

# Industrial Development Subsidiary Agreement

## THE MARKET POTENTIAL FOR SPRUCE - PINE - FIR SPECIALTY SAWN PRODUCTS

May, 1981

## Research Report



Province of  
British Columbia

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**THE MARKET POTENTIAL FOR  
SPRUCE - PINE - FIR  
SPECIALTY SAWN PRODUCTS**

**May, 1981**

Prepared For  
**THE CARIBOO LUMBER MANUFACTURERS' ASSOCIATION**

By  
**WOODBIDGE, REED AND ASSOCIATES LTD.  
Vancouver, B.C.**

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The responsibility for the content of this report is the consultant's alone, and the conclusions reached herein do not necessarily reflect the opinions of those who assisted during the course of this investigation or the Federal and Provincial governments which funded the study.

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EXECUTIVE SUMMARY

This market study was commissioned by the Cariboo Lumber Manufacturers' Association (CLMA). Its purpose is to investigate the potential market in North America for specialty sawn products that could be developed from Spruce-Pine-Fir (S-P-F). Specific emphasis in the terms of reference was placed on analysis of the demand for siding, panelling and furniture components in five cities in the U.S. - Dallas, Denver, Los Angeles, Minneapolis and Boston.

The study was funded under the Research Program of the joint federal/provincial Industrial Development Subsidiary Agreement and undertaken by Woodbridge, Reed and Associates, consultants in forestry economics, during the period November, 1980 to February, 1981. The work involved was mainly concerned with field visits to assess and evaluate, in detail, the identified markets. It also involved a broad overview of consumption and demand trends in the U.S. and Canada. The principal emphasis of the work related to information obtained in the markets. It was supplemented by review and analysis of consumption, supply and demand data for these specific markets and for the wider market area as a whole.

Analysis of the major end use sectors provides strong evidence to suggest that softwood lumber demand in both the U.S. and Canada is likely to increase significantly during the 1980's. The relative importance of the various end-use sectors is expected to change. For example, whereas residential construction in the 1970's accounted for about 45 per cent of lumber consumption, its share is likely to decline substantially over the next decade. On the other hand, the industrial sector, the repairs and remodelling sector and the non-residential construction sector are expected to show greater increases in consumption. An exception to this may be in Canada, where a fairly strong but temporary recovery is expected in single family house construction in the near future.

A major study by the U.S. Government indicates that the U.S. will need to increase its imports of softwood lumber. It anticipates that this will be available from Canada. Some increase in sawtimber supply from the U.S. South is assumed, but it expects that this will be offset by an appreciable decline in supply from the Pacific region.

However, Canadian demand for softwood lumber also is expected to increase. So too is demand from overseas, therefore it appears that there is potential for increased sales of competitively priced Canadian lumber. At the same time, there is a growing realization throughout the industry in each province of Canada that, contrary to earlier assumptions, the supply of economically accessible timber is not endless. Even now there is overcutting in some areas and many others are experiencing an acute shortage of sawlog-quality timber. Within the

favourable longer term demand perspective, the outlook for cost-efficient producers of 'commodity' softwood lumber appears promising. Nevertheless, rising wood supply costs, and competition for supply from other forest products, are both likely to result in mills seeking ways of improving lumber recoveries and the value they can add to their product.

Upgrading, remanufacturing and more effective marketing of existing lumber production and specialties often can offer better overall realizations to a producer. The results of a detailed assessment of these opportunities in specific U.S. markets is provided below:

### Dallas

This is the largest market in the U.S. and Canada for finger-jointed studs. They are well accepted by both small and industrial builders, though not at the do-it-yourself (D-I-Y) level. Truss manufacturers currently use southern yellow pine but appear very interested in the concept of MSR lumber, in which case S-P-F which has been mechanically stress rated would have a good potential outlet. Spruce siding of good quality also has significant potential once housing activity recovers. The outlook for panelling and treated lumber is not encouraging in the immediate term. Apart from bed frame stock, there appears to be little opportunity to develop business with the furniture industry.

