600	3300	4800	4800	4300	3100	4600	4100	3700	3000
140x140	4800	4800	4800	4400	4800	4800	4800	4300	4800	4800	4800	4100
170x170	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
190x190	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Sheet Roof Mass of 40 (kg/m2), Tile Roof Mass of 90 (kg/m2), Total Upper Floor Mass of 50 (kg/m2), Floor Live Load of 1.5 (kPa).

iii) Posts are free standing, i.e. not supporting lateral wind loads from walls etc.

Table 7

Window or Door Mullions
Single or Upper Storey Load Bearing Walls

Size DxB (mm)	Mullion Height (mm)	Roof Load Width (mm)							
		3000	4500	6000	7500	3000	4500	6000	7500
		Mullion Spacing (mm)							
		Sheet Roof				Tile Roof			
70x140	2400	1100	1000	NS	NS	1000	NS	NS	NS
90x70	2400	1000	NS	NS	NS	NS	NS	NS	NS
90x90	2400	1300	1200	1100	1000	1200	1000	NS	NS
	2700	1000	NS	NS	NS	NS	NS	NS	NS
90x120	2400	1800	1600	1500	1400	1600	1500	1300	1200
	2700	1400	1300	1200	1000	1300	1100	900	NS
	3000	1000	900	NS	NS	900	NS	NS	NS
90x140	2400	2100	1900	1700	1600	1900	1700	1600	1400
	2700	1600	1500	1400	1300	1500	1400	1200	1100
	3000	1200	1200	1100	900	1200	1000	NS	NS
120x70	2400	2100	1900	1800	1700	1900	1800	1600	1500
	2700	1600	1500	1400	1300	1500	1400	1300	1200
	3000	1300	1200	1100	1000	1200	1100	900	NS
120x90	2400	2600	2400	2200	2100	2400	2200	2000	1800
	2700	2000	1800	1700	1700	1900	1700	1600	1500
	3000	1600	1500	1400	1300	1500	1400	1300	1100
	3600	900	900	NS	NS	900	NS	NS	NS
120x120	2400	3500	3200	3000	2800	3300	3000	2700	2500
	2700	2700	2500	2300	2200	2500	2300	2100	1900
	3000	2200	2000	1800	1700	2000	1800	1700	1600
	3600	1300	1200	1200	1200	1200	1200	1100	1000
120x140	2400	4100	3800	3500	3300	3900	3500	3200	3000
	2700	3200	3000	2800	2600	3000	2700	2500	2300
	3000	2600	2400	2200	2100	2400	2200	2000	1800
	3600	1600	1500	1400	1400	1500	1400	1300	1300
140x70	2400	2900	2700	2600	2400	2800	2500	2300	2100
	2700	2300	2200	2000	1900	2200	2000	1800	1700
	3000	1800	1700	1600	1600	1700	1600	1500	1400
	3600	1100	1100	1100	1000	1100	1000	900	NS
140x90	2400	3700	3400	3200	3000	3500	3200	2900	2700
	2700	2900	2700	2500	2400	2700	2500	2300	2100
	3000	2300	2200	2000	1900	2200	2000	1800	1700
	3600	1500	1400	1400	1300	1400	1300	1300	1200
140x120	2400	4800	4600	4300	4000	4600	4200	3900	3600
	2700	3900	3600	3400	3200	3700	3400	3100	2900
	3000	3100	2900	2700	2600	2900	2700	2500	2300
	3600	2100	1900	1800	1700	2000	1800	1600	1600
	4200	1200	1100	1100	1100	1100	1100	1100	1000
140x140	2400	4800	4800	4800	4700	4800	4800	4600	4200
	2700	4600	4300	4000	3800	4300	4000	3700	3400
	3000	3700	3400	3200	3000	3500	3200	2900	2700
	3600	2500	2300	2200	2100	2300	2100	2000	1800
	4200	1400	1400	1400	1300	1400	1400	1300	1200

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Sheet Roof Mass of 40 (kg/m2), Tile Roof Mass of 90 (kg/m2).

iii) Maximum tension load in mullion not to exceed 60 kN.

iv) Mullion Spacing is half the width of opening either side of mullion or for mullions/studs at sides of openings, half the width of opening.

Table 8 Lintels (Window Heads) - Sheet Roof Supporting Single or Upper Storey Loadbearing Walls

	Roof Load Width (mm)									
	1500		3000		4500		6000		7500	
Rafter/Truss Spacing (mm)	600	1200	600	1200	600	1200	600	1200	600	1200
	Maximum Lintel Span (mm)									
Size DxB (mm)	**Single Span**									
140x35	2300	2200	1500	NS	NS	NS	NS	NS	NS	NS
140x45	2600	2600	1800	1500	1400	NS	NS	NS	NS	NS
140x70	3000	3000	2300	2100	1800	1500	1500	NS	1400	NS
140x90	3100	3100	2500	2400	2000	1800	1700	1300	1500	NS
170x35	2800	2700	1900	1500	1500	NS	NS	NS	NS	NS
170x45	3100	3000	2200	2100	1700	NS	1500	NS	NS	NS
170x70	3400	3400	2700	2700	2300	2100	1900	1500	1700	NS
170x90	3600	3600	3100	2900	2500	2400	2100	2000	1900	1500
190x35	3100	3000	2200	2100	1700	NS	1200	NS	NS	NS
190x45	3400	3300	2500	2400	2000	1500	1700	NS	1500	NS
190x70	3700	3700	3100	3000	2500	2400	2200	1700	1900	1300
190x90	3900	3900	3400	3300	2800	2700	2400	2300	2100	1700
240x35	3800	3700	2800	2700	2300	1700	1900	NS	1700	NS
240x45	4000	4000	3200	3000	2600	2500	2200	1600	1900	NS
240x70	4400	4400	3800	3700	3200	3100	2800	2700	2500	1900
240x90	4600	4600	4000	4000	3600	3400	3100	2900	2700	2700
290x45	4600	4600	3900	3700	3100	3000	2700	2000	2400	1700
290x70	5000	5000	4300	4300	3900	3800	3400	3200	3000	2900
290x90	5300	5300	4600	4600	4200	4200	3800	3600	3400	3200
	Continuous Span									
140x35	2300	2300	1600	1200	NS	NS	NS	NS	NS	NS
140x45	2600	2700	1700	1600	1400	NS	NS	NS	NS	NS
140x70	3300	3200	2300	2200	1700	1600	1500	NS	1400	NS
140x90	3600	3500	2600	2600	2100	2000	1600	1500	1500	NS
170x35	2800	2800	1700	1500	1400	NS	NS	NS	NS	NS
170x45	3200	3200	2200	2100	1600	1300	1300	NS	NS	NS
170x70	4000	4000	2800	2800	2200	2100	1700	1400	1500	1200
170x90	4400	4400	3100	3100	2500	2600	2200	1700	1700	1400
190x35	3200	3200	2200	1600	1500	NS	NS	NS	NS	NS
190x45	3600	3500	2500	2600	1700	1400	1400	NS	NS	NS
190x70	4500	4400	3100	3100	2600	2600	2100	1600	1600	1300
190x90	4900	4900	3500	3400	2800	2800	2300	2100	2000	1600
240x35	4100	4000	2700	2900	1900	1900	1900_{25}	NS	1300_{10}	NS
240x45	4600	4500	3200	3100	2500	2700_{5}	1900	1900_{5}	1900_{25}	NS
240x70	5500	5500	4000	4000	3200	3100	2500	2800	2100	1900
240x90	5800	5800	4400	4400	3600	3500	3100	3100	2500	2800
290x45	5600	5600	3900_{5}	3900_{5}	2900_{15}	3000_{20}	2200_{15}	2000_{10}	2000_{35}	2000_{30}
290x70	6300	6300	4800	4800	3900_{5}	3900_{5}	3200_{15}	3200_{10}	3000_{30}	2800_{25}
290x90	6500	6600	5400	5400	4400	4400	3800_{10}	3300	3200_{15}	3200_{15}

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Roof Mass of 40 (kg/m2).

iii) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

Table 9

Lintels (Window Heads) - Tile Roof
Supporting Single or Upper Storey Loadbearing Walls

	Roof Load Width (mm)									
	1500		3000		4500		6000		7500	
Rafter/Truss Spacing (mm)	600	1200	600	1200	600	1200	600	1200	600	1200
	Maximum Lintel Span (mm)									
Size DxB (mm)	**Single Span**									
140x35	1800	1800	1400	1300	1200	NS	NS	NS	NS	NS
140x45	2000	2000	1600	1400	1400	NS	1200	NS	NS	NS
140x70	2300	2300	1800	1800	1600	1500	1400	NS	1400	NS
140x90	2500	2600	2000	2000	1700	1700	1600	1500	1500	NS
170x35	2200	2200	1700	1700	1500	NS	1400	NS	NS	NS
170x45	2400	2400	1900	1900	1700	1500	1500	NS	1400	NS
170x70	2800	2800	2200	2200	1900	1900	1800	1700	1600	1200
170x90	3000	3000	2400	2500	2100	2100	1900	1900	1800	1600
190x35	2500	2500	2000	1900	1700	1200	1500	NS	NS	NS
190x45	2700	2700	2200	2100	1900	1700	1700	NS	1600	NS
190x70	3100	3100	2500	2600	2200	2200	2000	1900	1800	1600
190x90	3300	3200	2700	2800	2400	2400	2200	2100	2000	2000
240x35	3100	3100	2500	2500	2200	1800	1900	1300	1800	NS
240x45	3300	3300	2700	2800	2400	2400	2200	1800	1900	1400
240x70	3700	3600	3100	3100	2800	2800	2500	2500	2300	2300
240x90	3900	3900	3300	3300	3000	3000	2800	2800	2600	2600
290x45	3800	3800	3200	3200	2900	2900	2600	2600	2400	1900
290x70	4200	4200	3600	3600	3300	3200	3000	3000	2800	2900
290x90	4500	4500	3800	3800	3500	3400	3200	3200	3100	3000
	Continuous Span									
140x35	2500	2500	1600	1400	1400	NS	NS	NS	NS	NS
140x45	2700	2700	2000	1900	1500	NS	NS	NS	NS	NS
140x70	3100	3000	2400	2500	2000	1900	1600	1300	1500	NS
140x90	3300	3200	2700	2700	2200	2100	1800	1600	1600	1300
170x35	3000	3000	2100	1600	1500	NS	NS	NS	NS	NS
170x45	3200	3100	2400	2500	1700	1400	1500_{5}	NS	NS	NS
170x70	3500	3500	3000	3000	2400	2600	2100	1600_{5}	1600	1300
170x90	3800	3800	3200	3100	2700	2700	2300	2100	2100	1600_{5}
190x35	3200	3200	2300	1900	1600_{5}	1300	NS	NS	NS	NS
190x45	3500	3400	2700	2700	2000_{5}	1600_{10}	1600_{10}	1200	NS	NS
190x70	3900	3800	3300	3200	2700	2700	2300_{5}	1700	1700	1500
190x90	4100	4100	3500	3500	3000	3000	2600	2700	2200_{5}	1700
240x35	3900	3800	2900_{25}	3000_{30}	2200_{40}	1900_{25}	1900_{60}	1700_{50}	1300_{40}	NS
240x45	4100	4100	3500_{20}	3300_{15}	2500_{25}	2800_{40}	1900_{30}	1900_{30}	1900_{60}	1800_{50}
240x70	4600	4600	3900	3900	3500_{15}	3300_{15}	3000_{30}	3000_{30}	2600_{30}	2700_{50}
240x90	4900	4900	4200	4200	3800_{5}	3700_{5}	3300_{20}	3300_{10}	2900_{30}	2900_{35}
290x45	4800	4700	4000_{35}	4000_{35}	3200_{65}	3200_{60}	2500_{65}	2800_{90}	2000_{75}	2000_{75}
290x70	5300	5300	4500_{5}	4500_{5}	4100_{35}	4100_{35}	3600_{60}	3200_{45}	3200_{80}	3000_{70}
290x90	5600	5600	4800	4800	4400_{20}	4300_{20}	4000_{45}	4000_{45}	3600_{60}	3200_{45}

