

**A SURVEY OF TIMBER  
USED IN TIMBER MANUFACTURING  
WESTERN AUSTRALIA 1983**

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## PREFACE

Western Australia's forest resources have supported a significant timber industry since the early days of European settlement. Currently the industry employs more than 8 000 people.

Your Government recognizes the need to conserve the unique forest environment and at the same time ensure the continuation of a viable and stable timber industry.

To assist in achieving this goal, a task force was established to advise the Government on matters concerning more efficient use of the State's timber resources.

An important recommendation from the task force is to expand the timber products manufacturing industry. High value manufactured timber products are well suited to developing export markets while using relatively small quantities of timber.

The survey of timber use has established the specific needs of timber product manufacturers. This is a vital step in planning for the continuing timber requirements of an expanding industry.

*Brian Burke*

PREMIER AND MINISTER FOR FORESTS

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## 1.0 INTRODUCTION

For any improvement in the preparation and supply of timber to the timber manufacturing industry, reliable market information is required.

In order to provide this information, a wide range of timber manufacturers were polled and requested to give details on:

- Species and types of timbers used.
- Volumes of each timber used.
- Physical properties attached to each timber species and type.
- Factors favouring and limiting use of local and imported species and types.
- The sizes and grades used.
- Marketing considerations including satisfaction with growers, merchants, and suppliers, and where and how products are sold.

By analysis of this data it is proposed to identify any problem areas over which the Forests Department may have influence or control, and enable improved forestry planning and utilization.

In addition, the information obtained should also be of value to wood processors, timber merchants and the timber manufacturers.

## 2.0 SUMMARY OF RESULTS

504 Timber product manufacturers were polled. 160 (31.75%) responded.

The average responding company employed 12.5 people.

Over 65% of all manufacturers sold all their products within W.A., most selling factory direct. The majority of their timber requirements were purchased from a timber merchant.

Over 96% of all respondents used solid wood. Of these 81% used jarrah, which accounted for 47% of the total reported solid wood volume.

The average amount of solid wood used per annum by all manufacturers is 136 m<sup>3</sup>.

In the section on total industry figures, the survey results are extrapolated to give annual estimates of:

- total employment of over 5 000 people.
- A total solid wood consumption of more than 53 000 m<sup>3</sup>
- A reconstituted wood use of more than 4.5 million square metres

### 3.0 SURVEY METHODS

#### 3.1 DETERMINATION OF SURVEY SAMPLE

The list of timber manufacturers was compiled from several sources:

##### 3.1.1 TELEPHONE DIRECTORY - YELLOW PAGES

Names were compiled from the following sections:

Cabinet Makers

Furniture - Manufacturers and/or Wholesalers

Furniture - Built in

Furniture - Designers and Custom Builders

Furniture - Outdoor

Joinery

Kitchen - Renovations and/or Equipment and Fittings

Doors and Door Fittings

Mouldings

Balustrading

Stairs and Handrails

Windows

Wood Turners

Wood Ware

Wood Carvers

3.1.2 THE W.A. PRODUCTS DIRECTORY 1982

All companies engaged in timber manufacture.

3.1.3 W.A. Guild of Furniture Manufacturers. Membership list.

3.1.4 The Cabinet Makers Association of W.A.

3.1.5 Shopfitters Association of W.A. Membership list.

These methods produced several areas of error which will be discussed later.

3.2 QUESTIONNAIRE DESIGN AND TESTING

A draft questionnaire form was pre-tested on eight companies, to highlight any problem areas, weaknesses, bias or areas which were not covered adequately.

A copy of the final questionnaire and the accompanying letter are appended.

3.3 THE SURVEY

The complete mailing list comprised 816 manufacturers.

The survey questionnaire together with an explanatory letter and a reply-paid envelope was sent on 3 November



1983. Replies received up to 2 February 1984 were processed.

During the time up to close-off, all returned questionnaires were scrutinized in order to grade the answers received into the most common and related responses for ease of computer coding.

At the end of the survey period there had been the following response:

160	Completed questionnaires
86	Questionnaires - Return to sender, address unknown
62	Replies - Not in business or don't use timber
1	Uncompleted return
4	Notification of non return
5	Not applicable but will comment
498	No response
<hr/>	
816	
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The 498 non-respondents were then contacted by telephone and asked the following:

- 1 Is the company in business and using timber?
- 2 What type of work is carried out?
- 3 How many people are employed by the company and how many are working with wood?

This produced the following results

1	In business, using timber	309
	Not in business or not using timber	154
	No response	35
		498

2	Cabinet Makers	164
	Furniture Makers	66
	Joiners	14
	Other/Combination	65
		<hr/>
		309
3	Total number employed	2767
	Number working with wood	1592

As a result of the survey and the telephone poll the original list was reduced to 504.

$$\left[ 816 - (86 + 62 + 1 + 4 + 5) - 154 = 504 \right]$$

The 160 completed questionnaires, is a response rate of 31.75%.

$$\left[ \begin{array}{r} 160 = 31.75\% \\ \hline 504 \end{array} \right]$$

#### 3.4 ERRORS AND OMISSIONS

The method of compiling the list of timber manufacturers and users, caused omissions and additions. Where doubt of the manufacturing role existed the company was listed for survey.

Discrepancies may have resulted from:

- 1 Those companies not listed in the Yellow Pages sections used or the W.A. Products Directory.
- 2 The W.A. Products Directory was out of date and had other errors. (This did not become obvious until well into the survey.)

3 The furniture manufacturers listing also included wholesalers.

4 The listing also included those using steel, plastic, glass etc. as well as timber.

5 Some Yellow Pages sections not included may have had timber manufacturers.

### 3.5 STATISTICAL ANALYSIS

The computer package (SPSS) was used for detailed analysis of the survey data.

### 4.0 SURVEY FINDINGS

The survey questionnaire was divided into four sections as detailed below:

Section A - Demographic data on company type, size, products, and selling methods.

Section B - Solid wood use including species, quantities, grades, sizes, important characteristics and limiting factors.

Section C - Reconstituted wood use including types, quantities, size, important characteristics, origins and limiting factors.

Section D - General survey comment.

The presentation of this section follows each of the questions in order through the questionnaire.

## A.2

BUSINESS TYPE

Of the 160 replies received, 48 (30%) described themselves as cabinet makers, 46 (28.8%) as furniture makers, 7 (4.4%) as joiners and 34 (21.3%) as 'Other'. The balance described their work as some combination of these classifications. Most popular combinations are cabinet maker and furniture maker, and cabinet maker and joiner.

TABLE A.2.1 BUSINESS TYPE

BUSINESS TYPE	NUMBER RESPONSE	% RESPONSE
Cabinet Maker	48	30.0
Furniture Maker	46	28.8
Joiner	7	4.4
Other	34	21.3
Cabinet & Furniture	8	5.0
Cabinet & Joiner	9	5.6
Cabinet & Other	2	1.3
Furniture & Other	2	1.3
Joiner & Other	3	1.9
Cabinet & Furniture & Other	1	0.6
TOTAL	160	100

For the purposes of analysis the 'Other' section and combinations are included together, creating four groupings.

## A.3

ITEMS PRODUCED

The question was answered much as expected, cabinet makers mainly producing built-in furniture, furniture manufacturers making loose items.

Of note was the relatively high number of cabinet makers involved in the production of doors, windows and their associated framing although this occupied less than 20% of their production.

TABLE A.3.1 ITEMS PRODUCED BY PERCENTAGE OF PRODUCTION (No)

FURNITURE ITEM	% OF PRODUCTION										
	<10	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100
Kitchen	5	7	3	1	2	3	1	1	-	1	2
Lounge	7	9	6	1	2	2	4	-	1	-	6
Dining	9	6	3	2	2	3	-	1	2	1	-
Bedroom	4	15	6	2	-	3	-	2	4	2	3
Office	6	7	-	1	2	2	1	1	2	1	1
Outdoor	2	-	1	1	-	2	-	1	1	-	1
Other	4	6	3	2	-	4	-	-	-	4	19
Built-in Kitchen	6	12	6	3	8	3	8	5	7	14	2
Built-in Other	15	15	19	8	3	5	3	1	-	1	-
Shop and Office Fittings	8	5	4	2	1	1	1	-	1	1	-
Door Frame	8	2	3	2	-	2	1	1	-	1	-
Window Frame	9	5	-	-	1	-	-	-	-	-	-
Doors	12	7	2	-	-	-	-	1	1	-	3
Windows	7	4	-	-	-	-	-	-	-	-	-

Items included in the 'other' section included stairs, balustrades, lobster pots, wall units, matches, toys, cutting boards and shoe heels.

A.4 WHERE PRODUCTS SOLD

66.5% of all manufacturers sold 100% of their products within W.A. This rose to 100% of cabinet makers.

Only 29 respondents sold products to Eastern Australia and only 7 (24.1%) had more than 50% of sales there.

7 respondents sold products overseas but none more than 15% of their production.

TABLE A.4.1 WHERE PRODUCTS SOLD (No)

% OF SALES	W.A.	EASTERN AUST.	OVERSEAS
<10	1	8	6
10-19	3	5	1
20-29	1	6	-
30-39	1	1	-
40-49	-	2	-
50-59	2	1	-
60-69	2	1	-
70-79	3	1	-
80-89	5	3	-
90-99	11	1	-
100	129	-	-
TOTAL	158	29	7

A.5 HOW PRODUCTS SOLD

The most common method of sale was through a factory outlet, directly to consumers. 65 respondents (40.6%) sold 100% of their products this way, with 60.6% of all manufacturers using this method to some extent.

21 respondents (13.1%) sold wholly to a retailer while 36.9% sold this way in some quantity.

Only 13.1% of all manufacturers used a wholesaler to any degree.

A large number of replies answered the 'Other' section. These companies were usually selling direct to builders or were selling through contracts or tenders.

TABLE A.4.1 HOW PRODUCTS SOLD (No.)

% OF SALES	RETAILER	WHOLESALE	FACTORY	OTHER
<10	3	-	2	-
10-19	8	1	7	1
20-29	3	3	2	2
30-39	4	-	3	3
40-49	4	4	2	2
50-59	3	1	4	2
60-69	4	3	1	3
70-79	2	3	2	2
80-89	1	1	3	1
90-99	6	-	6	1
100	21	5	65	18
TOTALS	59	21	97	35

A.6 WHERE TIMBER OBTAINED

The majority of all manufacturers purchased their timber from a timber merchant. 90.6% of all replies purchased part, while 71.2% purchased all timber from that source.

