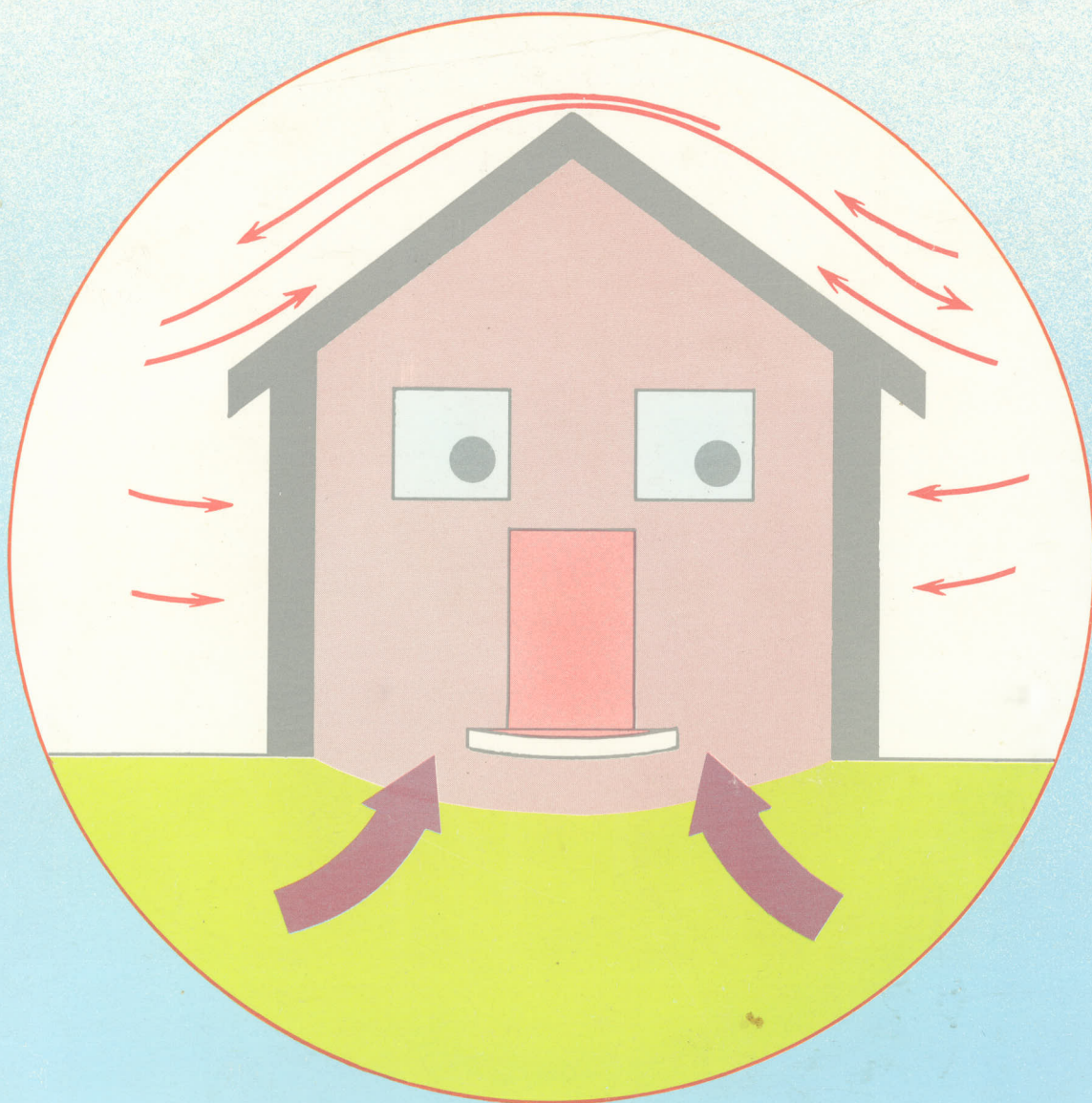


# HOME BUILDING MANUAL



**V a n u a t u**

# **HOME BUILDING MANUAL**

**VANUATU**

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## PREFACE

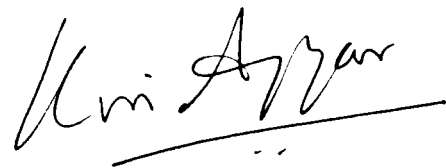
Houses have been built around the world for hundreds of years without the benefit of any formal structural analysis and design. It was only in the recent past, from about 20 years ago that many began to question the wisdom of this practice. Recurring cases of death and large-scale destruction of houses through natural disasters in many parts of the world began to demand urgent remedial action. There were two main reasons for the absence of any engineering design input for houses. Firstly, a house is an extremely complex structural system, far more complex than many other engineering structures. Secondly, the cost of performing the detailed structural design of an individual house is very substantial when compared to the rest of the cost.

The structural complexity of houses has been partially overcome by experimental research. Such research has progressively established a number of increasingly reliable mathematical relationships between the forces (such as from cyclonic winds) acting on a house and the resulting effect on various components of the house. Further, it is possible to spread the cost of detailed structural design by performing the design for a variety of systems in terms of a limited number of modular sub-systems. We have taken advantage of these to produce this Manual.

Similar manuals have been prepared by other ingenious individuals and organisations in the recent past. Well-known examples are the very popular TRADAC Manuals in Queensland, Australia and the New Zealand Standard for masonry buildings not requiring specific design. In the Pacific region the first such manual was the Fiji Pine Code. We have gratefully borrowed ideas and diagrams from these pioneers. However this Manual has for the first time in a single publication included extensive details of conventional timber and masonry construction, prepared to cater to the specific environmental constraints of Vanuatu. The Manual fully conforms to the structural requirements of the National Building Code of Vanuatu.

In preparing the Manual we have tried to retain as far as possible the current local building practices. We have also tried to ensure that the use of the Manual does not contribute to any material increase in the cost of houses. Where there is any marginal increase it will be substantially offset by an increase in the safety and durability of the house. Further, we have attempted to include some details for low-cost houses. We have not been able to give the structural details for vernacular forms of construction. Some useful advice is available in this connection in "Disaster-Resistant Construction for Traditional Bush Houses" prepared by Solomon Islands Architect Mr Charles Boyle and published by the Australian Overseas Disaster Response Organisation.

A manual such as this can only be useful within certain stated limitations. This one is no exception. However within these limitations it should be possible to use the Manual for the construction of safe, architecturally pleasing houses to reasonable levels of individual requirements.



Kris Ayyar  
Project Manager  
Pacific Building Standards Project

Suva : September 1990





## **ACKNOWLEDGEMENT**

We have received substantial assistance from many sources in the preparation of this Manual. For obvious reasons we are unable to acknowledge the help given by each of them. The following persons and the organisations they represent provided outstanding help.

### **IN VANUATU**

George Pakoa, First Secretary Ministry of Finance and Housing, and Chairman Building Advisory Committee and David Blaikie, Physical Planning Adviser and Secretary of the Committee made all the arrangements for the Committee meetings and detailed discussions. The members of the Committee actively encouraged us for the early completion of the Manual.

David Wood, Forest Utilisation Officer Department of Forestry gave us details of the properties of building timber produced in Vanuatu. He and Toby Whitworth, Small scale Sawmill Programme Manager were readily available for discussions.

Tony Lee, Principal Design Engineer and Martin Quaile, Chief Architect Public Works Department, and Peter Fagan, Engineer National Housing Corporation showed me details of typical houses in Port Vila, Santo and Tanna. Further, Peter espoused the cause of housing for the poor very strongly.

Andre François, Managing Director SELB, Geoffrey Feast, Resident Partner James Ferrie & Partners, and Ray Saunders, Structural Engineer Cameron McNamara were available for detailed discussions on the Manual.

### **IN FIJI**

Stefan Ali of Datacom looked after our computer system very well.

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Shan Mohammed, of Shan & Associates, and Vishwa Goundar helped us with the production of several of the diagrams.

### **IN AUSTRALIA**

Neville Keating, Executive Director Timber Research and Development Advisory Council of Queensland (TRADAC) granted us permission for the use of several diagrams from their TRADAC Manuals.

Colin MacKenzie, Engineer TRADAC who had pioneered their Manuals advised us on many issues.

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Greg Reardon, Technical Director Cyclone Testing Station at James Cook University provided us with very useful advice and information.

Dr George Walker, formerly Associate Professor of Civil Engineering at the James Cook University and currently Director National Building Technology Centre, Sydney was always willing to listen to our problems and gave us very useful help.

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Denis Ferrier, Director Standards Association of New Zealand gave his approval for the use of several of the diagrams and two tables from NZS 4229 Code of Practice for Concrete Masonry Buildings not requiring specific design. He and his officers were ever willing to help us.

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Cathy Bennett, Keith Joyce and Greg Brooke, Secretaries, Development Assistance in Suva and their staff gave detailed day-to-day support and took us safely across several stretches of bureaucratic quicksand.

The Manual is essentially the result of exceptionally dedicated team work by the Project staff. Rohit Singh, Deputy Project Manager did the bulk of the technical work and led the team with single minded persistence. He was ably assisted in the production of the Manual by Hem Rao, Project Engineer who, apart from doing other work, did all the calculations for masonry construction. For a short time we also had the assistance of Isikeli Tuituku as a Project Engineer. The highly demanding task of laying out and editing the multitude of tables and diagrams was handled by Saras Prasad and Raveena Dutt for a good part of the time and Sashi Lata Pal for the full duration of the Project. Wati Ledua and Michael Arun Shankar performed all the administrative tasks including the production of several hundreds of bound copies of the Manual when it was in draft form.

Kris Ayyar



# INTRODUCTION

## Objective

The Manual is intended for the use of para-professionals and professionals in the building industry for the speedy design of simple houses which conforms to the structural requirements of the National Building Code. Approval authorities may use the Manual for the confirmation of the adequacy of the structural details given in the proposals submitted to them. The use of the Manual is subject to the limitations stated in Clauses A1 and C1 and C2.

## What is in the Manual?

The Manual gives simple directions in Section A to determine the design windspeed applicable to any specific location of a house. The applicable earthquake zones are shown in a map of Vanuatu. A knowledge of the design windspeed and of the earthquake zone number are necessary to use the Manual. Section B gives several tables and diagrams based on the design windspeed and/or the earthquake zone factor, to facilitate the design of timber framed houses and parts of houses. Section C does the same for masonry houses. Section D gives foundation details for both timber and masonry houses. Typical construction details are shown in Section E. Possible modes of failure of houses during cyclones or earthquakes are illustrated in Section F. These diagrams also explain how to prevent such damage.

Miscellaneous details such as for the design of window shutters, retaining walls, lean-to houses, window glass selection, etc. are given in Section G. Section H gives some details for the construction of low-cost houses. The room sizes in this section are kept small enough to avoid the use of purlins for the roof. The small sizes also permit the use of partially grouted masonry walls in all earthquake zones and for design windspeeds of up to 55 m/s. The Manual ends with an Appendix giving the design criteria used, typical calculations and details of timber classifications.

## How to use the Manual?

The several tables and diagrams might seem quite daunting to begin with. Simple flow charts are included in the Manual to guide the new user.

Knowledge of the following basic information is necessary in order to use the Manual :

- (i) The stress grades of the available timber. Where this information is not provided by the supplier or stamped on the pieces of timber an assessment of the stress grade can be made by using table B2. However in order to use this table sufficiently reliable information on the density of the timber must be available.
- (ii) A knowledge of the joint groups of different timber species used is required for designing bracing and/or tie-down systems. There is no simple relationship between joint groups and other basic properties such as density. Therefore where the joint group is not known advice must be sought from the Department of Forestry or a conservative estimate made.

Further, the user must gain practical familiarity with the simple rules given for determining the design windspeed. Once a few practical examples are tackled this should be relatively easy.

Where manufacturers of proprietary products are able to give test-based information on their products it may be used with the appropriate tables in the Manual.

## Format of the Manual

The Manual has been prepared with plenty of diagrams and tables and a minimum of text. These should convey the intent far more easily than words.



## ERRATA

We have discovered a few mistakes in the Manual after it was printed. Please correct all affected pages as follows:

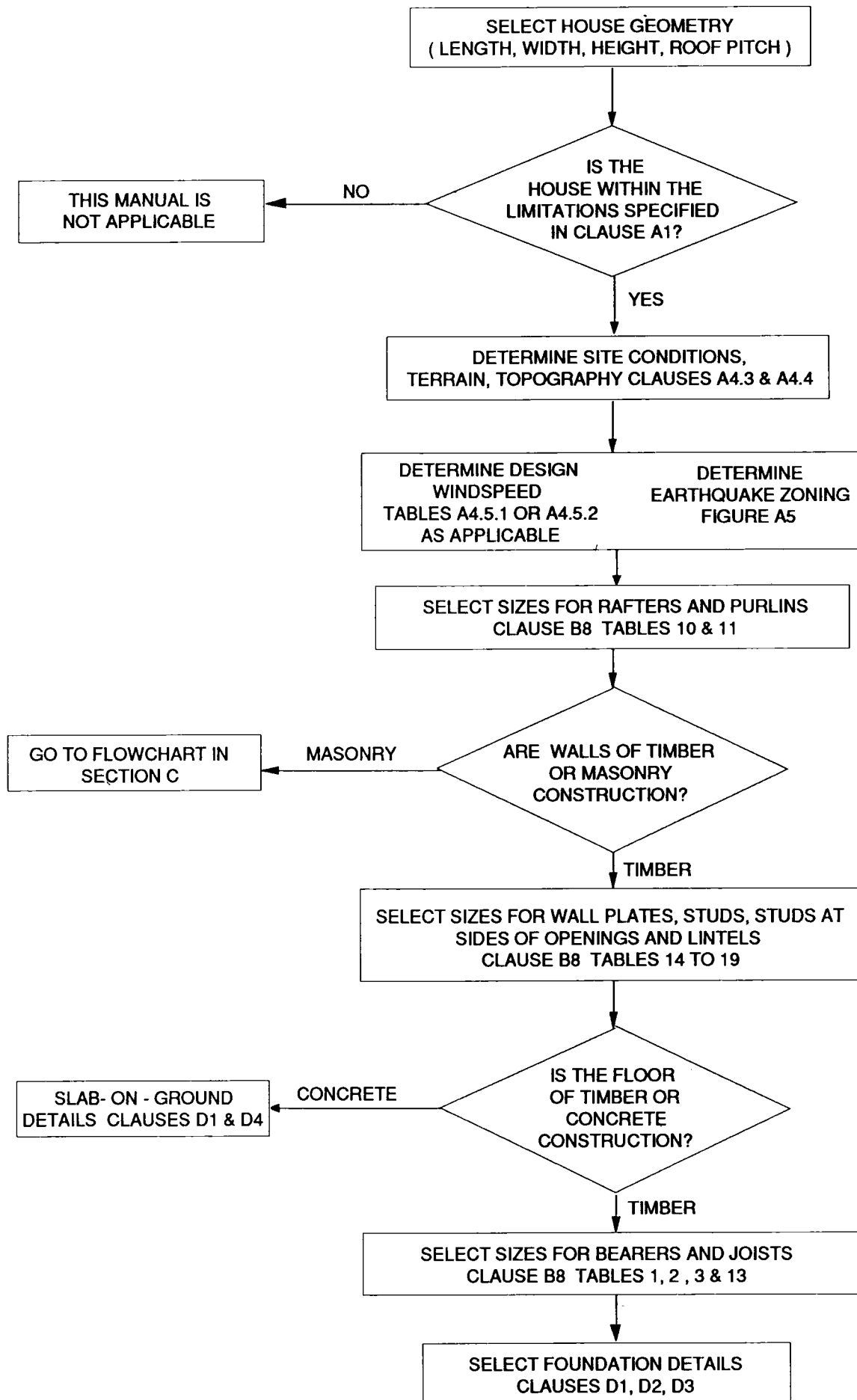
The following corrections apply to the Clauses, Figures or Tables as given below:

- 1 CLAUSE A4.4 "FIFURE A4.4 (a) should read "FIGURE A4.4(a)
- 2 TABLE 4 - 57 For a stress grade of F8, stud spacing 900 mm and stud height of 2700 mm, the size of member in the table should be 100 x 75 instead of 100 x 57.  
  
For a stress grade of F17, stud spacing 900 mm and stud height of 3000 mm, the size of member in the table should be 100 x 75 instead of 100 x 57.
- 3 TABLES 10 - 1 - 49, 10 - 1 - 53, 10 - 1 - 57 For a stress grade of F8, rafter spacing 1500 mm and rafter span of 4800 mm, the size of member in the table should be 220 x 45 instead of 220 x 54
- 4 CLAUSE B9.3.3 Line 2 "sotrey" to read "storey"
- 5 FIGURE B9.4.3 (A), (B), (C) "weatherbard" should read "weatherboard"  
FIGURE B9.4.3 (A) "ELE ENTS" should read "ELEMENTS"
- 6 FIGURES B9.4.3 (A - D) Values in the table are given in kilonewtons (kN)
- 7 TABLE B10.5.4 For the aspect ratio given, the value for roof pitch should be 10° instead of 25°
- 8 TABLE B10.6.3 for aspect ratio 0.5 the value for roof pitch should be = 10°  
for aspect ratio 1.0 the value for roof pitch should be = 15°
- 9 TABLE D3.3 heading  
TABLE D3.3 SIZE OF REINFORCED CONCRETE AND MASONRYPILES  
  
should be TABLE D3.3 SIZE OF REINFORCED CONCRETE AND MASONRY PILES
- 10 FIGURE E2.3 notes (ii) "..... smaller than 100 x 50" should read "..... smaller than 50 x 100"
- 11 FIGURE E3.7 the size of Top plate should be 50 x 100 instead of 100 x 50
- 12 FIGURE E3.14 "Continuous ..... Tables C3.6 or B ..." should read  
"Continuous ..... Tables C3.6A or C3.6B....."
- 13 CLAUSE G3, B part 5 "Tie beam to footing ..... B10.9(D)(II)" should read  
"Tie post to footing..... B10.9(D)(III)".
- 14 CLAUSE H7.4 The last sentence should read  
"..... the bedroom must be of timber or masonry construction."

**SECTION A**

**GENERAL**

# HOW TO USE THIS MANUAL



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# SECTION A GENERAL

## A1 LIMITATIONS

There is unlimited possibility for variation in the design and execution of houses. Site conditions, choice of materials, size, layout, location and a host of other factors can all vary. No manual can provide detailed information to cover all such variations. This manual is no exception. The following limitations therefore apply to the houses for which details are given:

- (a) Plan - rectangles or simple combinations of rectangles.
- (b) Height - not more than 6 m to eaves.
- (c) Width - not to exceed 9 m inclusive of covered verandahs but excluding eaves.
- (d) Eaves Overhang - limited to 900 mm.
- (e) Roof Pitch - 25° maximum.
- (f) Bracing Wall Spacing -
  - (i) Must not exceed 5 m for timber framed houses or storeys.
  - (ii) Must not exceed 5 m for masonry houses or storeys except as explained in clause C3.6 and Figure C3.6.
- (g) Roof construction - must be of a simple beam and rafter type with lightweight roof cladding.
- (h) Rafter Spacing - limited to 900 mm, 1200 mm and 1500 mm.
- (i) For masonry houses the floor area per storey must not exceed -
  - (i) 600 m<sup>2</sup> for single storey houses;
  - (ii) 200 m<sup>2</sup> for two-storey houses or a single storey supported on foundation walls; and
  - (iii) 300 m<sup>2</sup> for two-storey houses where the upper storey is of timber framing and the lower storey of masonry supported on a concrete slab-on-ground, or footings of concrete or masonry.
- (j) Windows MUST be protected from debris by means of shutters such as those shown in Figure G1.1.



## A2 BUILDING TERMINOLOGY

Figures A2.1, A2.2 and A2.3 illustrate the various members and components of timber framed and masonry houses.