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Roof Mass of 90 (kg/m2).

iii) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

Table 10

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
90x35	10	2400	400	1900	300	1600	250	1300	250
	20	2300	400	1900	300	1600	250	1300	250
	40	1900	400	1700	350	1500	300	1300	250
	60	1700	400	1500	350	1300	300	1200	250
	90	1500	450	1300	350	1200	300	1000	250
90x45	10	2800	450	2100	350	1800	300	1500	250
	20	2500	450	2200	350	1800	300	1500	250
	40	2100	450	1800	350	1700	300	1500	250
	60	1800	500	1600	400	1500	300	1300	250
	90	1600	500	1400	400	1300	350	1100	250
90x70	10	3300	600	2700	450	2200	400	1800	300
	20	2800	600	2600	450	2300	400	1800	300
	40	2400	600	2100	450	1900	400	1700	300
	60	2100	600	1800	500	1700	400	1500	350
	90	1800	600	1600	500	1500	400	1300	350
90x90	10	3400	650	3000	500	2500	450	2000	350
	20	3000	650	2700	500	2500	450	2000	350
	40	2500	650	2300	550	2100	450	1800	350
	60	2300	650	2000	550	1800	450	1600	350
	90	2000	700	1800	550	1600	450	1400	400
120x35	10	3300	500	2600	400	2200	350	1800	250
	20	3100	500	2600	400	2200	350	1800	250
	40	2500	500	2200	400	2000	350	1800	300
	60	2200	550	2000	400	1800	350	1600	300
	90	2000	550	1700	450	1600	350	1400	300
120x45	10	3800	600	3000	450	2500	400	2000	300
	20	3300	600	3000	450	2500	400	2000	300
	40	2700	600	2400	450	2200	400	2000	300
	60	2400	600	2100	500	2000	400	1700	300
	90	2100	600	1900	500	1700	400	1500	350
120x70	10	4200	750	3700	600	3100	500	2500	400
	20	3700	750	3400	600	3100	500	2500	400
	40	3100	750	2800	600	2600	500	2300	400
	60	2800	750	2500	600	2300	500	2000	400
	90	2500	800	2200	650	2000	550	1700	400

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
120x90	10	4400	800	4100	650	3500	550	2700	450
	20	3900	850	3600	650	3300	550	2800	450
	40	3300	850	3000	650	2800	600	2500	450
	60	3000	850	2700	700	2500	600	2200	450
	90	2700	900	2400	700	2200	600	1900	500
140x35	10	3900	600	3100	450	2600	400	2100	300
	20	3600	600	3100	450	2600	400	2100	300
	40	3000	600	2600	450	2400	400	2100	300
	60	2600	600	2300	500	2100	400	1800	300
	90	2300	600	2000	500	1800	400	1600	350
140x45	10	4400	650	3500	500	2900	450	2300	350
	20	3800	650	3500	550	3000	450	2400	350
	40	3200	700	2800	550	2600	450	2300	350
	60	2800	700	2500	550	2300	450	2000	350
	90	2500	700	2200	550	2000	500	1800	400
140x70	10	4800	850	4400	650	3700	550	2900	450
	20	4200	850	3900	650	3600	550	2900	450
	40	3600	850	3200	700	3000	600	2600	450
	60	3200	850	2900	700	2600	600	2300	450
	90	2900	900	2500	700	2300	600	2000	500
140x90	10	5000	950	4700	750	4200	650	3200	500
	20	4500	950	4100	750	3800	650	3200	500
	40	3800	950	3500	750	3200	650	2900	500
	60	3500	1000	3100	800	2900	650	2500	550
	90	3100	1000	2800	800	2500	700	2200	550
170x35	10	4800	700	3800	550	3200	450	2500	350
	20	4300	700	3900	550	3200	450	2500	350
	40	3600	700	3200	550	2900	450	2600	350
	60	3200	700	2800	550	2600	450	2200	350
	90	2800	750	2500	600	2200	500	2000	400
170x45	10	5200	800	4300	600	3600	500	2800	400
	20	4600	800	4100	600	3700	500	2900	400
	40	3800	800	3400	650	3200	550	2800	400
	60	3400	800	3000	650	2800	550	2400	450
	90	3000	850	2700	650	2400	550	2100	450

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
170x70	10	5600	1000	5300	800	4600	650	3500	500
	20	5000	1000	4600	800	4300	650	3600	550
	40	4300	1000	3900	800	3600	700	3200	550
	60	3900	1000	3500	800	3200	700	2800	550
	90	3500	1050	3100	850	2800	700	2500	550
170x90	10	5800	1100	5500	900	5100	750	4000	600
	20	5300	1100	4900	900	4600	750	4000	600
	40	4600	1150	4200	900	3900	750	3500	600
	60	4200	1150	3700	900	3500	800	3100	600
	90	3700	1200	3300	950	3100	800	2700	650
190x35	10	5400	750	4300	600	3600	500	2800	400
	20	4800	750	4300	600	3700	500	2900	400
	40	4000	750	3500	600	3300	500	2900	400
	60	3500	800	3100	600	2900	500	2500	400
	90	3100	800	2800	650	2500	550	2200	400
190x45	10	5700	850	4900	700	4100	550	3200	450
	20	5100	850	4600	700	4200	550	3200	450
	40	4300	850	3800	700	3500	600	3100	450
	60	3800	900	3400	700	3100	600	2700	450
	90	3400	900	3000	700	2700	600	2400	500
190x70	10	6100	1050	5800	850	5200	750	4000	550
	20	5500	1100	5100	850	4800	750	4000	600
	40	4800	1100	4300	900	4000	750	3600	600
	60	4300	1100	3900	900	3600	750	3200	600
	90	3900	1150	3500	900	3200	800	2800	600
190x90	10	6300	1200	6000	950	5800	800	4500	650
	20	5800	1200	5400	1000	5100	850	4600	650
	40	5100	1250	4600	1000	4300	850	3900	650
	60	4600	1250	4200	1000	3900	850	3400	700
	90	4200	1300	3700	1050	3400	900	3000	700
240x35	10	6700	900	5500	700	4700	600	3600	450
	20	5900	900	5400	700	4700	600	3600	450
	40	5000	950	4500	750	4100	600	3600	500
	60	4500	950	4000	750	3600	600	3200	500
	90	4000	950	3500	750	3200	650	2800	500

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
240x45	10	7000	1000	6300	800	5300	700	4100	550
	20	6200	1050	5700	850	5300	700	4200	550
	40	5300	1050	4800	850	4400	700	3900	550
	60	4800	1050	4300	850	3900	700	3500	550
	90	4300	1100	3800	900	3500	750	3000	600
240x70	10	7200	1300	7000	1050	6600	900	5200	700
	20	6700	1300	6300	1050	5900	900	5300	700
	40	5900	1350	5400	1050	5000	900	4500	700
	60	5400	1350	4900	1100	4500	900	4000	700
	90	4900	1400	4300	1100	4000	950	3500	750
240x90	10	7200	1450	7200	1150	7000	1000	5800	800
	20	7000	1500	6600	1150	6200	1000	5700	800
	40	6200	1500	5700	1200	5400	1000	4800	800
	60	5700	1550	5200	1200	4800	1050	4300	800
	90	5200	1600	4700	1250	4300	1050	3800	850
290x45	10	7200	1200	7200	950	6500	800	5100	650
	20	7200	1200	6700	950	6300	800	5100	650
	40	6300	1250	5700	1000	5300	850	4700	650
	60	5700	1250	5100	1000	4700	850	4200	650
	90	5100	1300	4600	1000	4200	850	3700	700
290x70	10	7200	1550	7200	1200	7200	1000	6400	800
	20	7200	1550	7200	1200	7000	1050	6400	800
	40	7000	1550	6400	1250	6000	1050	5400	850
	60	6400	1600	5800	1250	5400	1050	4800	850
	90	5800	1650	5200	1300	4800	1100	4200	850
290x90	10	7200	1700	7200	1350	7200	1150	7200	900
	20	7200	1750	7200	1400	7200	1150	6800	950
	40	7200	1750	6800	1400	6400	1200	5800	950
	60	6800	1800	6200	1450	5800	1200	5200	950
	90	6200	1850	5600	1450	5200	1250	4600	1000

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
90x35	10	2400	400	1900	300	1600	250	1300	250
	20	2500	400	1900	300	1600	250	1300	250
	40	2500	400	1900	350	1700	300	1300	250
	60	2300	400	2000	350	1700	300	1400	250
	90	2000	450	1800	350	1600	300	1400	250
90x45	10	2800	450	2100	350	1800	300	1500	250
	20	2800	450	2200	350	1800	300	1500	250
	40	2800	450	2200	350	1900	300	1500	250
	60	2500	500	2200	400	1900	300	1600	250
	90	2200	500	1900	400	1700	350	1500	250
90x70	10	3500	600	2700	450	2200	400	1800	300
	20	3500	600	2700	450	2300	400	1800	300
	40	3200	600	2800	450	2300	400	1900	300
	60	2900	600	2500	500	2300	400	1900	350
	90	2500	600	2200	500	2000	400	1800	350
90x90	10	3900	650	3000	500	2500	450	2000	350
	20	3900	650	3100	500	2500	450	2000	350
	40	3500	650	3100	550	2600	450	2100	350
	60	3100	650	2700	550	2500	450	2100	350
	90	2700	700	2400	550	2200	450	1900	400
120x35	10	3300	500	2600	400	2200	350	1800	250
	20	3400	500	2600	400	2200	350	1800	250
	40	3500	500	2700	400	2200	350	1800	300
	60	3100	550	2700	400	2300	350	1900	300
	90	2700	550	2400	450	2100	350	1900	300
120x45	10	3800	600	3000	450	2500	400	2000	300
	20	3800	600	3000	450	2500	400	2000	300
	40	3700	600	3100	450	2600	400	2100	300
	60	3300	600	2900	500	2600	400	2100	300
	90	2900	600	2600	500	2300	400	2100	350
120x70	10	4700	750	3700	600	3100	500	2500	400
	20	4800	750	3800	600	3200	500	2500	400
	40	4200	750	3800	600	3200	500	2500	400
	60	3800	750	3400	600	3100	500	2600	400
	90	3400	800	3000	650	2700	550	2400	400