Next most popular was purchasing direct from a sawmill by 16.2% of respondents.

TABLE A.5.1 WHERE TIMBER OBTAINED

% OF PURCHASES	<u>SOURCE (No)</u>			
	SAWMILL	TIMBER MERCHANT	RETAIL STORE	OTHER
<10	1	2	4	1
10-19	5	1	3	-
20-29	-	4	2	1
30-39	1	2	1	-
40-49	1	4	-	1
50-59	4	5	1	3
60-69	-	2	-	2
70-79	2	4	-	-
80-89	5	2	-	-
90-99	3	5	1	-
100	4	114	2	6
TOTALS	26	145	14	14



A.7 SIZE OF BUSINESS

Businesses surveyed ranged in size from single person companies to large firms employing 250 people.

Of the 152 replies to this question, 15.1% of all businesses employed only one person, and 61.1% of all companies employed less than six people. This figure rose to 73.6% employing 10 or less persons.

79.5% of cabinet makers employed five people or less compared with 48.9% of furniture makers and 50% of joiners.

TABLE A.6.1 SIZE OF BUSINESS (No)

NO. EMPLOYED	WORKING WITH TIMBER	NOT WORKING WITH TIMBER	ADMINISTRATION	TOTAL
1	30	7	42	23
2	26	13	13	18
3	24	3	11	21
4	15	2	9	18
5	7	1	6	13
6-9	21	6	3	17
10-19	17	4	3	21
20-49	8	4	1	14
50-99	3	-	1	4
>100	1	2	1	3
TOTAL	152	42	90	152

TABLE A.7.2 SIZE OF PARTICULAR BUSINESSES (No.)

	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
Total People Employed	176	991	109	630	1906
Number of Respondents	44	45	6	57	152
Average Number Employed	4.0	22.0	18.2	11.1	12.5

B.1 SOLID WOOD SPECIES AND QUANTITY USED

Of the 160 respondents to the survey, only 6 used no solid wood. The 428 distinct replies indicated most manufacturers were using at least two different timbers. Some used as many as eight.

B.1.1 SPECIES

32 different species were reported in use. The most popular species is jarrah used by 125 respondents. 93 manufacturers used pine, making it next most popular followed by nyatoh (69 replies) meranti (36 replies), Tasmanian oak (27 replies) and kapur (12 replies).

B.1.2 QUANTITY

Of those who responded to the question 48% did not give the quantity they used.

The reported quantity of all timbers used annually is 14,441.66 m<sup>3</sup>. Of this quantity jarrah makes up 47.1%, pine 13.9%, ramin 9.5%, meranti 6.6% and nyatoh 5.0%.

The average solid wood quantity used by all manufacturers is 136.24 m<sup>3</sup>/year.

For those who quantified their timber use, the tables show the overall average use for each species and the average use by manufacturing type.

TABLE B.1.1 SOLID WOOD SPECIES AND QUANTITIES USED (%)

SPECIES	QUANTITY (m <sup>3</sup> )	% OF TOTAL QUANTITY
jarrah	6797.03	47.1
pine	2009.98	13.9
ramin/melawis	1366.59	9.5
meranti	952.74	6.6
nyatoh	726.54	5.0
poplar	620.00	4.3
karri	465.82	3.2
blackbutt (W.A.)	373.24	2.6
brown mallet	324.0	2.2
basswood	256.0	1.8
Tasmanian oak	178.29	1.2
white oak	136.50	0.9
other	234.93	1.8
TOTAL	14 441.66	100%

TABLE B.1.2 TOTAL SOLIDWOOD USE BY SPECIES AND MANUFACTURING

SPECIES	TYPE (m <sup>3</sup> )				Total
	Cabinet Makers	Furniture Makers	Joiners	Other	
jarrah	114.04	1393.68	2733.0	2556.31	6797.03
pine	101.96	863.12	26.0	1018.9	2009.98
nyatoh	60.89	422.70	2.0	240.95	726.54
meranti	59.70	1.37	23.0	868.67	952.74
Tasmanian oak	21.61	143.68	6.0	7.0	178.29
kapur	3.50	-	7.0	51.90	62.40

SPECIES	Cabinet Makers	Furniture Makers	Joiners	Other	Total
ramin/melawis	10.0	69.44	-	1287.15	1366.59
white oak	-	122.50	-	14.0	136.50
durian	-	11.44	-	-	11.44
oregon	2.60	-	-	72.51	75.11
sheoak	0.24	0.28	4.0	7.32	11.84
karri	-	-	-	465.82	465.82
tawa	-	-	-	-	-
Tasmanian blackwood	2.0	-	-	-	2.0
teak	0.07	1.00	-	-	1.07
western cedar	2.36	-	-	-	2.36
mahogany	-	0.24	-	-	0.24
Queensland cedar	-	-	-	-	-
English deal	-	-	-	-	-
basswood	-	-	-	256.0	256.0
meraka alan	-	-	-	10.0	10.0
punah	-	-	-	2.0	2.0
poplar	-	-	-	620.0	620.0
myrtle beech	-	-	-	0.47	0.47
burr walnut	-	-	-	-	-
tulipwood	-	-	-	-	-
marri	-	-	-	-	-
brown mallet	-	-	-	324.0	324.0
wandoo	-	-	-	56.0	56.0
blackbutt (W.A.)	0.24	-	2.0	371	373.24
tuart	-	-	-	-	-
TOTALS	379.21	3029.45	2803.0	8230.0	14441.66

TABLE B.1.3 AVERAGE SOLID WOOD USE BY MANUFACTURING TYPE (m<sup>3</sup>)

	Cabinet Maker	Furniture Maker	Joiner	Other	Total
Reported Volume (m <sup>3</sup> )	379.21	3029.45	2803.0	8230.0	14441.66
Number Reporting	31	31	6	38	106
Average Use (m <sup>3</sup> )	12.23	97.72	467.17	216.58	136.24

TABLE B.1.4 Average Solid Wood Use By Species

	Total Users	Number Not Reporting Quantity	Number Reporting Quantity	Average <sub>3</sub> Use (m <sup>3</sup> )
jarrah	125	44	81	83.91
pine	93	36	57	35.26
nyatoh	69	26	43	16.89
meranti	36	15	21	45.36
Tasmanian oak	27	9	18	9.90
kapur	12	4	8	7.80
ramin/melanis	8	2	6	227.76
white oak	7	3	4	34.12
durian	5	3	2	5.72
oregan	5	1	4	18.77
sheoak	5	-	5	2.36
karri	9	3	6	77.63
tawa	2	2	-	-
Tasmanian blackwood	2	1	1	2.0
teak	3	1	2	0.53
western cedar	2	1	1	2.36
mahogany	1	-	1	0.24
Qld. cedar	1	1	-	-

	Total Users	Number Not Reporting Quantity	Number Reporting Quantity	Average Use (m <sup>3</sup> )
English deal	1	1	-	-
basswood	1	-	1	256.0
makaka alan	1	-	1	10.0
punah	1	-	1	2.0
poplar	1	-	1	620.0
myrtle beech	1	-	1	0.47
burr walnut	1	1	-	-
tulip wood	1	1	-	-
marri	1	1	-	-
brown mallet	1	-	1	324.0
wandoo	2	-	2	28.0
blackbutt (W.A.)	3	-	3	124.41
tuart	1	-	1	-
<b>TOTAL</b>	<b>428</b>	<b>157</b>	<b>271</b>	

## B.2 HOW SOLID WOOD SIZES ARE BOUGHT

### B.2.1 HOW SOLID WOOD LENGTHS ARE BOUGHT

80 respondents (51.9%) bought at or near finished length. These included 52.1% of cabinet makers, 39.5% of furniture makers and 100% of joiners.

46 respondents (29.9%) bought oversize to cut smaller, including 22.9% of cabinet makers and 48.8% of furniture makers.

Only 10 respondents (6.5%) bought a combination of both types.

TABLE B.2.1 HOW LENGTHS BOUGHT (No.)

LENGTH	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL	%
At or near Finished	25	17	7	31	80	51.9
Oversized to cut Smaller	11	21	-	14	46	29.9
Combination	5	-	-	5	10	6.5
No Response	7	5	-	6	18	11.7
TOTAL	48	43	7	56	154	100

B.2.2 HOW SOLID WOOD WIDTHS ARE BOUGHT

101 respondents (65.6%) bought at or near finished width, including 62.5% of cabinet makers, 61.5% of furniture makers and all joiners.

32 respondents (20.8%) bought oversize to cut smaller.

TABLE B.2.2 HOW WIDTHS BOUGHT (NO.)

WIDTH	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL	%
At or near Finished	30	28	7	36	101	65.6
Oversize	6	11	-	15	32	20.8
Combination	5	2	-	1	8	5.2
No response	7	2	-	4	13	8.4
TOTAL	48	43	7	56	154	100

B.2.3 HOW SOLID WOOD THICKNESSES ARE BOUGHT

107 respondents (69.5%) bought their timber at or near finished thickness, including 64.6% of cabinet makers, 69.8% of furniture makers, and all joiners.

TABLE B.2.3 HOW THICKNESSES BOUGHT (NO.)

THICKNESS	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL	%
At or near Finished	31	30	7	39	107	69.5
Oversize	4	10	-	12	26	16.9
Combination	5	-	-	1	6	3.9
No response	8	3	-	4	15	9.7
TOTAL	48	43	7	56	154	100

B.3 MAIN SOLID WOOD SIZES USED

Due to the large range of responses to this question, the answers were coded into the more common metric sizes. Even using this method, there are many answers which fall outside the chosen sizes and a high percentage of answers in the 'Other' category.

B.3.1 SOLID WOOD LENGTHS USED

TABLE B.3.1 LENGTHS USED (%)

LENGTH (m)	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
<2.1	1.3	13.1	10.0	13.5	10.0
2.1	3.9	2.6	36.7	7.5	6.4
2.4	13.1	8.9	10.1	5.6	8.8
3.0	18.9	8.9	-	8.4	10.9
3.6	10.5	8.4	-	2.8	6.5
>3.6	10.5	17.3	3.3	10.2	12.2
Random	9.1	12.6	16.7	10.2	11.0
Various	26.8	21.5	6.7	32.1	26.0
Other	4.6	2.1	3.3	1.4	2.5



Furniture makers use the same popular lengths as the total group. Cabinet makers use more 2.4 m and 3.0 m lengths and a large percentage of joiners (36.7%) use 2.1 m timber.

### B.3.2 SOLID WOOD WIDTHS USED

The demand for different widths is well spread. The most common widths specified are 100 mm (14.6%) and 150 mm (12.1%).