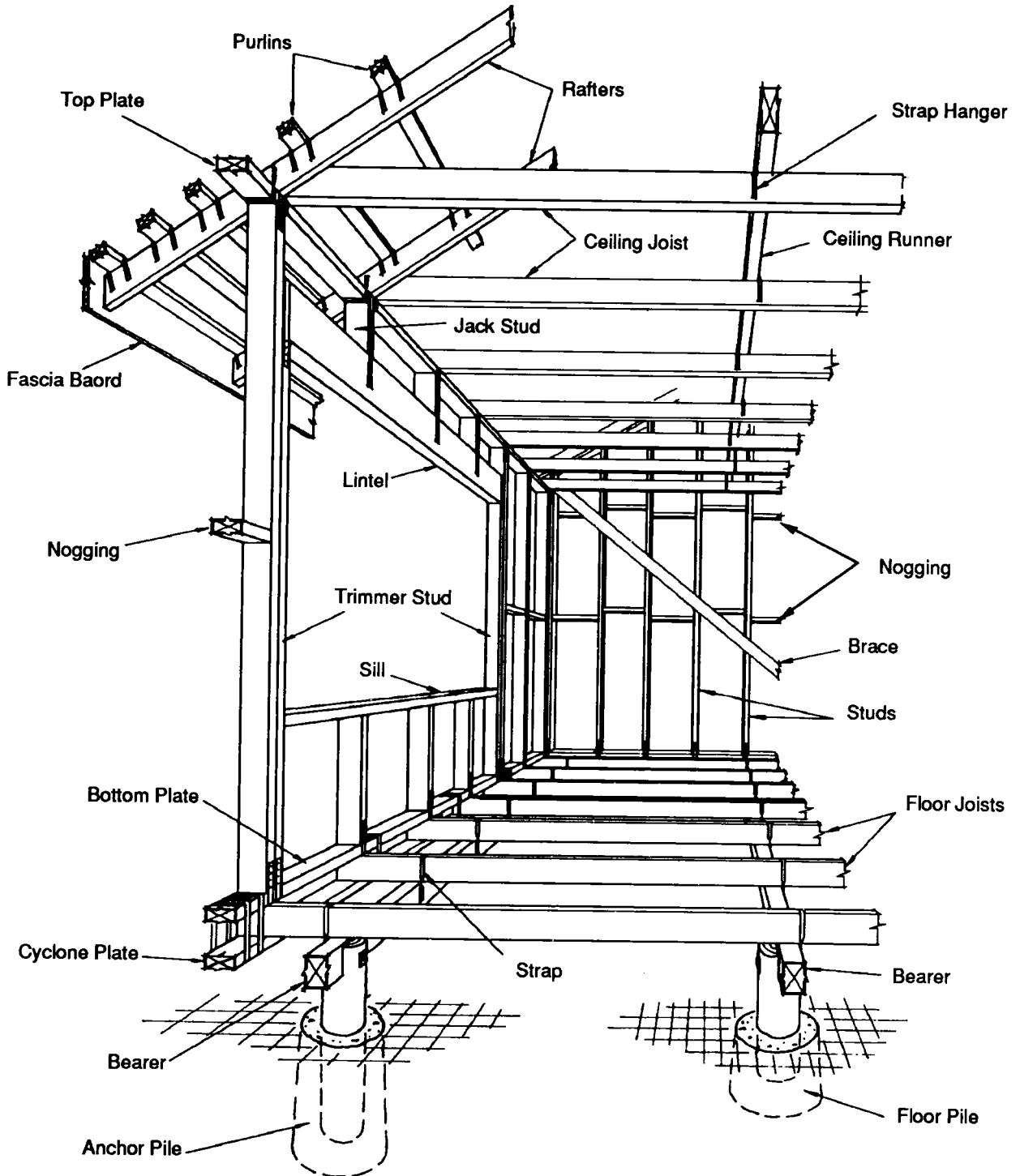
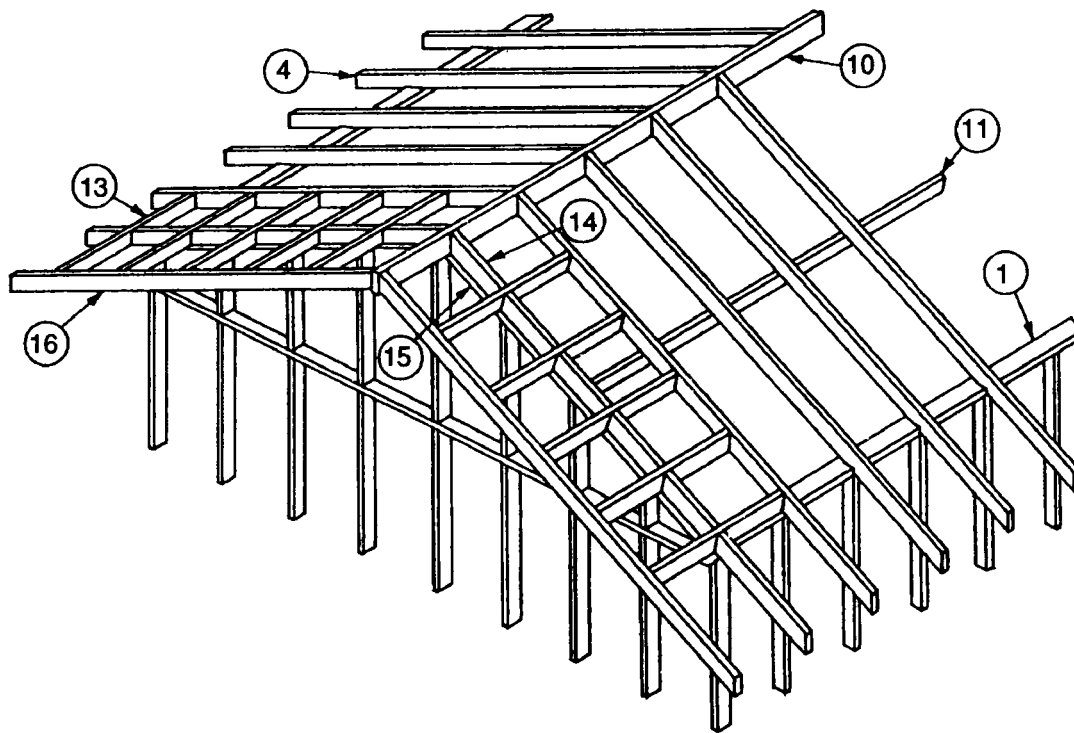
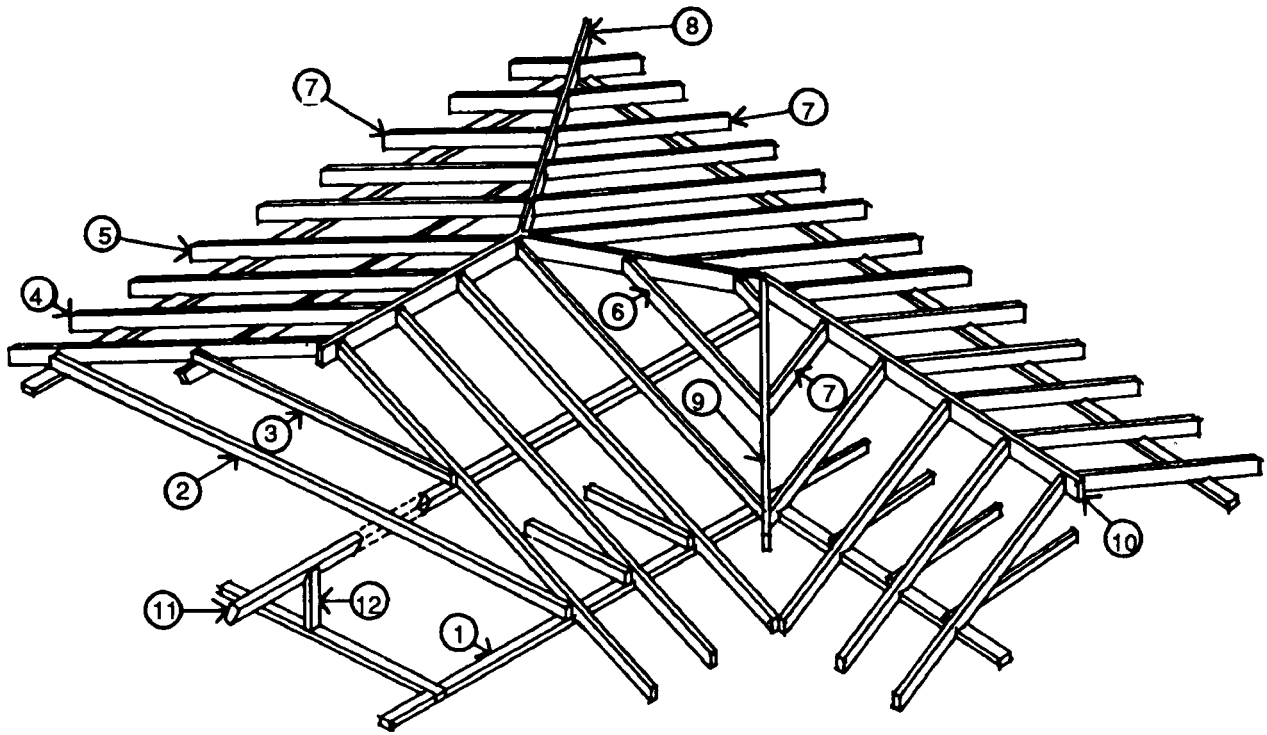


FIGURE A2.1 GENERAL FRAMING DETAILS FOR TIMBER HOUSES



- |    |               |     |                |     |                       |
|----|---------------|-----|----------------|-----|-----------------------|
| 1. | Top Plate     | 6.  | Cripple Rafter | 12. | Roof Strut            |
| 2. | Ceiling Joist | 7.  | Creeper Rafter | 13. | Outrigger             |
| 3. | Collar Tie    | 8.  | Hip Rafter     | 14. | Nogging               |
| 4. | Common Rafter | 9.  | Valley Rafter  | 15. | Raking Plate          |
| 5. | Jack Rafter   | 10. | Ridgeboard     | 16. | Barge or verge Rafter |
|    |               | 11. | Underpurlin    |     |                       |

FIGURE A2.2 ROOF FRAMING DETAILS

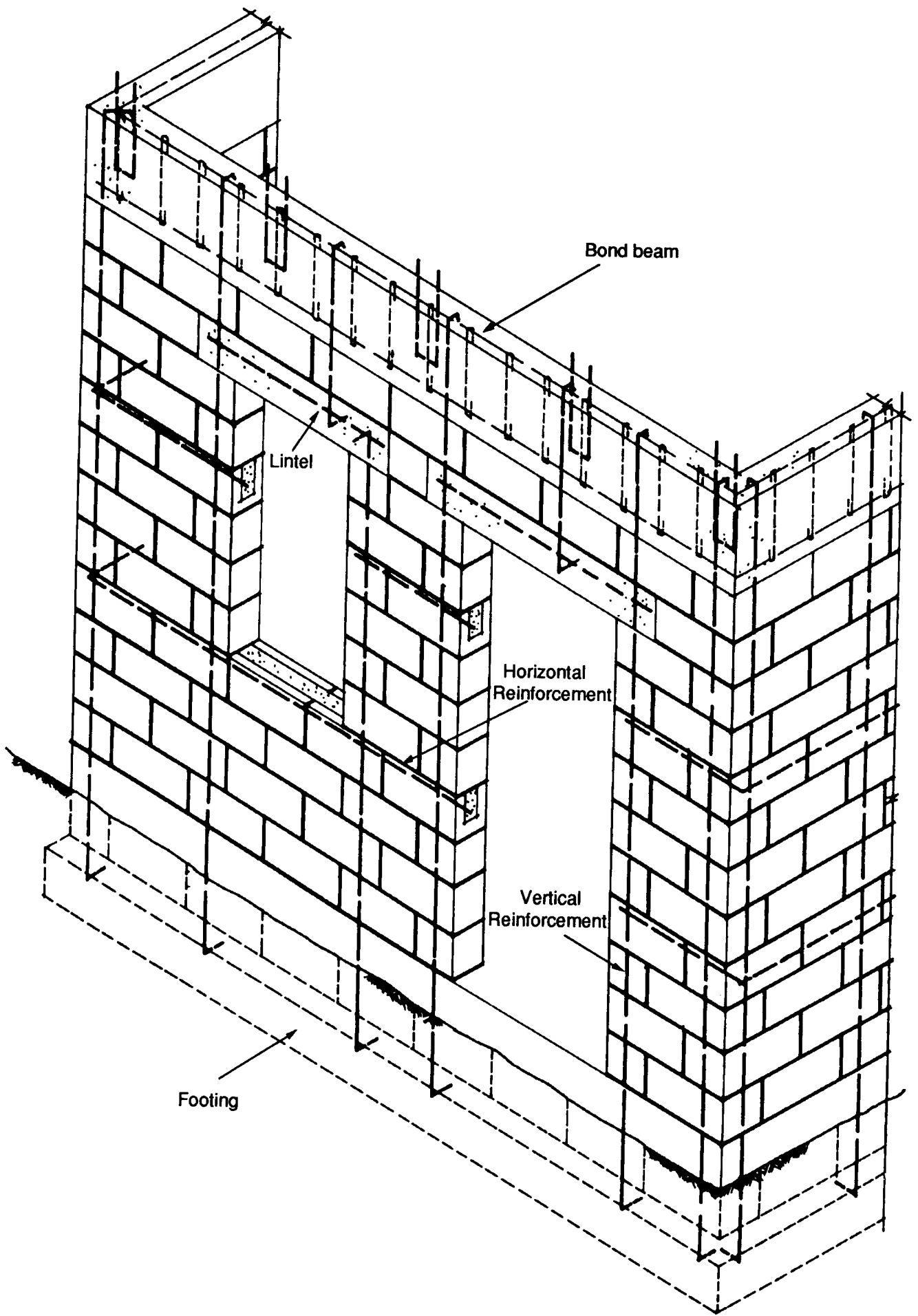


FIGURE A2.3 GENERAL CONSTRUCTION DETAILS FOR MASONRY HOUSES

### **A3 TERMS AND DEFINITIONS**

The following technical words found in the Manual have been used with the specific meaning given against each.

<b>BEARER</b>	a beam supported on foundation walls, piles, or piers and carrying floor joists.
<b>BLINDING</b>	a base course of compacted granular material or lean concrete to provide an even surface on which construction can proceed
<b>BOND, RUNNING</b>	the bond when the units of each course of masonry overlap the units in the preceding course by 50% of the length of the units.
<b>BRACE</b>	
<b>Diagonal Brace</b>	a member of a framed house fixed diagonally and used to resist tension or compression or both.
<b>Subfloor Brace</b>	a bracing element below the ground floor level.
<b>Wall Bracing</b>	a section of wall above the ground level which performs a bracing function.
<b>BRACING</b>	any method employed to provide lateral support to a house.
<b>Bracing Line</b>	a line along or across a house for controlling the distribution of wall bracing elements.
<b>Bracing Unit</b>	a measure of the performance of a wall bracing element. (100 BU's = 5kN)
<b>Bracing Panel ( Bracing Wall )</b>	a length of structural wall which is designed to resist the racking effects produced by lateral forces resulting from earthquakes or high winds. The capacity of a bracing panel to resist racking may be expressed in bracing units.
<b>CALL DIMENSIONS</b>	the dimensions by which timber is sold. These are usually marginally different from the actual dimensions.
<b>CLADDING</b>	the outside or exterior weathering surface of a house.
<b>COLLAR TIE</b>	a member connecting paired rafters together below the level of the ridge board in a roof.
<b>D</b>	refers to a deformed mild steel reinforcing bar of the stated diameter in millimeters.
<b>DAMP-PROOF COURSE</b>	durable waterproof material placed between masonry, stone or concrete and timber or metal as a protection against moisture; or placed between block or stone courses to prevent the passage of moisture from a lower part of the structure to an upper part bearing on it.
<b>DRAGON TIE</b>	a timber member fixed diagonally between two intersecting top plates to tie two walls together.
<b>FOOTING</b>	construction through which the weight of a house is transferred to the ground.
<b>FOUNDATION</b>	those parts of a house in direct contact with, and transmitting and distributing loads to the ground, through a footing.
<b>FRAMING TIMBER</b>	timber members to which lining, cladding, or decking is attached, which are depended upon for supporting the structure and for resisting forces applied to it.
<b>GABLE</b>	the triangular part of an outside wall between the planes of the roof and the line of the eaves
<b>GROUT</b>	the material used to fill cells or cavities in reinforced masonry.
<b>JOINT GROUP</b>	a group assigned to a piece or parcel of timber to indicate for purposes of joint design a set of basic working loads appropriate to that timber. Joint group is designated in the form of a number preceded by the letters J or JD indicating unseasoned or seasoned timber respectively.

<b>JOIST</b>	a horizontal framing member to which is fixed floor decking or ceiling linings and which is identified accordingly as a floor joist or ceiling joist.
<b>LINTEL</b>	a structural member over an opening in a wall to take the vertical downward and lateral loads above the opening and to transfer them to other structural members on either side of the opening.
<b>M</b>	refers to a bolt of the stated diameter in millimeters.
<b>MASONRY</b>	any construction using concrete blocks, laid to a bond and joined together with mortar.
<b>MORTAR</b>	the material in which masonry units are bedded and joined together.
<b>NOGGING</b>	a short member fixed between framing timbers.
<b>NOTCH</b>	trench or groove formed across the face of a piece of timber.
<b>PILE</b>	a column-like member used to transmit loads from the house and its contents to the ground.
<b>Anchor Pile</b>	a pile directly supporting a bearer, loadbearing walls and roof structures, which is embedded into the ground with concrete so as also to resist vertical uplift and horizontal forces.
<b>Braced Anchor Pile</b>	an anchor pile directly supporting a bearer and having a brace attached to it.
<b>Floor Pile</b>	a pile that does not have any brace attached to it and that is required to support one floor only but not load bearing walls.
<b>PLATE</b>	a timber member supported by a wall or bearers or joists to support and distribute the load from floors, walls, roofs or ceiling.
<b>Bottom Plate</b>	a plate placed under the ends of studs.
<b>Top Plate</b>	a plate placed over the ends of studs.
<b>PURLIN</b>	a horizontal member laid to span across rafters and to which the roof cladding is attached.
<b>R</b>	refers to a plain round reinforcing bar of the stated diameter in millimeters.
<b>RAFTER</b>	a framing timber normally parallel to the slope of the roof and providing a support for purlins, roof covering or sarking.
<b>REINFORCEMENT</b>	any form of reinforcing rod, bar, or welded fabric mesh used with concrete or masonry.
<b>REINFORCED MASONRY</b>	any masonry in which reinforcing steel is so bedded and bonded that the two materials act together in resisting forces.
<b>ROOF</b>	that surface of a house intended to shelter any other part, or any space below it, against the elements, and in particular to discharge rainwater outside the confines of the house or space below.
<b>SEASONSED TIMBER</b>	timber brought to a state of equilibrium moisture content. Equilibrium moisture content is the moisture content at which timber neither gains nor loses any moisture under constant conditions of temperature and humidity.
<b>SPACING</b>	the distance at which members are spaced measured centre to centre.
<b>SPAN</b>	the clear distance between supports measured along the member.
<b>STRESS GRADE</b>	a value assigned to a piece of timber to indicate, for purposes of structural design, the set of basic stresses appropriate to that piece. Stress grade is designated in the form of a number preceded by the letter ' F '.

<b>STRINGER</b>	a horizontal framing timber on edge fixed to the side of a concrete or masonry wall to support the ends of joists or rafters.
<b>STRUTTING</b>	short members fixed between joists to stiffen and prevent them from canting or buckling.
<b>STUD</b>	vertical timber, forming part of a wall or partition on to which cladding may be fastened.
<b>Loadbearing Stud</b>	a stud in a loadbearing wall.
<b>Trimming Stud</b>	a stud located on the side of an opening.
<b>Jack Stud</b>	a stud of shorter height than the height from top plate to bottom plate of the wall.
<b>THICKNESS</b>	unless otherwise specifically stated means the call dimension representing the narrow surface of a piece of timber (see also <b>WIDTH</b> )
<b>VAPOUR BARRIER</b>	sheet material through which only very little water vapour can pass. This is used to minimise water vapour penetration in houses.
<b>WALL</b>	
<b>External Wall</b>	an outer wall of a house.
<b>Foundation Wall</b>	that part of the foundation comprising a masonry or concrete wall supporting a house or part of a house, and not extending more than 2.0 m above the underside of the footing.
<b>Internal wall</b>	a wall other than an external wall, a partition.
<b>Loadbearing Wall</b>	a wall supporting vertical loads from floors, ceiling joists, roof, or any combination of these.
<b>Non Loadbearing wall</b>	a wall other than a loadbearing wall.
<b>Structural wall</b>	any wall which because of its position and shape is designed to contribute to the rigidity and strength of the house.
<b>WEATHERBOARDING</b>	an exterior overlapping timber strip cladding which is fixed either horizontally, vertically or diagonally, whether rough sawn or machined or formed to any special section.
<b>WIDTH</b>	unless otherwise specifically mentioned means the call dimension representing the wide surface of a piece of timber.

## **A4 DETERMINATION OF DESIGN WINDSPEED**

### **A4.1 Scope**

The procedure to determine the design windspeed for different terrain and topography is given.

### **A4.2 Application**

To determine the design windspeed applicable to a house, the following steps need to be followed.

1. Determine the category of the terrain in which the house is or will be built. (A4.3)
2. Determine the applicable topography. (A4.4)
3. Select the design windspeed relevant to the terrain and topography from Table A4.5.1 or A4.5.2 as appropriate.

### A4.3 Terrain Category

Terrain category refers to the degree of roughness due to features on the ground over which the wind-stream passes. When these features such as houses trees shrubs piles of rocks etc are more closely spaced, they give greater resistance to the passage of the wind-stream. The result is that the windspeed gets reduced. When the windspeed is high enough to produce sustained waves in the sea or over lakes the waves act as an obstruction and reduce the windspeed. Conversely with higher windspeeds trees get uprooted and/or cleared of their leaves and small branches. The obstruction due to the trees then becomes far less effective.

The reduction in windspeed is a maximum at levels closest to the obstruction. As the height above the obstruction increases the braking effect on the wind becomes less. The density and some other properties of air are very low. Hence the roughness of the terrain does not take full immediate effect on the windspeed. In fact it takes 2.5 km of terrain of any particular roughness before the full effect of that roughness is felt on the windspeed.

The roughness of the terrain has been divided into categories for convenience. Each category is considered to have specific levels of ability to reduce windspeed. For instance the lowest, category 1 has the least effect. This category corresponds to the roughness provided by undisturbed water surface, snow fields and the like. The next higher is category 2. This corresponds to the rough surface of water during high winds, uncut grass, air fields etc. Further up is category 3 corresponding to suburban housing and other closely spaced buildings, wooded country etc.

Vanuatu is composed of several small islands with the vast majority of housing located not far from the coast. There would be hardly any group of houses located farther than 2.5 km from the coast. Because of this and the fact that it takes 2.5 km transition distance for a terrain to have full effect in influencing windspeed, it would be appropriate to assume category 2 terrain for the design and checking of the vast bulk of houses and other structures in Vanuatu. In the heavily built-up areas of Port Vila and Santo with houses and other such wind-obstructions occupying part of the transition distance of 2.5 km from the coast, the effect of such category 3 terrain features would partly begin to take effect. For the ordinary use of this Manual this effect must be neglected for a distance inland over built-up areas of 1.25 km from the coast. Buildings from this point at 1.25 km from the coast may be taken as being influenced by the intermediate category  $2\frac{1}{2}$ . This is allowed only if all the area is well built-up or otherwise similarly rough from near the coast.

Tables A4.5.1 and A4.5.2 in this Manual give values for the effect of categories 2 and  $2\frac{1}{2}$ .

### A4.4 Topography

Topography refers to the shape of the ground over which the wind-stream passes. Common shapes are hills and ridges, escarpments, valleys etc. For the purpose of this Manual a hill or ridge must have a down wind slope of more than 1:20. For an escarpment the downwind slope is less than or equal to 1:20. In other words an escarpment is a ground shape where the upwind slope leads to a more-or-less flat plateau from the edge, downwind. (See Figures A4.4 (a) and A4.4 (b) )

When the wind-stream strikes against a hill or escarpment the shape of the ground restricts the area through which the steam of wind has to pass. This restriction in area increases the windspeed. Once again because of the low density (and other properties) of air, the increase in speed is a maximum close to the ground and it gradually reduces at higher levels above the ground. The increase in speed is also affected by the downwind slope. This is why hills produce a greater increase in speed than escarpments. The effect of some valleys is to funnel the wind and thereby increase the speed. However we do not have reliable data to include these effects in this Manual.

Tables A4.5.1 and A4.5.2 give the design windspeeds taking into account the effect of escarpments, and hills and ridges. Clauses A4.4.1 and A4.4.2 show the distances over which the topographic effect would persist.

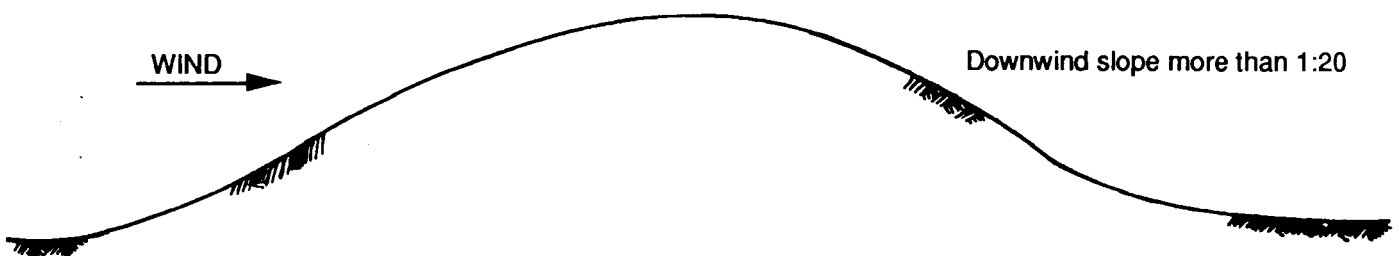


FIGURE A4.4(a) HILLS AND RIDGES





FIGURE A4.4 (b) ESCARPMENTS

A4.4.1 Distances upwind and downwind from crest of hills and ridges over which topographic multiplying factors must be applied are given in Figure A4.4.1 and Table A4.4.1.

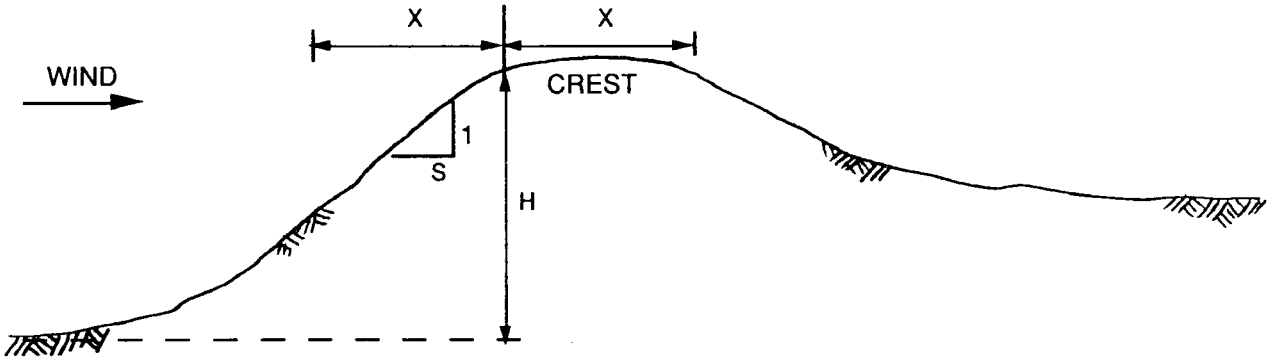


FIGURE A4.4.1

TABLE A4.4.1

UPWIND SLOPE 1 : S	UPWIND OR DOWNWIND DISTANCE, X
1 : 20	15 H
1 : 10	7.5 H
1 : 7	5 H
1 : 5	4 H

A4.4.2 Distances upwind and downwind from crest of escarpments over which topographic multiplying factors must be applied are given in Figure A4.4.2 and Table A4.4.2.