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
120x90	10	5300	800	4200	650	3500	550	2700	450
	20	5300	850	4200	650	3500	550	2800	450
	40	4500	850	4100	650	3600	600	2800	450
	60	4100	850	3600	700	3300	600	2900	450
	90	3600	900	3200	700	3000	600	2600	500
140x35	10	3900	600	3100	450	2600	400	2100	300
	20	4000	600	3100	450	2600	400	2100	300
	40	4000	600	3200	450	2700	400	2100	300
	60	3600	600	3100	500	2700	400	2200	300
	90	3100	600	2800	500	2500	400	2200	350
140x45	10	4400	650	3500	500	2900	450	2300	350
	20	4500	650	3600	550	3000	450	2400	350
	40	4300	700	3700	550	3100	450	2400	350
	60	3900	700	3400	550	3100	450	2500	350
	90	3400	700	3000	550	2700	500	2400	400
140x70	10	5500	850	4400	650	3700	550	2900	450
	20	5600	850	4500	650	3700	550	2900	450
	40	4900	850	4400	700	3800	600	3000	450
	60	4400	850	3900	700	3600	600	3100	450
	90	3900	900	3500	700	3200	600	2800	500
140x90	10	6200	950	4900	750	4200	650	3200	500
	20	6000	950	5000	750	4200	650	3200	500
	40	5200	950	4700	750	4300	650	3300	500
	60	4700	1000	4200	800	3900	650	3400	550
	90	4200	1000	3800	800	3400	700	3000	550
170x35	10	4800	700	3800	550	3200	450	2500	350
	20	4900	700	3900	550	3200	450	2500	350
	40	4900	700	4000	550	3300	450	2600	350
	60	4300	700	3800	550	3400	450	2700	350
	90	3800	750	3400	600	3100	500	2700_{10}	400
170x45	10	5500	800	4300	600	3600	500	2800	400
	20	5500	800	4400	600	3700	500	2900	400
	40	5200	800	4500	650	3800	550	2900	400
	60	4700	800	4100	650	3800	550	3000	450
	90	4100	850	3700	650	3300	550	2900	450

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
170x70	10	6800	1000	5400	800	4600	650	3500	500
	20	6800	1000	5500	800	4600	650	3600	550
	40	5900	1000	5300	800	4800	700	3600	550
	60	5300	1000	4800	800	4400	700	3800	550
	90	4800	1050	4200	850	3900	700	3400	550
170x90	10	7200	1100	6100	900	5100	750	4000	600
	20	7100	1100	6100	900	5200	750	4000	600
	40	6200	1150	5700	900	5300	750	4100	600
	60	5700	1150	5100	900	4700	800	4200	600
	90	5100	1200	4600	950	4200	800	3700	650
190x35	10	5400	750	4300	600	3600	500	2800	400
	20	5500	750	4400	600	3700	500	2900	400
	40	5400	750	4500	600	3800	500	2900	400
	60	4800	800	4300	600	3900	500	3000_{5}	400
	90	4300	800	3800	650	3400	550	3000_{15}	400
190x45	10	6100	850	4900	700	4100	550	3200	450
	20	6200	850	5000	700	4200	550	3200	450
	40	5800	850	5100	700	4300	600	3300	450
	60	5200	900	4600	700	4200	600	3400	450
	90	4600	900	4100	700	3700	600	3300_{5}	500
190x70	10	7200	1050	6100	850	5200	750	4000	550
	20	7200	1100	6200	850	5200	750	4000	600
	40	6500	1100	5900	900	5400	750	4100	600
	60	5900	1100	5300	900	4900	750	4300	600
	90	5300	1150	4700	900	4300	800	3800	600
190x90	10	7200	1200	6800	950	5800	800	4500	650
	20	7200	1200	6900	1000	5900	850	4600	650
	40	6900	1250	6300	1000	5900	850	4700	650
	60	6300	1250	5700	1000	5200	850	4700	700
	90	5700	1300	5100	1050	4700	900	4100	700
240x35	10	6900	900	5500	700	4700	600	3600	450
	20	7000	900	5600	700	4700	600	3600_{5}	450
	40	6800	950	5700	750	4900_{5}	600	3700_{15}	500
	60	6000	950	5400	750	4900_{10}	600	3800_{25}	500
	90	5400	950	4800	750	4300_{15}	650	3800_{35}	500

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
240x45	10	7200	1000	6300	800	5300	700	4100	550
	20	7200	1050	6300	850	5400	700	4200	550
	40	7200	1050	6500	850	5500	700	4300_{5}	550
	60	6500	1050	5800	850	5300_{5}	700	4400_{15}	550
	90	5800	1100	5200	900	4700_{5}	750	4200_{25}	600
240x70	10	7200	1300	7200	1050	6600	900	5200	700
	20	7200	1300	7200	1050	6700	900	5300	700
	40	7200	1350	7200	1050	6800	900	5400	700
	60	7200	1350	6600	1100	6100	900	5400_{5}	700
	90	6600	1400	5900	1100	5400	950	4800_{5}	750
240x90	10	7200	1450	7200	1150	7200	1000	5800	800
	20	7200	1500	7200	1150	7200	1000	5900	800
	40	7200	1500	7200	1200	7200	1000	6100	800
	60	7200	1550	7100	1200	6500	1050	5800	800
	90	7100	1600	6300	1250	5800	1050	5200	850
290x45	10	7200	1200	7200	950	6500	800	5100_{5}	650
	20	7200	1200	7200	950	6600_{5}	800	5100_{10}	650
	40	7200	1250	7200	1000	6700_{10}	850	5300_{20}	650
	60	7200	1250	7000_{5}	1000	6400_{15}	850	5400_{35}	650
	90	7000	1300	6200_{5}	1000	5700_{15}	850	5000_{40}	700
290x70	10	7200	1550	7200	1200	7200	1000	6400	800
	20	7200	1550	7200	1200	7200	1050	6500	800
	40	7200	1550	7200	1250	7200	1050	6600_{10}	850
	60	7200	1600	7200	1250	7200	1050	6500_{15}	850
	90	7200	1650	7100	1300	6500	1100	5800_{20}	850
290x90	10	7200	1700	7200	1350	7200	1150	7200	900
	20	7200	1750	7200	1400	7200	1150	7200	950
	40	7200	1750	7200	1400	7200	1200	7200_{5}	950
	60	7200	1800	7200	1450	7200	1200	7000_{5}	950
	90	7200	1850	7200	1450	7000	1250	6200_{10}	1000

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 11

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span									
170x45	10	3100	1250	2200	900	1800	750	1600	650	1400	550
	20	3200	1250	2200	900	1800	750	1600	650	1400	550
	40	2900	1300	2300	900	1900	750	1600	650	1400	600
	60	2600	1300	2000	900	1700	750	1500	650	1400_{5}	600
	90	2300	1100	1800	900	1500	750	1400	650	1300_{5}	600
170x70	10	4000	1550	2700	1100	2200	900	1900	800	1700	700
	20	3900	1550	2800	1100	2200	900	1900	800	1700	700
	40	3300	1550	2600	1100	2300	900	2000	800	1800	700
	60	3000	1500	2300	1150	2000	950	1800	800	1600	700
	90	2600	1300	2100	1000	1800	900	1600	800	1500	750
170x90	10	4400	1700	3000	1200	2500	1000	2100	850	1900	750
	20	4200	1700	3100	1200	2500	1000	2200	850	1900	800
	40	3600	1700	2800	1250	2400	1000	2200	900	2000	800
	60	3200	1600	2500	1250	2200	1050	2000	900	1800	800
	90	2800	1400	2200	1100	1900	900	1700	800	1600	800
190x45	10	3600	1400	2500	1000	2000	800	1700	700	1600	650
	20	3600	1400	2500	1000	2000	800	1800	700	1600	650
	40	3200	1450	2500	1000	2100	850	1800	700	1600_{5}	650
	60	2900	1450	2200	1050	1900	850	1700_{5}	750	1600_{10}	650
	90	2500	1200	2000	1000	1700	850	1500_{5}	750	1400_{10}	700
190x70	10	4500	1750	3100	1200	2500	1000	2200	850	1900	800
	20	4400	1750	3100	1250	2500	1000	2200	900	2000	800
	40	3700	1750	2900	1250	2500	1000	2200	900	2000	800
	60	3300	1600	2600	1250	2300	1050	2000	900	1800	800
	90	2900	1400	2300	1100	2000	1000	1800	900	1700	850
190x90	10	5000	1900	3400	1350	2800	1100	2400	950	2200	850
	20	4700	1900	3400	1350	2800	1100	2400	950	2200	850
	40	4000	1900	3200	1400	2700	1150	2400	1000	2200	900
	60	3600	1800	2800	1400	2500	1150	2200	1000	2000	900
	90	3200	1600	2500	1200	2200	1100	2000	1000	1800	900

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span									
240x45	10	4600	1800	3100	1250	2600	1050	2200	900	2000_{5}	800
	20	4700	1800	3200	1250	2600	1050	2200_{5}	900	2000_{10}	800
	40	4100	1850	3200	1300	2700_{5}	1050	2300_{10}	900	2100_{15}	800
	60	3600	1800	2900	1300	2500_{5}	1050	2200_{15}	950	2000_{20}	850
	90	3200	1600	2500	1200	2200_{5}	1100	2000_{15}	950	1800_{20}	850
240x70	10	5800	2150	3900	1550	3200	1250	2700	1100	2500	1000
	20	5400	2150	3900	1550	3200	1300	2800	1100	2500	1000
	40	4600	2150	3700	1600	3200	1300	2900_{5}	1100	2600_{5}	1000
	60	4100	2000	3300	1600	2900	1300	2600	1150	2300_{10}	1000
	90	3700	1800	2900	1400	2500	1200	2300_{5}	1150	2100_{10}	1050
240x90	10	6400	2350	4300	1700	3500	1400	3100	1200	2700	1100
	20	5800	2350	4400	1750	3600	1400	3100	1250	2800	1100
	40	5000	2350	4000	1750	3500	1450	3100	1250	2800_{5}	1100
	60	4500	2200	3600	1800	3100	1450	2800	1250	2600_{5}	1150
	90	4000	2000	3200	1600	2800	1400	2500	1200	2300_{5}	1150
290x45	10	5600	2250	3800	1500	3100_{5}	1250	2700_{10}	1100	2400_{15}	950
	20	5700	2250	3900	1550	3200_{5}	1250	2700_{10}	1100	2400_{20}	1000
	40	4900	2250	3900	1550	3200_{10}	1250	2800_{20}	1100	2500_{25}	1000
	60	4400	2200	3500	1600	3000_{15}	1300	2700_{20}	1100	2400_{30}	1000
	90	3900	1900	3100_{5}	1500	2600_{15}	1300	2400_{25}	1150	2200_{30}	1050
290x70	10	7000	2600	4700	1850	3800	1550	3300	1350	3000_{5}	1200
	20	6500	2600	4800	1900	3900	1550	3400_{5}	1350	3000_{10}	1200
	40	5500	2600	4500	1900	3900	1550	3500_{10}	1350	3100_{15}	1200
	60	5000	2500	4000	1950	3500	1600	3100_{10}	1400	2800_{15}	1250
	90	4400	2200	3500	1700	3100_{5}	1500	2800_{10}	1400	2500_{20}	1250
290x90	10	7200	2850	5200	2100	4300	1700	3700	1500	3300	1300
	20	6800	2850	5300	2100	4300	1700	3800	1500	3400_{5}	1350
	40	5900	2800	4800	2150	4200	1750	3700_{5}	1500	3400_{10}	1350
	60	5400	2650	4300	2150	3800	1750	3400_{5}	1550	3100_{10}	1350
	90	4800	2400	3800	1900	3300	1600	3000_{5}	1500	2800_{10}	1400