TABLE B.3.2 WIDTHS USED (%)

WIDTH (mm)	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
< 50	6.5	-	-	8.4	4.7
50	8.5	5.8	3.3	7.9	7.1
75	5.2	9.4	-	14.4	9.7
100	16.3	11.5	23.3	14.9	14.6
150	9.1	13.6	26.7	10.7	12.1
200	11.1	13.1	3.3	10.2	11.0
250	3.9	4.7	16.7	6.5	4.9
>250	13.1	12.6	-	7.4	11.0
Other	25.5	28.3	26.7	19.5	24.3

### B.3.3 SOLID WOOD THICKNESSES USED

The demand for different thicknesses is well spread, the most common being 25 mm (28.7%), <20 mm (14.9%) and 50 mm (14.1%).

TABLE B.3.3 SOLID WOOD THICKNESSES USED (%)

THICKNESS (mm)	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
<20	26.8	13.1	-	10.2	14.9
20	6.5	4.7	3.3	0.9	3.7
25	32.5	28.3	26.7	26.5	28.7
38	5.2	20.4	6.7	12.1	12.7
50	9.1	9.4	43.3	17.7	14.1
>50	0.6	0.5	-	8.8	3.6
Other	8.5	14.6	6.7	13.5	12.2
Random	-	1.0	6.7	-	0.7
Various	10.5	7.8	6.7	10.2	9.3

**B.4 SOLID WOOD SPECIES CHARACTERISTICS**

Respondents were asked to rate the importance of nine different characteristics for each species used.

Tables B.4.1 to B.4.9 examine the importance of the nine different characteristics to all manufacturers of the six most commonly used timbers.

Table B.4.10 summarizes the importance of the nine characteristics for all species of timber.

Tables B.4.11 and B.4.12 examine the importance of appearance and seasoning of jarrah to particular business types.

An 'other' section was included in the questionnaire. Too few responses were made to warrant analysis.

TABLE B.4.1 SOLID WOOD STRENGTH IMPORTANCE (%)

SPECIES	VERY IMPORTANT	FAIRLY IMPORTANT	NOT IMPORTANT	NOT STATED
jarrah	38.3	40.0	14.8	6.9
pine	23.9	33.8	28.2	14.1
nyatoh	20.4	42.3	16.7	16.7
meranti	24.1	20.7	31.0	24.1
Tasmanian oak	8.7	60.9	26.1	4.3
kapur	44.4	22.2	11.1	22.2
ALL SPECIES	29.7	38.4	20.4	11.5

TABLE B.4.2 SOLID WOOD APPEARANCE IMPORTANCE (%)

SPECIES	VERY IMPORTANT	FAIRLY IMPORTANT	NOT IMPORTANT	NOT STATED
jarrah	84.3	7.8	5.2	2.6
pine	52.1	26.7	14.1	7.0
nyatoh	79.6	7.4	5.6	7.4
meranti	27.6	24.1	27.6	20.7
Tasmanian oak	82.6	4.3	8.3	4.3
kapur	33.3	22.2	11.1	33.3
ALL SPECIES	69.3	14.3	9.2	7.0

TABLE B.4.3 SOLID WOOD DURABILITY IMPORTANCE (%)

SPECIES	VERY IMPORTANT	FAIRLY IMPORTANT	NOT IMPORTANT	NOT STATED
jarrah	41.7	37.4	8.7	12.2
pine	28.2	42.3	12.7	16.9
nyatoh	29.6	38.9	7.4	24.1
meranti	24.1	31.0	17.2	27.6
Tasmanian oak	39.1	39.1	8.7	13.0
kapur	44.4	33.3	11.1	11.1
ALL SPECIES	35.0	36.7	13.0	15.3

TABLE B.4.4 SOLID WOOD WORKABILITY IMPORTANCE (%)

SPECIES	VERY IMPORTANT	FAIRLY IMPORTANT	NOT IMPORTANT	NOT STATED
jarrah	38.3	39.1	8.7	13.9
pine	38.1	43.7	9.9	8.4
nyatoh	44.4	40.7	5.6	9.2
meranti	44.8	41.4	13.8	-
Tasmanian oak	43.5	34.8	13.0	8.7
kapur	22.2	33.3	11.1	33.3
ALL SPECIES	41.9	38.3	9.6	10.3

TABLE B.4.5 SOLID WOOD SEASONING IMPORTANCE (%)

SPECIES	VERY IMPORTANT	FAIRLY IMPORTANT	NOT IMPORTANT	NOT STATED
jarrah	78.3	7.8	1.7	12.2
pine	63.4	16.9	4.2	15.5
nyatoh	44.4	18.6	-	37.0
meranti	58.6	20.7	-	27.6
Tasmanian oak	82.6	8.7	-	8.7
kapur	55.6	11.1	11.1	22.2
ALL SPECIES	66.5	13.1	4.2	16.2

TABLE B.4.6 SOLID WOOD UNIQUENESS IMPORTANCE (%)

SPECIES	VERY IMPORTANT	FAIRLY IMPORTANT	NOT IMPORTANT	NOT STATED
jarrah	32.2	21.7	28.7	17.4
pine	12.7	14.1	57.7	16.9
nyatoh	14.8	11.1	46.3	27.8
meranti	6.9	6.9	51.7	34.5
Tasmanian oak	17.4	34.8	34.8	12.0
kapur	11.1	22.2	33.3	33.3
ALL SPECIES	23.2	17.3	39.4	20.1

Uniqueness is more important for jarrah than for other commonly used species.

TABLE B.4.7 SOLID WOOD PRICE LEVEL IMPORTANCE (%)

SPECIES	VERY IMPORTANT	FAIRLY IMPORTANT	NOT IMPORTANT	NOT STATED
jarrah	25.2	20.9	13.0	15.6
pine	59.1	23.9	9.9	7.0
nyatoh	51.9	14.8	11.1	22.2
meranti	72.4	13.8	3.4	10.3
Tasmanian oak	43.5	26.1	21.7	8.7
kapur	55.6	22.2	-	22.2
ALL SPECIES	54.2	20.1	11.2	14.5

For all species, except jarrah, the price level has a high degree of importance.

TABLE B.4.8. SOLID WOOD PRICE STABILITY IMPORTANCE (%)

SPECIES	VERY IMPORTANT	FAIRLY IMPORTANT	NOT IMPORTANT	NOT STATED
jarrah	55.7	22.6	6.1	15.6
pine	56.3	26.7	4.2	9.9
nyatoh	46.3	22.2	5.6	25.9
meranti	55.2	17.2	10.3	17.2
Tasmanian oak	56.3	21.7	8.7	13.0
kapur	55.6	11.1	-	33.3
ALL SPECIES	54.3	21.0	7.0	17.7

TABLE B.4.9 SOLID WOOD AVAILABILITY IMPORTANCE (%)

SPECIES	VERY IMPORTANT	FAIRLY IMPORTANT	NOT IMPORTANT	NOT STATED
jarrah	73.9	10.4	2.6	13.0
pine	70.4	16.9	5.6	7.0
nyatoh	66.7	9.3	1.8	22.2
meranti	72.4	17.2	6.9	3.4
Tasmanian oak	52.2	21.7	8.7	17.4
kapur	66.7	22.2	-	11.1
ALL SPECIES	67.0	13.2	5.1	14.7

TABLE B.4.10 SUMMARY OF SOLID WOOD CHARACTERISTICS IMPORTANCE

CHARACTERISTIC	VERY IMPORTANT	FAIRLY IMPORTANT	NOT IMPORTANT	NOT STATED	RATING*
Strength	29.7	38.4	20.4	11.5	186
Appearance	69.3	14.5	9.2	7.0	246
Durability	35.0	36.7	13.0	15.3	191
Workability	41.9	38.3	9.6	10.3	212
Seasoning	66.5	13.1	4.2	16.2	230
Uniqueness	23.2	17.3	39.4	20.1	144
Price Level	54.2	20.1	11.2	14.5	214
Price Stability	54.3	21.0	7.0	17.7	212
Availability	67.0	13.2	5.1	14.7	233

\* The empirical rating used is: 3 points for very important  
2 points for fairly important  
1 point for not important

Appearance, availability and seasoning are rated the highest.

B.4.11 VARIATION BETWEEN MANUFACTURING TYPES - SOLID WOOD

For most characteristics the degree of importance did not vary greatly between the manufacturing types. Tables B.4.11 and B.4.12 are typical examples for manufacturers using jarrah.

TABLE B.4.11 APPEARANCE IMPORTANCE OF JARRAH SOLID WOOD  
MANUFACTURING TYPES (%)

MANUFACTURING TYPE	VERY IMPORTANT	FAIRLY IMPORTANT	NOT IMPORTANT	NOT STATED	RATING
Cabinet Maker	90.0	7.5	-	2.5	285
Furniture Maker	80.6	3.2	16.1	-	264
Joiner	85.7	14.3	-	-	286
Other	81.1	10.8	18.9	5.4	284
Total	84.3	7.8	5.2	2.6	274

The Empirical appearance rating of 274 for jarrah is well above mean for all species of 246.

TABLE B.4.12 SEASONING IMPORTANCE OF JARRAH SOLID WOOD  
MANUFACTURING TYPES (%)

MANUFACTURING TYPE	VERY IMPORTANT	FAIRLY IMPORTANT	NOT IMPORTANT	NOT STATED	RATING
Cabinet Maker	75.0	5.0	-	20.0	235
Furniture Maker	70.1	19.3	-	9.7	249
Joiner	100.0	-	-	-	300
Other	83.8	2.7	5.4	8.1	262
Total	78.3	7.8	1.7	12.2	252

Seasoning is rated more important for jarrah than other species, particularly to joiners.

**B.5 SOLID WOOD SPECIES PREFERRED TO THOSE IN USE**

Of those who answered this question, 64.2% indicated no other timbers preferred to those in current use. 26.6% indicated a preference for a wider range of imported timbers.

TABLE B.5.1 SOLID WOOD SPECIES PREFERRED TO THOSE IN USE (%)

	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
None	65.7	58.3	75.0	67.6	64.2
More imported timbers	22.9	36.1	25.0	20.6	26.6
Other	11.4	5.6	-	11.8	9.2

B.6 SOLID WOOD SPECIES IN USE, NOT PREFERRED

57.3% of the 110 respondents to this question were satisfied with the timber they use.