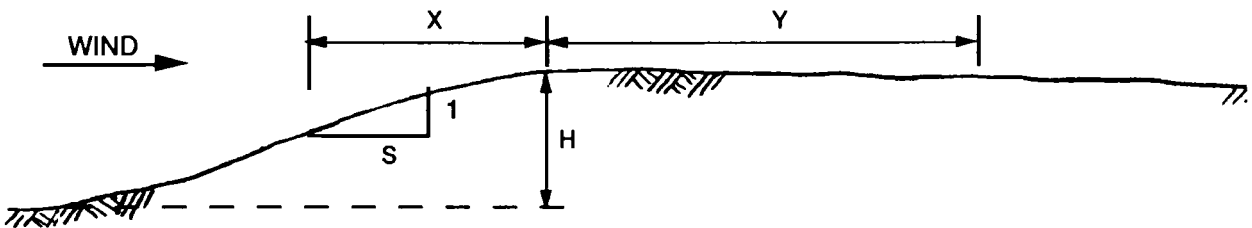


FIGURE A4.4.2

TABLE A4.4.2

UPWIND SLOPE 1 : S	UPWIND DISTANCE X	DOWNWIND DISTANCE Y
1 : 10	7.5 H	15 H
1 : 5	4 H	7.5 H
1 : 3.3	2.5 H	5 H

NOTE : i. The design windspeed decreases from the crest for a distance as given in Tables A4.4.1 and A4.4.2. Beyond distance X from the crest, the design windspeed for plain topography given in Tables A4.5.1 and A4.5.2 must be used.

#### A4.5 DESIGN WINDSPEEDS

Tables A4.5.1 and A4.5.2 give the design windspeeds for various combinations of terrain and topography. Table A4.5.1 is for houses with height to eaves less than 3 m (single storey) and A4.5.2 is for houses with height to eaves between 3 m and 6 m. Both tables are based on the prescribed basic windspeed of 57 m/s.

TABLE A4.5.1

DESIGN WINDSPEEDS (m/s) FOR HEIGHT TO EAVES OF 3 METRES								
TOPOGRAPHY =>	PLAIN	ESCARPMENTS			HILLS & RIDGES			
UPWIND SLOPE =>	N/A	1 in 10	1 in 5	1 in 3.3	1 in 20	1 in 10	1 in 7	1 in 5
TERRAIN CATEGORY 2	51	55	60	64	57	60	64	69
TERRAIN CATEGORY 2 1/2	49	53	57	60	53	57	60	69

TABLE A4.5.2

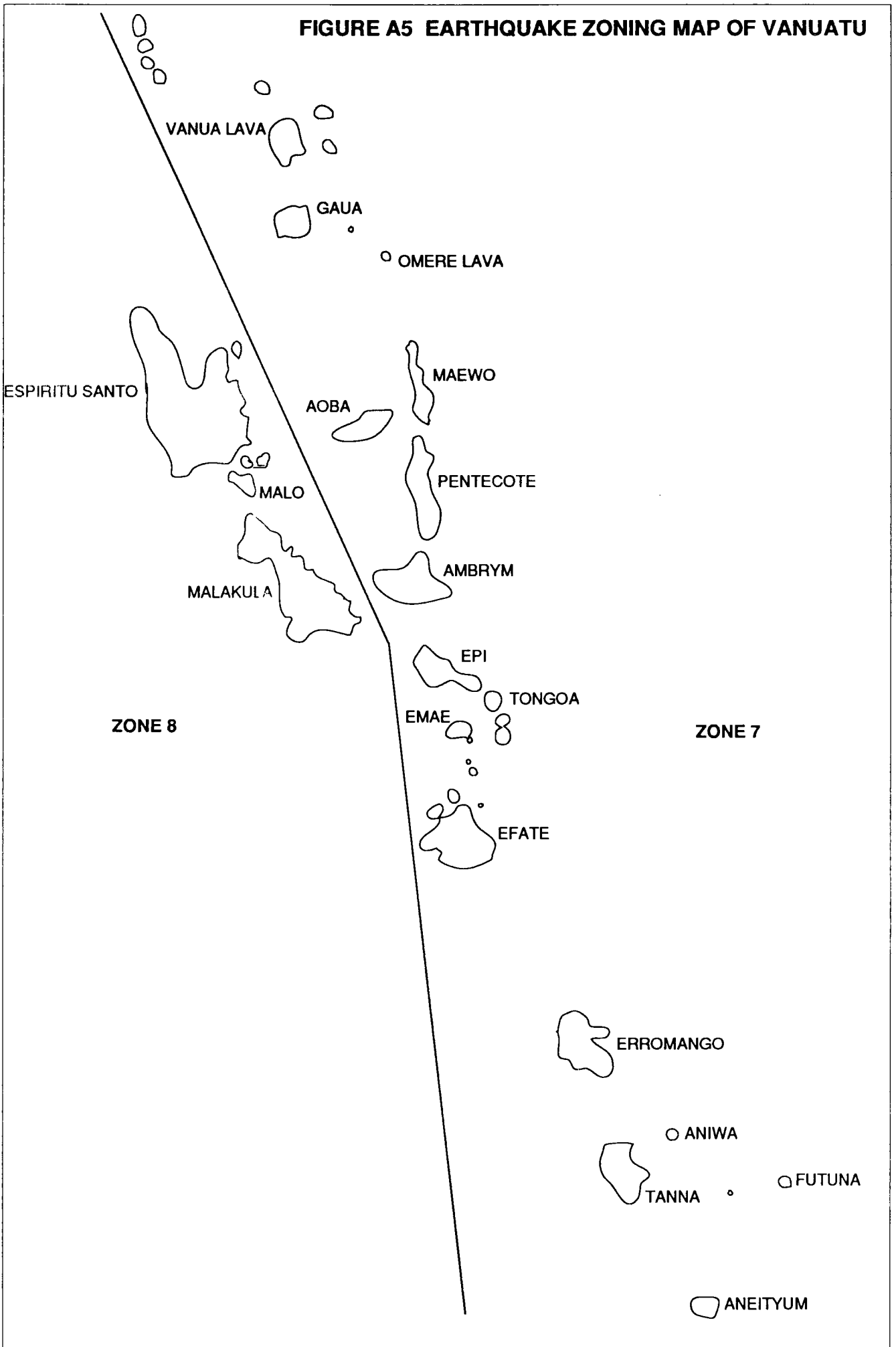
DESIGN WINDSPEEDS (m/s) FOR HEIGHT TO EAVES OF UP TO 6 METRES								
TOPOGRAPHY =>	PLAIN	ESCARPMENTS			HILLS & RIDGES			
UPWIND SLOPE =>	N/A	1 in 10	1 in 5	1 in 3.3	1 in 20	1 in 10	1 in 7	1 in 5
TERRAIN CATEGORY 2	55	60	64	69	60	64	69	74.5
TERRAIN CATEGORY 2 1/2	51	55	60	64	55	60	64	69

#### A5 EARTHQUAKE ZONING

Vanuatu has been divided into two earthquake zones, 7 and 8. These are illustrated in Figure A5. When referring to some of the Tables where earthquake loading is relevant, the appropriate zone values must be used.

Zone 8 is the most severe of the two zones. The zone factors are given in Appendix I.

**FIGURE A5 EARTHQUAKE ZONING MAP OF VANUATU**

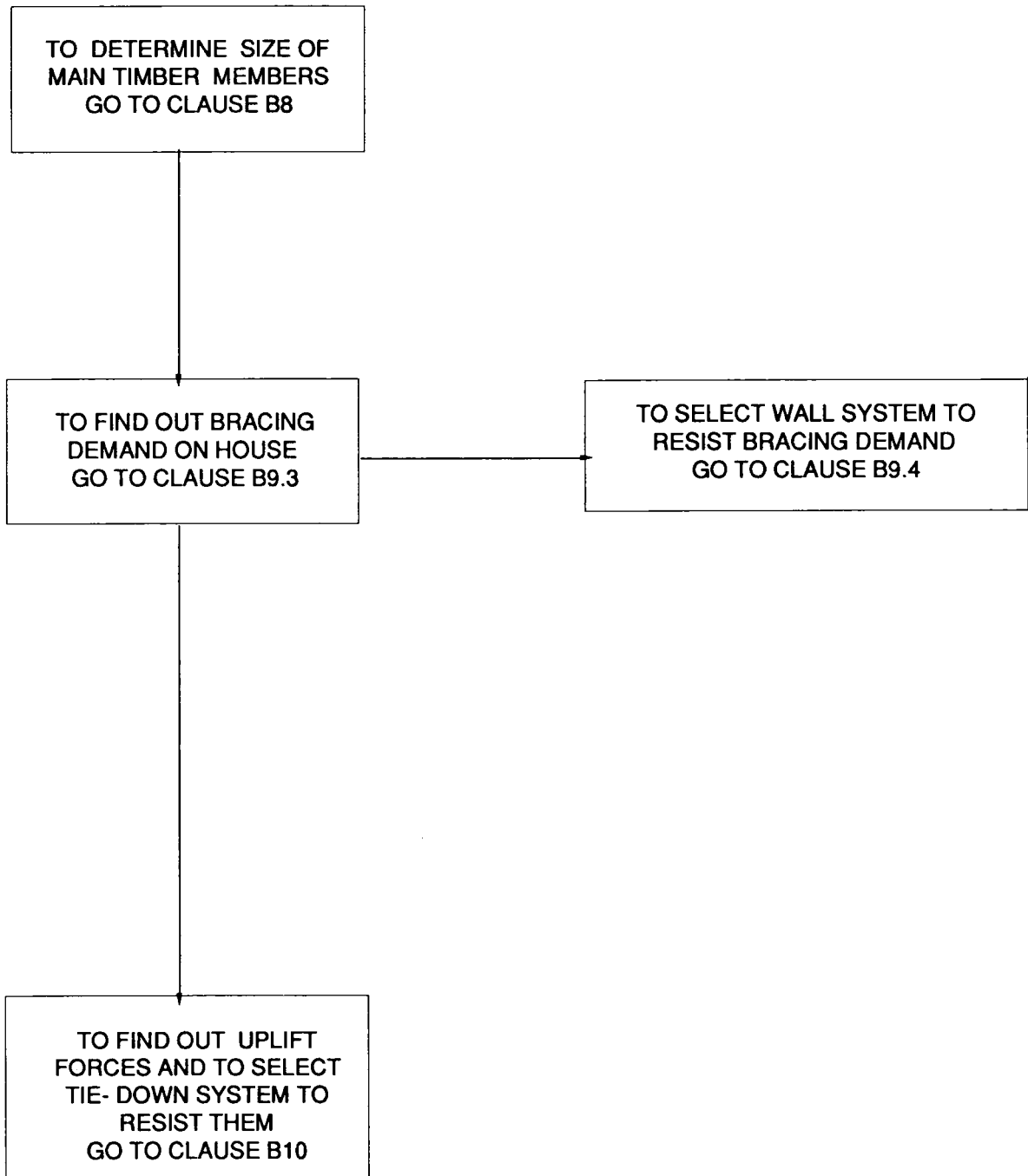


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# SECTION B

## TIMBER FRAMED HOUSES

# SECTION B TIMBER FRAMED HOUSES



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## SECTION B TIMBER FRAMED HOUSES

### B1 GENERAL

All timber members must be sized in accordance with Tables 1 to 20 as appropriate for the member, stress grade, and design situation. Care must be taken to ensure that the correct tables are used for the appropriate design windspeeds.

### B2 ASCERTAINING STRESS GRADE

Many of the tables in the Manual are based on a knowledge of the stress grade (see definition) of the timber used. Where timber is not stress graded mechanically or visually the approximate stress grade can be determined from the density of the timber. Table B2 gives these approximate values for different timber densities whether of softwood or hardwood. These values may be used in the absence of more precise information, to refer to all the other tables to use which the relevant stress grade is required.

TABLE B2 RELATIONSHIP BETWEEN DENSITY, STRENGTH GROUP AND STRESS GRADE

UNSEASONED TIMBERS							
MINIMUM DENSITY VALUES AT 12 PERCENT MOISTURE CONTENT	1180	1030	900	800	700	600	500
STRENGTH GROUP	S1	S2	S3	S4	S5	S6	S7
STRESS GRADE	F17	F14	F11	F8	F7	F5	F4*

SEASONED TIMBERS								
MINIMUM DENSITY VALUES AT 12 PERCENT MOISTURE CONTENT	1200	1080	960	840	730	620	520	420
STRENGTH GROUP	SD1	SD2	SD3	SD4	SD5	SD6	SD7	SD8
STRESS GRADE	F27	F22	F17	F14	F11	F8	F7*	F5*

\* Not applicable to hardwood timbers

### B3 JOINT GROUPS

A knowledge of the value of the joint group (see definition) of each timber member at any mechanical joint is required for the use of tables that relate to clauses B - 9 and B - 10. When this information is not readily available, it will be necessary to seek the guidance of the Department of Forestry or some other reliable source of information.

### B4 NOMINAL FIXINGS

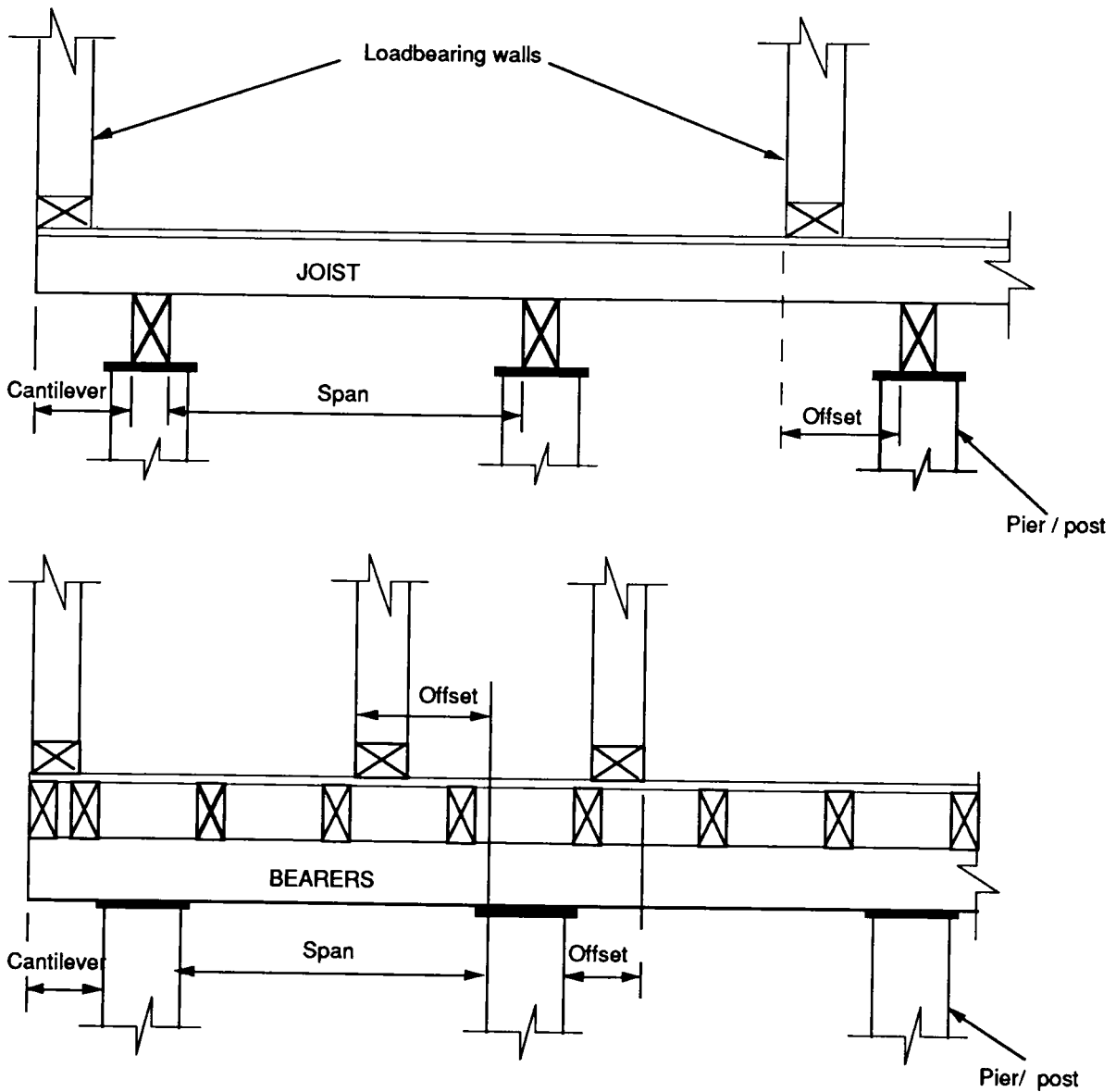
The minimum diameter of nails for use in nominal fixings must be 3.15 mm plain shank for hardwood, and 3.75 mm plain shank or 3.15 mm deformed shank for softwood. The minimum depth of penetration of nail into the final receiving member must be 10 times the nail diameter where driven into side grain and 15 times the nail diameter where driven into end grain. Not less than two nails must be provided at each joint unless shown otherwise in this Manual.

**B5 POSITION OF BEARERS, JOISTS AND NOGGINGS**

**B5.1 Allowable offsets for Bearers**

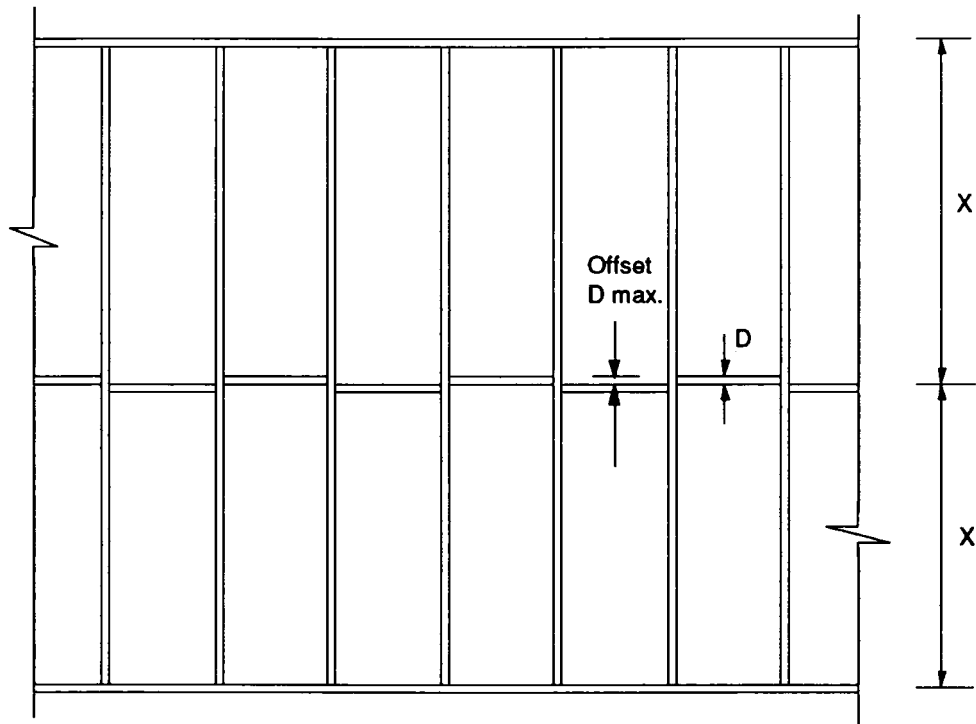
PERMISSIBLE CANTILEVERS AND OFFSETS FOR BEARERS AND JOISTS UNDER LOADBEARING WALLS		
Depth of Member (mm)	Maximum permissible cantilever as proportion of span (%)	Maximum permissible offset of internal loadbearing walls as proportion of span (%)
	Light Roof *	Light Roof *
< 125	10	20
125 - 200	15	30
201 - 275	17.5	35
> 275	20	37.5

\* eg. metal sheet roofing.



**FIGURE B5.1 CANTILEVERS AND OFFSETS**

## B5.2 Position of Noggings



Note : The value of 'X' must not exceed 1350 mm.

FIGURE B5.2 POSITION OF NOGGINGS

## B6 STIFFENING OF PLATES

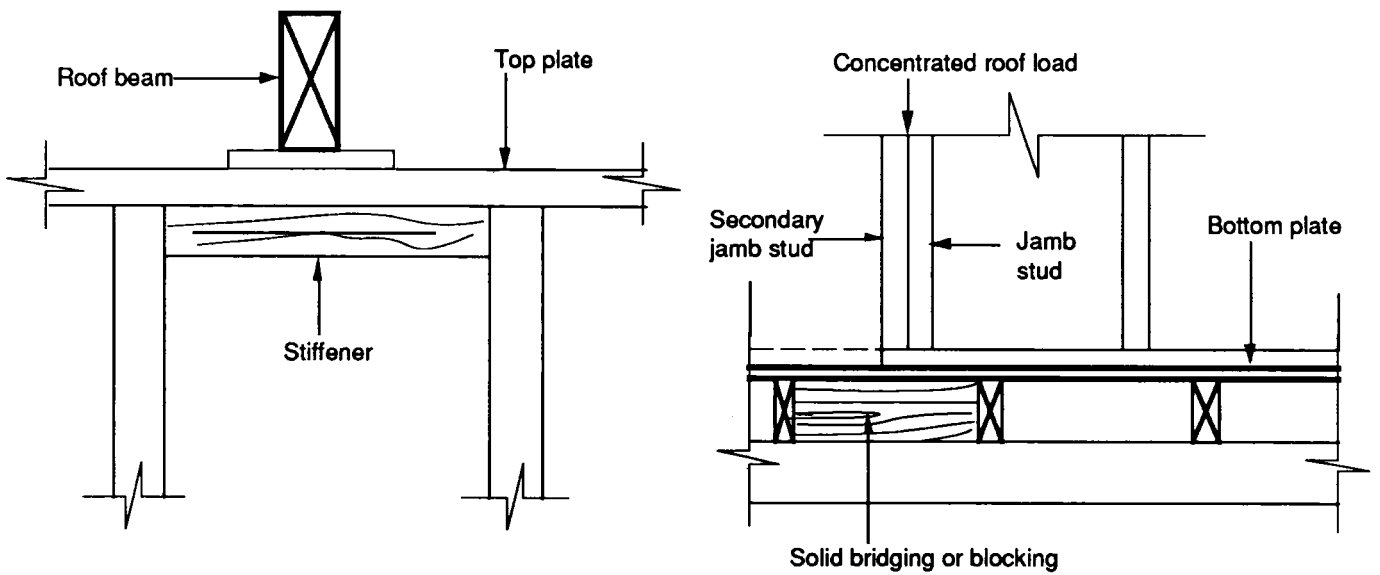
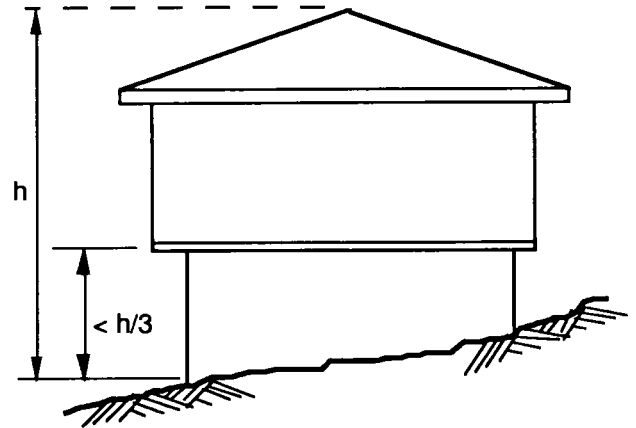
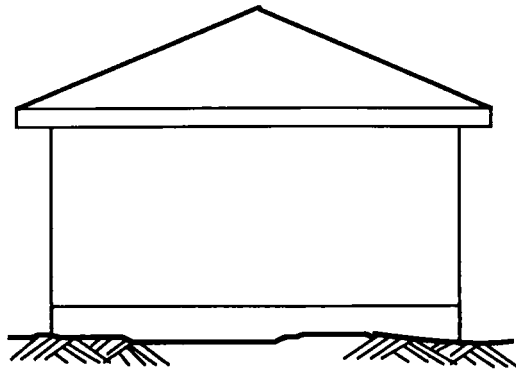


FIGURE B6 LOCAL STIFFENING OF PLATES



LOWSET (Single Storey)

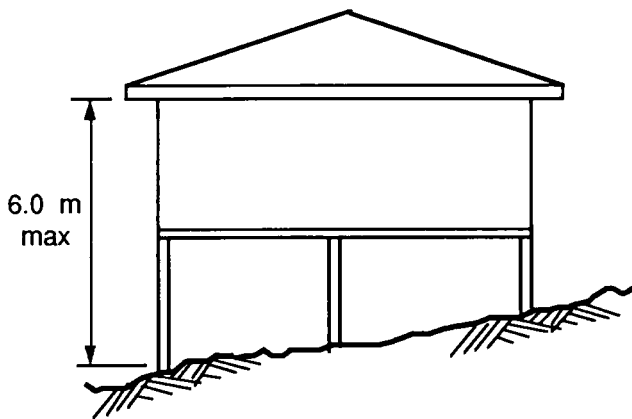
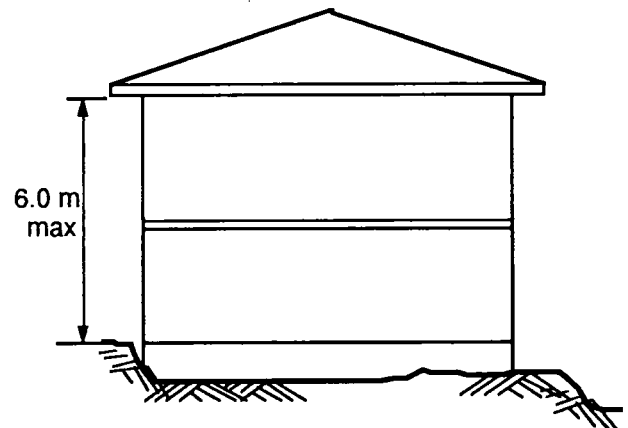
HIGH-SET  
(Open under)TWO STOREY  
(Enclosed under)

FIGURE B7 HOUSE TYPES

A highset house is an elevated house with a clear, unwallled space underneath the first floor level, with a height from ground to underside of floor of at least one-third of the total height of the house.