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span									
170x45	10	3100	1250	2200	900	1800	750	1500	650	1300	550
	20	3200	1250	2200	900	1800	750	1500	650	1300	550
	40	3300	1300	2300	900	1900	750	1600	650	1400	600
	60	3400	1300	2300	900	1900	750	1600_{5}	650	1400_{15}	600
	90	3100	1350	2400	950	2000_{5}	750	1700_{20}	650	1400_{25}	600
170x70	10	4000	1550	2700	1100	2200	900	1900	800	1700	700
	20	4000	1550	2800	1100	2200	900	1900	800	1700	700
	40	4100	1550	2800	1100	2300	900	2000	800	1800	700
	60	4000	1550	2900	1150	2400	950	2000	800	1800	700
	90	3600	1550	2800	1150	2400	950	2100	850	1900_{15}	750
170x90	10	4400	1700	3000	1200	2500	1000	2100	850	1900	750
	20	4500	1700	3100	1200	2500	1000	2200	850	1900	800
	40	4600	1700	3100	1250	2600	1000	2200	900	2000	800
	60	4300	1700	3200	1250	2600	1050	2300	900	2000	800
	90	3900	1600	3100	1300	2700	1050	2300	900	2100	800
190x45	10	3600	1400	2500	1000	2000	800	1700	700	1400	650
	20	3600	1400	2500	1000	2000	800	1700	700	1500	650
	40	3700	1450	2600	1000	2100	850	1800	700	1500_{10}	650
	60	3800	1450	2600	1050	2100	850	1800_{15}	750	1600_{25}	650
	90	3400	1500	2700	1050	2200_{15}	850	1900_{30}	750	1600_{40}	700
190x70	10	4500	1750	3100	1200	2500	1000	2200	850	1900	800
	20	4500	1750	3100	1250	2500	1000	2200	900	2000	800
	40	4600	1750	3200	1250	2600	1000	2200	900	2000	800
	60	4500	1750	3300	1250	2700	1050	2300	900	2100_{10}	800
	90	4000	1650	3200	1300	2700	1050	2300_{15}	900	2100_{25}	850
190x90	10	5000	1900	3400	1350	2800	1100	2400	950	2200	850
	20	5100	1900	3400	1350	2800	1100	2400	950	2200	850
	40	5200	1900	3500	1400	2900	1150	2500	1000	2200	900
	60	4800	1900	3600	1400	3000	1150	2600	1000	2300	900
	90	4300	1750	3400	1450	3000	1200	2600	1050	2300_{15}	900

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span									
240x45	10	4600	1800	3100	1250	2600	1050	2100	900	1800_{10}	800
	20	4700	1800	3200	1250	2600	1050	2100_{10}	900	1800_{20}	800
	40	4800	1850	3300	1300	2700_{10}	1050	2200_{25}	900	1900_{35}	800
	60	4900	1850	3300	1300	2700_{25}	1050	2300_{40}	950	2000_{55}	850
	90	4400	1800	3400_{20}	1350	2800_{45}	1100	2400_{65}	950	2000_{80}	850
240x70	10	5800	2150	3900	1550	3200	1250	2700	1100	2500	1000
	20	5800	2150	3900	1550	3200	1300	2800	1100	2500_{5}	1000
	40	6000	2150	4000	1600	3300	1300	2900_{10}	1100	2600_{20}	1000
	60	5600	2150	4100	1600	3400_{5}	1300	2900_{20}	1150	2600_{35}	1000
	90	5000	2000	4000	1650	3500_{20}	1350	3000_{40}	1150	2600_{55}	1050
240x90	10	6400	2350	4300	1700	3500	1400	3100	1200	2700	1100
	20	6500	2350	4400	1750	3600	1400	3100	1250	2800	1100
	40	6700	2350	4500	1750	3700	1450	3200	1250	2800_{10}	1100
	60	6100	2300	4600	1800	3800	1450	3300_{10}	1250	2900_{20}	1150
	90	5400	2100	4300	1800	3800_{10}	1500	3300_{25}	1300	2900_{40}	1150
290x45	10	5600	2250	3800	1500	3100_{10}	1250	2500_{20}	1100	2200_{30}	950
	20	5700	2250	3900	1550	3200_{20}	1250	2600_{30}	1100	2200_{40}	1000
	40	5900	2250	3900_{10}	1550	3200_{30}	1250	2700_{50}	1100	2300_{60}	1000
	60	5900	2200	4000_{20}	1600	3300_{50}	1300	2800_{70}	1100	2400_{85}	1000
	90	5300	2050	4200_{45}	1600	3400_{75}	1300	2900_{100}	1150	2400_{110}	1050
290x70	10	7000	2600	4700	1850	3800	1550	3300_{5}	1350	3000_{20}	1200
	20	7100	2600	4800	1900	3900	1550	3400_{15}	1350	3000_{25}	1200
	40	7200	2600	4900	1900	4000_{10}	1550	3500_{30}	1350	3100_{45}	1200
	60	6800	2500	5000	1950	4100_{25}	1600	3600_{45}	1400	3200_{65}	1250
	90	6000	2300	4800_{15}	1950	4200_{45}	1650	3600_{65}	1400	3200_{90}	1250
290x90	10	7200	2850	5200	2100	4300	1700	3700	1500	3300_{10}	1300
	20	7200	2850	5300	2100	4300	1700	3800_{5}	1500	3400_{15}	1350
	40	7200	2800	5400	2150	4400	1750	3800_{15}	1500	3400_{30}	1350
	60	7200	2650	5600	2150	4500_{15}	1750	3900_{30}	1550	3500_{45}	1350
	90	6500	2450	5200	2050	4600_{30}	1800	4000_{50}	1550	3600_{70}	1400

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

RECYCLED HARDWOOD
SPAN TABLES

SUPPLEMENT 8

Wind Classifications C1 and C2

Recycled Species Group D
Recycled Grade, RG1

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1.0 INTRODUCTION

This Supplement was prepared under a project supported by Forest and Wood Products Australia and provides span tables for some common applications and uses for recycled structural hardwood timber. The span tables provided include some commercial as well as some domestic construction uses. The span tables are specific to recycled timber which will include recycled timber features.

2.0 APPLICATION

The span tables included in this Supplement are only applicable for use with timber graded in accordance with 'Interim Industry Standard, Recycled Timber – Visually Stress Graded Recycled Timber for Structural Purposes' available from www.fwpa.com.au for the Wind Classifications designated in this Supplement.

The Tables in this Supplement apply to Recycled Timber Species Group D - Recycled Grade, RG1.

For domestic applications, the requirements of AS 1684 are also applicable for use in conjunction with the Tables in this Supplement.

3.0 ALTERNATIVE GRADE

In addition to Species Group D, RG1, the tables in this Supplement apply to Recycled Timber Species Group C - Recycled Grade, RG2.

4.0 TOLERANCES

The depth (D) and breadth (B) shall not be more than 2mm under the sizes given.

5.0 CONTENTS

Table 1

Decking Boards - Commercial Applications Supporting 5.0 kPa Uniform Live Load

	Point Live Load (kN)			
	3	5	9	13
Size DxB (mm)	**Span**			
35x70	560	340	NS	NS
35x90	680	420	NS	NS
35x120	780	540	300	NS
35x140	820	640	360	NS
45x70	840	580	320	NS
45x90	920	700	380	NS
45x120	1020	920	520	360
45x140	1080	1060	600	420

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum DL of 60 (kg/m2), Floor Live Load of 5 (kPa).

iii) End bearing lengths = 20 mm at end supports and 20 mm at internal supports for Continuous members.

iv) Point loads are assumed to be shared by two deck boards.

v) Live load deflection limit = span/150 or 4 mm.

vi) Decking shall be two or more continuous span.

Table 2

Deck Bearers - Domestic Applications
May Support Decks Greater than 1000mm above the Ground

	Floor Load Width (mm)											
	1200		2400		4800		1200		2400		4800	
	Bearer Span (mm)											
	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
Size DxB (mm)	**Single Span**						**Continuous Span**					
90x45	1200	300	NS	NS	NS	NS	1200	300	NS	NS	NS	NS
90x70	1500	400	1100	300	NS	NS	1500	400	1100	300	NS	NS
90x90	1700	500	1200	300	NS	NS	1700	500	1200	300	NS	NS
120x45	1700	500	1200	300	NS	NS	1700	500	1200	300	NS	NS
120x70	2100	600	1500	400	1000	300	2100	600	1500	400	1000	300
120x90	2300	600	1600	400	1100	300	2300	600	1600	400	1100	300
140x45	2000	600	1400	400	NS	NS	2000	600	1400	400	NS	NS
140x70	2400	700	1700	500	1200	300	2400	700	1700	500	1200	300
140x90	2700	800	1900	500	1300	300	2700	800	1900	500	1300	300
170x45	2400	700	1700	500	1200_{5}	300_{5}	2400	700	1700	500	1100_{20}	300_{20}
170x70	3000	900	2100	600	1400	400	3000	900	2100	600	1400	400
170x90	3300	900	2300	600	1600	400	3300	900	2300	600	1600	400
190x45	2700	800	1900	500	1300_{10}	300_{10}	2700	800	1900	500	1300_{35}	300_{35}
190x70	3300	900	2300	600	1600	400	3300	900	2300	600	1600_{10}	400_{10}
190x90	3700	1100	2600	700	1800	500	3700	1100	2600	700	1800	500
240x45	3400	1000	2400_{5}	700_{5}	1700_{25}	500_{25}	3400	1000	2400_{20}	700_{20}	1600_{75}	400_{75}
240x70	4200	1200	3000	900	2100_{10}	600_{10}	4200	1200	3000	900	2100_{50}	600_{50}
240x90	4600	1300	3300	900	2300_{5}	600_{5}	4700	1400	3300	900	2300_{30}	600_{30}
290x45	4200	1200	2900_{15}	800_{15}	2000_{40}	600_{40}	4200	1200	2900_{55}	800_{55}	1900_{110}	500_{110}
290x70	5000	1500	3600	1000	2500_{25}	700_{25}	5100	1500	3600_{20}	1000_{20}	2500_{80}	700_{80}
290x90	5300	1500	4000	1200	2800_{15}	800_{15}	5600	1600	4000_{5}	1200	2800_{65}	800_{65}

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Cantilever (mm).

ii) The above table was based on a maximum DL of 30 (kg/m2), Floor Point Load of 1.8 (kN), Balcony Live Load of 3 (kPa).

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 30 % of Backspan.

v) End bearing lengths = 50 mm at end supports and 100 mm at internal supports for Continuous members. Subscript values indicate the Minimum additional bearing length where required to be greater than 50 mm at end supports and 100 mm at internal supports.