TABLE B.6.1 SOLID WOOD SPECIES IN USE, NOT PREFERRED (%)

	CABINET MAKERS	FURNITURE MAKERS	JOINERS	OTHER	TOTAL
None	51.5	60.0	60.0	59.5	57.3
pine	27.3	11.4	20.0	13.5	17.3
nyatoh	12.1	11.4	20.0	10.8	11.8
jarrah	3.0	11.4	-	10.8	8.2
meranti	6.1	-	-	-	1.8
other	-	5.7	-	5.4	3.6

Complaints against pine are with quality and appearance.

Nyatoh is disliked because of health problems associated with the sawdust and the maintenance of cutting equipment required due to the high silica content.

The main complaint directed at jarrah is a scarcity of good quality.



B.7 HOW SOLID WOOD GRADES ARE BOUGHT

A clear preference for purchase of graded timber is apparent. Upgrading by joiners is more common than by other manufacturing types.

TABLES B.7.1 HOW SOLID WOOD GRADES ARE BOUGHT (%)

GRADE	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
At or near Finished	80.9	65.1	71.4	75.5	74.0
Lower to Upgrade	2.1	9.3	28.6	5.7	6.7
Ungraded	8.5	9.3	-	1.9	6.0
Combination	8.5	16.3	-	16.9	13.3

B.8 MAIN SOLID WOOD GRADES USED

There were a large number of varied responses to this question. To analyse them, grade descriptions were grouped into four ratings.

SOLID WOOD GRADE TERMINOLOGY

GRADE 1	GRADE 2	GRADE 3	GRADE 4
Terms used First	Select	Standard	Lower
No. 1	Appearance	Dressed	2nd
Premium	A	Appearance 3	Merch
Polishing quality	Finished	Structural	Ungraded
Clears	Joinery	B	Rough seasoned
A and up	Top	F14, F8, F6, F5	Medium
Select for polish	Dry select	Dry dressed	Economy
	Furniture quality	Mixed	
	Dressed select	Select Appearance 3	
		Sound and better	
		At or near finished	

A fifth unrated category listed as 'other' covers all other terms used. Most of these terms were not understood and hence could not be allocated a rating.

The clear preference for purchase of graded timber (Table B.7.1) and the wide range of terminology used in describing those grades highlights a perceived need to develop uniform specifications.

TABLE B.8.1 MAIN SOLID WOOD GRADES USED, ALL SPECIES (%)

GRADE/RATING	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
1	15.9	22.9	20.0	13.0	17.2
2	48.6	33.3	46.7	50.0	44.5
3	20.6	16.7	26.7	19.4	19.3
4	9.3	26.0	6.7	13.0	15.3
Other	5.6	1.0	-	4.6	3.7

The following tables examine grade rating by popular species to determine particular usage patterns.

TABLE B.8.2 MAIN SOLID WOOD GRADES USED - JARRAH (%)

GRADE/RATING	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
1	21.2	24.3	25.0	12.5	19.5
2	48.5	35.1	37.7	52.5	44.9
3	18.2	16.2	25.0	17.5	17.8
4	6.1	24.3	12.2	10.0	13.6
Other	6.1	-	-	7.5	4.2

TABLE B.8.3 MAIN SOLID WOOD GRADES USED - PINE (%)

GRADE/RATING	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
1	15.4	28.0	-	6.25	17.4
2	50.0	28.0	50.0	25.0	36.2
3	23.1	20.0	50.0	43.75	27.5
4	7.7	20.0	-	25.0	15.9
Other	3.9	4.0	-	-	2.9

TABLE B.8.4 MAIN SOLID WOOD GRADES USED - NYATOH (%)

GRADE/RATING	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
1	12.5	26.7	100	-	-
2	56.3	33.3	-	85.8	85.8
3	18.7	13.3	-	7.1	7.1
4	-	26.1	-	7.1	7.1
Other	12.5	-	-	-	-

TABLE B.8.5 MAIN SOLID WOOD GRADES USED - MERANTI (%)

GRADE/RATING	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
1	6.7	-	-	20.0	8.7
2	40.0	66.7	-	40.0	43.5
3	40.0	-	-	40.0	34.8
4	13.3	33.3	-	-	13.0
Other	-	-	-	-	-

TABLE B.8.6 MAIN SOLID WOOD GRADES USED - TASMANIAN OAK (%)

GRADE/RATING	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
1	-	40.0	-	-	10.5
2	44.4	40.0	100	75	52.6
3	22.2	20.0	-	25	21.1
4	11.1	-	-	-	5.3
Other	22.2	-	-	-	10.5

B.9 SOLID WOOD ORIGINS

TABLE B.9.1 SOLID WOOD ORIGINS (NO.)

%	PLACE OF ORIGIN			
	W.A.	EASTERN AUSTRALIA	OVERSEAS	UNKNOWN
<10	2	11	9	1
10-19	4	13	12	3
20-29	11	8	22	2
30-39	7	9	15	-
40-49	11	2	9	-
50-59	8	1	6	-
60-69	12	3	5	-
70-79	21	1	4	1
80-89	16	1	8	-
90-99	16	1	2	1
100	30	3	6	2
TOTAL	138	53	98	10

From the table, 30 respondents (19.5% of all solid wood users) use only timbers of local origin.

Of those respondents who use timber of W.A. Origin, most use more than half their requirements from this source.

Eastern States and imported timbers form less than half the requirements of those using them.

#### B.10 FACTORS FAVOURING LOCAL SOLID WOOD USE

For analysis of these results, the replies were coded into 14 categories. Respondents gave up to 3 answers.

TABLE B.10.1 FACTORS FAVOURING LOCAL SOLID WOOD USE (%)

FACTORS	CABINET MAKER	FURNITURE MAKER	JOINERS	OTHER	TOTAL
None	7.2	12.5	-	8.3	8.8
Popularity/ Demand	24.6	8.9	50	13.9	17.6
Availability	18.8	28.6	25	20.8	22.4
Price	8.7	12.5	-	12.5	10.7
Uniqueness	5.8	5.3	-	11.1	7.3
Appearance	13.0	7.1	12.5	4.2	8.3
Quality	2.9	7.1	-	5.6	4.9
Strength	2.9	5.3	-	4.2	3.9
Social Benefits	4.3	1.8	-	4.2	3.4
Durability	1.4	-	-	4.2	1.9
Contract Requirements	2.9	7.1	-	4.2	4.4
Stability	1.4	-	-	4.2	1.9
Workability	1.4	-	-	-	0.5
Other	4.3	3.6	12.5	2.8	3.9

The availability and popularity of local solid wood are the most important factors.

#### B.11 FACTORS LIMITING LOCAL SOLID WOOD USE

The most common factors limiting local solid wood use are availability (22.6%), quality (17.4%) and price (13.3%).

TABLE B.11.1 FACTORS LIMITING LOCAL SOLID WOOD USE (%)

FACTORS	CABINET	FURNITURE	JOINER	OTHER	TOTAL
	MAKER	MAKER			
None	6.2	6.8	28.6	10.8	8.7
Availability	18.7	27.1	28.6	21.5	22.6
Price	23.4	5.1	14.3	10.8	13.3
Quality	18.7	15.2	-	20.0	17.4
Physical Faults	7.8	3.4	-	4.6	5.1
Seasoning	4.7	8.5	-	6.1	6.1
Colour	3.1	11.9	-	4.6	6.1
Sizes	3.1	3.4	28.6	3.2	5.6
Demand	6.2	1.7	-	1.5	3.1
Variety	3.1	5.1	-	1.5	3.1
Appearance	1.6	1.7	-	-	1.0
Other	3.1	10.2	-	10.7	7.7

B.12 FACTORS FAVOURING IMPORTED SOLID WOOD USE

Three factors each received equal response. Price, quality, and availability (14.8% each) are most important.

TABLE B.12.1 FACTORS FAVOURING IMPORTED SOLID WOOD USE %

FACTORS	CABINET	FURNITURE	JOINER	OTHER	TOTAL
	MAKER	MAKER			
None	7.6	11.1	28.6	15.0	11.7
Price	22.7	6.3	14.3	15.0	14.8
Quality	15.2	17.5	-	13.3	14.8
Availability	12.1	15.9	-	18.3	14.8
Appearance	9.1	6.3	14.3	5.0	7.1
Colour	3.0	6.3	14.3	5.0	5.1
Sizes	1.5	6.3	14.3	3.3	4.1
Demand	7.6	1.6	14.3	-	3.6
Variety	4.5	11.1	-	3.3	6.1
Workability	7.6	4.8	-	-	4.1
Uniqueness	3.0	3.2	-	6.7	4.1
Seasoning	1.5	3.2	-	5.0	3.1
Other	4.5	6.3	-	10.0	6.6

B.13 FACTORS LIMITING IMPORTED SOLID WOOD USE

TABLE B.13.1 FACTORS LIMITING IMPORTED SOLID WOOD USE (%)

FACTOR	CABINET	FURNITURE	JOINER	OTHER	TOTAL
	MAKER	MAKER			
None	9.1	17.9	75.0	25.0	19.8
Availability	42.4	53.6	25.0	27.8	39.6
Price	30.3	21.4	-	33.3	27.7
Other	18.2	7.1	-	13.9	12.9

The two main factors limiting use of imported solid wood are the lack of continuous supply and the price.

B.14 SOLID WOOD - OTHER COMMENTS

Due to the extremely varied answers to this question, it is difficult to determine dominant responses.

32.8% of the replies are in the 'Other' category, even after coding them into similar categories.

Of the rest, 14.1% indicated increased availability as a major problem while 10.9% wanted a furniture grade established.

TABLE B.14.1 SOLID WOOD COMMENTS (%)

COMMENT	CABINET	FURNITURE	JOINER	OTHER	TOTAL
	MAKER	MAKER			
None	25.0	36.4	66.7	43.5	37.5
Availability	12.5	27.3	-	4.3	14.1
Sizes	6.2	4.5	-	4.3	4.7
Furniture Grade	18.7	9.1	-	8.6	10.9
Other	37.5	22.7	33.3	39.1	32.8

C.1 RECONSTITUTED WOOD TYPE AND QUANTITY USED

The results for this Section are coded into ranges of quantities for analysis.

C.1.1 PLYWOOD

TABLE C.1.1.1 PLYWOOD QUANTITIES USED (%)

QUANTITY (m <sup>2</sup> )	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
<50	27.6	25.0	-	18.75	22.6
50-99	10.3	3.6	25.0	3.1	6.4
100-249	27.6	21.4	25.0	25.0	24.7
250-499	3.4	10.7	-	15.6	9.7
500-999	17.2	-	25.0	12.5	10.7
1000-4999	13.8	39.3	-	15.6	21.5
5000-10000	-	-	25.0	3.1	2.1
>10000	-	-	-	6.2	2.1

53.7% of manufacturers use less than 250 m<sup>2</sup> of plywood including 65.5% of cabinet makers and 50% of furniture makers.