### Denver

About 25 per cent of the lumber consumed in the area is in S-P-F and the U.S. equivalents such as whitewoods (W-W), however the bulk of this tends to be from U.S. suppliers. The siding market could provide a good opportunity for a well manufactured spruce siding but will need to overcome a currently poor image. There is also considerable potential at the retail level for lodgepole pine panelling. The market is already well developed and a number of competing products are present. The majority of truss manufacturers already use S-P-F MSR lumber and, as the market grows, will need more. On the other hand, there does not appear to be ready acceptance of finger-jointed lumber in the building industry and there appears to be negligible potential for sales of S-P-F to the furniture industry.

### Los Angeles

Considerable interest was shown by wholesalers and the furniture industry in the possibility of using lodgepole pine. The interest focussed on the development of special furniture grades rather than furniture components. The industry is concerned about the declining volume and



quality of ponderosa pine and is already experimenting, apparently successfully, with lodgepole pine from the inland mills. In the Los Angeles market, S-P-F is not regarded as lumber that can be used structurally and it tends only to be used in appearance applications. Much of this is remanufactured locally where costs appear to be well below those of B.C. The use of MSR lumber, finger-jointed lumber or treated lumber has not yet developed significantly in the Los Angeles market.

### Minneapolis

S-P-F has a major share of the stud and plate stock market while Douglas fir/larch and hemfir are dominant for most other uses. The opportunity for spruce siding, even in a good quality, appears limited. There is, however, good potential for pine panelling sales to the builder and retail trade. Promotion and education will be needed to develop an outlet for MSR lumber. On the other hand, it does not appear likely that significant sales of finger-jointed lumber could occur for some years. There has been substantial growth in recent years in the consumption of preservative-treated lumber.

### Boston

The primary intention of the investigation in Boston was to ascertain the type of specialty product being developed by eastern manufacturers. The market does not yet use many of the specialty products that have been discussed. Finger-jointed and MSR lumber are almost unknown and siding and panelling are only present in very small volumes. The furniture industry effectively only uses hardwood. On the other hand, there has been significant growth in the use of preservative-treated lumber. Special sizes and home centre lumber appear to be readily available direct from Eastern Canadian and New England mills who seem to have developed considerable remanufacturing capability. The ability to make truck load deliveries direct to retailers at short notice has been a significant factor in this development.

Remanufacturers in B.C. have developed a substantial sales volume but concentrate on coastal species. At present, they do not foresee utilizing significant volumes of S-P-F for remanufacture.

There is market potential for a variety of value added products that can be produced from the S-P-F species group or from individual species within the group.



Solid wood panelling and lumber siding look promising though market acceptance tends to vary from region to region in the U.S. CLMA mills can realize this potential but success in panelling will depend on carefully planned marketing and distribution. Quality is the most critical issue with lumber siding. It is essential to ensure that the product is properly manufactured in order to develop a significant long term market.

There appears to be a significant and growing market for MSR S-P-F lumber for truss manufacturers. As substantial capital investment is required to produce MSR lumber, this market needs analysis in greater depth to ensure that the initial conclusions are valid.

The outlook for treated lumber is for continuing growth. Due to problems related to the treatment of spruce and the fact that even lodgepole pine cannot always be treated to the necessary specifications, a testing programme would be needed prior to any product or market development.

The potential for furniture components, apart from bed frame stock, appears to be limited in the short term. There is significant potential for a furniture grade, which would need to be exclusively lodgepole pine, for sale to the furniture industry in Los Angeles. There are a number of wholesalers in the area who specialize in supplying lumber to the furniture industry and who indicated interest in working with CLMA mills to develop furniture stock programmes.

The repair, remodelling and general D-I-Y markets have been expanding rapidly and are predicted to continue to grow. A significant volume of the lumber utilized in this market is "home centre lumber" which includes a number of the smaller sizes such as 1 x 2 furring strips. At present much of this is being produced by small local remanufacturers, but there is an increasing trend towards production by larger, centralized companies and also by the primary sawmills, as in Eastern Canada.

There are basically two options open to CLMA mills wishing to increase revenue by selling added-value products. The products from standard production can be upgraded or they can be remanufactured. Within these two options there is a wide range of specific product lines that could be developed.