Table 3

Deck Joists - Domestic Applications
May Support Decks greater than 1000mm above the Ground

	Joist Spacing (mm)											
	300		450		600		300		450		600	
	Max Joist Span (mm)											
	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever	Span	C'lever
Size DxB (mm)	**Single Span**						**Continuous Span**					
90x35	1300	300	1300	300	1300	300	1600	400	1500	400	1500	400
90x45	1600	400	1500	400	1400	400	1900	500	1800	500	1700	500
120x35	2200	600	2000	600	2000	600	2700	800	2500	750	2100	600
120x45	2500	700	2300	600	2300	600	3100	900	2800	800	2400	700
140x35	2800	800	2600	700	2500	700	3300	900	2900	850	2500	700
140x45	3200	900	3000	900	2800	800	3700	1100	3300	950	2800	800
170x35	3600	1000	3400	1000	3100	900	4100	1200	3500	1050	3100	900
170x45	3900	1100	3800	1100	3400	1000	4500	1300	4000	1150	3400	1000
190x35	4000	1200	3800	1100	3400	1000	4600	1350	3900	1100	3400	1000
190x45	4400	1300	4100	1200	3800	1100	5000	1450	4400	1300	3800	1100
240x35	5100	1500	4600	1300	4300	1200	5800	1700	5000	1500	4300	1200
240x45	5500	1600	4900	1400	4600	1300	6300	1850	5600	1600	4800	1400
290x45	6300	1800	5700	1700	5300	1500	7200	2100	6700	1950	5800	1700

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, C'lever = Cantilever (mm).

ii) The above table was based on a maximum Deck Mass of 30 (kg/m2), Floor Point Load of 1.8 (kN), Balcony Live Load of 3 (kPa).

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 30 % of Backspan.

v) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for Continuous members.

Table 4

Stair Stringers

Size DxB (mm)	Stair Width (mm)					
	750	900	1200	1500	1800	2400
	Maximum Stringer Span (mm)					
190x35	3300	3300	3100	2800	2600	2400
190x45	3600	3600	3300	3100	2900	2600
240x35	4100	4100	3800	3600	3300	3000
240x45	4500	4300	4000	3800	3600	3300
290x45	5100	4900	4600	4400	4200	3900

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Floor Mass of 40 (kg/m2), Floor Live Load of 2.0 (kPa), Floor Point Load of 2.7 (kN).

iii) Minimum bearing length = 50 mm at end supports.

iv) Maximum trench depth to accommodate treads - 10 mm.

Table 5 Stair Treads (with open flights)

Size DxB (mm) M	x Tread Span (mm)
35x240	NS
35x290	NS
40x240	800
40x290	900
45x240	1000
45x290	1100
50x240	1200
50x290	1300
60x240	1600
60x290	1800

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Deck Mass of 40 (kg/m2), Floor Point Load of 2.7 (kN).

iii) Minimum bearing length = 35 mm at end supports.

Table 6

Posts
Supporting Roof and/or Floor Loads

	Floor Load Area (m2)											
	0				10				20			
Roof Load Area (m2)	0	10	20	40	0	10	20	40	0	10	20	40
Size DxB (mm)	**Maximum Post Height (mm)**											
Sheet Roof												
70x70	4800	2400	NS	NS	2100	1900	NS	NS	1300	1200	NS	NS
90x90	4800	4000	2800	NS	3400	3100	2600	NS	2400	2300	2100	NS
120x120	4800	4800	4800	3500	4800	4800	4600	3400	4200	4000	3800	3200
140x140	4800	4800	4800	4800	4800	4800	4800	4600	4800	4800	4800	4400
170x170	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
190x190	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
Tile Roof												
70x70	4800	2100	NS	NS	2100	1700	NS	NS	1300	NS	NS	NS
90x90	4800	3400	2400	NS	3400	2700	2200	NS	2400	2100	1900	NS
120x120	4800	4800	4200	3000	4800	4800	3900	2900	4200	3800	3400	2800
140x140	4800	4800	4800	4100	4800	4800	4800	3900	4800	4800	4700	3800
170x170	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
190x190	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Sheet Roof Mass of 40 (kg/m2), Tile Roof Mass of 90 (kg/m2), Total Upper Floor Mass of 50 (kg/m2), Floor Live Load of 1.5 (kPa).

iii) Posts are free standing, i.e. not supporting lateral wind loads from walls etc.

Table 7

Window or Door Mullions
Single or Upper Storey Load Bearing Walls

Size DxB (mm)	Mullion Height (mm)	Roof Load Width (mm)							
		3000	4500	6000	7500	3000	4500	6000	7500
		Mullion Spacing (mm)							
		Sheet Roof				Tile Roof			
90x120	2400	1300	1200	1100	1000	1200	1000	NS	NS
90x140	2400	1500	1400	1300	1200	1400	1300	1100	1000
	2700	1200	1000	900	NS	1000	NS	NS	NS
120x70	2400	1500	1400	1300	1200	1400	1300	1200	1100
	2700	1100	1000	900	NS	1000	900	NS	NS
120x90	2400	1800	1700	1600	1600	1700	1600	1500	1400
	2700	1500	1400	1300	1200	1400	1300	1100	1000
	3000	1100	1000	900	NS	1000	900	NS	NS
120x120	2400	2500	2300	2200	2100	2300	2100	2000	1800
	2700	1900	1800	1700	1600	1800	1700	1600	1500
	3000	1600	1500	1400	1300	1500	1400	1200	1100
	3600	1000	NS	NS	NS	NS	NS	NS	NS
120x140	2400	2900	2800	2600	2400	2800	2500	2300	2200
	2700	2300	2100	2000	1900	2200	2000	1800	1700
	3000	1800	1700	1600	1600	1700	1600	1500	1400
	3600	1200	1100	1100	1000	1100	1000	NS	NS
140x70	2400	2100	1900	1800	1700	2000	1800	1700	1600
	2700	1600	1600	1500	1400	1600	1500	1400	1300
	3000	1300	1200	1200	1100	1200	1100	1000	900
140x90	2400	2600	2400	2300	2200	2500	2300	2100	2000
	2700	2000	1900	1800	1700	1900	1800	1700	1600
	3000	1600	1600	1500	1400	1600	1500	1400	1300
	3600	1100	1000	900	NS	1000	NS	NS	NS
140x120	2400	3500	3300	3100	2900	3300	3100	2800	2700
	2700	2700	2600	2400	2300	2600	2400	2200	2100
	3000	2200	2100	2000	1800	2100	1900	1800	1700
	3600	1500	1400	1400	1300	1400	1300	1200	1100
	4200	900	900	NS	NS	900	NS	NS	NS
140x140	2400	4100	3900	3700	3500	3900	3600	3400	3100
	2700	3300	3100	2900	2800	3100	2900	2700	2500
	3000	2600	2400	2300	2200	2500	2300	2100	2000
	3600	1700	1600	1600	1500	1600	1600	1500	1400
	4200	1100	1100	1000	1000	1100	1000	1000	NS

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Sheet Roof Mass of 40 (kg/m2), Tile Roof Mass of 90 (kg/m2).

iii) Maximum tension load in mullion not to exceed 60 kN.

iv) Mullion Spacing is half the width of opening either side of mullion or for mullions/studs at sides of openings, half the width of opening.

Table 8 Lintels (Window Heads) - Sheet Roof Supporting Single or Upper Storey Loadbearing Walls

	Roof Load Width (mm)									
	1500		3000		4500		6000		7500	
Rafter/Truss Spacing (mm)	600	1200	600	1200	600	1200	600	1200	600	1200
	Maximum Lintel Span (mm)									
Size DxB (mm)	**Single Span**									
140x35	1900	1600	1300	NS	NS	NS	NS	NS	NS	NS
140x45	2200	2100	1500	NS	1200	NS	NS	NS	NS	NS
140x70	2700	2600	1800	1600	1500	NS	1300	NS	NS	NS
140x90	3000	2900	2100	2000	1600	1300	1400	NS	1300	NS
170x35	2400	2300	1600	NS	NS	NS	NS	NS	NS	NS
170x45	2700	2600	1800	1500	1500	NS	NS	NS	NS	NS
170x70	3300	3200	2300	2200	1800	1600	1600	NS	1400	NS
170x90	3500	3400	2600	2500	2100	1900	1700	1400	1500	NS
190x35	2700	2600	1800	1500	1400	NS	NS	NS	NS	NS
190x45	3000	2900	2100	1900	1600	NS	1400	NS	NS	NS
190x70	3600	3500	2600	2600	2100	2000	1800	1300	1600	NS
190x90	3800	3700	2900	2800	2400	2200	2000	1700	1700	1200
240x35	3400	3200	2400	2300	1900	NS	1600	NS	NS	NS
240x45	3800	3700	2700	2600	2200	1700	1800	NS	1600	NS
240x70	4200	4200	3300	3200	2700	2600	2300	1900	2000	1600
240x90	4500	4400	3700	3600	3000	2900	2600	2500	2300	1900
290x45	4400	4400	3300	3100	2600	2600	2300	1700	2000	NS
290x70	4800	4800	4000	3900	3300	3100	2800	2700	2500	2000
290x90	5100	5100	4400	4400	3700	3500	3100	3000	2800	2700
Continuous Span										
140x35	2000	1800	1400	NS	NS	NS	NS	NS	NS	NS
140x45	2200	2100	1500	1300	NS	NS	NS	NS	NS	NS
140x70	2800	2800	1900	1600	1600	1300	1400	NS	NS	NS
140x90	3100	3000	2100	2000	1700	1600	1500	NS	1200	NS
170x35	2400	2400	1600	1200	NS	NS	NS	NS	NS	NS
170x45	2700	2700	1700	1600	1400	NS	NS	NS	NS	NS
170x70	3400	3300	2300	2300	1700	1600	1500	1200	NS	NS
170x90	3800	3700	2600	2700	2100	2000	1700	1400	1500	1200
190x35	2700	2700	1600	1300	NS	NS	NS	NS	NS	NS
190x45	3000	3000	2100	1700	1500	1200	NS	NS	NS	NS
190x70	3800	3700	2600	2700	2200	1700	1600	1300	1400	NS
190x90	4200	4200	2900	2900	2400	2400	1900	1600	1600	1300
240x35	3400	3400	2300	1900	1900_{20}	1200	1300_{10}	NS	NS	NS
240x45	3900	3800	2700	2700	1900	1900	1900_{25}	NS	1300_{10}	NS
240x70	4800	4800	3400	3300	2700	2800	2200	1900	1900_{5}	1900_{5}
240x90	5300	5300	3700	3700	3000	3000	2500	2700	2100	1900
290x45	4700	4600	3300_{10}	3200_{10}	2400_{25}	2000_{5}	2000_{35}	2000_{30}	2000_{60}	NS
290x70	5800	5800	4100	4100	3300_{10}	3200_{10}	2600_{20}	2800_{25}	2100_{15}	2000_{15}
290x90	6300	6300	4500	4500	3700	3600	3200_{15}	3200_{15}	2600_{15}	2800_{25}

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Roof Mass of 40 (kg/m2).

iii) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for Continuous members. Subscript values indicate the Minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

Table 9 Lintels (Window Heads) - Tile Roof Supporting Single or Upper Storey Loadbearing Walls