TABLE C.1.1.2 AVERAGE PLYWOOD QUANTITIES USED

	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
Total Quantity (m <sup>2</sup> )	10177	22087	6210	295035	333509
Number of Users	31	28	4	31	94
Average Use (m <sup>2</sup> )	328.3	788.8	1552.5	9517.3	3548.0

C.1.2 PARTICLEBOARD

50% of all users use more than 1000 m<sup>2</sup> of particleboard.



TABLE C.1.2.1 PARTICLEBOARD QUANTITIES (%)

QUANTITY (m <sup>2</sup> )	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
<50	-	3.0	20.0	10.3	4.7
50-99	7.7	6.1	-	6.9	6.6
100-249	15.4	9.1	-	17.2	13.2
200-499	-	6.1	40.0	3.4	4.7
500-999	25.6	15.2	20.0	20.7	20.7
1000-4999	33.3	21.2	20.0	20.7	25.5
5000-10000	10.3	12.1	-	20.7	13.2
>10000	7.7	27.3	-	-	11.3

The average particleboard use is 5327.2 m<sup>2</sup>.

TABLE C.1.2.2. AVERAGE PARTICLEBOARD QUANTITIES USED

	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
Total Quantity (m <sup>2</sup> )	127605	391471	2630	48302	570008
Number of Users	42	33	5	27	107
Average Use (m <sup>2</sup> )	3038.2	11862.8	526.0	1789.0	5327.2

C.1.3 HARDBOARD

TABLE C.1.3.1 HARDBOARD QUANTITIES USED (%)

QUANTITY (m <sup>2</sup> )	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
<50	9.4	-	25.0	6.7	7.8
50-99	12.5	23.1	25.0	6.7	14.1
100-249	28.1	23.1	-	20.0	23.4
250-499	6.2	7.7	25.0	13.4	9.4
500-999	21.9	7.7	25.0	20.0	18.7
1000-4999	18.7	23.1	-	20.0	18.7
5000-10000	-	-	-	-	-
>10000	3.1	15.4	-	13.4	7.8

TABLE C.1.3.2 AVERAGE HARDBOARD QUANTITIES USED

	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
Total Quantity (m <sup>2</sup> )	33585	213436	1070	392740	640831
Number of Users	32	12	4	15	63
Average Use (m <sup>2</sup> )	1049.5	17786.3	267.5	26182.7	10171.9

C.1.4 OTHER RECONSTITUTED WOOD

TABLE C.1.4.1 AVERAGE 'OTHER' RECONSTITUTED WOOD USE

	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
Total Quantity (m <sup>2</sup> )	2237	11011	-	760	14068
Number of Uses	7	8	-	2	17
Average Use (m <sup>2</sup> )	319.6	1376.4	-	380	824

C.2 PLYWOOD

C.2.1 PLYWOOD GRADE

The most common grade used overall is interior (25.9%)

TABLE C.2.1 PLYWOOD GRADE DETAILS (%)

GRADE	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
Interior	34.5	24.1	27.3	19.3	25.9
Exterior	8.6	3.7	27.3	11.3	9.2
Decorative	17.2	20.4	18.2	19.3	18.9
Select	17.2	14.8	9.1	16.1	15.7
General	10.3	14.8	-	6.5	9.7
Various	1.7	1.8	-	-	1.1
Other	10.3	20.4	9.1	27.4	18.9
Not Stated	-	-	9.1	-	1.1

### C.2.2 PLYWOOD THICKNESS

The most common thickness used by all manufacturers is 4 mm (25.4%).

TABLE C.2.2 PLYWOOD THICKNESS DETAILS (%)

THICKNESS (mm)	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
3	13.8	13.0	-	12.9	12.4
>3 <4	13.8	11.1	27.3	17.7	15.1
4	31.0	29.6	9.1	19.3	25.4
>4 <10	15.5	18.5	9.1	21.0	17.8
>10 <20	12.1	16.7	-	11.3	12.4
Various	13.8	5.5	27.3	12.9	11.9
Other	-	5.5	18.2	4.8	4.3
Not Stated	-	-	9.1	-	0.5

### C.2.3 PLYWOOD SHEET SIZE

By far the most common sheet size used by cabinet makers and furniture makers is 2.4 m x 1.2 m. The preferred sheet size for joiners is 2.1 m x 0.9 m.

TABLE C.2.3 PLYWOOD SHEET SIZE DETAILS (%)

SHEET SIZE (m x m)	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
2.4 x 1.2	62.1	61.1	9.1	45.2	53.0
2.1 x 1.2	5.1	-	9.1	1.6	2.7
2.1 x 0.9	8.6	3.7	63.6	8.1	10.3
1.8 x 1.2	3.4	3.7	-	3.2	3.2
1.8 x 0.9	-	5.5	-	1.6	2.2
Various	10.3	20.4	9.1	3.6	20.0
Other	8.6	3.7	-	9.7	7.0
Not Stated	1.7	1.8	9.1	-	1.6

### C.3 PARTICLEBOARD

#### C.3.1 PARTICLEBOARD GRADE

The three grades, veneer, melamine and plain are used in approximately equal amounts. Cabinet makers and joiners use more melamine, furniture makers use more veneer.

TABLE C.3.1 PARTICLE BOARD GRADE DETAILS (%)

GRADE	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
Veneer	30.5	36.1	27.3	19.3	28.6
Melamine	34.4	22.2	45.4	28.9	30.3
Plain	31.2	33.3	18.2	39.8	33.7
Other	3.9	8.3	-	7.2	5.7
Not Stated	-	-	9.1	4.8	1.7

#### C.3.2 PARTICLEBOARD THICKNESS

The most common thicknesses are in the range 16 - 19 mm.

TABLE C.3.2 PARTICLE BOARD THICKNESS DETAILS (%)

THICKNESS	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
≤12	2.3	11.1	9.1	12.0	
13	1.6	2.8	9.1	9.6	
>13 <16	3.1	1.4	-	2.4	
16-19	65.6	51.4	36.4	55.1	
≥20	2.3	-	-	2.4	
Various	25.0	30.6	36.4	27.2	
Not Stated	-	2.8	9.1	1.0	

C.3.3 PARTICLEBOARD SHEET SIZE

The most common sheet size used is 2.4 m x 1.2 m.

TABLE C.3.3 PARTICLE BOARD SHEET SIZE DETAILS (%)

SHEET SIZE (m x m)	CABINET		FURNITURE		TOTAL
	MAKER	MAKER	JOINER	OTHER	
3.6 x 1.8	1.6	1.4	-	6.0	2.7
3.6 x 1.2	4.7	-	18.2	8.4	5.1
2.4 x 1.8	8.6	2.8	-	6.0	6.1
2.4 x 1.2	49.2	43.1	36.4	31.3	42.2
2.1 x 0.9	-	1.4	9.1	2.4	1.4
1.8 x 1.2	1.6	8.3	-	6.0	4.4
Other	10.2	12.5	18.2	16.9	12.9
Various	22.7	23.6	9.1	21.7	22.1
Not Stated	1.6	6.9	9.1	1.2	3.1

C.4 HARDBOARD

TABLE C.4.1 HARDBOARD THICKNESS DETAILS (%)

THICKNESS (mm)	CABINET		FURNITURE		TOTAL
	MAKER	MAKER	JOINER	OTHER	
3	17.5	19.0	-	14.8	16.1
>3 <4	27.5	28.6	40.0	25.9	27.9
4	37.5	14.3	-	37.0	30.1
>4 <5	7.5	14.3	40.0	11.1	11.8
≥5	5.0	9.5	-	7.4	6.4
Various	-	-	-	3.7	1.1
Not Stated	5.0	14.3	20.0	-	6.4

TABLE C.4.2 HARDBOARD SHEET SIZE DETAILS (%)

SHEET SIZE (m x m)	CABINET	FURNITURE	JOINER	OTHER	TOTAL
	MAKER	MAKER			
2.4 x 1.2	72.5	57.1	20.0	37.0	55.9
Other	27.5	33.4	60.0	63.0	40.9
Not Stated	-	9.5	20.0	-	3.2

C.5 OTHER RECONSTITUTED WOOD

79.3% of the products in this category are customwood.  
(Medium density fibreboard.)

TABLE C.5.1 OTHER RECONSTITUTED WOOD THICKNESS DETAILS (%)

THICKNESS (mm)	CABINET	FURNITURE	OTHER	TOTAL
	MAKER	MAKER		
≤13	20	6.7	-	12.1
16	10	26.7	7.7	13.8
18	50	20.0	46.1	41.4
19	6.7	13.3	15.4	10.3
Other	13.3	33.3	30.8	22.4

TABLE C.5.2 OTHER RECONSTITUTED WOOD SHEET SIZE DETAILS (%)

SHEET SIZE (m x m)	CABINET	FURNITURE	OTHER	TOTAL
	MAKER	MAKER		
2.4 x 1.2	66.7	66.7	53.8	63.8
3.6 x 1.2	20.0	-	7.7	12.1
Other	13.3	20.0	15.4	70.7
Not Stated	-	13.3	23.1	3.4

C.6 RECONSTITUTED WOOD CHARACTERISTICS

Nine different characteristics were examined for their degree of importance to eight different reconstituted wood types.

TABLE C.6.1 RECONSTITUTED WOOD STRENGTH IMPORTANCE (%)

WOOD TYPE	VERY IMPORTANT	FAIRLY IMPORTANT	NOT IMPORTANT	NOT STATED
Plain Ply	53.3	23.3	13.3	10.0
Veneer Ply	32.0	24.0	36.0	8.0
Veneer Particleboard	21.1	50.9	12.3	14.0
Melamine Particleboard	18.6	55.8	7.0	18.6
Plain Particleboard	26.0	44.0	16.0	14.0
Hardboard	20.7	41.7	24.1	13.8
Customwood (M.D.F.)	45.5	40.9	4.5	9.1
Other	47.1	23.5	11.8	11.8
TOTAL	29.9	41.7	15.1	13.3

TABLE C.6.2 RECONSTITUTED WOOD APPEARANCE IMPORTANCE (%)

WOOD TYPE	VERY IMPORTANT	FAIRLY IMPORTANT	NOT IMPORTANT	NOT STATED
Plain Ply	33.3	23.3	40.1	3.3
Veneer Ply	88.0	4.0	4.0	4.0
Veneer Particleboard	86.0	7.0	5.3	1.8
Melamine Particleboard	79.1	18.6	2.3	-
Plain Particleboard	22.0	22.0	54.0	12
Hardboard	44.8	24.1	24.1	6.9
Customwood (M.D.F.)	68.2	9.1	18.2	4.5
Other	58.8	-	35.3	5.9
TOTAL	58.2	14.7	22.3	4.8

Appearance has a high degree of importance to those users of reconstituted wood where a surface finish is applied.