## B8 TIMBER MEMBER SIZES

### B8.1 General

The following sets of tables provide the sizes of timber members corresponding to design windspeeds determined from Section A. The tables are numbered 1 to 20 and each table contains the member size for the various components of a timber framed house.

The tolerances permitted for the sizes given in the tables are as follows

- for unseasoned timber of stress grades F4 to F7, not greater than 4 mm under the call dimension.
- for other unseasoned timber, not greater than 3 mm under the call dimension.
- for seasoned timber, negative tolerance is not permitted.

**B8.2** All timber dimensions are expressed with the value for depth first followed by that for the width. For example a purlin shown in any table as 50 x 75 means that it is laid flat with 50 mm depth and 75 mm width. If the reference is to 75 x 50, then the depth is 75 mm and width 50 mm.

### **B8.3 Application**

To determine the member size to be used, the following steps need to be followed

1. Determine the design windspeed (from Section A )
2. Select the table that corresponds to the design windspeed determined from step 1 for the member under consideration
3. Determine the options to be used from those given in the tables. ( eg. spacing, span, height, stress grade of timber, seasoning of timber etc. ).
4. Select the member size.

### **B8.4 Tables for Timber Members**

The following list gives the table numbers for the various timber members of a house.

Table 1	BEARERS SUPPORTING SINGLE OR UPPER STOREY LOADBEARING WALLS
Table 2	BEARERS SUPPORTING FLOOR JOISTS ONLY
Table 3	FLOOR JOISTS
Table 4	STUDS - SINGLE OR UPPER STOREY
Table 5	STUDS AT SIDES OF OPENINGS
Table 6	STUDS - INTERNAL LOADBEARING WALLS
Table 7	TOP PLATES - SINGLE OR UPPER STOREY
Table 8	BOTTOM PLATES - SINGLE OR UPPER STOREY
Table 9	LINTELS - SINGLE OR UPPER STOREY
Table 10	RAFTERS
Table 11	PURLINS
Table 12	VERANDAH POSTS
Table 13	BEARERS SUPPORTING TWO STOREY LOADBEARING WALLS
Table 14	STUDS- LOWER OF TWO STOREY
Table 15	STUDS - INTERNAL WALLS - LOWER OF TWO STOREY
Table 16	STUDS AT SIDES OF OPENINGS - LOWER OF TWO STOREY CONSTRUCTION
Table 17	TOP PLATES - LOWER OF TWO STOREY
Table 18	BOTTOM PLATES - LOWER STOREY WALLS
Table 19	LINTELS - LOWER OF TWO STOREY
Table 20	ROOF BEAMS - NON-TRAFFICABLE ROOFS

**Table 1**

**BEARERS SUPPORTING SINGLE OR UPPER STOREY LOADBEARING WALLS  
For All Design Windspeeds**

Maximum Building Width: 9000 mm

BEARER SPACING (mm)	BEARER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
1800	1500	150 x 75	150 x 75	125 x 75	125 x 75	125 x 75	125 x 75	125 x 75
	1800	175 x 75	175 x 75	150 x 75	150 x 75	150 x 75	150 x 75	125 x 75
	2100	200 x 75	200 x 75	175 x 75	175 x 75	175 x 75	150 x 75	150 x 75
	2400	225 x 75	225 x 75	200 x 75	200 x 75	200 x 75	175 x 75	175 x 75
	2700	250 x 75	250 x 75	225 x 75	225 x 75	200 x 75	200 x 75	200 x 75
	3000	275 x 75	275 x 75	250 x 75	250 x 75	250 x 75	225 x 75	225 x 75
	3300	300 x 75	300 x 75	275 x 75	275 x 75	250 x 75	250 x 75	225 x 75
	3600	-	-	300 x 75	300 x 75	275 x 75	275 x 75	250 x 75
3600	1500	175 x 75	150 x 75	150 x 75	150 x 75	125 x 75	125 x 75	125 x 75
	1800	200 x 75	175 x 75	175 x 75	175 x 75	150 x 75	150 x 75	125 x 75
	2100	225 x 75	200 x 75	200 x 75	200 x 75	175 x 75	175 x 75	150 x 75
	2400	250 x 75	225 x 75	225 x 75	225 x 75	200 x 75	175 x 75	175 x 75
	2700	275 x 75	250 x 75	250 x 75	250 x 75	225 x 75	200 x 75	200 x 75
	3000	300 x 75	275 x 75	275 x 75	275 x 75	250 x 75	225 x 75	225 x 75
	3300	-	300 x 75	300 x 75	300 x 75	275 x 75	250 x 75	250 x 75
	3600	-	-	-	-	300 x 75	275 x 75	275 x 75

BEARER SPACING (mm)	BEARER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
1800	1500	140 x 70	120 x 70	120 x 70	120 x 70	120 x 70	90 x 70	90 x 70
	1800	170 x 70	140 x 70	140 x 70	120 x 70	120 x 70	120 x 70	120 x 70
	2100	190 x 70	170 x 70	170 x 70	140 x 70	140 x 70	140 x 70	140 x 70
	2400	220 x 70	190 x 70	170 x 70	170 x 70	170 x 70	170 x 70	170 x 70
	2700	240 x 70	220 x 70	190 x 70	190 x 70	190 x 70	170 x 70	170 x 70
	3000	-	240 x 70	220 x 70	220 x 70	220 x 70	190 x 70	190 x 70
	3300	-	-	240 x 70	240 x 70	240 x 70	220 x 70	220 x 70
	3600	-	-	-	240 x 70	240 x 70	240 x 70	240 x 70
3600	1500	170 x 70	140 x 70	120 x 70	120 x 70	120 x 70	120 x 70	120 x 70
	1800	190 x 70	170 x 70	140 x 70	120 x 70	120 x 70	120 x 70	120 x 70
	2100	220 x 70	190 x 70	170 x 70	140 x 70	140 x 70	140 x 70	140 x 70
	2400	240 x 70	220 x 70	190 x 70	170 x 70	170 x 70	170 x 70	170 x 70
	2700	-	240 x 70	220 x 70	190 x 70	190 x 70	170 x 70	170 x 70
	3000	-	-	240 x 70	220 x 70	220 x 70	190 x 70	190 x 70
	3300	-	-	240 x 70	240 x 70	240 x 70	220 x 70	220 x 70
	3600	-	-	-	-	-	240 x 70	240 x 70

**Table 2**

**BEARERS SUPPORTING FLOOR JOISTS ONLY  
For All Design Windspeeds**

BEARER SPACING (mm)	BEARER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
1800	1500	125 x 75	125 x 75	100 x 75	100 x 75	100 x 75	100 x 75	100 x 75
	1800	150 x 75	125 x 75	125 x 75	125 x 75	125 x 75	100 x 75	100 x 75
	2100	175 x 75	150 x 75	150 x 75	150 x 75	125 x 75	125 x 75	125 x 75
	2400	200 x 75	175 x 75	175 x 75	175 x 75	150 x 75	150 x 75	150 x 75
	2700	225 x 75	200 x 75	200 x 75	200 x 75	175 x 75	150 x 75	150 x 75
	3000	250 x 75	225 x 75	200 x 75	200 x 75	200 x 75	175 x 75	175 x 75
	3300	275 x 75	250 x 75	225 x 75	225 x 75	200 x 75	200 x 75	200 x 75
	3600	300 x 75	250 x 75	250 x 75	250 x 75	225 x 75	225 x 75	200 x 75
2400	1500	150 x 75	125 x 75	125 x 75	125 x 75	100 x 75	100 x 75	100 x 75
	1800	175 x 75	150 x 75	150 x 75	125 x 75	125 x 75	125 x 75	125 x 75
	2100	200 x 75	175 x 75	150 x 75	150 x 75	150 x 75	150 x 75	125 x 75
	2400	225 x 75	200 x 75	175 x 75	175 x 75	175 x 75	150 x 75	150 x 75
	2700	250 x 75	225 x 75	200 x 75	200 x 75	175 x 75	175 x 75	175 x 75
	3000	275 x 75	250 x 75	225 x 75	225 x 75	200 x 75	200 x 75	200 x 75
	3300	300 x 75	275 x 75	250 x 75	250 x 75	225 x 75	225 x 75	200 x 75
	3600	-	300 x 75	275 x 75	250 x 75	250 x 75	250 x 75	225 x 75
3000	1500	175 x 75	150 x 75	125 x 75	125 x 75	125 x 75	100 x 75	100 x 75
	1800	200 x 75	175 x 75	150 x 75	150 x 75	125 x 75	125 x 75	125 x 75
	2100	225 x 75	200 x 75	175 x 75	175 x 75	150 x 75	150 x 75	150 x 75
	2400	250 x 75	225 x 75	200 x 75	175 x 75	175 x 75	175 x 75	175 x 75
	2700	275 x 75	250 x 75	225 x 75	200 x 75	200 x 75	175 x 75	175 x 75
	3000	300 x 75	275 x 75	250 x 75	225 x 75	225 x 75	200 x 75	200 x 75
	3300	-	300 x 75	275 x 75	250 x 75	250 x 75	225 x 75	225 x 75
	3600	-	-	300 x 75	275 x 75	275 x 75	250 x 75	250 x 75
3600	1500	175 x 75	150 x 75	150 x 75	150 x 75	125 x 75	125 x 75	125 x 75
	1800	200 x 75	175 x 75	175 x 75	175 x 75	150 x 75	125 x 75	125 x 75
	2100	225 x 75	200 x 75	200 x 75	200 x 75	175 x 75	150 x 75	150 x 75
	2400	250 x 75	225 x 75	225 x 75	225 x 75	200 x 75	175 x 75	175 x 75
	2700	275 x 75	250 x 75	250 x 75	225 x 75	200 x 75	200 x 75	200 x 75
	3000	300 x 75	275 x 75	275 x 75	250 x 75	225 x 75	225 x 75	225 x 75
	3300	-	300 x 75	300 x 75	275 x 75	250 x 75	250 x 75	250 x 75
	3600	-	-	-	-	275 x 75	275 x 75	250 x 75



**Table 2 (continued)**

**BEARERS SUPPORTING FLOOR JOISTS ONLY  
For All Design Windspeeds**

BEARER SPACING (mm)	BEARER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
1800	1500	120 x 70	120 x 70	120 x 70	90 x 70	90 x 70	90 x 70	90 x 70
	1800	140 x 70	140 x 70	120 x 70	120 x 70	120 x 70	120 x 70	120 x 70
	2100	170 x 70	170 x 70	140 x 70	140 x 70	140 x 70	120 x 70	120 x 70
	2400	190 x 70	170 x 70	170 x 70	170 x 70	140 x 70	140 x 70	140 x 70
	2700	220 x 70	190 x 70	190 x 70	170 x 70	170 x 70	170 x 70	170 x 70
	3000	240 x 70	220 x 70	220 x 70	190 x 70	190 x 70	170 x 70	170 x 70
	3300	-	240 x 70	240 x 70	220 x 70	220 x 70	190 x 70	190 x 70
	3600	-	-	240 x 70	240 x 70	240 x 70	240 x 70	220 x 70
2400	1500	140 x 70	120 x 70	120 x 70	120 x 70	120 x 70	90 x 70	90 x 70
	1800	170 x 70	170 x 70	140 x 70	120 x 70	120 x 70	120 x 70	120 x 70
	2100	190 x 70	170 x 70	170 x 70	140 x 70	140 x 70	140 x 70	120 x 70
	2400	220 x 70	220 x 70	190 x 70	170 x 70	170 x 70	170 x 70	140 x 70
	2700	240 X 70	240 x 70	220 x 70	190 x 70	190 x 70	170 x 70	170 x 70
	3000	-	240 X 70	220 x 70	220 x 70	220 x 70	190 x 70	190 x 70
	3300	-	-	240 x 70	240 x 70	240 x 70	220 x 70	190 x 70
	3600	-	-	-	-	240 x 70	240 x 70	220 x 70
3000	1500	170 x 70	140 x 70	120 x 70	120 x 70	120 x 70	120 x 70	120 x 70
	1800	190 x 70	170 x 70	140 x 70	120 x 70	120 x 70	120 x 70	120 x 70
	2100	220 x 70	190 x 70	170 x 70	140 x 70	140 x 70	140 x 70	140 x 70
	2400	240 X 70	220 x 70	190 x 70	170 x 70	170 x 70	170 x 70	170 x 70
	2700	-	240 X 70	220 x 70	190 x 70	190 x 70	170 x 70	170 x 70
	3000	-	-	220 X 70	220 x 70	220 x 70	190 x 70	190 x 70
	3300	-	-	240 X 70	240 X 70	240 x 70	220 x 70	220 x 70
	3600	-	-	-	-	-	240 x 70	240 x 70
3600	1500	170 x 70	140 x 70	120 x 70	120 x 70	120 x 70	120 x 70	120 x 70
	1800	190 x 70	170 x 70	140 x 70	120 x 70	120 x 70	120 x 70	120 x 70
	2100	220 x 70	190 x 70	170 x 70	140 x 70	140 x 70	140 x 70	140 x 70
	2400	240 x 70	220 x 70	190 x 70	170 x 70	170 x 70	170 x 70	170 x 70
	2700	-	240 x 70	220 x 70	190 x 70	190 x 70	170 x 70	170 x 70
	3000	-	-	240 x 70	220 x 70	220 x 70	190 x 70	190 x 70
	3300	-	-	240 x 70	240 x 70	240 x 70	220 x 70	220 x 70
	3600	-	-	-	-	-	240 x 70	240 x 70

**Table 3**

**FLOOR JOISTS**

**For All Design Windspeeds**

Joists spacing: 450 mm centres

MAX. SPAN (mm)	SPAN TYPE	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
1800	SINGLE	125 x 40	125 x 40	125 x 40	125 x 40	100 x 50	100 x 40	100 x 40
	CONT.	125 x 40	100 x 50	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40
2100	SINGLE	150 x 40	125 x 50	125 x 50	125 x 40	125 x 40	100 x 50	100 x 50
	CONT.	125 x 40	125 x 40	125 x 40	125 x 40	100 x 50	100 x 40	100 x 40
2400	SINGLE	150 x 50	150 x 40	150 x 40	125 x 50	125 x 50	125 x 40	125 x 40
	CONT.	150 x 40	125 x 50	125 x 50	125 x 40	125 x 40	100 x 50	100 x 50
2700	SINGLE	175 x 40	150 x 50	150 x 50	150 x 50	150 x 40	125 x 50	125 x 50
	CONT.	150 x 50	150 x 40	150 x 40	125 x 50	125 x 40	125 x 40	125 x 40
3000	SINGLE	175 x 50	175 x 40	175 x 40	175 x 40	150 x 40	150 x 40	125 x 50
	CONT.	150 x 50	150 x 50	150 x 40	150 x 40	125 x 50	125 x 50	125 x 40
3300	SINGLE	175 x 50	175 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 40
	CONT.	175 x 50	175 x 50	150 x 50	150 x 50	150 x 40	125 x 50	125 x 40
3600	SINGLE	200 x 50	200 x 40	175 x 50	175 x 50	175 x 40	150 x 50	150 x 50
	CONT.	200 x 50	200 x 40	150 x 50	150 x 50	150 x 40	150 x 40	125 x 50

MAX. SPAN (mm)	SPAN TYPE	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
1800	SINGLE	120 x 35	120 x 35	120 x 35	120 x 35	120 x 35	90 x 45	90 x 45
	CONT.	120 x 35	120 x 35	90 x 45	90 x 45	90 x 35	90 x 35	90 x 35
2100	SINGLE	140 x 35	120 x 45	120 x 45	120 x 35	120 x 35	120 x 35	90 x 45
	CONT.	120 x 35	120 x 35	120 x 35	120 x 35	120 x 35	90 x 45	90 x 45
2400	SINGLE	140 x 45	140 x 45	140 x 35	120 x 45	120 x 45	120 x 35	120 x 35
	CONT.	140 x 35	120 x 45	120 x 45	120 x 35	120 x 35	120 x 35	90 x 45
2700	SINGLE	190 x 35	190 x 35	140 x 45	140 x 45	140 x 35	120 x 45	120 x 45
	CONT.	140 x 45	140 x 35	140 x 35	120 x 45	120 x 45	120 x 35	120 x 35
3000	SINGLE	190 x 35	190 x 35	190 x 35	190 x 35	140 x 35	140 x 35	140 x 35
	CONT.	190 x 35	140 x 35	140 x 35	140 x 35	140 x 35	120 x 45	120 x 45
3300	SINGLE	190 x 35	190 x 35	190 x 35	190 x 35	190 x 35	140 x 45	140 x 45
	CONT.	190 x 35	190 x 35	190 x 35	140 x 45	140 x 35	140 x 35	120 x 45
3600	SINGLE	240 x 35	240 x 35	190 x 35	190 x 35	190 x 35	190 x 35	190 x 35
	CONT.	240 x 35	240 x 35	190 x 35	190 x 35	140 x 45	140 x 35	140 x 35

- Notes
- i. The sizes given apply only where roof loads are supported within the allowable offset distance for the joists.
  - ii. Where roof loads occur outside the allowable offset, floor joists must be strengthened by placing a double joist, one size greater than the appropriate tabled value, at the points where roof loads are transferred to the floor.
  - iii. For spans greater than 2400 mm, a floor joist size used at the maximum span given by the table may exhibit excessive "bounce". To avoid excessive "bounce", joists may be one size greater than the tabled values.

**Table 4 - 49**

**STUDS - SINGLE OR UPPER STOREY**

External walls including gable ends

**Design Windspeed: 49 m/s**

STUD SPACING (mm)	STUD HEIGHT (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
450	2400	100 x 40	100 x 40	75 x 50	75 x 40	75 x 40	75 x 40	75 x 40
	2700	100 x 40	100 x 40	100 x 40	100 x 40	75 x 50	75 x 50	75 x 40
	3000	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40	75 x 50
600	2400	100 x 40	100 x 40	100 x 40	100 x 40	75 x 50	75 x 40	75 x 40
	2700	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40	75 x 50
	3000	100 x 75	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40
750	2400	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40	75 x 50	75 x 50
	2700	100 x 75	100 x 75	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
	3000	100 x 100	100 x 75	100 x 75	100 x 75	100 x 50	100 x 40	100 x 40
900	2400	100 x 75	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40	75 x 50
	2700	100 x 75	100 x 75	100 x 75	100 x 50	100 x 40	100 x 40	100 x 40
	3000	-	-	100 x 75	100 x 75	100 x 75	100 x 50	100 x 50
STUD SPACING (mm)	STUD HEIGHT (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
450	2400	90 x 35	90 x 35	70 x 45	70 x 45	70 x 35	70 x 35	70 x 35
	2700	90 x 45	90 x 35	90 x 35	90 x 35	90 x 35	70 x 45	70 x 45
	3000	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35	90 x 35	90 x 35
600	2400	90 x 45	90 x 35	90 x 35	90 x 35	70 x 45	70 x 45	70 x 35
	2700	90 x 70	90 x 70	90 x 45	90 x 35	90 x 35	90 x 35	90 x 35
	3000	90 x 90	90 x 70	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35
750	2400	90 x 70	90 x 70	90 x 45	90 x 35	90 x 35	90 x 35	70 x 45
	2700	-	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35	90 x 35
	3000	-	-	90 x 70	90 x 70	90 x 70	90 x 45	90 x 45
900	2400	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35	90 x 35	90 x 35
	2700	-	90 x 70	90 x 70	90 x 70	90 x 70	90 x 45	90 x 35
	3000	-	-	-	-	90 x 70	90 x 70	90 x 70

- Notes
- i. Larger sizes may be made up from smaller sections i.e. 2/100 x 50 equals a 100 x 100.
  - ii. Studs supporting concentrations of load from beams and the like must be doubled common studs.
  - iii. No allowance has been made for notching

**Table 4 - 51**

**STUDS - SINGLE OR UPPER STOREY**

External walls including gable ends

**Design Windspeed: 51 m/s**

STUD SPACING (mm)	STUD HEIGHT (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
450	2400	100 x 40	100 x 40	75 x 50	75 x 50	75 x 40	75 x 40	75 x 40
	2700	100 x 40	100 x 40	100 x 40	100 x 40	100 x 40	75 x 50	75 x 50
	3000	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
600	2400	100 x 50	100 x 40	100 x 40	100 x 40	75 x 50	75 x 50	75 x 50
	2700	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
	3000	100 x 75	100 x 75	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40
750	2400	100 x 75	100 x 50	100 x 40	100 x 40	100 x 40	75 x 50	75 x 50
	2700	100 x 75	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40
900	2400	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40	75 x 50
	2700	-	100 x 75	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40
STUD SPACING (mm)	STUD HEIGHT (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
450	2400	90 x 35	90 x 35	90 x 35	70 x 45	70 x 45	70 x 35	70 x 35
	2700	90 x 45	90 x 45	90 x 35	90 x 35	90 x 35	90 x 35	70 x 45
	3000	90 x 70	90 x 70	90 x 70	90 x 45	90 x 35	90 x 35	90 x 35
600	2400	90 x 45	90 x 45	90 x 35	90 x 35	90 x 35	70 x 45	70 x 45
	2700	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35	90 x 35	90 x 35
	3000	90 x 90	90 x 90	90 x 70	90 x 70	90 x 70	90 x 45	90 x 35
750	2400	90 x 70	90 x 70	90 x 45	90 x 35	90 x 35	90 x 35	90 x 35
	2700	-	90 x 70	90 x 45	90 x 70	90 x 45	90 x 45	90 x 35
900	2400	-	90 x 70	90 x 45	90 x 45	90 x 45	90 x 35	90 x 35
	2700	-	-	90 x 45	90 x 70	90 x 70	90 x 45	90 x 45