	Roof Load Width (mm)									
	1500		3000		4500		6000		7500	
Rafter/Truss Spacing (mm)	600	1200	600	1200	600	1200	600	1200	600	1200
	Maximum Lintel Span (mm)									
Size DxB (mm)	**Single Span**									
140x35	1700	1700	1400	NS	NS	NS	NS	NS	NS	NS
140x45	1900	1900	1500	1200	1300	NS	NS	NS	NS	NS
140x70	2200	2200	1700	1700	1500	1200	1400	NS	1200	NS
140x90	2400	2400	1900	1900	1600	1500	1500	NS	1400	NS
170x35	2100	2100	1600	1400	1400	NS	NS	NS	NS	NS
170x45	2300	2300	1800	1800	1600	NS	1400	NS	NS	NS
170x70	2700	2700	2100	2100	1800	1800	1700	1200	1500	NS
170x90	2900	2900	2300	2300	2000	2000	1800	1600	1700	1200
190x35	2300	2300	1900	1600	1500	NS	NS	NS	NS	NS
190x45	2600	2600	2000	2000	1800	1300	1500	NS	NS	NS
190x70	3000	3000	2400	2400	2100	2000	1900	1600	1700	NS
190x90	3100	3100	2600	2600	2300	2200	2100	2000	1900	1600
240x35	3000	3000	2400	2300	2000	1600	1700	NS	1200	NS
240x45	3200	3100	2600	2600	2300	1900	1900	1400	1700	NS
240x70	3500	3500	3000	3000	2600	2700	2400	2400	2200	1700
240x90	3700	3700	3200	3200	2900	2900	2600	2700	2400	2400
290x45	3700	3600	3100	3100	2700	2700	2500	1900	2000	1500
290x70	4100	4100	3500	3400	3100	3100	2900	2900	2700	2600
290x90	4300	4300	3700	3600	3300	3300	3100	3100	2900	2900
	Continuous Span									
140x35	2100	2000	1500	NS	NS	NS	NS	NS	NS	NS
140x45	2400	2500	1600	1400	1400	NS	NS	NS	NS	NS
140x70	2900	2900	2100	2000	1600	1400	1400	NS	NS	NS
140x90	3100	3100	2300	2200	1800	1600	1600	1300	1400	NS
170x35	2600	2600	1700	1400_{5}	1300_{10}	NS	NS	NS	NS	NS
170x45	2900	2900	2000	1700	1500	1200	NS	NS	NS	NS
170x70	3400	3400	2500	2600	2000	1700	1600	1300_{10}	1400_{5}	NS
170x90	3600	3600	2800	2800	2300	2200	2000	1600_{5}	1600	1300
190x35	2900	2900	1800	1600	1400_{20}	NS	NS	NS	NS	NS
190x45	3300	3200	2300	2100	1600_{5}	1300	NS	NS	NS	NS
190x70	3700	3700	2800	2800	2300	2100	1700	1500	1500_{10}	1200
190x90	3900	3900	3100	3100	2600	2600	2200_{5}	1700	1700	1500
240x35	3700	3600	2500_{35}	2600_{45}	1900_{50}	1900_{50}	1800_{90}	NS	NS	NS
240x45	4000	3900	2900_{25}	2900_{25}	2200_{45}	1900_{25}	1900_{60}	1800_{55}	1800_{90}	NS
240x70	4400	4400	3600_{5}	3500	2900_{25}	2900_{25}	2500_{40}	2600_{40}	1900_{30}	1900_{35}
240x90	4700	4700	4000	4000	3300_{15}	3200_{10}	2800_{25}	2800_{30}	2500_{40}	2500_{40}
290x45	4600	4600	3500_{45}	3200_{40}	2600_{70}	2800_{85}	2000_{75}	2000_{75}	2000_{115}	1900_{100}
290x70	5100	5100	4300_{20}	4300_{20}	3500_{50}	3300_{35}	3000_{70}	3000_{70}	2500_{75}	2000_{45}
290x90	5400	5400	4600_{10}	4600_{10}	3900_{35}	3900_{30}	3400_{55}	3200_{50}	3000_{70}	3000_{70}

NOTES :

i) D = member depth, B = member breadth, NS = not suitable.

ii) The above table was based on a maximum Roof Mass of 90 (kg/m2).

iii) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for Continuous members. Subscript values indicate the Minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

Table 10

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
90x35	10	2000	350	1600	300	1300	250	1100	250
	20	2100	350	1600	300	1400	250	1100	250
	40	1800	350	1600	300	1400	250	1100	250
	60	1600	350	1400	300	1300	250	1100	250
	90	1400	350	1200	300	1100	250	1000	250
90x45	10	2300	400	1800	350	1500	300	1200	250
	20	2300	400	1800	350	1500	300	1200	250
	40	2000	450	1700	350	1600	300	1300	250
	60	1700	450	1500	350	1400	300	1200	250
	90	1500	400	1300	350	1200	300	1000	250
90x70	10	2900	550	2200	400	1900	350	1500	300
	20	2700	550	2300	450	1900	350	1500	300
	40	2200	550	2000	450	1800	350	1600	300
	60	2000	550	1800	450	1600	400	1400	300
	90	1800	550	1500	450	1400	400	1200	300
90x90	10	3200	600	2500	500	2100	400	1700	300
	20	2800	600	2600	500	2100	400	1700	300
	40	2400	600	2100	500	2000	400	1700	350
	60	2100	600	1900	500	1700	400	1500	350
	90	1900	650	1700	500	1500	450	1300	350
120x35	10	2800	450	2200	350	1800	300	1500	250
	20	2800	450	2200	350	1800	300	1500	250
	40	2400	500	2100	400	1900	300	1500	250
	60	2100	500	1900	400	1700	350	1500	250
	90	1900	500	1600	400	1500	350	1300	250
120x45	10	3200	550	2500	400	2100	350	1700	300
	20	3100	550	2500	450	2100	350	1700	300
	40	2600	550	2300	450	2100	350	1700	300
	60	2300	550	2000	450	1900	400	1600	300
	90	2000	550	1800	450	1600	400	1400	300
120x70	10	4000	700	3100	550	2600	450	2100	350
	20	3500	700	3200	550	2600	450	2100	350
	40	3000	700	2600	550	2400	450	2100	350
	60	2600	700	2300	550	2100	500	1900	400
	90	2300	700	2100	600	1900	500	1700	400

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for Continuous members. Subscript values indicate the Minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
120x90	10	4100	750	3500	600	2900	500	2300	400
	20	3700	750	3400	600	2900	500	2300	400
	40	3200	800	2800	600	2600	550	2300	400
	60	2800	800	2500	650	2300	550	2100	450
	90	2500	800	2200	650	2100	550	1800	450
140x35	10	3300	550	2600	400	2100	350	1700	300
	20	3300	550	2600	400	2200	350	1800	300
	40	2800	550	2500	450	2200	350	1800	300
	60	2500	550	2200	450	2000	350	1700	300
	90	2200	550	1900	450	1700	400	1500	300
140x45	10	3700	600	2900	500	2400	400	2000	300
	20	3600	600	3000	500	2500	400	2000	300
	40	3000	600	2700	500	2500	400	2000	350
	60	2700	650	2400	500	2200	450	1900	350
	90	2400	650	2100	500	1900	450	1700	350
140x70	10	4500	750	3700	600	3100	500	2400	400
	20	4000	750	3700	600	3100	500	2500	400
	40	3400	800	3100	650	2800	550	2500	400
	60	3100	800	2700	650	2500	550	2200	450
	90	2700	800	2400	650	2200	550	1900	450
140x90	10	4700	850	4100	700	3500	600	2700	450
	20	4200	850	3900	700	3500	600	2700	450
	40	3700	900	3300	700	3000	600	2700	500
	60	3300	900	2900	700	2700	600	2400	500
	90	2900	950	2600	750	2400	650	2100	500
170x35	10	4100	600	3200	500	2600	400	2100	300
	20	4100	650	3200	500	2700	400	2100	300
	40	3400	650	3000	500	2800	450	2200	350
	60	3000	650	2700	500	2400	450	2100	350
	90	2700	650	2300	550	2100	450	1900	350
170x45	10	4600	700	3600	550	3000	500	2400	350
	20	4300	700	3700	550	3100	500	2400	400
	40	3700	750	3300	600	3000	500	2500	400
	60	3300	750	2900	600	2600	500	2300	400
	90	2900	750	2500	600	2300	500	2000	400

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for Continuous members. Subscript values indicate the Minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
170x70	10	5300	900	4600	700	3800	600	3000	500
	20	4800	900	4400	700	3900	600	3000	500
	40	4100	950	3700	750	3400	650	3000	500
	60	3700	950	3300	750	3000	650	2700	500
	90	3300	950	2900	750	2700	650	2400	500
170x90	10	5500	1000	5100	800	4300	700	3300	550
	20	5000	1000	4600	800	4300	700	3300	550
	40	4400	1050	4000	850	3700	700	3300	550
	60	4000	1050	3600	850	3300	700	2900	550
	90	3600	1100	3200	850	2900	750	2600	600
190x35	10	4600	700	3600	550	3000	450	2400	350
	20	4500	700	3700	550	3100	450	2400	350
	40	3800	700	3400	550	3100	450	2500	350
	60	3400	700	3000	550	2700	450	2400	350
	90	3000	750	2600	600	2400	500	2100	400
190x45	10	5200	800	4100	600	3400	500	2700	400
	20	4800	800	4200	600	3500	550	2700	400
	40	4100	800	3600	650	3300	550	2800	400
	60	3600	800	3200	650	3000	550	2600	450
	90	3200	850	2800	650	2600	550	2300	450
190x70	10	5800	1000	5100	800	4300	650	3300	500
	20	5200	1000	4900	800	4400	650	3400	550
	40	4600	1000	4100	800	3800	700	3400	550
	60	4100	1050	3700	800	3400	700	3000	550
	90	3700	1050	3300	850	3000	700	2600	550
190x90	10	6000	1100	5700	900	4800	750	3700	600
	20	5500	1100	5100	900	4800	750	3800	600
	40	4800	1150	4400	900	4100	750	3700	600
	60	4400	1150	4000	950	3700	800	3200	600
	90	4000	1200	3500	950	3200	800	2900	650
240x35	10	5800	850	4600	650	3900	550	3000	400
	20	5600	850	4700	650	4000	550	3100	450
	40	4700	850	4200	650	3900	550	3100	450
	60	4200	850	3800	700	3400	550	3000	450
	90	3800	900	3300	700	3000	600	2700	450

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for Continuous members. Subscript values indicate the Minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span							
240x45	10	6600	950	5300	750	4400	650	3400	500
	20	5900	950	5300	750	4500	650	3500	500
	40	5100	1000	4500	750	4200	650	3500	500
	60	4500	1000	4100	800	3700	650	3300	500
	90	4100	1000	3600	800	3300	700	2900	550
240x70	10	7000	1200	6600	950	5600	800	4300	650
	20	6400	1200	6000	950	5600	800	4400	650
	40	5600	1250	5100	1000	4800	850	4300	650
	60	5100	1250	4600	1000	4300	850	3800	650
	90	4600	1300	4100	1000	3800	850	3300	700
240x90	10	7200	1350	6900	1050	6200	900	4900	700
	20	6600	1350	6200	1100	5900	900	4900	750
	40	5900	1400	5400	1100	5100	950	4600	750
	60	5400	1400	4900	1100	4600	950	4100	750
	90	4900	1450	4400	1150	4100	1000	3600	750
290x45	10	7200	1100	6400	850	5400	750	4200	550
	20	6900	1100	6400	900	5500	750	4300	600
	40	6000	1150	5400	900	5000	750	4400	600
	60	5400	1150	4900	900	4500	750	4000	600
	90	4900	1200	4300	950	4000	800	3500	600
290x70	10	7200	1400	7200	1100	6800	950	5300	750
	20	7200	1400	7000	1100	6600	950	5400	750
	40	6600	1450	6100	1150	5700	950	5100	750
	60	6100	1450	5500	1150	5100	1000	4600	750
	90	5500	1500	4900	1200	4600	1000	4000	800
290x90	10	7200	1600	7200	1250	7200	1050	6000	850
	20	7200	1600	7200	1250	7000	1050	6100	850
	40	7000	1650	6400	1300	6000	1100	5500	850
	60	6400	1650	5900	1300	5500	1100	4900	900
	90	5900	1700	5300	1350	4900	1150	4400	900