Though market opportunities exist, the potential to produce sawn specialty products varies extensively from mill to mill within the CLMA. There are some mills that are so limited by the land they occupy that it

would be virtually impossible to include even regrading facilities, let alone re-manufacturing. Others have a highly mechanized production flow and any interruption in this flow adds appreciably to the unit cost of total production. There are a number, however, where the potential exists for a significant volume of selection, regrading and remanufacture provided that the cost of any of these activities is justified by the increased return. This economic calculation will vary radically from mill to mill due to the diverse nature of each.

GLOSSARY OF TERMS AND ABBREVIATIONS

Board foot	Measure applied to lumber volume; one board foot is one square foot of lumber one inch thick
CCA Salt	Chromated Copper Arsenate; one of the principal water based salts used for treating lumber
CLMA	Cariboo Lumber Manufacturers' Association
D-I-Y	Do-it-yourself; the consumption sector represented by the general 'handyman' public
ES-LP	Engelmann spruce-lodgepole pine; US specification for a species group
Headers	Load carrying joists over large openings such as picture windows, garage and car port entrances and so on
ILMA	Interior Lumber Manufacturers' Association
Interior Panelling	Decorative panelling put on interior walls and partitions
K.D.	Kiln dried
MSR Lumber	Lumber that has been mechanically stress rated by being passed through a machine
NAHB	National Association of Home Builders
NELMA	North East Lumber Manufacturers' Association
NFPA	National Forest Products Association
NLGA	National Lumber Grading Association
PET	Precision End Trimmed to exact lengths
R/L	Random Length
Siding	Exterior cladding of a building. This may be profiled lumber, plywood, hardboard, brick and so on

SISIE	Surfaced one side and one edge
S-P-F	The species group of Spruce, Pine and Fir
T1-11	4 x 8 sheets of plywood grooved in order to give the effect of board and batten siding
T & G	Tongued and grooved
USDA	United States Department of Agriculture
WWPA	Western Wood Products Association
WP4/6/11 etc	Variety of profiles used for lumber siding and panelling
W-W	Whitewoods; US specification covering a group of species including spruce, alpine fir and lodgepole pine

## 1. INTRODUCTION

In recent years, the Cariboo Lumber Manufacturers' Association (CLMA) has given close attention to the potential for increasing the profitability of its member mills through improved timber utilization, new product possibilities and new market opportunities. Growing markets for softwood lumber in certain specialty products lately have focused attention on the need to evaluate the opportunities which may be available to CLMA producers. Consequently a study was commissioned to investigate the potential market in North America for specialty products that could be manufactured from the S-P-F group of species.

The study was funded jointly by the Federal Department of Regional Economic Expansion and the British Columbia Ministry of Industry and Small Business Development. The work was undertaken by Woodbridge, Reed and Associates, consultants in forest industry economics, based in Vancouver, B.C.

This report commences with a description of the objectives, terms of reference and method of study, followed by summary overviews of short and longer term U.S. and Canadian softwood lumber demand and supply. Trends in the consumption of specialty sawn wood products are analyzed in detail for a number of different products and market sectors. Detailed reports are presented on the information obtained from field visits to the specific cities in the U.S. as requested in the terms of reference and on the remanufacturing industry in the Lower Mainland region of B.C.

A brief assessment is made of timber use and lumber production in the CLMA region based on information obtained from the mills and published statistical reports. This is followed by an explanation of the U.S. tariffs that affect specialty lumber in 1981.

Conclusions are shown at the end of each major section. In addition, the principal findings of the study are summarized and discussed in Chapter 11. For ease of reference, a chart has been prepared showing the potential market opportunities for each of the specialty products in each of the markets. Strategy options regarding specialty products are outlined. These highlight the advantages and disadvantages of each product - market opportunity. They assess the marketing implications and identify activities that would be required by a mill prior to any market development. Recommendations have been made with respect to initiatives that could be taken by CLMA members.

It must be emphasized that the focal point of this study has been to identify and evaluate the market aspects. Consequently the economics of production and transportation have not been analyzed in depth.

Since the principal orientation of the study has been to identify specific export potential to the U.S., data have been expressed in imperial rather than metric units.