- Notes
- i. Larger sizes may be made up from smaller sections i.e. 2/100 x 50 equals a 100 x 100.
  - ii. Studs supporting concentrations of load from beams and the like must be doubled common studs.
  - iii. No allowance has been made for notching

**Table 4 - 53**

**STUDS - SINGLE OR UPPER STOREY**

External walls including gable ends

**Design Windspeed: 53 m/s**

STUD SPACING (mm)	STUD HEIGHT (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
450	2400	100 x 40	100 x 40	100 x 40	75 x 50	75 x 40	75 x 40	75 x 40
	2700	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40	75 x 50	75 x 50
	3000	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
600	2400	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40	75 x 50	75 x 40
	2700	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
	3000	100 x 75	100 x 75	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40
750	2400	100 x 75	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40	75 x 50
	2700	100 x 75	100 x 75	100 x 75	100 x 50	100 x 40	100 x 40	100 x 40
	3000	-	-	100 x 75	100 x 75	100 x 75	100 x 50	100 x 40
900	2400	100 x 75	100 x 75	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
	2700	-	100 x 75	100 x 75	100 x 75	100 x 50	100 x 40	100 x 40
	3000	-	-	-	100 x 75	100 x 75	100 x 75	100 x 50
STUD SPACING (mm)	STUD HEIGHT (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
450	2400	90 x 35	90 x 35	90 x 35	90 x 35	70 x 45	70 x 45	70 x 35
	2700	90 x 70	90 x 45	90 x 45	90 x 35	90 x 35	90 x 35	70 x 45
	3000	90 x 70	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35	90 x 35
600	2400	90 x 70	90 x 45	90 x 35	90 x 35	90 x 35	90 x 35	70 x 45
	2700	90 x 70	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35	90 x 35
	3000	90 x 90	90 x 90	90 x 70	90 x 70	90 x 70	90 x 45	90 x 45
750	2400	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35	90 x 35	90 x 35
	2700	-	90 x 70	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35
	3000	-	-	-	90 x 70	90 x 70	90 x 70	90 x 70
900	2400	-	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35	90 x 35
	2700	-	-	-	90 x 70	90 x 70	90 x 70	90 x 45
	3000	-	-	-	-	-	90 x 70	90 x 70

- Notes
- i. Larger sizes may be made up from smaller sections i.e. 2/100 x 50 equals a 100 x 100.
  - ii. Studs supporting concentrations of load from beams and the like must be doubled common studs.
  - iii. No allowance has been made for notching

**Table 4 - 55**

**STUDS - SINGLE OR UPPER STOREY**

External walls including gable ends

**Design Windspeed: 55 m/s**

STUD SPACING (mm)	STUD HEIGHT (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
450	2400	100 x 40	100 x 40	100 x 40	75 x 50	75 x 50	75 x 40	75 x 40
	2700	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40	75 x 50
	3000	100 x 75	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40
600	2400	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40	100 x 40	75 x 50
	2700	100 x 75	100 x 75	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
	3000	100 x 100	100 x 75	100 x 75	100 x 75	100 x 50	100 x 50	100 x 40
750	2400	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
	2700	100 x 75	100 x 75	100 x 75	100 x 50	100 x 50	100 x 50	100 x 40
900	2400	100 x 75	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40
	2700	-	-	100 x 75	100 x 75	100 x 50	100 x 50	100 x 40
STUD SPACING (mm)	STUD HEIGHT (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
450	2400	90 x 45	90 x 35	90 x 35	90 x 35	70 x 45	70 x 45	70 x 35
	2700	90 x 70	90 x 45	90 x 45	90 x 35	90 x 35	90 x 35	90 x 35
	3000	90 x 70	90 x 70	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35
600	2400	90 x 70	90 x 45	90 x 45	90 x 35	90 x 35	90 x 35	90 x 35
	2700	90 x 70	90 x 70	90 x 70	90 x 70	90 x 45	90 x 35	90 x 35
	3000	-	90 x 90	90 x 90	90 x 70	90 x 70	90 x 70	90 x 45
750	2400	-	90 x 70	90 x 70	90 x 45	90 x 35	90 x 35	90 x 35
	2700	-	-	90 x 70	90 x 70	90 x 70	90 x 45	90 x 45
900	2400	-	90 x 70	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35
	2700	-	-	-	90 x 70	90 x 70	90 x 70	90 x 45

- Notes
- i. Larger sizes may be made up from smaller sections i.e. 2/100 x 50 equals a 100 x 100.
  - ii. Studs supporting concentrations of load from beams and the like must be doubled common studs.
  - iii. No allowance has been made for notching

**Table 4 - 57**

**STUDS - SINGLE OR UPPER STOREY**

External walls including gable ends

**Design Windspeed: 57 m/s**

STUD SPACING (mm)	STUD HEIGHT (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
450	2400	100 x 40	100 x 40	100 x 40	100 x 40	75 x 50	75 x 40	75 x 40
	2700	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40	75 x 50
	3000	100 x 75	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40
600	2400	100 x 75	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40	75 x 50
	2700	100 x 75	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40
	3000	100 x 100	100 x 75	100 x 75	100 x 75	100 x 50	100 x 50	100 x 40
750	2400	100 x 75	100 x 75	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
	2700	-	100 x 75	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40
	3000	-	-	-	100 x 75	100 x 75	100 x 75	100 x 50
900	2400	-	100 x 75	100 x 75	100 x 50	100 x 40	100 x 40	100 x 40
	2700	-	-	100 x 75	100 x 57	100 x 75	100 x 50	100 x 40
	3000	-	-	-	-	100 x 75	100 x 75	10 x 75
STUD SPACING (mm)	STUD HEIGHT (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
450	2400	90 x 45	90 x 35	90 x 35	90 x 35	90 x 35	70 x 45	70 x 35
	2700	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35	90 x 35	90 x 35
	3000	90 x 90	90 x 70	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35
600	2400	90 x 70	90 x 45	90 x 45	90 x 35	90 x 35	90 x 35	90 x 35
	2700	90 x 90	90 x 70	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35
	3000	-	90 x 90	90 x 90	90 x 70	90 x 70	90 x 70	90 x 45
750	2400	-	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35	90 x 35
	2700	-	-	90 x 70	90 x 70	90 x 70	90 x 45	90 x 45
	3000	-	-	-	-	90 x 70	90 x 70	90 x 70
900	2400	-	-	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35
	2700	-	-	-	-	90 x 70	90 x 70	90 x 70
	3000	-	-	-	-	-	-	90 x 70

- Notes
- i. Larger sizes may be made up from smaller sections i.e. 2/100 x 50 equals a 100 x 100.
  - ii. Studs supporting concentrations of load from beams and the like must be doubled common studs.
  - iii. No allowance has been made for notching

**Table 4 - 60**

**STUDS - SINGLE OR UPPER STOREY**  
External walls including gable ends

**Design Windspeed: 60 m/s**

STUD SPACING (mm)	STUD HEIGHT (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
450	2400	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40	75 x 50	75 x 40
	2700	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
	3000	100 x 75	100 x 75	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40
600	2400	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
	2700	100 x 75	100 x 75	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40
	3000	100 x 100	100 x 100	100 x 75	100 x 75	100 x 75	100 x 50	100 x 50
750	2400	100 x 75	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40
	2700	-	-	100 x 75	100 x 75	100 x 50	100 x 50	100 x 40
900	2400	-	100 x 75	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40
	2700	-	-	-	100 x 75	100 x 75	100 x 75	100 x 50
STUD SPACING (mm)	STUD HEIGHT (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
450	2400	90 x 45	90 x 45	90 x 35	90 x 35	90 x 35	90 x 35	70 x 45
	2700	90 x 70	90 x 70	90 x 70	90 x 45	90 x 45	90 x 45	90 x 35
	3000	90 x 90	90 x 90	90 x 70	90 x 70	90 x 70	90 x 45	90 x 45
600	2400	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35	90 x 35	90 x 35
	2700	90 x 90	90 x 90	90 x 70	90 x 70	90 x 70	90 x 45	90 x 45
	3000	-	-	90 x 90	90 x 90	90 x 70	90 x 70	90 x 70
750	2400	-	90 x 70	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35
	2700	-	-	-	90 x 70	90 x 70	90 x 70	90 x 45
900	2400	-	-	90 x 70	90 x 70	90 x 70	90 x 45	90 x 45
	2700	-	-	-	-	90 x 70	90 x 70	90 x 70

- Notes
- i. Larger sizes may be made up from smaller sections i.e. 2/100 x 50 equals a 100 x 100.
  - ii. Studs supporting concentrations of load from beams and the like must be doubled common studs.
  - iii. No allowance has been made for notching



**Table 4 - 64**

**STUDS - SINGLE OR UPPER STOREY**

External walls including gable ends

**Design Windspeed: 64 m/s**

STUD SPACING (mm)	STUD HEIGHT (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
450	2400	100 x 40	100 x 40	100 x 40	100 x 40	100 x 40	100 x 40	75 x 50
	2700	100 x 75	100 x 75	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
	3000	100 x 100	100 x 75	100 x 75	100 x 75	100 x 50	100 x 50	100 x 40
600	2400	100 x 75	100 x 75	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
	2700	100 x 100	100 x 75	100 x 75	100 x 75	100 x 50	100 x 50	100 x 40
	3000	-	100 x 100	100 x 100	100 x 75	100 x 75	100 x 75	100 x 50
STUD SPACING (mm)	STUD HEIGHT (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
450	2400	90 x 70	90 x 45	90 x 45	90 x 35	90 x 35	90 x 35	70 x 45
	2700	90 x 70	90 x 70	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35
	3000	-	90 x 90	90 x 90	90 x 70	90 x 70	90 x 70	90 x 45
600	2400	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35	90 x 35	90 x 35
	2700	-	90 x 90	90 x 90	90 x 70	90 x 70	90 x 45	90 x 45
	3000	-	-	-	90 x 90	90 x 90	90 x 70	90 x 70

**Design Windspeed: 69 m/s**

STUD SPACING (mm)	STUD HEIGHT (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
450	2400	100 x 75	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40	100 x 40
	2700	100 x 75	100 x 75	100 x 75	100 x 50	100 x 50	100 x 40	100 x 40
	3000	100 x 100	100 x 100	100 x 75	100 x 75	100 x 75	100 x 50	100 x 50
600	2400	100 x 75	100 x 75	100 x 75	100 x 50	100 x 40	100 x 40	100 x 40
	2700	100 x 100	100 x 100	100 x 75	100 x 75	100 x 75	100 x 50	100 x 50
	3000	-	-	100 x 100	100 x 100	100 x 75	100 x 75	100 x 75
STUD SPACING (mm)	STUD HEIGHT (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
450	2400	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35	90 x 35	90 x 35
	2700	90 x 90	90 x 90	90 x 70	90 x 70	90 x 70	90 x 45	90 x 35
	3000	-	-	90 x 90	90 x 90	90 x 70	90 x 70	90 x 70
600	2400	90 x 90	90 x 70	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35
	2700	-	-	90 x 90	90 x 90	90 x 70	90 x 70	90 x 70
	3000	-	-	-	-	90 x 90	90 x 90	90 x 70

- Notes
- i. Larger sizes may be made up from smaller sections i.e. 2/100 x 50 equals a 100 x 100.
  - ii. Studs supporting concentrations of load from beams and the like must be doubled common studs.
  - iii. No allowance has been made for notching

**Table 4 - 75.5**

**STUDS - SINGLE OR UPPER STOREY**

External walls including gable ends

**Design Windspeed: 74.5 m/s**

STUD SPACING (mm)	STUD HEIGHT (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
450	2400	100 x 75	100 x 75	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
	2700	100 x 100	100 x 75	100 x 75	100 x 75	100 x 50	100 x 50	100 x 40
	3000	-	100 x 100	100 x 100	100 x 75	100 x 75	100 x 75	100 x 50
600	2400	100 x 100	100 x 75	100 x 75	100 x 50	100 x 40	100 x 40	100 x 40
	2700	-	100 x 100	100 x 100	100 x 75	100 x 75	100 x 75	100 x 50
	3000	-	-	-	100 x 100	100 x 100	100 x 75	100 x 75
STUD SPACING (mm)	STUD HEIGHT (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
450	2400	90 x 70	90 x 70	90 x 70	90 x 45	90 x 45	90 x 35	90 x 35
	2700	-	90 x 90	90 x 90	90 x 70	90 x 70	90 x 70	90 x 45
	3000	-	-	-	90 x 90	90 x 90	90 x 70	90 x 70
600	2400	90 x 90	90 x 90	90 x 70	90 x 70	90 x 70	90 x 45	90 x 45
	2700	-	-	-	90 x 90	90 x 90	90 x 70	90 x 70
	3000	-	-	-	-	-	90 x 90	90 x 90

- Notes
- i. Larger sizes may be made up from smaller sections i.e. 2/100 x 50 equals a 100 x 100.
  - ii. Studs supporting concentrations of load from beams and the like must be doubled common studs.
  - iii. No allowance has been made for notching

## STUDS AT SIDES OF OPENINGS

**Design Windspeed: 49 m/s**

STUD HEIGHT (mm)	OPENING WIDTH (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
2400	900	100 x 50	100x40	100 x 40	100 x 40	75 x 50	75 x 50	75 x 40
	1200	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40	75 x 50	75 x 50
	1500	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40	75 x 50
	1800	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
2700	900	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40	75 x 50
	1200	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
	1500	2/100x40	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40
	1800	2/100x50	2/100x40	2/100x40	100 x 50	100 x 50	100 x 40	100 x 40
STUD HEIGHT (mm)	OPENING WIDTH (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
2400	900	2/90x35	90 x 45	90 x 35	90 x 35	90 x 35	70 x 45	70 x 45
	1200	2/90x35	90 x 45	90 x 45	90 x 35	90 x 35	90 x 35	70 x 45
	1500	2/90x35	2/90x35	90 x 45	90 x 45	90 x 35	90 x 35	90 x 35
	1800	2/90x35	2/90x35	2/90x35	90 x 45	90 x 45	90 x 35	90 x 35
2700	900	2/90x35	2/90x35	90 x 45	90 x 45	90 x 35	90 x 35	90 x 35
	1200	2/90x35	2/90x35	2/90x35	90 x 45	90 x 45	90 x 35	90 x 35
	1500	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45	90 x 45	90 x 35
	1800	2/90x45	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45	90 x 45

**Design Windspeed: 51 m/s**

STUD HEIGHT (mm)	OPENING WIDTH (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
2400	900	2/100x40	100 x 50	100 x 40	100 x 40	75 x 50	75 x 50	75 x 50
	1200	2/100x40	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40	75 x 50
	1500	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
	1800	2/100x50	2/100x40	2/100x40	100 x 50	100 x 50	100 x 50	100 x 40
2700	900	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
	1200	2/100x40	2/100x40	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40
	1500	2/100x50	2/100x40	2/100x40	100 x 50	100 x 50	100 x 40	100 x 40
	1800	2/100x50	2/100x40	2/100x40	2/100x40	100 x 50	100 x 50	100 x 40
STUD HEIGHT (mm)	OPENING WIDTH (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
2400	900	2/90x35	90 x 45	90 x 35	90 x 35	90 x 35	90 x 35	70 x 45
	1200	2/90x35	2/90x35	90 x 45	90 x 35	90 x 35	90 x 35	90 x 35
	1500	2/120x35	2/90x35	2/90x35	90 x 45	90 x 35	90 x 35	90 x 35
	1800	2/120x45	2/90x35	2/90x35	2/90x35	90 x 35	90 x 35	90 x 35
2700	900	2/90x35	2/90x35	2/90x35	90 x 45	90 x 45	90 x 35	90 x 35
	1200	2/90x35	2/90x35	2/90x35	2/90x35	90 x 45	90 x 45	90 x 35
	1500	2/90x35	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45	90 x 45
	1800	3/90x35	2/90x45	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45

**TABLE 9 - 9/99**  
**STUDS AT SIDES OF OPENINGS**

**Design Windspeed: 53 m/s**

STUD HEIGHT (mm)	OPENING WIDTH (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
2400	900	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40	75 x 50	75 x 50
	1200	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40	75 x 50
	1500	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
	1800	2/100x50	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40
2700	900	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
	1200	2/100x40	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40
	1500	2/100x50	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40
	1800	2/100x50	2/100x50	2/100x40	2/100x40	100 x 50	100 x 50	100 x 40
STUD HEIGHT (mm)	OPENING WIDTH (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
2400	900	2/90x35	2/90x35	90 x 45	90 x 35	90 x 35	90 x 35	70 x 45
	1200	2/90x35	2/90x35	90 x 45	90 x 45	90 x 35	90 x 35	90 x 35
	1500	2/90x45	2/90x35	2/90x35	90 x 45	90 x 45	90 x 35	90 x 35
	1800	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45	90 x 45	90 x 35
2700	900	2/90 x 35	2/90x35	2/90x35	90 x 45	90 x 35	90 x 35	90 x 35
	1200	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45	90 x 45	90 x 35
	1500	2/90x45	2/90x45	2/90x35	2/90x35	2/90x35	2/90x35	90 x 45
	1800	3/90x35	2/90x45	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45

**Design Windspeed: 55 m/s**

STUD HEIGHT (mm)	OPENING WIDTH (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
2400	900	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40	100 x 40
	1200	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
	1500	2/100x40	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40
	1800	2/100x50	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40
2700	900	2/100x40	2/100x40	100 x 50	100 x 50	100 x 40	100 x 40	100 x 40
	1200	2/100x40	2/100x40	2/100x40	100 x 50	100 x 50	100 x 40	100 x 40
	1500	2/100x50	2/100x50	2/100x40	2/100x40	100 x 50	100 x 50	100 x 40
	1800	3/100x40	2/100x50	2/100x50	2/100x40	2/100x40	100 x 50	100 x 50
STUD HEIGHT (mm)	OPENING WIDTH (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
2400	900	2/90x35	2/90x35	90 x 45	90 x 35	90 x 35	90 x 35	90 x 35
	1200	2/90x35	2/90x35	2/90x35	90 x 45	90 x 35	90 x 35	90 x 35
	1500	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45	90 x 45	90 x 35
	1800	2/90x45	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45	90 x 35
2700	900	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45	90 x 45	90 x 35
	1200	2/90x45	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45	90 x 45
	1500	3/90x35	2/90x45	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45
	1800	3/90x45	3/90x35	2/90x45	2/90x45	2/90x35	2/90x35	2/90x35

**TABLE 3 - 5/00**  
**STUDS AT SIDES OF OPENINGS**

**Design Windspeed: 57 m/s**

STUD HEIGHT (mm)	OPENING WIDTH (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
2400	900	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40	75 x 50
	1200	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
	1500	2/100x50	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40
	1800	2/100x50	2/100x40	2/100x40	2/100x50	100 x 50	100 x 40	100 x 40
2700	900	2/100x40	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40
	1200	2/100x50	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40
	1500	3/100x40	2/100x50	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40
	1800	3/100x40	2/100x50	2/100x50	2/100x40	2/100x40	100 x 50	100 x 50
STUD HEIGHT (mm)	OPENING WIDTH (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
2400	900	2/90x35	2/90x35	90 x 45	90 x 35	90 x 35	90 x 35	90 x 35
	1200	2/90x45	2/90x35	2/90x35	90 x 35	90 x 45	90 x 35	90 x 35
	1500	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45	90 x 45	90 x 35
	1800	3/90x35	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45	90 x 45
2700	900	2/90 x 45	2/90x35	2/90x35	2/90x35	90 x 45	90 x 35	90 x 35
	1200	2/90x45	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45	90 x 45
	1500	3/90x35	3/90x35	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45
	1800	3/90x45	3/90x35	3/90x35	2/90x45	2/90x35	2/90x35	2/90x35

**Design Windspeed: 60 m/s**

STUD HEIGHT (mm)	OPENING WIDTH (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
2400	900	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40	100 x 40
	1200	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40	100 x 40
	1500	2/100x50	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40
	1800	2/100x50	2/100x50	2/100x40	2/100x40	100 x 50	100 x 50	100 x 40
2700	900	2/100x50	2/100x40	2/100x40	100 x 50	100 x 50	100 x 40	100 x 40
	1200	2/100x50	2/100x40	2/100x40	2/100x40	100 x 50	100 x 50	100 x 40
	1500	3/100x40	2/100x50	2/100x50	2/100x40	2/100x40	100 x 50	100 x 50
	1800	3/100x50	3/100x40	2/100x50	2/100x40	2/100x40	2/100x40	100 x 50
STUD HEIGHT (mm)	OPENING WIDTH (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
2400	900	2/90x35	2/90x35	2/90x35	90 x 45	90 x 35	90 x 35	90 x 35
	1200	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45	90 x 45	90 x 35
	1500	2/90x45	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45	90 x 45
	1800	3/90x35	2/90x45	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45
2700	900	2/90x45	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45	90 x 45
	1200	3/90x35	2/90x45	2/90x35	2/90x35	2/90x35	2/90x35	90 x 45
	1500	3/90x45	3/90x35	3/90x35	2/90x45	2/90x35	2/90x35	2/90x35
	1800	3/90x45	3/90x45	3/90x35	3/90x35	2/90x45	2/90x35	2/90x35

**Table 5 - 64/69**  
**STUDS AT SIDES OF OPENINGS**

**Design Windspeed: 64 m/s**

STUD HEIGHT (mm)	OPENING WIDTH (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
2400	900	2/100x40	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40
	1200	2/100x50	2/100x40	2/100x40	100 x 50	100 x 50	100 x 40	100 x 40
	1500	3/100x40	2/100x50	2/100x40	2/100 x 40	100 x 50	100 x 50	100 x 40
	1800	3/100x40	2/100x50	2/100x40	2/100x40	2/100x40	100 x 50	100 x 50
2700	900	2/100x50	2/100x50	2/100x40	2/100x40	100 x 50	100 x 50	100 x 40
	1200	3/100x40	2/100x50	2/100x50	2/100x40	2/100x40	100 x 50	100 x 50
	1500	3/100x50	3/100x40	2/100x50	2/100x40	2/100x40	2/100x40	100 x 50
	1800	3/100x50	3/100x40	3/100x40	2/100x50	2/100x40	2/100x40	2/100x40
STUD HEIGHT (mm)	OPENING WIDTH (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
2400	900	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45	90 x 35	90 x 35
	1200	3/90x35	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45	90 x 45
	1500	3/90x35	2/90x45	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45
	1800	3/90x45	3/90x35	2/90x45	2/90x45	2/90x35	2/90x35	2/90x35
2700	900	3/90x35	2/90x45	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45
	1200	3/90x45	3/90x35	2/90x45	2/90x45	2/90x35	2/90x35	2/90x35
	1500	3/90x45	3/90x45	3/90x35	3/90x35	2/90x45	2/90x35	2/90x35
	1800	4/90x45	4/90x35	3/90x45	3/90x35	2/90x45	2/90x45	2/90x35