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for Continuous members. Subscript values indicate the Minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
90x35	10	2000	350	1600	300	1300	250	1100	250
	20	2100	350	1600	300	1400	250	1100	250
	40	2100	350	1600	300	1400	250	1100	250
	60	2200	350	1700	300	1400	250	1200	250
	90	1900	350	1700	300	1500	250	1200	250
90x45	10	2300	400	1800	350	1500	300	1200	250
	20	2300	400	1800	350	1500	300	1200	250
	40	2400	450	1800	350	1600	300	1300	250
	60	2400	450	1900	350	1600	300	1300	250
	90	2100	400	1800	350	1700	300	1400	250
90x70	10	2900	550	2200	400	1900	350	1500	300
	20	2900	550	2300	450	1900	350	1500	300
	40	3000	550	2300	450	2000	350	1600	300
	60	2700	550	2400	450	2000	400	1600	300
	90	2400	550	2100	450	1900	400	1700	300
90x90	10	3200	600	2500	500	2100	400	1700	300
	20	3300	600	2600	500	2100	400	1700	300
	40	3300	600	2600	500	2200	400	1800	350
	60	2900	600	2600	500	2200	400	1800	350
	90	2600	650	2300	500	2100	450	1800	350
120x35	10	2800	450	2200	350	1800	300	1500	250
	20	2800	450	2200	350	1800	300	1500	250
	40	2900	500	2200	400	1900	300	1500	250
	60	2900	500	2300	400	1900	350	1600	250
	90	2600	500	2200	400	2000	350	1600	250
120x45	10	3200	550	2500	400	2100	350	1700	300
	20	3200	550	2500	450	2100	350	1700	300
	40	3300	550	2600	450	2100	350	1700	300
	60	3200	550	2600	450	2200	400	1800	300
	90	2800	550	2400	450	2200	400	1800	300
120x70	10	4000	700	3100	550	2600	450	2100	350
	20	4000	700	3200	550	2600	450	2100	350
	40	4000	700	3200	550	2700	450	2100	350
	60	3600	700	3200	550	2800	500	2200	400
	90	3200	700	2800	600	2600	500	2300	400

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for Continuous members. Subscript values indicate the Minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
120x90	10	4400	750	3500	600	2900	500	2300	400
	20	4500	750	3500	600	2900	500	2300	400
	40	4300	800	3600	600	3000	550	2400	400
	60	3900	800	3500	650	3100	550	2400	450
	90	3500	800	3100	650	2800	550	2500	450
140x35	10	3300	550	2600	400	2100	350	1700	300
	20	3300	550	2600	400	2200	350	1800	300
	40	3400	550	2700	450	2200	350	1800	300
	60	3400	550	2800	450	2300	350	1800	300
	90	3000	550	2600	450	2400	400	1900	300
140x45	10	3700	600	2900	500	2400	400	2000	300
	20	3800	600	3000	500	2500	400	2000	300
	40	3900	600	3100	500	2500	400	2000	350
	60	3700	650	3100	500	2600	450	2100	350
	90	3200	650	2900	500	2600	450	2200	350
140x70	10	4700	750	3700	600	3100	500	2400	400
	20	4700	750	3700	600	3100	500	2500	400
	40	4700	800	3800	650	3200	550	2500	400
	60	4200	800	3700	650	3300	550	2600	450
	90	3700	800	3300	650	3000	550	2600	450
140x90	10	5200	850	4100	700	3500	600	2700	450
	20	5300	850	4200	700	3500	600	2700	450
	40	5000	900	4300	700	3600	600	2800	500
	60	4500	900	4000	700	3700	600	2900	500
	90	4000	950	3600	750	3300	650	2900	500
170x35	10	4100	600	3200	500	2600	400	2100	300
	20	4100	650	3200	500	2700	400	2100	300
	40	4200	650	3300	500	2800	450	2200	350
	60	4100	650	3400	500	2800	450	2300_{5}	350
	90	3600	650	3200	550	2900_{5}	450	2300_{15}	350
170x45	10	4600	700	3600	550	3000	500	2400	350
	20	4600	700	3700	550	3100	500	2400	400
	40	4800	750	3800	600	3200	500	2500	400
	60	4400	750	3900	600	3200	500	2500	400
	90	3900	750	3500	600	3200	500	2600_{5}	400

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for Continuous members. Subscript values indicate the Minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
170x70	10	5700	900	4600	700	3800	600	3000	500
	20	5800	900	4600	700	3900	600	3000	500
	40	5600	950	4700	750	4000	650	3100	500
	60	5000	950	4500	750	4100	650	3200	500
	90	4500	950	4000	750	3700	650	3200	500
170x90	10	6400	1000	5100	800	4300	700	3300	550
	20	6500	1000	5200	800	4300	700	3300	550
	40	5900	1050	5300	850	4500	700	3400	550
	60	5400	1050	4800	850	4500	700	3500	550
	90	4800	1100	4300	850	4000	750	3500	600
190x35	10	4600	700	3600	550	3000	450	2400	350
	20	4600	700	3700	550	3100	450	2400	350
	40	4700	700	3700	550	3100	450	2500	350
	60	4600	700	3900	550	3200	450	2500_{10}	350
	90	4100	750	3600	600	3300_{10}	500	2600_{20}	400
190x45	10	5200	800	4100	600	3400	500	2700	400
	20	5200	800	4200	600	3500	550	2700	400
	40	5400	800	4300	650	3600	550	2800	400
	60	4900	800	4400	650	3700	550	2900_{5}	450
	90	4400	850	3900	650	3500	550	3000_{15}	450
190x70	10	6400	1000	5100	800	4300	650	3300	500
	20	6500	1000	5200	800	4400	650	3400	550
	40	6200	1000	5300	800	4500	700	3400	550
	60	5600	1050	5000	800	4600	700	3500	550
	90	5000	1050	4500	850	4100	700	3600	550
190x90	10	7200	1100	5700	900	4800	750	3700	600
	20	7200	1100	5800	900	4900	750	3800	600
	40	6500	1150	6000	900	5000	750	3900	600
	60	6000	1150	5400	950	5000	800	4000	600
	90	5400	1200	4800	950	4400	800	3900	650
240x35	10	5800	850	4600	650	3900	550	3000	400
	20	5900	850	4700	650	4000	550	3100_{5}	450
	40	6000	850	4800	650	4100_{10}	550	3100_{15}	450
	60	5700	850	4900_{10}	700	4200_{15}	550	3200_{25}	450
	90	5100	900	4500_{10}	700	4100_{25}	600	3300_{45}	450

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for Continuous members. Subscript values indicate the Minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 10 (cont)

Rafters or Purlins
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof & Ceiling Mass (kg/m2)	Rafter Spacing (mm)							
		600		900		1200		1800	
		Maximum Rafter Span + Overhang (mm)							
		Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span							
240x45	10	6600	950	5300	750	4400	650	3400	500
	20	6700	950	5300	750	4500	650	3500	500
	40	6800	1000	5500	750	4600	650	3500_{10}	500
	60	6200	1000	5500	800	4700_{10}	650	3600_{20}	500
	90	5500	1000	4900_{5}	800	4500_{15}	700	3800_{35}	550
240x70	10	7200	1200	6600	950	5600	800	4300	650
	20	7200	1200	6600	950	5600	800	4400	650
	40	7200	1250	6800	1000	5800	850	4500	650
	60	7000	1250	6300	1000	5800	850	4600_{5}	650
	90	6300	1300	5600	1000	5200	850	4600_{15}	700
240x90	10	7200	1350	7200	1050	6200	900	4900	700
	20	7200	1350	7200	1100	6300	900	4900	750
	40	7200	1400	7200	1100	6500	950	5000	750
	60	7200	1400	6700	1100	6200	950	5200_{5}	750
	90	6700	1450	6000	1150	5600	1000	4900_{10}	750
290x45	10	7200	1100	6400	850	5400	750	4200_{10}	550
	20	7200	1100	6500	900	5500_{5}	750	4300_{15}	600
	40	7200	1150	6700_{10}	900	5700_{15}	750	4400_{25}	600
	60	7200	1150	6600_{15}	900	5800_{25}	750	4500_{40}	600
	90	6600	1200	5900_{15}	950	5400_{30}	800	4700_{55}	600
290x70	10	7200	1400	7200	1100	6800	950	5300	750
	20	7200	1400	7200	1100	6900	950	5400_{5}	750
	40	7200	1450	7200	1150	7100_{5}	950	5500_{15}	750
	60	7200	1450	7200	1150	6900_{10}	1000	5700_{25}	750
	90	7200	1500	6700	1200	6200_{10}	1000	5500_{30}	800
290x90	10	7200	1600	7200	1250	7200	1050	6000	850
	20	7200	1600	7200	1250	7200	1050	6100	850
	40	7200	1650	7200	1300	7200	1100	6200_{10}	850
	60	7200	1650	7200	1300	7200	1100	6400_{15}	900
	90	7200	1700	7200	1350	6700_{5}	1150	5900_{20}	900

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) The above table was based on a Batten Spacing of 900.

iii) Minimum Backspan = 200 % of Overhang.

iv) Maximum Overhang = 50 % of Backspan.

v) Maximum Birdsmouth Depth = 30.00% of depth.

vi) End bearing lengths = 35 mm at end supports and 35 mm at internal supports for Continuous members. Subscript values indicate the Minimum additional bearing length where required to be greater than 35 mm at end supports and 35 mm at internal supports.