It is of lesser importance for plain ply and plain particleboard.

TABLE C.6.3 RECONSTITUTED WOOD DURABILITY IMPORTANCE (%)

WOOD TYPE	VERY IMPORTANT	FAIRLY IMPORTANT	NOT IMPORTANT	NOT STATED
Plain Ply	40.0	40.0	13.3	6.7
Veneer Ply	44.0	40.0	12.0	4.0
Veneer Particleboard	26.3	52.6	8.8	12.3
Melamine Particleboard	44.2	41.9	4.7	9.4
Plain Particleboard	22.0	42.0	24.0	12.0
Hardboard	34.5	48.3	10.3	6.9
Customwood (M.D.F.)	40.9	40.9	4.5	13.6
Other	58.8	23.5	11.8	5.9
TOTAL	35.5	43.2	11.7	4.8

TABLE C.6.4 RECONSTITUTED WOOD WORKABILITY IMPORTANCE (%)

WOOD TYPE	VERY IMPORTANT	FAIRLY IMPORTANT	NOT IMPORTANT	NOT STATED
Plain Ply	36.7	33.3	20.0	10.0
Veneer Ply	40.0	36.0	24.0	-
Veneer Particleboard	49.1	40.0	35.0	7.0
Melamine Particleboard	53.5	32.6	-	14.0
Plain Particleboard	44.0	40.0	10.0	6.0
Hardboard	27.6	48.2	10.3	13.8
Customwood (M.D.F.)	72.7	18.2	4.5	4.5
Other	52.9	23.5	11.8	11.8
TOTAL	46.5	35.9	9.2	8.4



TABLE C.6.5 RECONSTITUTED WOOD UNIQUENESS IMPORTANCE (%)

WOOD TYPE	VERY IMPORTANT	FAIRLY IMPORTANT	NOT IMPORTANT	NOT STATED
Plain Ply	10.0	20.0	56.7	13.3
Veneer Ply	24.0	32.0	32.0	12.0
Veneer Particleboard	28.1	28.1	29.8	14.0
Melamine Particleboard	20.9	20.9	39.5	18.6
Plain Particleboard	6.0	2.0	72.0	20.0
Hardboard	6.9	13.8	62.1	17.2
Customwood (M.D.F.)	22.7	18.2	40.9	18.2
Other	17.6	29.4	47.1	5.9
TOTAL	17.2	19.4	47.6	15.8

TABLE C.6.6 RECONSTITUTED WOOD PRICE LEVEL IMPORTANCE (%)

WOOD TYPE	VERY IMPORTANT	FAIRLY IMPORTANT	NOT IMPORTANT	NOT STATED
Plain Ply	56.7	26.6	13.3	3.3
Veneer Ply	56.0	24.0	12.0	8.0
Veneer Particleboard	63.2	26.3	5.3	5.3
Melamine Particleboard	74.4	11.6	7.0	7.0
Plain Particleboard	82.0	6.0	8.0	4.0
Hardboard	55.2	17.2	6.9	3.4
Customwood (M.D.F.)	63.6	18.2	9.1	9.1
Other	64.7	23.5	5.9	5.9
TOTAL	67.5	18.7	8.2	5.6

TABLE C.6.7 RECONSTITUTED WOOD PRICE STABILITY IMPORTANCE (%)

WOOD TYPE	VERY IMPORTANT	FAIRLY IMPORTANT	NOT IMPORTANT	NOT STATED
Plain Ply	56.7	20.0	10.0	13.3
Veneer Ply	56.0	20.0	12.0	12.0
Veneer Particleboard	66.7	15.8	5.3	12.3
Melamine Particleboard	74.4	11.6	-	14.0
Plain Particleboard	78.0	6.0	4.0	12.0
Hardboard	79.3	6.9	3.4	10.3
Customwood (M.D.F.)	68.2	13.6	4.5	13.6
Other	70.6	11.8	5.9	11.8
TOTAL	68.8	12.7	5.1	13.4

TABLE C.6.8 RECONSTITUTED WOOD AVAILABILITY IMPORTANCE (%)

WOOD TYPE	VERY IMPORTANT	FAIRLY IMPORTANT	NOT IMPORTANT	NOT STATED
Plain Ply	73.3	10.0	3.3	13.3
Veneer Ply	84.0	8.0	4.0	1.0
Veneer Particleboard	80.7	10.5	-	8.8
Melamine Particleboard	79.1	7.0	-	14.0
Plain Particleboard	84.0	6.0	6.0	4.0
Hardboard	72.4	13.8	3.4	10.3
Customwood (M.D.F.)	77.3	4.5	4.5	13.6
Other	94.1	5.9	-	-
TOTAL	80.2	8.4	2.6	8.8

C.6.9 OTHER RECONSTITUTED WOOD IMPORTANT FEATURES

Due to the very small response to this section there is insufficient data to make any analysis.

TABLE C.6.10 SUMMARY OF DEGREES OF IMPORTANCE OF RECONSTITUTED WOOD CHARACTERISTICS (%)

CHARACTERISTIC	VERY IMPORTANT	FAIRLY IMPORTANT	NOT IMPORTANT	NOT STATED	RATING*
Strength	29.9	41.7	15.1	13.1	188
Appearance	58.2	14.7	22.3	4.8	226
Durability	35.5	43.2	11.7	9.5	205
Workability	46.5	35.9	9.2	8.4	221
Uniqueness	17.2	19.4	47.6	15.8	138
Price Level	67.5	18.7	8.2	5.6	248
Price Stability	68.8	12.7	5.1	13.4	237
Availability	80.2	8.4	2.6	8.8	260

\*The empirical rating used is :  
 3 points for Very Important  
 2 points for Fairly Important  
 1 point for Not Important

Availability is the most highly rated characteristic followed by price level and stability.

C.7 RECONSTITUTED WOOD ORIGINS

TABLE C.7.1 PLYWOOD ORIGINS (NO.)

%	W.A.	EASTERN AUSTRALIA	OVERSEAS	UNKNOWN
<10	2	1	1	-
10-19	1	4	7	2
20-29	-	-	4	1
30-39	1	5	2	-
40-49	2	-	2	-
50-59	8	1	6	1
60-69	4	-	-	-
70-79	1	-	-	-
80-89	7	-	2	-
90-99	3	1	2	-
100	35	7	18	9
TOTAL	64	19	45	13

The reliability of these figures is suspect for the reasons outlined under Table C.7.3.

TABLE C.7.2 PARTICLEBOARD ORIGINS (NO.)

%	W.A.	EASTERN AUSTRALIA	OVERSEAS	UNKNOWN
<10	-	2	-	-
10-19	1	7	2	-
20-29	2	6	1	-
30-39	-	1	-	-
40-49	1	1	-	-
50-59	14	13	-	1
60-69	1	1	-	-
70-79	2	-	-	-
80-89	8	2	-	-
90-99	8	-	-	-
100	56	5	1	6
TOTAL	93	38	4	7

The reliability of these figures is suspect for the reasons outlined under Table C.7.3.

TABLE C.7.3 HARDBOARD ORIGINS (NO.)

%	W.A.	EASTERN AUSTRALIA	OVERSEAS	UNKNOWN
<10	-	2	1	-
10-19	1	-	-	2
20-29	-	-	-	2
80-89	-	-	2	-
90-99	2	1	-	-
100	12	20	11	13
TOTAL	15	23	14	15

As no hardboard is produced in W.A., it appears that the place of origin has been confused with the place of purchase. If this is so, then it is likely that the W.A. figures for plywood, particleboard and 'Other' reconstituted wood are also over stated for the same reason.

TABLE C.7.4 OTHER RECONSTITUTED WOOD ORIGINS (NO.)

%	W.A.	EASTERN AUSTRALIA	OVERSEAS	UNKNOWN
10-19	-	1	-	-
20-29	1	-	-	-
50-59	1	-	1	-
80-89	-	1	-	-
90-99	1	-	-	-
100	4	11	2	4
TOTAL	7	13	3	4

The reliability of these figures is suspect for the reasons outlined under Table C.7.3.

C.8 FACTORS FAVOURING LOCAL RECONSTITUTED WOOD USE

TABLE C.8.1 FACTORS FAVOURING LOCAL RECONSTITUTED WOOD USE (%)

FACTOR	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
Availability	47.6	48.5	20.0	38.2	46.5
Price	21.4	6.1	-	14.7	14.0
Uniqueness	-	12.1	-	-	3.5
Economic Benefit	7.1	6.1	-	8.8	7.0
Client Demand	9.5	3.0	-	-	4.4
Quality	2.4	-	-	8.8	3.5
Convenience	2.4	3.0	20.0	5.9	4.4
Other	-	6.1	-	8.8	4.4
Not Stated	9.5	15.1	-	14.7	12.3

C.9 FACTORS LIMITING LOCAL RECONSTITUTED WOOD USE

TABLE C.9.1 FACTORS LIMITING LOCAL RECONSTITUTED WOOD USE (%)

FACTOR	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
Availability	13.5	16.1	40.0	9.7	14.4
Market Size	2.7	-	-	3.2	1.9
Price	13.5	12.9	20.0	25.8	17.3
Product Range	18.9	6.4	-	3.2	9.6
Finish Quality	5.2	9.7	-	-	4.8
Market Resistance	2.7	3.2	-	3.2	2.9
Other	7.9	16.1	-	16.1	12.5
Not Stated	35.1	35.5	40.0	38.7	36.5

C.10 FACTORS FAVOURING IMPORTED RECONSTITUTED WOOD USE

TABLE C.10.1 FACTORS FAVOURING IMPORTED RECONSTITUTED WOOD USE (%)

FACTOR	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
Availability	18.4	16.1	25.0	12.5	16.2
Price	18.4	19.3	-	31.2	21.9
Quality	10.4	12.9	-	6.2	9.5
Client Demand	5.2	3.2	-	-	2.9
Market Size	2.6	-	-	3.1	1.9
Wider Range	21.8	3.2	-	6.2	10.5
Other	2.6	12.9	-	6.2	6.3
Not Stated	21.8	32.2	75.0	34.4	30.5

C.11 FACTORS LIMITING IMPORTED RECONSTITUTED WOOD USE

TABLE C.11.1 FACTORS LIMITING IMPORTED RECONSTITUTED WOOD USE (%)

FACTOR	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
Availability	32.4	14.3	-	17.8	21.4
Client Demand	5.4	7.1	-	10.7	7.1
Price	10.8	14.3	20.0	7.1	11.2
Freight Cost	5.4	14.3	-	-	6.1
Other	13.5	14.3	-	21.4	15.3
Not Stated	32.4	35.7	80.0	42.8	38.8

C.12 SATISFACTION WITH QUALITY OF SURFACING ON RECONSTITUTED WOOD

TABLE C.12.1 SATISFACTION WITH QUALITY OF SURFACING (%)

<u>RESPONSE</u>	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
Yes - Very	7.1	8.8	-	-	5.1
Yes - Satisfactory	14.3	23.5	20.0	30.6	22.2
Yes	28.6	26.5	60.0	33.3	30.8
Yes - But					
Reservations	11.9	11.7	-	11.2	11.1
No - Too Thin	9.5	5.9	20.0	-	6.0
No - Poor Quality					
Jarrah finish	7.1	5.9	-	8.3	6.8
No - Too many					
Defects	9.5	8.8	-	2.8	6.8
Other	9.5	8.8	-	5.6	7.7
Not stated	2.4	-	-	8.3	3.4

Most respondents are satisfied, 11.1% have reservations and 19.6% are not satisfied.