**Design Windspeed: 69 m/s**

STUD HEIGHT (mm)	OPENING WIDTH (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
2400	900	2/100x50	2/100x40	2/100x40	100 x 50	100 x 40	100 x 40	100 x 40
	1200	3/100x40	2/100x50	2/100x40	2/100x40	100 x 50	100 x 50	100 x 40
	1500	3/100x40	2/100x50	2/100x40	2/100x40	2/100x40	100 x 50	100 x 50
	1800	3/100x50	3/100x40	2/100x50	2/100x40	2/100x40	2/100x40	100 x 50
2700	900	3/100x40	2/100x50	2/100x40	2/100x40	2/100x40	100 x 50	100 x 50
	1200	3/100x50	3/100x40	2/100x50	2/100x40	2/100x40	2/100x40	100 x 50
	1500	3/100x50	3/100x50	3/100x40	2/100x50	2/100x40	2/100x40	2/100x40
	1800	-	3/100x50	3/100x50	3/100x50	2/100x50	2/100x40	2/100x40
STUD HEIGHT (mm)	OPENING WIDTH (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
2400	900	2/90x45	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45	90 x 35
	1200	3/90x35	2/90x45	2/90x45	2/90x35	2/90x35	2/90x35	90 x 45
	1500	3/90x45	3/90x35	2/90x45	2/90x45	2/90x35	2/90x35	2/90x35
	1800	4/90x35	3/90x45	3/90x35	2/90x45	2/90x45	2/90x35	2/90x35
2700	900	3/90x45	3/90x35	2/90x45	2/90x45	2/90x35	2/90x35	2/90x35
	1200	3/90x45	3/90x45	3/90x35	2/90x45	2/90x45	2/90x35	2/90x35
	1500	4/90x45	4/90x35	3/90x45	3/90x35	3/90x35	2/90x45	2/90x35
	1800	4/90x45	4/90x45	4/90x35	3/90x45	3/90x35	3/90x35	2/90x45

**Table 5 - 74.5**  
**STUDS AT SIDES OF OPENINGS**

**Design Windspeed: 74.5 m/s**

STUD HEIGHT (mm)	OPENING WIDTH (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
2400	900	3/100x40	2/100x50	2/100x40	2/100x40	100 x 50	100 x 50	100 x 40
	1200	3/100x40	2/100x50	2/100x40	2/100x40	2/100x40	100 x 50	100 x 50
	1500	3/100x50	3/100x40	2/100x50	2/100x40	2/100x40	2/100x40	100 x 50
	1800	-	3/100x50	3/100x40	2/100x50	2/100x40	2/100x40	2/100x40
2700	900	3/100x50	3/100x40	2/100x50	2/100x40	2/100x40	2/100x40	100 x 50
	1200	3/100x50	3/100x50	3/100x40	2/100x50	2/100x40	2/100x40	2/100x40
	1500	-	3/100x50	3/100x50	3/100x40	2/100x50	2/100x40	2/100x40
	1800	-	-	3/100x50	3/100x50	3/100x40	2/100x50	2/100x40
STUD HEIGHT (mm)	OPENING WIDTH (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
2400	900	3/90x35	2/90x45	2/90x35	2/90x35	2/90x35	2/90x35	90 x 35
	1200	3/90x45	3/90x35	2/90x45	2/90x45	2/90x35	2/90x35	90 x 45
	1500	4/90x35	3/90x45	3/90x35	2/90x45	2/90x45	2/90x35	2/90x35
	1800	4/90x45	3/90x45	3/90x45	3/90x35	2/90x45	2/90x45	2/90x35
2700	900	3/90x45	3/90x45	3/90x35	2/90x45	2/90x45	2/90x35	2/90x35
	1200	4/90x45	4/90x35	3/90x45	3/90x35	2/90x45	2/90x35	2/90x35
	1500	-	4/90x45	4/90x45	3/90x45	3/90x35	2/90x45	2/90x45
	1800	-	-	4/90x45	4/90x45	3/90x45	3/90x35	3/90x35

**Table 6**

**STUDS - INTERNAL LOADBEARING WALLS  
For All Design Windspeeds**

STUD SPACING (mm)	STUD HEIGHT (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
450	2400	75 x 40						
	2700	100 x 40		75 x 50		75 x 40		
	3000	100 x 40				75 x 50		
	3300	100 x 50			100 x 40			
	3600	100 x 75			100 x 50		100 x 40	
	3900	2/100 x 50	100 x 75		100 x 50			
	4200	-	2/100 x 50		100 x 75			
600	2400	75 x 50		75 x 40				
	2700	100 x 40			75 x 50		75 x 40	
	3000	100 x 50		100 x 40				
	3300	100 x 75		100 x 50			100 x 40	
	3600	2/100 x 50	100 x 75			100 x 40		
	3900	-	2/100 x 50		100 x 75			
	4200	-				100 x 75		

STUD SPACING (mm)	STUD HEIGHT (mm)	SEASONED							
		F4	F5	F7	F8	F11	F14	F17	
450	2400	75 x 35							
	2700	90 x 35		70 x 45		70 x 35			
	3000	90 x 45		90 x 35			70 x 45		
	3300	90 x 70		90 x 45				90 x 35	
	3600	90 x 90		90 x 70			90 x 45		
	3900	-		90 x 90		90 x 70			
	4200	-				90 x 90			
600	2400	70 x 45	70 x 35						
	2700	90 x 45	90 x 35			70 x 45			
	3000	90 x 70	90 x 45		90 x 35		70 x 45		
	3300	-	90 x 70			90 x 45			
	3600	-		90 x 90	90 x 70		90 x 45		
	3900	-				90 x 70			
	4200	-				90 x 90			

- Notes
- i. Internal studs supporting concentrations of load from roof beams must be double the common stud taken from the above table.
  - ii. Studs are assumed to be not notched.



Table 7

TOP PLATES - SINGLE OR UPPER STOREY

For All Design Windspeeds

BUILDING WIDTH (mm)	RAFTER SPACING (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
7500	900	75 x 75	50 x 75					
		50 x 100						
9000	900	75 x 75	50 x 75					
		75 x 100	50 x 100					

BUILDING WIDTH (mm)	RAFTER SPACING (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
7500	900	70 x 90	45 x 70					
		70 x 90	45 x 90					
9000	900	70 x 70	45 x 70					
		70 x 90	45 x 90					

Table 8

BOTTOM PLATES - SINGLE OR UPPER STOREY

For All Design Windspeeds

BUILDING WIDTH (mm)	RAFTER SPACING (mm)	UNSEASONED TIMBER						
		F4	F5	F7	F8	F11	F14	F17
7500	900	75 x 75	50 x 75					
		50 x 100						
9000	900	75 x 75	50 x 75					
		75 x 100	50 x 100					

BUILDING WIDTH (mm)	RAFTER SPACING (mm)	SEASONED TIMBER						
		F4	F5	F7	F8	F11	F14	F17
7500	900	70 x 90	45 x 70					
		70 x 90	45 x 90					
9000	900	70 x 70	45 x 70					
		70 x 90	45 x 90					

Note Bottom plates fully supported by solid nogging or a concrete slab may be a minimum of 45 x 70 mm mm.

Table 9 - 49/51/53

LINTELS - SINGLE OR UPPER STOREY

Design Windspeed: 49 m/s

BUILDING WIDTH (mm)	OPENING WIDTH (mm)	STRESS GRADE OF TIMBER						
		F4	F5	F7	F8	F11	F14	F17
6000	900	150 x 50	125 x 50		100 x 50			75 x 50
	1200	150 x 50		125 x 50		100 x 50		
	1500	150 x 50			125 x 50			
	1800	175 x 50			150 x 50			
9000	900	175 x 50	150 x 50	125 x 50		100 x 50		
	1200	200 x 50	175 x 50	150 x 50	125 x 50			
	1500	200 x 50	175 x 50	150 x 50			125 x 50	
	1800	225 x 50	200 x 50		175 x 50			150 x 50

Design Windspeed: 51 m/s

BUILDING WIDTH (mm)	OPENING WIDTH (mm)	STRESS GRADE OF TIMBER						
		F4	F5	F7	F8	F11	F14	F17
6000	900	125 x 75	100 x 75			75 x 75		
	1200	125 x 75		100 x 75				
	1500	125 x 75				100 x 75		
	1800	175 x 75	150 x 75			125 x 75		
9000	900	150 x 75	125 x 75		100 x 75			
	1200	175 x 75	150 x 75	125 x 75		100 x 75		
	1500	150 x 75			125 x 75			
	1800	200 x 75	175 x 75		150 x 75			

Design Windspeed : 53 m/s

BUILDING WIDTH (mm)	OPENING WIDTH (mm)	STRESS GRADE OF TIMBER						
		F4	F5	F7	F8	F11	F14	F17
6000	900	150 x 50	125 x 50		100 x 50			
	1200	175 x 50	150 x 50		125 x 50		100 x 50	
	1500	175 x 50	150 x 50			125 x 50		
	1800	200 x 50	175 x 50		150 x 50			
9000	900	175 x 50	150 x 50		125 x 50		100 x 50	
	1200	200 x 50	175 x 50		150 x 50	125 x 50		
	1500	200 x 50	175 x 50		150 x 50			125 x 50
	1800	250 x 50	225 x 50	200 x 50		175 x 50		150 x 50

Table 9 - 55/57/60

LINTELS - SINGLE OR UPPER STOREY

Design Windspeed: 55 m/s

BUILDING WIDTH (mm)	OPENING WIDTH (mm)	STRESS GRADE OF TIMBER						
		F4	F5	F7	F8	F11	F14	F17
6000	900	125 x 75		100 x 75			100 x 75	
	1200	150 x 75	150 x 75		100 x 75			
	1500	150 x 75		125 x 75			100 x 75	
	1800	175 x 75		150 x 75			125 x 75	
9000	900	150 x 75		125 x 75		100 x 75		
	1200	175 x 75		125 x 75		100 x 75		
	1500	275 x 75	150 x 75			125 x 75		
	1800	200 x 75	150 x 75			150 x 75		

Design Windspeed: 57 m/s

BUILDING WIDTH (mm)	OPENING WIDTH (mm)	STRESS GRADE OF TIMBER						
		F4	F5	F7	F8	F11	F14	F17
6000	900	175 x 50	150 x 50	125 x 50		100 x 50		
	1200	175 x 50		150 x 50	125 x 50			100 x 50
	1500	175 x 50		150 x 50			125 x 50	
	1800	225 x 50	200 x 50	175 x 50			150 x 50	
9000	900	200 x 50	175 x 50	150 x 50		125 x 50		100 x 50
	1200	225 x 50	200 x 50	175 x 50	150 x 50		125 x 50	
	1500	225 x 50	200 x 50	175 x 50		150 x 50		
	1800	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50		

Design Windspeed: 60 m/s

BUILDING WIDTH (mm)	OPENING WIDTH (mm)	STRESS GRADE OF TIMBER						
		F4	F5	F7	F8	F11	F14	F17
6000	900	150 x 75	125 x 75		100 x 75			
	1200	150 x 75		125 x 75		100 x 75		
	1500	150 x 75		125 x 75				
	1800	200 x 75	175 x 75		150 x 75			
9000	900	175 x 75	150 x 75		125 x 75	100 x 75		
	1200	200 x 75	175 x 75	150 x 75		125 x 75		100 x 75
	1500	200 x 75	175 x 75	150 x 75				125 x 75
	1800	225 x 75	200 x 75	175 x 75			150 x 75	

Table 9 - 64/69/74.5

LINTELS - SINGLE OR UPPER STOREY

Design Windspeed: 64 m/s

BUILDING WIDTH (mm)	OPENING WIDTH (mm)	STRESS GRADE OF TIMBER						
		F4	F5	F7	F8	F11	F14	F17
6000	900	150 x 75	125 x 75		100 x 75			
	1200	175 x 75	150 x 75		125 x 75		100 x 75	
	1500	175 x 75	150 x 75			125 x 75		
	1800	200 x 75	175 x 75			150 x 75		
9000	900	175 x 75		150 x 75	125 x 75		100 x 75	
	1200	200 x 75	175 x 75		150 x 75	125 x 75		100 x 75
	1500	200 x 75	175 x 75		150 x 75			125 x 75
	1800	250 x 75	225 x 75	200 x 75	175 x 75			150 x 75

Design Windspeed: 69 m/s

BUILDING WIDTH (mm)	OPENING WIDTH (mm)	STRESS GRADE OF TIMBER						
		F4	F5	F7	F8	F11	F14	F17
6000	900	175 x 75	150 x 75	125 x 75		100 x 75		
	1200	175 x 75		150 x 75	125 x 75		100 x 75	
	1500	175 x 75		150 x 75			125 x 75	
	1800	225 x 75	200 x 75	175 x 75			150 x 75	
9000	900	200 x 75	175 x 75	150 x 75		125 x 75		100 x 75
	1200	225 x 75	200 x 75	175 x 75	150 x 75		125 x 75	
	1500	225 x 75	200 x 75	175 x 75	150 x 75			
	1800	275 x 75	250 x 75	225 x 75	200 x 75	175 x 75		

Design Windspeed: 74.5 m/s

BUILDING WIDTH (mm)	OPENING WIDTH (mm)	STRESS GRADE OF TIMBER						
		F4	F5	F7	F8	F11	F14	F17
6000	900	175 x 75	150 x 75		125 x 75		100 x 75	
	1200	200 x 75	175 x 75	150 x 75		125 x 75		100 x 75
	1500	200 x 75	175 x 75	150 x 75			125 x 75	
	1800	225 x 75	200 x 75		175 x 75			150 x 75
9000	900	225 x 75	200 x 75	175 x 75	150 x 75		125 x 75	
	1200	250 x 75	225 x 75	200 x 75	175 x 75	150 x 75		125 x 75
	1500	250 x 75	225 x 75	200 x 75	175 x 75		150 x 75	
	1800	300 x 75	250 x 75	225 x 75	200 x 75			175 x 75

# RAFTER TABLES

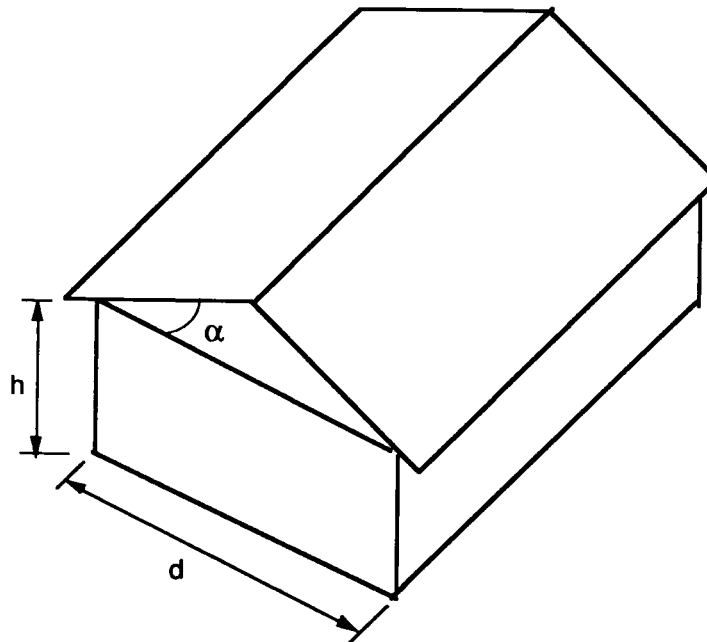


FIGURE B8.3.1

TABLE B8.3.1 APPROPRIATE TABLES FOR RAFTERS

APPROPRIATE TABLE	ASPECT RATIO $h/d$	ROOF PITCH $\alpha$
10 - 1	0.25 0.5 1.0	15°, 20°, 25° 20°, 25° 25°
10 - 2	0.25 0.5 1.0	10° 15° 20°
10 - 3	0.5 1.0	10° 15°
10 - 4	1.0	10°

Note Span of rafter is measured along the length of the rafter.

**Table 10 - 1 - 49**  
**RAFTERS**

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.25	15 20 25
0.5	20 25
1.0	25

**Design Windspeed: 49 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	175 x 50	150 x 50	150 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	175 x 50	175 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	250 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	5400	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
1200	3000	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50	150 x 50	125 x 50
	3600	200 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50
	4200	225 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	4800	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
	5400	300 x 50	275 x 50	275 x 50	250 x 50	250 x 50	250 x 50	225 x 50
1500	3000	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50	150 x 50
	3600	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4200	250 x 50	250 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50
	4800	275 x 50	275 x 50	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50
	5400	-	300 x 50	300 x 50	275 x 50	275 x 50	250 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45	120 x 45	120 x 45
	3600	170 x 45	170 x 45	140 x 45	140 x 45	140 x 45	120 x 45	120 x 45
	4200	190 x 45	170 x 45	170 x 45	170 x 45	170 x 45	140 x 45	140 x 45
	4800	220 x 45	220 x 45	190 x 45	190 x 45	170 x 45	170 x 45	170 x 45
	5400	240 x 45	220 x 45	220 x 45	220 x 45	220 x 45	190 x 45	190 x 45
1200	3000	170 x 45	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45	120 x 45
	3600	190 x 45	170 x 45	170 x 45	170 x 45	140 x 45	140 x 45	140 x 45
	4200	220 x 45	190 x 45	190 x 45	170 x 45	170 x 45	170 x 45	170 x 45
	4800	240 x 45	220 x 45	220 x 45	220 x 45	190 x 45	190 x 45	170 x 45
	5400	270 x 45	240 x 45	240 x 45	220 x 45	220 x 45	220 x 45	190 x 45
1500	3000	190 x 45	170 x 45	140 x 45	140 x 45	140 x 45	120 x 45	120 x 45
	3600	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45	170 x 45	140 x 45
	4200	240 x 45	220 x 45	190 x 45	190 x 45	190 x 45	170 x 45	170 x 45
	4800	270 x 45	240 x 45	220 x 45	220 x 45	220 x 45	190 x 45	190 x 45
	5400	-	270 x 45	270 x 45	240 x 45	240 x 45	220 x 45	220 x 45

**Table 10 - 1 - 51  
RAFTERS**

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.25	15 20 25
0.5	20 25
1.0	25

**Design Windspeed: 51 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	150 x 50	150 x 50	150 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	175 x 50	175 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	250 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	5400	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
1200	3000	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50	150 x 50	125 x 50
	3600	200 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50
	4200	225 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	4800	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
	5400	300 x 50	275 x 50	275 x 50	250 x 50	250 x 50	250 x 50	225 x 50
1500	3000	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50	150 x 50
	3600	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4200	250 x 50	250 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50
	4800	275 x 50	275 x 50	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50
	5400	-	300 x 50	300 x 50	275 x 50	275 x 50	250 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45	120 x 45	120 x 45
	3600	170 x 45	170 x 45	140 x 45	140 x 45	140 x 45	120 x 45	120 x 45
	4200	190 x 45	170 x 45	170 x 45	170 x 45	170 x 45	140 x 45	140 x 45
	4800	220 x 45	220 x 45	190 x 45	190 x 45	170 x 45	170 x 45	170 x 45
	5400	240 x 45	220 x 45	220 x 45	220 x 45	220 x 45	190 x 45	190 x 45
1200	3000	170 x 45	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45	120 x 45
	3600	190 x 45	170 x 45	170 x 45	170 x 45	140 x 45	140 x 45	140 x 45
	4200	220 x 45	190 x 45	190 x 45	170 x 45	170 x 45	170 x 45	170 x 45
	4800	240 x 45	220 x 45	220 x 45	220 x 45	190 x 45	190 x 45	170 x 45
	5400	270 x 45	240 x 45	240 x 45	220 x 45	220 x 45	220 x 45	190 x 45
1500	3000	190 x 45	170 x 45	140 x 45	140 x 45	140 x 45	120 x 45	120 x 45
	3600	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45	170 x 45	140 x 45
	4200	240 x 45	220 x 45	190 x 45	190 x 45	190 x 45	170 x 45	170 x 45
	4800	270 x 45	240 x 45	220 x 45	220 x 45	220 x 45	190 x 45	190 x 45
	5400	-	270 x 45	270 x 45	240 x 45	240 x 45	220 x 45	220 x 45

**Table 10 - 1 - 53**  
**RAFTERS**

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.25	15 20 25
0.5	20 25
1.0	25

**Design Windspeed: 53 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	175 x 50	150 x 50	150 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	175 x 50	175 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	250 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	5400	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
1200	3000	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50	150 x 50	125 x 50
	3600	200 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50
	4200	225 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	4800	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
	5400	300 x 50	275 x 50	275 x 50	250 x 50	250 x 50	250 x 50	225 x 50
1500	3000	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50	150 x 50
	3600	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4200	250 x 50	250 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50
	4800	275 x 50	275 x 50	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50
	5400	-	300 x 50	300 x 50	275 x 50	275 x 50	250 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45	120 x 45	120 x 45
	3600	170 x 45	170 x 45	140 x 45	140 x 45	140 x 45	120 x 45	120 x 45
	4200	190 x 45	170 x 45	170 x 45	170 x 45	170 x 45	140 x 45	140 x 45
	4800	220 x 45	220 x 45	190 x 45	190 x 45	170 x 45	170 x 45	170 x 45
	5400	240 x 45	220 x 45	220 x 45	220 x 45	220 x 45	190 x 45	190 x 45
1200	3000	170 x 45	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45	120 x 45
	3600	190 x 45	170 x 45	170 x 45	170 x 45	140 x 45	140 x 45	140 x 45
	4200	220 x 45	190 x 45	190 x 45	170 x 45	170 x 45	170 x 45	170 x 45
	4800	270 x 45	220 x 45	220 x 45	220 x 45	190 x 45	190 x 45	170 x 45
	5400	290 x 45	270 x 45	240 x 45	220 x 45	220 x 45	220 x 45	190 x 45
1500	3000	190 x 45	170 x 45	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45
	3600	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45	170 x 45	140 x 45
	4200	270 x 45	220 x 45	220 x 45	190 x 45	190 x 45	170 x 45	170 x 45
	4800	290 x 45	270 x 45	220 x 45	220 x 45	220 x 45	190 x 45	190 x 45
	5400	-	290 x 45	270 x 45	240 x 45	240 x 45	220 x 45	220 x 45



ASPECT RATIO h/d	ROOF PITCH (degrees)
0.25	15 20 25
0.5	20 25
1.0	25

**Table 10 - 1 - 55**  
**RAFTERS**

**Design Windspeed: 55 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	150 x 50	150 x 50	150 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	175 x 50	175 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	250 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	5400	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
1200	3000	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50	150 x 50	125 x 50
	3600	200 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50
	4200	225 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	4800	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
	5400	300 x 50	275 x 50	275 x 50	250 x 50	250 x 50	250 x 50	225 x 50
1500	3000	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50	150 x 50
	3600	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4200	275 x 50	250 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50
	4800	300 x 50	275 x 50	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50
	5400	-	300 x 50	300 x 50	275 x 50	275 x 50	250 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45	120 x 45	120 x 45
	3600	170 x 45	170 x 45	140 x 45	140 x 45	140 x 45	120 x 45	120 x 45
	4200	220 x 45	170 x 45	170 x 45	170 x 45	170 x 45	140 x 45	140 x 45
	4800	220 x 45	220 x 45	190 x 45	190 x 45	170 x 45	170 x 45	170 x 45
	5400	240 x 45	220 x 45	220 x 45	220 x 45	220 x 45	190 x 45	190 x 45
1200	3000	170 x 45	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45	120 x 45
	3600	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	140 x 45	140 x 45
	4200	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45	170 x 45
	4800	270 x 45	240 x 45	220 x 45	220 x 45	190 x 45	190 x 45	170 x 45
	5400	290 x 45	270 x 45	240 x 45	220 x 45	220 x 45	220 x 45	190 x 45
1500	3000	190 x 45	170 x 45	140 x 45	140 x 45	140 x 45	120 x 45	120 x 45
	3600	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45	140 x 45
	4200	270 x 45	240 x 45	220 x 45	190 x 45	190 x 45	170 x 45	170 x 45
	4800	290 x 45	270 x 45	240 x 45	220 x 45	220 x 45	190 x 45	190 x 45
	5400	-	290 x 45	270 x 45	240 x 45	240 x 45	220 x 45	220 x 45