vii) This Table may also be used for pergola or verandah rafters/purlins

Table 11

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span									
170x45	10	2600	1050	1900	750	1500	600	1300	550	1200	500
	20	2700	1050	1900	750	1500	600	1300	550	1200	500
	40	2700	1100	1900	750	1600	650	1400	550	1200_{5}	500
	60	2400	1100	1900	800	1600	650	1400_{5}	550	1200_{10}	500
	90	2100	1000	1700	800	1400	650	1300_{5}	550	1200_{15}	500_{15}
170x70	10	3300	1300	2300	900	1900	750	1600	650	1400	600
	20	3300	1300	2300	950	1900	750	1600	650	1500	600
	40	3100	1350	2400	950	1900	800	1700	650	1500	600
	60	2800	1350	2200	950	1900	800	1700	700	1500	600
	90	2500	1200	2000	1000	1700	800	1500	700	1400	650
170x90	10	3700	1450	2600	1050	2100	850	1800	750	1600	650
	20	3800	1450	2600	1050	2100	850	1800	750	1600	650
	40	3400	1500	2700	1050	2200	850	1900	750	1700	650
	60	3000	1500	2400	1050	2100	850	1900	750	1700	700
	90	2700	1300	2100	1000	1800	900	1700	800	1500	700
190x45	10	3000	1200	2100	850	1700	700	1500	600	1300	550
	20	3000	1200	2100	850	1700	700	1500	600	1300_{5}	550
	40	3100	1200	2200	850	1800	700	1500_{5}	600	1400_{10}	550
	60	2700	1250	2100	850	1800	700	1600_{10}	600	1400_{15}	550
	90	2400	1200	1900	900	1600_{5}	750	1500_{10}	650	1300_{20}	550_{20}
190x70	10	3700	1450	2600	1050	2100	850	1800	750	1600	650
	20	3800	1450	2600	1050	2100	850	1800	750	1600	650
	40	3500	1500	2700	1050	2200	850	1900	750	1700	700
	60	3100	1500	2500	1050	2100	900	1900	750	1700_{5}	700
	90	2800	1400	2200	1100	1900	900	1700	800	1600_{5}	700
190x90	10	4200	1650	2900	1150	2300	950	2000	800	1800	750
	20	4200	1650	2900	1150	2400	950	2000	800	1800	750
	40	3800	1700	3000	1150	2400	950	2100	850	1900	750
	60	3400	1700	2700	1200	2300	1000	2100	850	1900	750
	90	3000	1500	2400	1200	2100	1000	1900	850	1700	800

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for Continuous members. Subscript values indicate the Minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Single Span									
240x45	10	3800	1500	2600	1050	2200	850	1900_{5}	750	1700_{10}	700
	20	3900	1500	2700	1050	2200	900	1900_{5}	750	1700_{10}	700
	40	3800	1550	2700	1100	2200_{5}	900	1900_{10}	750	1700_{20}	700
	60	3400	1550	2700	1100	2300_{10}	900	2000_{20}	800	1800_{25}	700
	90	3000	1500	2400	1150	2100_{15}	950	1900_{25}	800	1700_{30}	700_{30}
240x70	10	4800	1900	3300	1300	2700	1050	2300	950	2100	850
	20	4900	1900	3300	1300	2700	1100	2300	950	2100_{5}	850
	40	4400	1950	3400	1350	2800	1100	2400_{5}	950	2100_{10}	850
	60	3900	1950	3100	1350	2700	1100	2400_{10}	950	2200_{15}	850
	90	3500	1700	2800	1400	2400	1150	2200_{10}	1000	2000_{15}	900
240x90	10	5400	2150	3600	1450	3000	1200	2600	1050	2300	950
	20	5500	2150	3700	1450	3000	1200	2600	1050	2300	950
	40	4700	2200	3800	1500	3100	1200	2700	1050	2400_{5}	950
	60	4200	2100	3400	1500	2900	1250	2600_{5}	1050	2400_{10}	950
	90	3800	1900	3000	1500	2600	1250	2400_{5}	1100	2200_{10}	1000
290x45	10	4700	1850	3200	1300	2600_{5}	1050	2300_{10}	900	2000_{20}	800
	20	4800	1850	3300	1300	2700_{10}	1050	2300_{15}	900	2100_{20}	850
	40	4600	1900	3300_{5}	1300	2700_{15}	1100	2400_{25}	950	2100_{30}	850
	60	4100	1950	3300_{10}	1350	2800_{20}	1100	2400_{30}	950	2200_{40}	850
	90	3700	1800	2900_{10}	1350	2500_{25}	1100	2300_{35}	950	2100_{45}	850_{45}
290x70	10	5900	2350	4000	1600	3200	1300	2800_{5}	1100	2500_{10}	1000
	20	6000	2350	4000	1600	3300	1300	2800_{5}	1150	2500_{10}	1000
	40	5300	2400	4100	1600	3400_{5}	1300	2900_{10}	1150	2600_{20}	1050
	60	4700	2300	3800	1650	3300_{10}	1350	2900_{20}	1150	2700_{25}	1050
	90	4200	2100	3400	1700	2900_{10}	1400	2600_{20}	1200	2400_{25}	1050
290x90	10	6600	2600	4400	1750	3600	1450	3100	1250	2800_{5}	1100
	20	6500	2650	4500	1750	3700	1450	3200_{5}	1250	2800_{5}	1150
	40	5600	2700	4600	1800	3700	1450	3200_{10}	1300	2900_{15}	1150
	60	5100	2550	4100	1850	3600_{5}	1500	3200_{10}	1300	2900_{20}	1150
	90	4600	2300	3700	1850	3200_{5}	1550	2900_{15}	1350	2600_{20}	1200

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for Continuous members. Subscript values indicate the Minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span									
170x45	10	2600	1050	1900	750	1500	600	1300	550	1100	500
	20	2700	1050	1900	750	1500	600	1300	550	1100	500
	40	2700	1100	1900	750	1600	650	1300	550	1200_{10}	500
	60	2800	1100	2000	800	1600	650	1400_{10}	550	1200_{20}	500
	90	2900	1150	2100	800	1700_{15}	650	1400_{25}	550	1200_{40}	500_{40}
170x70	10	3300	1300	2300	900	1900	750	1600	650	1400	600
	20	3300	1300	2300	950	1900	750	1600	650	1500	600
	40	3400	1350	2400	950	1900	800	1700	650	1500	600
	60	3500	1350	2400	950	2000	800	1700	700	1500_{5}	600
	90	3400	1400	2500	1000	2000	800	1800_{10}	700	1600_{20}	650
170x90	10	3700	1450	2600	1050	2100	850	1800	750	1600	650
	20	3800	1450	2600	1050	2100	850	1800	750	1600	650
	40	3900	1500	2700	1050	2200	850	1900	750	1700	650
	60	4000	1500	2700	1050	2200	850	1900	750	1700	700
	90	3700	1550	2800	1100	2300	900	2000	800	1700_{10}	700
190x45	10	3000	1200	2100	850	1700	700	1400	600	1200	550
	20	3000	1200	2100	850	1700	700	1500	600	1300_{5}	550
	40	3100	1200	2200	850	1800	700	1500_{10}	600	1300_{20}	550
	60	3200	1250	2200	850	1800_{5}	700	1600_{25}	600	1300_{35}	550
	90	3300	1250	2300	900	1900_{25}	750	1600_{40}	650	1400_{55}	550_{55}
190x70	10	3700	1450	2600	1050	2100	850	1800	750	1600	650
	20	3800	1450	2600	1050	2100	850	1800	750	1600	650
	40	3900	1500	2700	1050	2200	850	1900	750	1700	700
	60	4000	1500	2700	1050	2200	900	1900	750	1700_{15}	700
	90	3800	1550	2800	1100	2300_{5}	900	2000_{20}	800	1700_{30}	700
190x90	10	4200	1650	2900	1150	2300	950	2000	800	1800	750
	20	4200	1650	2900	1150	2400	950	2000	800	1800	750
	40	4400	1700	3000	1150	2400	950	2100	850	1900	750
	60	4500	1700	3100	1200	2500	1000	2200	850	1900_{5}	750
	90	4100	1700	3100	1200	2600	1000	2200_{10}	850	1900_{20}	800

NOTES :

i) D = member depth, B = member breadth, NS = not suitable, O/H = Overhang (mm).

ii) Minimum Backspan = 200 % of Overhang.

iii) Maximum Overhang = 50 % of Backspan.

iv) End bearing lengths = 35 mm at end supports and 70 mm at internal supports for Continuous members. Subscript values indicate the Minimum additional bearing length where required to be greater than 35 mm at end supports and 70 mm at internal supports.

v) Rafter/Purlin Spacing up to 1800mm.

vi) This Table may also be used for pergola or verandah beams.

Table 11 (cont)

Roof Beams
Supporting Roof and Ceiling Loads

Size DxB (mm)	Roof Mass (kg/m2)	Roof Load Width (mm)									
		1500		3000		4500		6000		7500	
		Maximum Beam Span & Overhang (mm)									
		Span	O/H	Span	O/H	Span	O/H	Span	O/H	Span	O/H
		Continuous Span									
240x45	10	3800	1500	2600	1050	2200	850	1800_{10}	750	1600_{20}	700
	20	3900	1500	2700	1050	2200_{5}	900	1800_{20}	750	1600_{25}	700
	40	4000	1550	2700	1100	2200_{20}	900	1900_{35}	750	1700_{50}	700
	60	4100	1550	2800_{10}	1100	2300_{30}	900	2000_{50}	800	1700_{70}	700
	90	4100	1600	2900_{25}	1150	2400_{55}	950	2000_{80}	800	1700_{95}	700_{95}
240x70	10	4800	1900	3300	1300	2700	1050	2300	950	2100_{5}	850
	20	4900	1900	3300	1300	2700	1100	2300	950	2100_{10}	850
	40	5000	1950	3400	1350	2800	1100	2400_{15}	950	2100_{30}	850
	60	5100	1950	3500	1350	2800_{10}	1100	2500_{25}	950	2200_{40}	850
	90	4800	1900	3600_{5}	1400	2900_{25}	1150	2500_{45}	1000	2200_{65}	900
240x90	10	5400	2150	3600	1450	3000	1200	2600	1050	2300	950
	20	5500	2150	3700	1450	3000	1200	2600	1050	2300	950
	40	5600	2200	3800	1500	3100	1200	2700_{5}	1050	2400_{15}	950
	60	5800	2200	3900	1500	3200	1250	2700_{15}	1050	2500_{30}	950
	90	5200	2050	4000	1550	3200_{15}	1250	2800_{30}	1100	2500_{50}	1000
290x45	10	4700	1850	3200	1300	2600_{15}	1050	2200_{30}	900	1900_{40}	800
	20	4800	1850	3300	1300	2700_{25}	1050	2200_{35}	900	1900_{50}	850
	40	4900	1900	3300_{15}	1300	2700_{40}	1100	2300_{60}	950	2000_{80}	850
	60	5000	1950	3400_{30}	1350	2800_{60}	1100	2400_{85}	950	2100_{100}	850
	90	5000_{10}	2000	3500_{50}	1350	2900_{90}	1100	2500_{115}	950	2100_{125}	850_{125}
290x70	10	5900	2350	4000	1600	3200	1300	2800_{10}	1100	2500_{25}	1000
	20	6000	2350	4000	1600	3300_{5}	1300	2800_{20}	1150	2500_{35}	1000
	40	6100	2400	4100	1600	3400_{20}	1300	2900_{35}	1150	2600_{50}	1050
	60	6300	2400	4200_{10}	1650	3500_{30}	1350	3000_{50}	1150	2700_{75}	1050
	90	5700	2200	4300_{25}	1700	3500_{50}	1400	3000_{80}	1200	2700_{100}	1050
290x90	10	6600	2600	4400	1750	3600	1450	3100	1250	2800_{15}	1100
	20	6700	2650	4500	1750	3700	1450	3200_{10}	1250	2800_{20}	1150
	40	6900	2700	4600	1800	3700_{10}	1450	3200_{25}	1300	2900_{40}	1150
	60	6900	2550	4700	1850	3800_{20}	1500	3300_{40}	1300	3000_{55}	1150
	90	6200	2350	4800_{15}	1850	3900_{40}	1550	3400_{60}	1350	3000_{80}	1200

NOTES :

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