C.13 RECONSTITUTED WOOD - OTHER COMMENTS

Only 43 comments were received for this section.

Of these 23.2% wanted improved quality of reconstituted wood.

Other comments praised customwood (medium density fibreboard), (13.9%) and requested denser or stronger reconstituted wood (9.3%).



D.1 COMMENTS ON SURVEY

TABLE D.1 COMMENTS ON SURVEY (%)

COMMENT	CABINET MAKER	FURNITURE MAKER	JOINER	OTHER	TOTAL
None	20.0	14.8	25.0	5.0	13.6
Optimistic	10.9	14.8	12.5	21.7	15.8
Pessimistic	7.3	7.4	-	11.7	8.5
Consistent Better					
Quality	16.4	7.4	25.0	6.7	10.7
Feed-Back Wanted	-	3.7	-	3.3	2.2
Grade to					
Specifications	5.5	3.7	-	1.7	3.4
Reduce Waste	-	-	12.5	1.7	1.1
Better Seasoning	1.8	5.6	-	5.0	3.9
Grades are Good	5.5	1.8	-	1.7	2.8
Timber for Furniture					
Not Construction	3.6	9.2	-	6.7	6.2
More Species Variety	1.8	7.4	-	1.7	3.4
Stop Large Monopolies	1.8	1.8	-	3.3	2.2
Furniture Grade					
Required	5.5	11.1	-	10.0	8.5
Less Exports	7.3	1.8	-	-	2.2
Other	12.7	9.2	25.0	20.0	14.7

Responses generally are favourable but otherwise no dominant trends are apparent.

Cabinet makers and joiners want improved quality and furniture makers want grade specifications.

#### 4.1 TOTAL INDUSTRY FIGURES

The following figures are based on the survey results and extrapolated using the information obtained through the telephone poll of non-respondents.

When using these figures, the following points should be considered:

- 1 The companies which did not respond to the survey were smaller than those which did.
- 2 In the group which did not respond, the balance of the company type is weighted more to cabinet makers than other manufacturing types.
- 3 The method of determining company type was different between the survey and the telephone poll.
- 4 The quantities given in the questionnaire responses are in many cases approximate. Extrapolation magnifies any errors.

##### 4.1.1. TOTAL INDUSTRY EMPLOYMENT IN TIMBER PRODUCT MANUFACTURING

From Table A.7.2 the questionnaire responses show a total of 1906 people is employed by 152 businesses with an average size of 12.5 employees.

This indicates a total respondent employment of

$$160 \times 12.5 = 2\ 000$$

From the telephone poll; 309 businesses employed a total of 2767 people. This gives an average of

$$2767 \div 309 = 8.95$$

and a total employment of the whole sample is therefore

$$2000 + 3079 = 5079$$

Giving an average company size of

$$5079 \div 504 = 10.08$$

#### 4.1.2 ANALYSIS OF BUSINESS TYPE IN TIMBER PRODUCT MANUFACTURING

Table A.2.1 shows the classification of survey respondents into business types.

Section 3.3 shows the similar break-up as a result of the telephone poll of non-respondents.

The 35 companies for which no comment was received, are divided into business types in the same proportions as the balance of the non-respondents.

TABLE 4.1.2.1 TOTAL POPULATION BY BUSINESS TYPE

	CABINET MAKERS	FURNITURE MAKERS	JOINER	OTHER/ COMBINATION	TOTAL
Survey Respondents	48	46	7	59	160
Contacted survey non-respondents	164	66	14	65	309
Non contacted survey non- respondents	18	8	1	8	35
TOTAL	230	120	22	132	504
%	45.6	23.8	4.4	26.2	100

4.1.3 TOTAL INDUSTRY USE OF SOLID WOOD IN TIMBER PRODUCT  
MANUFACTURING

From Table B.1.3, the total reported volume of solid wood is 14,441.66 m<sup>3</sup> used by 106 respondents at an average of 136.24 m<sup>3</sup> each. The total apparent volume used by all respondents is  $154 \times 136.24 = 20,980.96 \text{ m}^3$ .

The number of respondents indicating use of solid wood is  $154 \div 160 = 96.25\%$ .

The number of non-respondents apparently using solid wood is therefore

$$96.25\% \times (504 - 160) = 331$$

The average size of the non-respondents is 8.95 compared with 12.5 for respondents (Section 4.1.1.). It is assumed the 331 non-respondents use solid wood in proportion to their level of employment.

Therefore the average volume used by non-respondents based on the number of employees will be:

$$331 \times 136.24 \times 8.95 \div 12.50 = 32288.33$$

The volume used by the total survey population is

Respondents		20 980.96 m <sup>3</sup>
Non Respondents	+	32 288.34 m <sup>3</sup>
		<hr/>
		53 269.30 m <sup>3</sup>
		<hr/>

4.1.4 TOTAL INDUSTRY USE OF RECONSTITUTED WOOD IN TIMBER PRODUCT MANUFACTURING

Using the same methods as Section 4.1.3, the total industry use of ply, particle board, hardboard and other reconstituted woods has been estimated.

TABLE 4.1.4.1 TOTAL INDUSTRY RECONSTITUTED WOOD USE

TOTAL QUANTITY				
RESPONDENTS (m <sup>2</sup> )	397 376	665 900	813 757	41 200
TOTAL QUANTITY				
NON RESPONDENTS (m <sup>2</sup> )	612 229	1 026 040	1 252 690	63 718
TOTAL QUANTITY	1 009 605	1 691 940	2 066 442	104 918

5.0 CONCLUSIONS

This survey has obtained information from Western Australian timber products manufacturers to determine types, quantities and properties of timbers used.

A 31.75% response was achieved.

The need for improving quality and to develop standard specifications for the grading of timber used, is apparent.

Appearance, availability and seasoning of all types of solid wood and availability of reconstituted woods are of major importance to manufacturers of timber products.

This large collection of data is now available to the Forests Department, timber merchants and processors and the manufacturers for further detailed analysis.

6.0 ACKNOWLEDGEMENTS

Assistance is gratefully acknowledged from the following:

- \* The W.A. Guild of Furniture Manufacturers  
The Cabinet Makers Association of W.A.  
The Shopfitters Association of W.A.
- \* The officers of the Consultation Branch of the  
Australian Bureau of Statistics Office in Perth, for  
their advice and assistance in the preparation of  
the Questionnaire.
- \* All the respondents and in particular those who  
assisted prior to the survey with sample testing  
the questionnaire.
- \* Staff of the Forests Department who assisted with  
the computer programme, coding, typing, editing and  
the many other tasks involved.

7.0 APPENDICES

- APPENDIX 1 - COPY OF QUESTIONNAIRE
- APPENDIX 2 - COPY OF LETTER SENT WITH QUESTIONNAIRE
- APPENDIX 3 - COPY OF REMINDER LETTER SENT.

APPENDIX 1

COPY OF QUESTIONNAIRE

Please answer all questions.

Some questions require marking the appropriate answer with a 'x'. Others require written details.

If a question is not applicable, say so, don't leave a space.

If you don't know the exact answer for any question, make an estimate.

Details for the 1982/83 Financial Year are preferred. If you provide answers other than this, nominate the period.

If you have any problems filling in the questionnaire or queries on the survey, please contact Jeff Glass at Forests Department, Como, on 367 6333.



SECTION A GENERAL

A 1 COMPANY NAME \_\_\_\_\_

A 2 WHICH OF THE FOLLOWING BEST DESCRIBES YOUR BUSINESS TYPE?  
(MARK WITH X)

CABINET MAKER	[	]
FURNITURE MAKER	[	]
JOINERY	[	]
OTHER (SPECIFY)	[	]

---

A 3 WHAT ARE THE MAIN ITEMS YOU PRODUCED IN THE PAST 12 MONTHS.  
INDICATE EACH ITEM BY ITS PERCENTAGE OF YOUR TOTAL TIMBER  
PRODUCTION.

KITCHEN FURNITURE	_____ %	BUILT IN KITCHEN FURNITURE	_____ %
LOUNGE FURNITURE	_____ %		
DINING FURNITURE	_____ %	OTHER BUILT IN FURNITURE	_____ %
BEDROOM FURNITURE	_____ %	SHOP AND OFFICE FITTINGS	_____ %
OFFICE FURNITURE	_____ %	DOOR FRAMES	_____ %
OUTDOOR FURNITURE	_____ %	WINDOW FRAMES	_____ %
OTHER (GIVE DETAILS)	_____ %	DOORS	_____ %
		WINDOWS	_____ %

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A 4 WHERE ARE YOUR PRODUCTS SOLD?

W.A.	_____ %
EASTERN AUSTRALIA	_____ %
OVERSEAS	_____ %
TOTAL	100 % OF QUANTITY

A 5 HOW ARE YOUR PRODUCTS SOLD?

TO RETAILER \_\_\_\_\_ %  
TO WHOLESALER \_\_\_\_\_ %  
FACTORY DIRECT \_\_\_\_\_ %  
OTHER (SPECIFY) \_\_\_\_\_ %

\_\_\_\_\_ TOTAL 100 % OF QUANTITY

A 6 WHERE DO YOU BUY YOUR TIMBER?