**Table 10 - 1 - 57  
RAFTERS**

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.25	15 20 25
0.5	20 25
1.0	25

**Design Windspeed: 57 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	175 x 50	150 x 50	150 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	175 x 50	175 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	250 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	5400	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
1200	3000	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50	150 x 50	125 x 50
	3600	225 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50
	4200	250 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	4800	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
	5400	300 x 50	275 x 50	275 x 50	250 x 50	250 x 50	250 x 50	225 x 50
1500	3000	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50	150 x 50
	3600	250 x 50	225 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4200	275 x 50	250 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50
	4800	-	275 x 50	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50
	5400	-	300 x 50	300 x 50	275 x 50	275 x 50	250 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45	120 x 45	120 x 45
	3600	190 x 45	170 x 45	140 x 45	140 x 45	140 x 45	120 x 45	120 x 45
	4200	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45	140 x 45	140 x 45
	4800	240 x 45	220 x 45	190 x 45	190 x 45	170 x 45	170 x 45	170 x 45
	5400	270 x 45	240 x 45	220 x 45	220 x 45	220 x 45	190 x 45	190 x 45
1200	3000	190 x 45	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45	120 x 45
	3600	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	140 x 45	140 x 45
	4200	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45	170 x 45
	4800	270 x 45	240 x 45	220 x 45	220 x 45	190 x 45	190 x 45	170 x 45
	5400	-	270 x 45	240 x 45	220 x 45	220 x 45	220 x 45	190 x 45
1500	3000	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45
	3600	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45	140 x 45
	4200	270 x 45	240 x 45	220 x 45	190 x 45	190 x 45	170 x 45	170 x 45
	4800	-	270 x 45	240 x 45	220 x 45	220 x 45	190 x 45	190 x 45
	5400	-	-	270 x 45	240 x 45	240 x 45	220 x 45	220 x 45

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.25	15 20 25
0.5	20 25
1.0	25

**Table 10 - 1 - 60**  
**RAFTERS**

**Design Windspeed: 60 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	175 x 50	150 x 50	150 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	250 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	5400	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
1200	3000	200 x 50	175 x 50	150 x 50	150 x 50	150 x 50	150 x 50	125 x 50
	3600	225 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50
	4200	275 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	4800	300 x 50	275 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
	5400	-	300 x 50	275 x 50	250 x 50	250 x 50	250 x 50	225 x 50
1500	3000	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50	150 x 50	150 x 50
	3600	250 x 50	225 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4200	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	200 x 50
	4800	-	300 x 50	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50
	5400	-	-	300 x 50	275 x 50	275 x 50	250 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45	120 x 45	120 x 45
	3600	190 x 45	170 x 45	140 x 45	140 x 45	140 x 45	120 x 45	120 x 45
	4200	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45	140 x 45	140 x 45
	4800	240 x 45	220 x 45	190 x 45	190 x 45	170 x 45	170 x 45	170 x 45
	5400	270 x 45	240 x 45	220 x 45	220 x 45	220 x 45	190 x 45	190 x 45
1200	3000	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45	120 x 45
	3600	220 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45	140 x 45
	4200	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45
	4800	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	190 x 45	170 x 45
	5400	-	290 x 45	270 x 45	240 x 45	220 x 45	220 x 45	190 x 45
1500	3000	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45
	3600	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	4200	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4800	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	190 x 45
	5400	-	-	290 x 45	270 x 45	240 x 45	220 x 45	220 x 45

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.25	15 20 25
0.5	20 25
1.0	25

**Table 10 - 1 - 64  
RAFTERS**

**Design Windspeed: 64 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	175 x 50	175 x 50	150 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	200 x 50	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	250 x 50	225 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	5400	300 x 50	275 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
1200	3000	200 x 50	200 x 50	175 x 50	150 x 50	150 x 50	150 x 50	125 x 50
	3600	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50
	4200	275 x 50	250 x 50	250 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	4800	-	275 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
	5400	-	-	275 x 50	250 x 50	250 x 50	250 x 50	225 x 50
1500	3000	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	3600	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4200	-	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	200 x 50
	4800	-	-	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50
	5400	-	-	-	275 x 50	275 x 50	250 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45	120 x 45	120 x 45
	3600	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45
	4200	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	140 x 45
	4800	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45
	5400	290 x 45	270 x 45	240 x 45	220 x 45	220 x 45	190 x 45	190 x 45
1200	3000	220 x 45	190 x 45	170 x 45	140 x 45	120 x 45	120 x 45	120 x 45
	3600	240 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45	140 x 45
	4200	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45
	4800	-	270 x 45	240 x 45	220 x 45	190 x 45	190 x 45	170 x 45
	5400	-	-	270 x 45	240 x 45	220 x 45	220 x 45	190 x 45
1500	3000	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	120 x 45	120 x 45
	3600	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	4200	-	290 x 45	270 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4800	-	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45
	5400	-	-	-	290 x 45	270 x 45	220 x 45	220 x 45

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.25	15 20 25
0.5	20 25
1.0	25

**Table 10 - 1 - 69**  
**RAFTERS**

**Design Windspeed: 69 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	200 x 50	175 x 50	150 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	275 x 50	225 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	300 x 50	275 x 50	250 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	5400	-	300 x 50	275 x 50	225 x 50	225 x 50	225 x 50	200 x 50
1200	3000	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50	125 x 50
	3600	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50
	4200	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	175 x 50
	4800	-	300 x 50	275 x 50	250 x 50	225 x 50	225 x 50	200 x 50
	5400	-	-	300 x 50	275 x 50	250 x 50	250 x 50	225 x 50
1500	3000	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50
	3600	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50
	4200	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50
	4800	-	-	300 x 50	275 x 50	250 x 50	225 x 50	225 x 50
	5400	-	-	-	300 x 50	275 x 50	250 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45	120 x 45
	3600	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	140 x 45	120 x 45
	4200	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	4800	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	5400	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	190 x 45
1200	3000	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45
	3600	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45
	4200	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4800	-	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	5400	-	-	-	270 x 45	240 x 45	220 x 45	220 x 45
1500	3000	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45
	3600	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4200	-	-	270 x 45	240 x 45	220 x 45	190 x 45	190 x 45
	4800	-	-	-	270 x 45	240 x 45	220 x 45	190 x 45
	5400	-	-	-	-	270 x 45	240 x 45	220 x 45

**Table 10 - 1 - 74.5  
RAFTERS**

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.25	15 20 25
0.5	20 25
1.0	25

**Design Windspeed: 74.5 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	200 x 50	200 x 50	175 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	-	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	175 x 50
	5400	-	-	275 x 50	250 x 50	225 x 50	225 x 50	200 x 50
1200	3000	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50	125 x 50
	3600	300 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50
	4200	-	300 x 50	275 x 50	225 x 50	200 x 50	200 x 50	175 x 50
	4800	-	-	300 x 50	275 x 50	225 x 50	225 x 50	200 x 50
	5400	-	-	-	300 x 50	275 x 50	250 x 50	225 x 50
1500	3000	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50
	3600	-	300 x 50	275 x 50	225 x 50	200 x 50	175 x 50	175 x 50
	4200	-	-	300 x 50	275 x 50	225 x 50	200 x 50	200 x 50
	4800	-	-	-	300 x 50	275 x 50	225 x 50	225 x 50
	5400	-	-	-	-	300 x 50	250 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	220 x 45	190 x 45	170 x 45	140 x 45	120 x 45	120 x 45	120 x 45
	3600	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	140 x 45
	4200	290 x 45	240 x 45	220 x 45	220 x 45	170 x 45	170 x 45	170 x 45
	4800	-	290 x 45	270 x 45	220 x 45	220 x 45	170 x 45	170 x 45
	5400	-	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45
1200	3000	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45
	3600	290 x 45	270 x 45	220 x 45	220 x 45	170 x 45	170 x 45	140 x 45
	4200	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	4800	-	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45
	5400	-	-	-	290 x 45	270 x 45	240 x 45	220 x 45
1500	3000	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	3600	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	4200	-	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45
	4800	-	-	-	290 x 45	270 x 45	240 x 45	220 x 45
	5400	-	-	-	-	290 x 50	270 x 45	240 x 45

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.25	10
0.5	15
1.0	20

**Table 10 - 2 - 49**  
**RAFTERS**

**Design Windspeed: 49 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	175 x 50	150 x 50	150 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	175 x 50	175 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	250 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	5400	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
1200	3000	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50	150 x 50	125 x 50
	3600	200 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50
	4200	225 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	4800	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
	5400	300 x 50	275 x 50	275 x 50	250 x 50	250 x 50	250 x 50	225 x 50
1500	3000	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50	150 x 50
	3600	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4200	275 x 50	250 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50
	4800	300 x 50	275 x 50	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50
	5400	-	300 x 50	300 x 50	275 x 50	275 x 50	250 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45	120 x 45	120 x 45
	3600	170 x 45	170 x 45	140 x 45	140 x 45	140 x 45	120 x 45	120 x 45
	4200	190 x 45	170 x 45	170 x 45	170 x 45	170 x 45	140 x 45	140 x 45
	4800	220 x 45	220 x 45	190 x 45	190 x 45	170 x 45	170 x 45	170 x 45
	5400	270 x 45	220 x 45	220 x 45	220 x 45	220 x 45	190 x 45	190 x 45
1200	3000	170 x 45	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45	120 x 45
	3600	220 x 45	170 x 45	170 x 45	170 x 45	140 x 45	140 x 45	140 x 45
	4200	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45	170 x 45
	4800	270 x 45	240 x 45	220 x 45	220 x 45	190 x 45	190 x 45	170 x 45
	5400	290 x 45	270 x 45	240 x 45	220 x 45	220 x 45	220 x 45	190 x 45
1500	3000	190 x 45	170 x 45	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45
	3600	220 x 45	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45	140 x 45
	4200	270 x 45	240 x 45	220 x 45	190 x 45	190 x 45	170 x 45	170 x 45
	4800	290 x 45	270 x 45	240 x 45	220 x 45	220 x 45	190 x 45	190 x 45
	5400	-	290 x 45	270 x 45	240 x 45	240 x 45	220 x 45	220 x 45

**Table 10 - 2 - 51  
RAFTERS**

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.25	10
0.5	15
1.0	20

**Design Windspeed: 51 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	175 x 50	150 x 50	150 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	175 x 50	175 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	250 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	5400	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
1200	3000	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50	150 x 50	125 x 50
	3600	225 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50
	4200	250 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	4800	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
	5400	-	275 x 50	275 x 50	250 x 50	250 x 50	250 x 50	225 x 50
1500	3000	200 x 50	200 x 50	175 x 50	150 x 50	150 x 50	150 x 50	150 x 50
	3600	250 x 50	225 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4200	275 x 50	250 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50
	4800	300 x 50	275 x 50	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50
	5400	-	300 x 50	300 x 50	275 x 50	275 x 50	250 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45	120 x 45	120 x 45
	3600	190 x 45	170 x 45	140 x 45	140 x 45	140 x 45	120 x 45	120 x 45
	4200	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45	140 x 45	140 x 45
	4800	240 x 45	220 x 45	190 x 45	190 x 45	170 x 45	170 x 45	170 x 45
	5400	270 x 45	240 x 45	220 x 45	220 x 45	220 x 45	190 x 45	190 x 45
1200	3000	190 x 45	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45	120 x 45
	3600	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45	140 x 45	140 x 45
	4200	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45	170 x 45
	4800	270 x 45	240 x 45	220 x 45	220 x 45	190 x 45	190 x 45	170 x 45
	5400	-	270 x 45	240 x 45	220 x 45	220 x 45	220 x 45	190 x 45
1500	3000	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45
	3600	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45	140 x 45
	4200	270 x 45	240 x 45	220 x 45	190 x 45	190 x 45	170 x 45	170 x 45
	4800	-	270 x 45	240 x 45	220 x 45	220 x 45	190 x 45	190 x 45
	5400	-	-	270 x 45	240 x 45	240 x 45	220 x 45	220 x 45



**Table 10 - 2 - 53  
RAFTER**

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.25	10
0.5	15
1.0	20

**Design Windspeed: 53 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	175 x 50	150 x 50	150 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	250 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	5400	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
1200	3000	200 x 50	175 x 50	150 x 50	150 x 50	150 x 50	150 x 50	125 x 50
	3600	225 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50
	4200	250 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	4800	300 x 50	250 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
	5400	-	275 x 50	275 x 50	250 x 50	250 x 50	250 x 50	225 x 50
1500	3000	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50	150 x 50	150 x 50
	3600	250 x 50	225 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4200	300 x 50	250 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50
	4800	-	300 x 50	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50
	5400	-	-	300 x 50	275 x 50	275 x 50	250 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45	120 x 45	120 x 45
	3600	190 x 45	170 x 45	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45
	4200	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45	140 x 45	140 x 45
	4800	240 x 45	220 x 45	190 x 45	190 x 45	170 x 45	170 x 45	170 x 45
	5400	270 x 45	240 x 45	220 x 45	220 x 45	220 x 45	190 x 45	190 x 45
1200	3000	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45	120 x 45
	3600	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	140 x 45	140 x 45
	4200	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45
	4800	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45	190 x 45	170 x 45
	5400	-	290 x 45	270 x 45	220 x 45	220 x 45	220 x 45	190 x 45
1500	3000	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45
	3600	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	4200	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4800	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	190 x 45
	5400	-	-	290 x 45	270 x 45	240 x 45	220 x 45	220 x 45

**Table 10 - 2 - 55  
RAFTERS**

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.25	10
0.5	15
1.0	20

**Design Windspeed: 55 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	175 x 50	150 x 50	150 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	250 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	5400	300 x 50	250 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
1200	3000	200 x 50	175 x 50	150 x 50	150 x 50	150 x 50	150 x 50	125 x 50
	3600	225 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50
	4200	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	4800	300 x 50	275 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
	5400	-	300 x 50	275 x 50	250 x 50	250 x 50	250 x 50	225 x 50
1500	3000	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	3600	275 x 50	225 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4200	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	200 x 50
	4800	-	300 x 50	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50
	5400	-	-	300 x 50	275 x 50	275 x 50	250 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45	120 x 45	120 x 45
	3600	190 x 45	170 x 45	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45
	4200	220 x 45	220 x 45	190 x 45	190 x 45	170 x 45	170 x 45	170 x 45
	4800	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45
	5400	290 x 45	270 x 45	220 x 45	220 x 45	220 x 45	190 x 45	190 x 45
1200	3000	190 x 45	170 x 45	170 x 45	170 x 45	120 x 45	120 x 45	120 x 45
	3600	240 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45	140 x 45
	4200	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45
	4800	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	190 x 45	170 x 45
	5400	-	290 x 45	270 x 45	240 x 45	220 x 45	220 x 45	190 x 45
1500	3000	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45
	3600	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	4200	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4800	-	-	270 x 45	240 x 45	220 x 45	190 x 45	190 x 45
	5400	-	-	290 x 45	270 x 45	240 x 45	220 x 45	220 x 45

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.25	10
0.5	15
1.0	20

**Table 10 - 2 - 57  
RAFTERS**

**Design Windspeed: 57 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	175 x 50	150 x 50	150 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	250 x 50	225 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	5400	300 x 50	275 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
1200	3000	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50	125 x 50
	3600	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50
	4200	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	4800	-	275 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
	5400	-	300 x 50	275 x 50	250 x 50	250 x 50	250 x 50	225 x 50
1500	3000	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	3600	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4200	-	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	200 x 50
	4800	-	-	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50
	5400	-	-	-	275 x 50	275 x 50	250 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45	120 x 45	120 x 45
	3600	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45
	4200	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	140 x 45
	4800	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45
	5400	290 x 45	270 x 45	240 x 45	220 x 45	220 x 45	190 x 45	190 x 45
1200	3000	220 x 45	190 x 45	170 x 45	140 x 45	120 x 45	120 x 45	120 x 45
	3600	240 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45	140 x 45
	4200	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45
	4800	-	270 x 45	240 x 45	220 x 45	190 x 45	190 x 45	170 x 45
	5400	-	-	270 x 45	240 x 45	220 x 45	220 x 45	190 x 45
1500	3000	240 x 45	220 x 45	190 x 45	170 x 45	140 x 45	120 x 45	120 x 45
	3600	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	4200	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4800	-	-	270 x 45	270 x 45	220 x 45	190 x 45	190 x 45
	5400	-	-	-	270 x 45	240 x 45	220 x 45	220 x 45

**Table 10 - 2 - 60  
RAFTERS**

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.25	10
0.5	15
1.0	20

**Design Windspeed: 60 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	200 x 50	175 x 50	150 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	250 x 50	225 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	5400	-	275 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
1200	3000	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50	150 x 50	125 x 50
	3600	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50
	4200	300 x 50	250 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	4800	-	300 x 50	275 x 50	225 x 50	225 x 50	225 x 50	200 x 50
	5400	-	-	300 x 50	275 x 50	250 x 50	250 x 50	225 x 50
1500	3000	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	3600	300 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4200	-	300 x 50	275 x 50	225 x 50	200 x 50	200 x 50	200 x 50
	4800	-	-	300 x 50	275 x 50	250 x 50	225 x 50	225 x 50
	5400	-	-	-	300 x 50	275 x 50	250 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	190 x 45	170 x 45	140 x 45	120 x 45	120 x 45	120 x 45	120 x 45
	3600	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45
	4200	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	140 x 45
	4800	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	5400	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45	190 x 45
1200	3000	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45
	3600	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45
	4200	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4800	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	5400	-	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45
1500	3000	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45
	3600	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	140 x 45
	4200	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	4800	-	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45
	5400	-	-	-	290 x 45	270 x 45	240 x 45	220 x 45

**Table 10 - 2 - 64  
RAFTERS**

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.25	10
0.5	15
1.0	20

**Design Windspeed: 64 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	200 x 50	175 x 50	150 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	250 x 50	200 x 50	200 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	175 x 50
	5400	-	300 x 50	275 x 50	250 x 50	225 x 50	225 x 50	200 x 50
1200	3000	225 x 50	200 x 50	200 x 50	175 x 50	150 x 50	150 x 50	125 x 50
	3600	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50
	4200	-	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	175 x 50
	4800	-	-	275 x 50	250 x 50	225 x 50	225 x 50	200 x 50
	5400	-	-	-	275 x 50	250 x 50	250 x 50	225 x 50
1500	3000	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50
	3600	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50
	4200	-	-	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50
	4800	-	-	-	275 x 50	250 x 50	225 x 50	225 x 50
	5400	-	-	-	-	275 x 50	250 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45	120 x 45
	3600	240 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45	120 x 45
	4200	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	4800	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	5400	-	-	270 x 45	240 x 45	220 x 45	190 x 45	190 x 45
1200	3000	240 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45	120 x 45
	3600	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	4200	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4800	-	-	290 x 45	270 x 45	220 x 45	220 x 45	170 x 45
	5400	-	-	-	290 x 45	270 x 45	220 x 45	220 x 45
1500	3000	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	3600	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4200	-	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45
	4800	-	-	-	290 x 45	270 x 45	220 x 45	220 x 45
	5400	-	-	-	-	290 x 45	270 x 45	220 x 45

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.25	10
0.5	15
1.0	20

**Table 10 - 2 - 69**  
**RAFTERS**

**Design Windspeed: 69 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	225 x 50	200 x 50	175 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	300 x 50	275 x 50	225 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	-	300 x 50	275 x 50	225 x 50	200 x 50	200 x 50	175 x 50
	5400	-	-	300 x 50	250 x 50	225 x 50	225 x 50	200 x 50
1200	3000	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50	125 x 50
	3600	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50
	4200	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50
	4800	-	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50
	5400	-	-	-	300 x 50	275 x 50	250 x 50	225 x 50
1500	3000	300 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50
	3600	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50
	4200	-	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50
	4800	-	-	-	300 x 50	275 x 50	250 x 50	225 x 50
	5400	-	-	-	-	300 x 50	275 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	220 x 45*	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45
	3600	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45
	4200	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4800	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	5400	-	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45
1200	3000	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45
	3600	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4200	-	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	4800	-	-	-	270 x 45	240 x 45	220 x 45	190 x 45
	5400	-	-	-	-	270 x 45	240 x 45	220 x 45
1500	3000	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	140 x 45
	3600	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	4200	-	-	-	270 x 45	240 x 45	220 x 45	190 x 45
	4800	-	-	-	-	270 x 45	240 x 45	220 x 45
	5400	-	-	-	-	-	270 x 45	240 x 45

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.25	10
0.5	15
1.0	20

**Table 10 - 2 - 74.5  
RAFTERS**

**Design Windspeed: 74.5 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	225 x 50	200 x 50	200 x 50	175 x 50	150 x 50	125 x 50	125 x 50
	3600	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50
	4200	-	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50
	4800	-	-	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50
	5400	-	-	-	250 x 50	250 x 50	225 x 50	200 x 50
1200	3000	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50
	3600	-	300 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50
	4200	-	-	300 x 50	250 x 50	225 x 50	200 x 50	175 x 50
	4800	-	-	-	300 x 50	275 x 50	225 x 50	225 x 50
	5400	-	-	-	-	300 x 50	250 x 50	225 x 50
1500	3000	-	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50
	3600	-	-	300 x 50	250 x 50	225 x 50	200 x 50	200 x 50
	4200	-	-	-	300 x 50	275 x 50	250 x 50	225 x 50
	4800	-	-	-	-	300 x 50	275 x 50	250 x 50
	5400	-	-	-	-	-	300 x 50	275 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	240 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45	120 x 45
	3600	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	4200	-	290 x 45	270 x 45	220 x 45	220 x 45	170 x 45	170 x 45
	4800	-	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45
	5400	-	-	-	290 x 45	270 x 45	220 x 45	220 x 45
1200	3000	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	3600	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45
	4200	-	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45
	4800	-	-	-	290 x 45	270 x 45	240 x 45	220 x 45
	5400	-	-	-	-	290 x 45	270 x 45	240 x 45
1500	3000	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	3600	-	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45
	4200	-	-	-	290 x 45	270 x 45	240 x 45	220 x 45
	4800	-	-	-	-	290 x 45	270 x 45	240 x 45
	5400	-	-	-	-	-	290 x 45	270 x 45

**Table 10 - 3 - 49  
RAFTERS**

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.5	10
1.0	15

**Design Windspeed: 49 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	175 x 50	150 x 50	150 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	275 x 50	225 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	5400	300 x 50	250 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
1200	3000	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50	125 x 50
	3600	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50
	4200	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	4800	300 x 50	275 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
	5400	-	300 x 50	275 x 50	250 x 50	250 x 50	250 x 50	225 x 50
1500	3000	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	3600	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4200	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	200 x 50
	4800	-	300 x 50	275 x 50	250 x 50	250 x 50	225 x 50	225 x 50
	5400	-	-	300 x 50	275 x 50	275 x 50	250 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45	120 x 45	120 x 45
	3600	220 x 45	170 x 45	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45
	4200	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	140 x 45
	4800	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45
	5400	290 x 45	270 x 45	240 x 45	220 x 45	220 x 45	190 x 45	190 x 45
1200	3000	220 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45	120 x 45
	3600	240 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45	140 x 45
	4200	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45
	4800	-	270 x 45	240 x 45	220 x 45	190 x 45	190 x 45	170 x 45
	5400	-	-	270 x 45	240 x 45	220 x 45	220 x 45	190 x 45
1500	3000	220 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45	220 x 45
	3600	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	120 x 45
	4200	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	140 x 45
	4800	-	-	270 x 45	240 x 45	220 x 45	170 x 45	170 x 45
	5400	-	-	-	270 x 45	240 x 45	190 x 45	190 x 45



**Table 10 - 3 - 51  
RAFTERS**

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.5	10
1.0	15

**Design Windspeed: 51 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	175 x 50	175 x 50	150 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	250 x 50	225 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	5400	300 x 50	275 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
1200	3000	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50	150 x 50	125 x 50
	3600	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50
	4200	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	4800	-	275 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
	5400	-	-	275 x 50	2250 x 50	250 x 50	250 x 50	225 x 50
1500	3000	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50
	3600	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4200	-	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	200 x 50
	4800	-	-	300 x 50	250 x 50	250 x 50	225 x 50	225 x 50
	5400	-	-	-	275 x 50	275 x 50	250 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45	120 x 45	120 x 45
	3600	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45
	4200	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	140 x 45
	4800	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	170 x 45
	5400	-	270 x 45	240 x 45	220 x 45	220 x 45	190 x 45	190 x 45
1200	3000	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45
	3600	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	140 x 45
	4200	290 x 45	270 x 45	220 x 45	220 x 45	170 x 45	170 x 45	170 x 45
	4800	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45
	5400	-	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45
1500	3000	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45
	3600	270 x 45	240 x 45	220 x 45	220 x 45	190 x 45	170 x 45	140 x 45
	4200	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45
	4800	-	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45
	5400	-	-	-	290 x 45	270 x 45	220 x 45	220 x 45

**Table 10 - 3 - 53  
RAFTER**

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.5	10
1.0	15

**Design Windspeed: 53 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	200 x 45	175 x 50	150 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	250 x 50	225 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	300 x 50	250 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	5400	-	275 x 50	250 x 50	225 x 50	225 x 50	225 x 50	200 x 50
1200	3000	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50	150 x 50	125 x 50
	3600	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50
	4200	300 x 50	275 x 50	225 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	4800	-	300 x 50	275 x 50	225 x 50	225 x 50	225 x 50	200 x 50
	5400	-	-	300 x 50	275 x 50	250 x 50	250 x 50	225 x 50
1500	3000	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	3600	300 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4200	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50
	4800	-	-	300 x 50	275 x 50	250 x 50	225 x 50	225 x 50
	5400	-	-	-	300 x 50	275 x 50	250 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	190 x 45	170 x 45	140 x 45	120 x 45	120 x 45	120 x 45	120 x 45
	3600	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45
	4200	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45
	4800	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	5400	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45	190 x 45
1200	3000	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45
	3600	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45
	4200	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4800	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	5400	-	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45
1500	3000	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	220 x 45
	3600	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4200	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	140 x 45
	4800	-	-	290 x 45	270 x 45	240 x 45	220 x 45	170 x 45
	5400	-	-	-	290 x 45	270 x 45	240 x 45	190 x 45

**Table 10 - 3 - 55**  
**RAFTERS**

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.5	10
1.0	15

**Design Windspeed: 55 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	200 x 50	175 x 50	150 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	175 x 50
	5400	-	300 x 50	275 x 50	225 x 50	225 x 50	225 x 50	200 x 50
1200	3000	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50	125 x 50
	3600	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50
	4200	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	175 x 50
	4800	-	300 x 50	275 x 50	250 x 50	225 x 50	225 x 50	200 x 50
	5400	-	-	300 x 50	275 x 50	250 x 50	250 x 50	225 x 50
1500	3000	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	175 x 50	150 x 50
	3600	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50
	4200	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50
	4800	-	-	-	275 x 50	250 x 50	225 x 50	225 x 50
	5400	-	-	-	300 x 50	275 x 50	250 x 50	225 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45	120 x 45
	3600	220 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45	120 x 45
	4200	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	4800	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	5400	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	190 x 45
1200	3000	220 x 45	220 x 45	190 x 45	170 x 45	140 x 45	120 x 45	120 x 45
	3600	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	4200	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4800	-	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	5400	-	-	-	270 x 45	240 x 45	220 x 45	220 x 45
1500	3000	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45
	3600	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4200	-	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	4800	-	-	-	270 x 45	240 x 45	220 x 45	220 x 45
	5400	-	-	-	-	270 x 45	240 x 45	220 x 45

**Table 10 - 3 - 57  
RAFTERS**

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.5	10
1.0	15

**Design Windspeed: 57 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	200 x 50	175 x 50	175 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	175 x 50
	5400	-	300 x 50	275 x 50	250 x 50	225 x 50	225 x 50	200 x 50
1200	3000	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50	125 x 50
	3600	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	175 x 50	150 x 50
	4200	-	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	175 x 50
	4800	-	-	300 x 50	250 x 50	225 x 50	225 x 50	200 x 50
	5400	-	-	-	275 x 50	250 x 50	250 x 50	225 x 50
1500	3000	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50
	3600	-	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50
	4200	-	-	300 x 50	250 x 50	225 x 50	200 x 50	200 x 50
	4800	-	-	-	300 x 50	250 x 50	225 x 50	225 x 50
	5400	-	-	-	-	275 x 50	250 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	220 x 45	170 x 45	170 x 45	120 x 45	120 x 45	120 x 45	120 x 45
	3600	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45
	4200	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	4800	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	5400	-	-	270 x 45	240 x 45	220 x 45	190 x 45	190 x 45
1200	3000	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45
	3600	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	4200	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45
	4800	-	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45
	5400	-	-	-	290 x 45	270 x 45	220 x 45	220 x 45
1500	3000	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	3600	-	270 x 45	270 x 45	220 x 45	220 x 45	170 x 45	170 x 45
	4200	-	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45
	4800	-	-	-	290 x 45	270 x 45	220 x 45	220 x 45
	5400	-	-	-	-	290 x 45	270 x 45	240 x 45

**Table 10 - 3 - 60  
RAFTERS**

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.5	10
1.0	15

**Design Windspeed: 60 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50	125 x 50	125 x 50
	3600	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	300 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	-	300 x 50	275 x 50	225 x 50	200 x 50	200 x 50	175 x 50
	5400	-	-	300 x 50	250 x 50	225 x 50	225 x 50	200 x 50
1200	3000	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50	125 x 50
	3600	300 x 50	275 x 50	225 x 50	200 x 50	200 x 50	175 x 50	150 x 50
	4200	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50
	4800	-	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50
	5400	-	-	-	300 x 50	275 x 50	250 x 50	225 x 50
1500	3000	300 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50
	3600	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50
	4200	-	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50
	4800	-	-	-	300 x 50	275 x 50	250 x 50	225 x 50
	5400	-	-	-	-	300 x 50	275 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45
	3600	270 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	140 x 45
	4200	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	140 x 45
	4800	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	5400	-	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45
1200	3000	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45
	3600	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4200	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	4800	-	-	-	270 x 45	240 x 45	220 x 45	190 x 45
	5400	-	-	-	-	270 x 45	240 x 45	220 x 45
1500	3000	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	140 x 45
	3600	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	4200	-	-	-	270 x 45	240 x 45	220 x 45	190 x 45
	4800	-	-	-	-	270 x 45	240 x 45	220 x 45
	5400	-	-	-	-	-	270 x 45	240 x 45

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.5	10
1.0	15

**Table 10 - 3 - 64  
RAFTERS**

**Design Windspeed: 64 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50	125 x 50	125 x 50
	3600	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50
	4200	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50
	4800	-	-	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50
	5400	-	-	-	275 x 50	250 x 50	225 x 50	200 x 50
1200	3000	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50
	3600	-	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50
	4200	-	-	300 x 50	250 x 50	225 x 50	200 x 50	200 x 50
	4800	-	-	-	300 x 50	250 x 50	225 x 50	200 x 50
	5400	-	-	-	-	275 x 50	250 x 50	225 x 50
1500	3000	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50
	3600	-	-	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50
	4200	-	-	-	300 x 50	250 x 50	225 x 50	200 x 50
	4800	-	-	-	-	300 x 50	250 x 50	225 x 50
	5400	-	-	-	-	-	300 x 50	275 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	220 x 45	220 x 45	190 x 45	170 x 45	140 x 45	120 x 45	120 x 45
	3600	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	4200	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4800	-	-	270 x 45	240 x 45	220 x 45	190 x 45	190 x 45
	5400	-	-	-	270 x 45	240 x 45	220 x 45	220 x 45
1200	3000	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	3600	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4200	-	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45
	4800	-	-	-	290 x 45	270 x 45	240 x 45	220 x 45
	5400	-	-	-	-	290 x 45	270 x 45	240 x 45
1500	3000	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	3600	-	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45
	4200	-	-	-	290 x 45	270 x 45	240 x 45	220 x 45
	4800	-	-	-	-	290 x 45	270 x 45	240 x 45
	5400	-	-	-	-	-	290 x 45	270 x 45

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.5	10
1.0	15

**Table 10 - 3 - 69  
RAFTERS**

**Design Windspeed: 69 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50	125 x 50
	3600	300 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50
	4200	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50
	4800	-	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50
	5400	-	-	-	300 x 50	275 x 50	250 x 50	225 x 50
1200	3000	300 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50
	3600	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50
	4200	-	-	-	275 x 50	250 x 50	225 x 50	200 x 50
	4800	-	-	-	-	275 x 50	250 x 50	225 x 50
	5400	-	-	-	-	300 x 50	275 x 50	250 x 50
1500	3000	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50
	3600	-	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50
	4200	-	-	-	-	275 x 50	250 x 50	225 x 50
	4800	-	-	-	-	-	275 x 50	250 x 50
	5400	-	-	-	-	-	300 x 50	275 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45
	3600	290 x 45	270 x 54	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4200	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	4800	-	-	-	270 x 45	240 x 45	220 x 45	190 x 45
	5400	-	-	-	-	270 x 45	240 x 45	220 x 45
1200	3000	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	140 x 45
	3600	-	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	4200	-	-	-	270 x 45	240 x 45	220 x 45	220 x 45
	4800	-	-	-	-	270 x 45	240 x 45	220 x 45
	5400	-	-	-	-	-	270 x 45	270 x 45
1500	3000	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	3600	-	-	-	270 x 45	240 x 45	220 x 45	190 x 45
	4200	-	-	-	-	290 x 45	240 x 45	220 x 45
	4800	-	-	-	-	-	290 x 45	270 x 45
	5400	-	-	-	-	-	-	290 x 45

**Table 10 - 3 - 74.5  
RAFTERS**

ASPECT RATIO h/d	ROOF PITCH (degrees)
0.5	10
1.0	15

**Design Windspeed: 74.5 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50
	3600	-	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50
	4200	-	-	300 x 50	250 x 50	225 x 50	200 x 50	200 x 50
	4800	-	-	-	300 x 50	250 x 50	225 x 50	200 x 50
	5400	-	-	-	-	300 x 50	250 x 50	225 x 50
1200	3000	-	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50
	3600	-	-	300 x 50	275 x 50	225 x 50	200 x 50	200 x 50
	4200	-	-	-	300 x 50	275 x 50	250 x 50	225 x 50
	4800	-	-	-	-	300 x 50	275 x 50	250 x 50
	5400	-	-	-	-	-	300 x 50	275 x 50
1500	3000	-	-	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50
	3600	-	-	-	300 x 50	275 x 50	225 x 50	225 x 50
	4200	-	-	-	-	300 x 50	275 x 50	250 x 50
	4800	-	-	-	-	-	300 x 50	275 x 50
	5400	-	-	-	-	-	-	300 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	3600	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4200	-	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45
	4800	-	-	-	290 x 45	270 x 45	240 x 45	220 x 45
	5400	-	-	-	-	290 x 45	270 x 45	240 x 45
1200	3000	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	3600	-	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45
	4200	-	-	-	-	270 x 45	240 x 45	220 x 45
	4800	-	-	-	-	-	270 x 45	240 x 45
	5400	-	-	-	-	-	290 x 45	270 x 45
1500	3000	-	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45
	3600	-	-	-	290 x 45	270 x 45	240 x 45	220 x 45
	4200	-	-	-	-	-	270 x 45	240 x 45
	4800	-	-	-	-	-	-	270 x 45
	5400	-	-	-	-	-	-	-



ASPECT RATIO h/d	ROOF PITCH (degrees)
1.0	10

**Table 10 - 4 - 49  
RAFTERS**

**Design Windspeed: 49 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	200 x 50	175 x 50	150 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	275 x 50	225 x 50	200 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	300 x 50	275 x 50	250 x 50	200 x 50	200 x 50	200 x 50	175 x 50
	5400	-	300 x 50	275 x 50	225 x 50	225 x 50	225 x 50	200 x 50
1200	3000	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50	125 x 50
	3600	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50
	4200	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	175 x 50
	4800	-	300 x 50	275 x 50	250 x 50	225 x 50	225 x 50	200 x 50
	5400	-	-	300 x 50	275 x 50	250 x 50	250 x 50	225 x 50
1500	3000	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50
	3600	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50
	4200	-	300, x 50	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50
	4800	-	-	300 x 50	275 x 50	250 x 50	225 x 50	225 x 50
	5400	-	-	-	300 x 50	275 x 50	250 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45	120 x 45
	3600	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45
	4200	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45
	4800	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	5400	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	190 x 45
1200	3000	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45
	3600	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45
	4200	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4800	-	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	5400	-	-	-	270 x 45	240 x 45	220 x 45	190 x 45
1500	3000	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45
	3600	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4200	-	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	4800	-	-	-	270 x 45	240 x 45	220 x 45	190 x 45
	5400	-	-	-	-	270 x 45	240 x 45	220 x 45

ASPECT RATIO h/d	ROOF PITCH (degrees)
1.0	10

**Table 10 - 4 - 51**  
**RAFTERS**

**Design Windspeed: 51 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	200 x 50	175 x 50	175 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50
	4200	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	175 x 50
	5400	-	300 x 50	275 x 50	250 x 50	225 x 50	225 x 50	200 x 50
1200	3000	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50	125 x 50
	3600	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50
	4200	-	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	175 x 50
	4800	-	-	275 x 50	250 x 50	225 x 50	225 x 50	200 x 50
	5400	-	-	-	275 x 50	250 x 50	250 x 50	225 x 50
1500	3000	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50
	3600	-	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50
	4200	-	-	300 x 50	250 x 50	225 x 50	200 x 50	200 x 50
	4800	-	-	-	300 x 50	250 x 50	225 x 50	225 x 50
	5400	-	-	-	-	275 x 50	250 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45	120 x 45
	3600	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45
	4200	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	4800	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	5400	-	-	270 x 45	240 x 45	220 x 45	220 x 45	190 x 45
1200	3000	240 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45	120 x 45
	3600	240 x 45	220 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 54
	4200	-	290 x 45	270 x 45	220 x 45	220 x 45	170 x 45	170 x 54
	4800	-	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45
	5400	-	-	-	290 x 45	270 x 45	220 x 45	220 x 45
1500	3000	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	3600	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4200	-	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45
	4800	-	-	-	290 x 45	270 x 45	220 x 45	220 x 45
	5400	-	-	-	-	290 x 45	270 x 45	240 x 45

ASPECT RATIO h/d	ROOF PITCH (degrees)
1.0	10

**Table 10 - 4 - 53**  
**RAFTER**

**Design Windspeed: 53 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	200 x 50	200 x 45	175 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	250 x 50	255 x 50	200 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	175 x 50
	4800	-	275 x 50	250 x 50	225 x 50	200 x 50	200 x 50	175 x 50
	5400	-	-	275 x 50	250 x 50	225 x 50	225 x 50	200 x 50
1200	3000	250 x 50	225 x 45	200 x 50	175 x 50	150 x 50	150 x 50	125 x 50
	3600	300 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50
	4200	-	300 x 50	275 x 50	225 x 50	200 x 50	200 x 50	175 x 50
	4800	-	-	300 x 50	275 x 50	225 x 50	225 x 50	200 x 50
	5400	-	-	-	300 x 50	275 x 50	250 x 50	225 x 50
1500	3000	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50
	3600	-	300 x 50	275 x 50	225 x 50	200 x 50	175 x 50	175 x 50
	4200	-	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50
	4800	-	-	-	300 x 50	275 x 50	250 x 50	225 x 50
	5400	-	-	-	-	300 x 50	275 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45	120 x 45	120 x 45
	3600	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45
	4200	290 x 45	270 x 45	220 x 45	220 x 45	170 x 45	170 x 45	140 x 45
	4800	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45
	5400	-	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45
1200	3000	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45
	3600	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	140 x 45
	4200	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	4800	-	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45
	5400	-	-	-	290 x 45	270 x 45	240 x 45	220 x 45
1500	3000	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	3600	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	4200	-	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45
	4800	-	-	-	-	270 x 45	240 x 45	220 x 45
	5400	-	-	-	-	290 x 45	270 x 45	240 x 45

**Table 10 - 4 - 55  
RAFTERS**

ASPECT RATIO h/d	ROOF PITCH (degrees)
1.0	10

**Design Windspeed: 55 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	225 x 50	200 x 50	175 x 50	150 x 50	125 x 50	125 x 50	125 x 50
	3600	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50	150 x 50
	4200	300 x 50	275 x 50	225 x 50	200 x 50	200 x 50	175 x 50	175 x 50
	4800	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50
	5400	-	-	300 x 50	275 x 50	225 x 50	225 x 50	200 x 50
1200	3000	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50	125 x 50
	3600	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50
	4200	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50
	4800	-	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50
	5400	-	-	-	300 x 50	275 x 50	250 x 50	225 x 50
1200	3000	300 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50
	3600	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50
	4200	-	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50
	4800	-	-	-	300 x 50	275 x 50	250 x 50	225 x 50
	5400	-	-	-	-	300 x 50	275 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	220 x 45	190 x 45	170 x 45	140 x 45	120 x 45	120 x 45	120 x 45
	3600	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45
	4200	290 x 45	270 x 45	240 x 45	20 x 45	190 x 45	170 x 45	170 x 45
	4800	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	5400	-	-	290 x 45	270 x 45	240 x 45	220 x 45	220 x 45
1200	3000	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45
	3600	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4200	-	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	4800	-	-	-	270 x 45	240 x 45	220 x 45	190 x 45
	5400	-	-	-	-	270 x 45	240 x 45	220 x 45
1500	3000	270 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	3600	-	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	4200	-	-	-	270 x 45	240 x 45	220 x 45	190 x 45
	4800	-	-	-	-	270 x 45	240 x 45	190 x 45
	5400	-	-	-	-	-	270 x 45	220 x 45

ASPECT RATIO h/d	ROOF PITCH (degrees)
1.0	10

**Table 10 - 4 - 57**  
**RAFTERS**

**Design Windspeed: 57 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50	125 x 50	125 x 50
	3600	275 x 50	250 x 50	225 x 50	175 x 50	150 x 50	150 x 50	150 x 50
	4200	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50
	4800	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50
	5400	-	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50
1200	3000	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50
	3600	-	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50
	4200	-	-	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50
	4800	-	-	-	275 x 50	250 x 50	225 x 50	200 x 50
	5400	-	-	-	-	275 x 50	250 x 50	225 x 50
1500	3000	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50
	3600	-	-	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50
	4200	-	-	-	300 x 50	250 x 50	225 x 50	200 x 50
	4800	-	-	-	-	300 x 50	250 x 50	225 x 50
	5400	-	-	-	-	-	275 x 50	250 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45	120 x 45
	3600	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45
	4200	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4800	-	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	5400	-	-	-	270 x 45	240 x 45	220 x 45	220 x 45
1200	3000	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45
	3600	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4200	-	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45
	4800	-	-	-	290 x 45	270 x 45	220 x 45	220 x 45
	5400	-	-	-	-	290 x 45	270 x 45	220 x 45
1500	3000	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	3600	-	-	270 x 45	270 x 45	220 x 45	190 x 45	190 x 45
	4200	-	-	-	290 x 45	270 x 45	220 x 45	220 x 45
	4800	-	-	-	-	290 x 45	270 x 45	240 x 45
	5400	-	-	-	-	-	290 x 45	270 x 45

ASPECT RATIO h/d	ROOF PITCH (degrees)
1.0	10

**Table 10 - 4 - 60  
RAFTERS**

**Design Windspeed: 60 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	125 x 50	125 x 50
	3600	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50
	4200	-	300 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50
	4800	-	-	300 x 50	250 x 50	225 x 50	200 x 50	200 x 50
	5400	-	-	-	300 x 50	250 x 50	225 x 50	225 x 50
1200	3000	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50	150 x 50
	3600	-	300 x 50	275 x 50	225 x 50	200 x 50	175 x 50	175 x 50
	4200	-	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50
	4800	-	-	-	300 x 50	275 x 50	250 x 50	225 x 50
	5400	-	-	-	-	300 x 50	275 x 50	250 x 50
1500	3000	-	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50
	3600	-	-	300 x 50	275 x 50	225 x 50	200 x 50	200 x 50
	4200	-	-	-	300 x 50	275 x 50	250 x 50	225 x 50
	4800	-	-	-	-	300 x 50	275 x 50	250 x 50
	5400	-	-	-	-	-	300 x 50	275 x 50

RAFTER SPACING (mm)	RAFTER SPACING (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45	120 x 45
	3600	270 x 45	240 x 45	220 x 45	220 x 45	170 x 45	170 x 45	140 x 45
	4200	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	4800	-	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45
	5400	-	-	-	290 x 45	270 x 45	220 x 45	220 x 45
1200	3000	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45	140 x 45
	3600	-	290 x 45	270 x 45	240 x 45	220 x 45	190 mx 45	170 x 45
	4200	-	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45
	4800	-	-	-	-	270 x 45	240 x 45	220 x 45
	5400	-	-	-	-	290 x 45	270 x 45	240 x 45
1500	3000	-	290 x 45	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45
	3600	-	-	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45
	4200	-	-	-	-	270 x 45	240 x 45	220 x 45
	4800	-	-	-	-	-	270 x 45	240 x 45
	5400	-	-	-	-	-	-	270 x 45

ASPECT RATIO h/d	ROOF PITCH (degrees)
1.0	10

**Table 10 - 4 - 64  
RAFTERS**

**Design Windspeed: 64 m/s**

RAFTER SPACING (mm)	RAFTER SPAN (mm)	UNSEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	250 x 50	225 x 50	200 x 50	175 x 50	175 x 50	150 x 50	125 x 50
	3600	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50
	4200	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50
	4800	-	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50
	5400	-	-	-	300 x 50	275 x 50	250 x 50	225 x 50
1200	3000	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50	150 x 50
	3600	-	-	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50
	4200	-	-	-	275 x 50	250 x 50	225 x 50	200 x 50
	4800	-	-	-	-	275 x 50	250 x 50	225 x 50
	5400	-	-	-	-	-	275 x 50	250 x 50
1500	3000	-	300 x 50	275 x 50	250 x 50	225 x 50	200 x 50	175 x 50
	3600	-	-	-	275 x 50	250 x 50	225 x 50	200 x 50
	4200	-	-	-	-	300 x 50	250 x 50	225 x 50
	4800	-	-	-	-	-	300 x 50	275 x 50
	5400	-	-	-	-	-	-	300 x 50

RAFTER SPACING (mm)	RAFTER SPAN (mm)	SEASONED						
		F4	F5	F7	F8	F11	F14	F17
900	3000	270 x 45	220 x 45	220 x 45	190 x 45	170 x 45	140 x 45	140 x 45
	3600	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	4200	-	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	4800	-	-	-	270 x 45	240 x 45	220 x 45	220 x 45
	5400	-	-	-	-	270 x 45	240 x 45	220 x 45
1200	3000	290 x 45	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45	170 x 45
	3600	-	-	270 x 45	270 x 45	220 x 45	190 x 45	190 x 45
	4200	-	-	-	290 x 45	270 x 45	220 x 45	220 x 45
	4800	-	-	-	-	290 x 45	270 x 45	240 x 45
	5400	-	-	-	-	-	290 x 45	270 x 45
1500	3000	-	-	270 x 45	240 x 45	220 x 45	190 x 45	170 x 45
	3600	-	-	-	290 x 45	270 x 45	220 x 45	220 x 45
	4200	-	-	-	-	290 x 45	270 x 45	240 x 45
	4800	-	-	-	-	-	290 x 45	270 x 45
	5400	-	-	-	-	-	-	290 x 45