SAWMILL DIRECT \_\_\_\_\_ %  
TIMBER MERCHANT \_\_\_\_\_ %  
RETAIL STORE \_\_\_\_\_ %  
OTHER (SPECIFY) \_\_\_\_\_ %

\_\_\_\_\_ TOTAL 100 % OF QUANTITY

A 7 WHAT WAS THE AVERAGE NUMBER OF PEOPLE EMPLOYED BY YOUR BUSINESS OVER THE PAST 12 MONTHS?

WORKING WITH TIMBER \_\_\_\_\_  
NOT WORKING WITH TIMBER \_\_\_\_\_  
ADMINISTRATION \_\_\_\_\_  
TOTAL \_\_\_\_\_

SECTION B SOLID WOOD

B 1 NAME THE MAIN SPECIES YOU USED IN THE PAST 12 MONTHS AND THE QUANTITY OF EACH SPECIES. IF EXACT QUANTITIES ARE NOT KNOWN GIVE AN ESTIMATE.

	SPECIES	QUANTITY AND UNITS
A	_____	_____
B	_____	_____
C	_____	_____
D	_____	_____
E	_____	_____
F	_____	_____
	_____	_____
	_____	_____

SIZES

B 2 HOW DO YOU BUY YOUR TIMBER SIZES? (MARK X WHERE APPLICABLE)

	LENGTH		WIDTH		THICKNESS	
AT OR NEAR FINISHED SIZE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AS LARGE AS POSSIBLE TO CUT TO	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MANY DIFFERENT SIZES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B 3 LIST IN ORDER OF IMPORTANCE THE MAIN SIZES USED OF EACH SPECIES.

SPECIES	WIDTH (mm)	THICKNESS (mm)	LENGTH (m)	COMMENTS

COMMENTS ON SIZES \_\_\_\_\_  
\_\_\_\_\_

B 4 FOR THE CHARACTERISTICS LISTED, INDICATE FOR EACH SPECIES USED, THE IMPORTANCE OF EACH CHARACTERISTIC. WHERE A SPECIES HAS MORE THAN ONE USE, SPECIFY, AND USE SEPARATE COLUMNS FOR EACH USE.

NUMBER EACH BOX AS FOLLOWS:

1 = VERY IMPORTANT    2 = FAIRLY IMPORTANT    3 = NOT IMPORTANT

CHARACTERISTICS

SPECIES

STRENGTH					
APPEARANCE					
DURABILITY					
WORKABILITY					
SEASONING					
UNIQUENESS					
PRICE LEVEL					
PRICE STABILITY					
AVAILABILITY					
OTHER (SPECIFY)					

---

---

COMMENTS \_\_\_\_\_

---

B 5 ARE THERE ANY TIMBERS YOU PREFER INSTEAD OF THOSE IN CURRENT USE? NAME THEM AND THE REASONS WHY.

---

---

---

B 6 ARE THERE ANY TIMBERS CURRENTLY IN USE, YOU WOULD PREFER NOT TO USE? NAME THEM AND THE REASONS WHY.

---



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---

GRADES

B 7 HOW DO YOU BUY YOUR TIMBER GRADES? (MARK X WHERE APPLICABLE)

AT OR NEAR FINISHED GRADE

AT LOWER GRADE TO ALLOW UPGRADING

UNGRADED

B 8 LIST IN ORDER OF IMPORTANCE THE MAIN GRADES USED OF EACH SPECIES.

SPECIES	GRADE	SPECIES	GRADE

COMMENTS ON GRADES  
INDICATE ANY PROBLEMS WITH GRADE AVAILABILITY

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---

B 9 WHERE DOES YOUR SOLID WOOD COME FROM?

ORIGIN

W.A. \_\_\_\_\_ %

EASTERN AUSTRALIA \_\_\_\_\_ %

OVERSEAS \_\_\_\_\_ %

UNKNOWN \_\_\_\_\_ %

TOTAL 100 % OF QUANTITY

B 10 WHAT FACTORS FAVOUR THE USE OF LOCAL SOLID WOOD SPECIES?

---

---

---

---

B 11 WHAT FACTORS LIMIT THE USE OF LOCAL SOLID WOOD SPECIES?

---

---

---

---

B 12 WHAT FACTORS FAVOUR THE USE OF SOLID WOOD SPECIES FROM  
OUTSIDE W.A.? (i.e. OVERSEAS OR EASTERN AUSTRALIA)

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---

---

B 13 WHAT FACTORS LIMIT THE USE OF SOLID WOOD SPECIES FROM  
OUTSIDE W.A.? (i.e. OVERSEAS OR EASTERN AUSTRALIA)

---

---

---

---

B 14 ANY OTHER COMMENTS RELATING TO SOLID WOOD

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SECTION C RECONSTITUTED WOOD

C 1 WHAT QUANTITY OF EACH TYPE DID YOU USE IN THE PAST 12 MONTHS?

TYPE	QUANTITY (m <sup>2</sup> )
PLYWOOD	_____
PARTICLE BOARD	_____
HARDBOARD	_____
OTHER (SPECIFY)	_____
_____	
TOTAL	

C 2 WHAT PLYWOOD DO YOU USE?

GRADES*	THICKNESS (mm)	SHEET SIZE (m x m)

(\* Decorative, Select, General, Interior, Exterior)

C 3 WHAT PARTICLE BOARD DO YOU USE?

GRADES*	THICKNESS (mm)	SHEET SIZE (m x m)

(\* Veneer, Melamine, Plain)

C 4 WHAT HARDBOARD DO YOU USE?

THICKNESS (mm)

SHEET SIZE (m x m)


C 5 WHAT OTHER RECONSTITUTED WOOD DO YOU USE?

TYPE

THICKNESS (mm)

SHEET SIZE (m x m)


C 6 FOR THE CHARACTERISTICS LISTED, INDICATE FOR EACH RECONSTITUTED WOOD TYPE USED, THE IMPORTANCE OF EACH CHARACTERISTIC. WHERE A TYPE HAS MORE THAN ONE USE, SPECIFY, AND USE SEPARATE COLUMNS FOR EACH USE.

NUMBER EACH BOX AS FOLLOWS:

1 = VERY IMPORTANT 2 = FAIRLY IMPORTANT 3 = NOT IMPORTANT

CHARACTERISTIC

WOOD TYPE

STRENGTH						
APPEARANCE						
DURABILITY						
WORKABILITY						
UNIQUENESS						
PRICE LEVEL						
PRICE STABILITY						
AVAILABILITY						
OTHER (SPECIFY)						



COMMENTS \_\_\_\_\_

C 7 WHERE DOES YOUR RECONSTITUTED WOOD COME FROM?

<u>ORIGIN</u>	<u>PLYWOOD</u>	<u>P/BOARD</u>	<u>HARDBOARD</u>	<u>OTHER</u>	
W.A.					%
EASTERN AUSTRALIA					%
OVERSEAS					%
UNKNOWN					%
	100%	100%	100%	100%	

C 8 WHAT FACTORS FAVOUR THE USE OF LOCAL RECONSTITUTED WOOD?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

C 9 WHAT FACTORS LIMIT THE USE OF LOCAL RECONSTITUTED WOOD?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

C 10 WHAT FACTORS FAVOUR THE USE OF RECONSTITUTED WOOD FROM OUTSIDE W.A. (i.e. OVERSEAS OR EASTERN AUSTRALIA).

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

C 11 WHAT FACTORS LIMIT THE USE OF RECONSTITUTED WOOD FROM OUTSIDE W.A. (i.e. OVERSEAS OR EASTERN AUSTRALIA).

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# FORESTS DEPARTMENT

50 HAYMAN ROAD, COMO, WESTERN AUSTRALIA  
P.O. BOX 104, COMO, 6152. TELEPHONE (09) 367 6333

*Address all correspondence: Conservator of Forests*

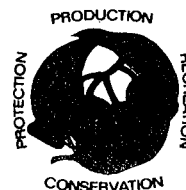
*Your ref:*

*Our ref:*

672/82 JG:SE

*Enquiries:*

Mr Glass



The Manager

Dear Sir

## SURVEY OF TIMBER USED IN MANUFACTURING

The West Australian Government has established a Task Force to co-ordinate the utilisation and marketing of the State's timber resources.

The Task Force recognises that to make improvements in the preparation and supply of timber to your industry, reliable market information is required.

For this reason, and after consulting the W.A. Guild of Furniture Manufacturers, the Cabinet Makers Association of W.A., the Shopfitters Association of W.A. and the Australian Bureau of Statistics; a questionnaire was designed.

By completing this questionnaire, you will provide the Task Force with a better understanding of your industry's :

- \* End uses of timber;
- \* Quality and quantity requirements for timber used;
- \* Demand that is not met by local timbers, and why;
- \* Other problems with timber supply.

This information should enable the Forests Department, sawmillers and timber merchants to meet your future needs.

On completion of the survey a composite industry report will be prepared for publication. Individual information supplied will remain strictly confidential.

Please complete and return the enclosed questionnaire, in the prepaid envelope, by Wednesday, November 30, 1983.

Your co-operation will be appreciated.

Yours faithfully

ACTING CONSERVATOR OF FORESTS

November 3, 1983

APPENDIX 3

COPY OF REMINDER LETTER SENT

# FORESTS DEPARTMENT

50 HAYMAN ROAD, COMO, WESTERN AUSTRALIA  
P.O. BOX 104, COMO, 6152. TELEPHONE (09) 367 6333

*Address all correspondence: Conservator of Forests*

Your ref:

Our ref: 672/82 JG:SE

Enquiries: Mr Glass



Dear Sir

## SURVEY OF TIMBER USED IN MANUFACTURE - REMINDER

You are one of over 800 people in the timber manufacturing industry who was sent a Questionnaire on 3 November.

A large and detailed response to the survey is required so that the results obtained are truly representative of your industry.

If you have not yet done so, please complete and return the questionnaire.

Thank you for your co-operation.

Yours faithfully

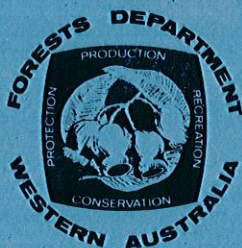
ACTING CONSERVATOR OF FORESTS

5 December 1983



# A SURVEY OF TIMBER USED IN TIMBER MANUFACTURING WESTERN AUSTRALIA 1983

by J. Glass and P. Shedley



FORESTS DEPARTMENT OF WESTERN AUSTRALIA

TECHNICAL PAPER NO. 11