## 2. OBJECTIVES AND TERMS OF REFERENCE

The general objective of the study was to provide an assessment of the market potential in North America for S-P-F specialty sawn products from the Central Interior of British Columbia. However, due to the size and regional variation of the North American market and the large number of products that can be considered specialties, it was decided that the major emphasis of the study should be on five locations in the U.S. and on three product lines.

The specific objectives of the study, therefore, were to assess the market potential for:

- a) siding in Dallas
- b) siding in Denver
- c) furniture components in Los Angeles
- d) siding and panelling in Minneapolis
- e) siding and panelling in Boston

An assessment was also to be obtained, while in each area, of market reactions to each of the three product lines and to finger-jointed lumber, preservative treated lumber, fire retardant treated lumber and machine stress rated lumber (MSR).

It should be noted that the intention of the investigation into the Boston area was more to discover what Eastern Canadian and New England producers were manufacturing in the way of specialties rather than to assess sales opportunities from B.C.

In addition, an overview was required of the North American market to obtain general indications of the potential for the various specialty sawn products that might be available from CLMA mills. During the course of the study, it was also agreed that some time should be devoted specifically to B.C. remanufacturers to identify the level and type of local activity.

The emphasis of the study has been on the markets. Consequently, production capability and the economics of production or distribution have not been considered. It will be the task of individual mills to analyze these relative to their own particular circumstances.

### 3. METHOD

The study was undertaken in four distinct phases.

The first related to generating the necessary data base. This involved an extensive review of statistical reports and published information relevant to North American softwood lumber production and demand in general and, more particularly, to sawn specialties. A questionnaire was also sent to CLMA mills to develop a situation analysis covering the resource base, normal production activity, specialty production and marketing history for specialty items. This was followed by visits to many of the mills to discuss their information in detail.

The second phase related to market identification. Lists were developed of the main sawnwood end-users and consumers of sawn specialties in the selected cities. This information was based on the consultants' trade contacts, directory sources and advice obtained from CLMA mills. An interview framework for each city was developed and an interview schedule established.

The next phase, which was undertaken over a three week period prior to Christmas, 1980, involved field visits in the five cities to a representative selection of the lumber distribution and consuming trade. These visits included contacts with relevant associations and local government authorities. On average, 25 interviews were carried out in each city and a selection of samples of lodgepole pine and spruce specialty items was utilized to obtain trade reaction.

The fourth phase of the study was devoted to analysis of the field work results and to generation of the necessary information for the North American overview of each specialty product area.



#### 4. THE DEMAND FOR SOFTWOOD LUMBER IN THE U.S. AND CANADA

##### Introduction

The purpose of this chapter is to review North American lumber markets in general. It provides a perspective against which markets for specialty lumber subsequently can be evaluated. Consumption trends in the principal sectors of softwood lumber end use in the U.S. and Canada are reviewed. Each of these is examined in detail and the factors influencing future demand are discussed. Short and long range demand projections are provided and the most attractive growth markets in the U.S. and Canada are identified.

##### 4.1 UNITED STATES

- Residential Construction Sector
- Repairs and Remodelling Sector
- Non-Residential Construction Sector
- Materials Handling/Industrial/Manufacturing Sector

##### 4.2 CANADA

- Residential Construction Sector
- Repairs and Remodelling Sector
- Non-Residential Construction Sector
- Materials Handling/Industrial/Manufacturing Sector

##### SUMMARY

#### 4.1 UNITED STATES

The United States, with a population of around 220 million people in 1980, is Canada's largest market for softwood lumber. U.S. demand accounts for over 60% of total output in a typical year. As a result, consumption changes and trends in the U.S. have a direct impact on the level of lumber production activity in Canada.

Even though demand in the U.S. market is very cyclical, there was an encouraging upward trend in consumption in the 1970's. This is expected to continue in the future. However, there are likely to be further changes in the way softwood lumber is utilized in the U.S. and also some fairly significant shifts in the relative importance of the major end use sectors.

For the decade as a whole, consumption of softwood lumber in the 1970's was significantly higher than in preceding years. Average annual consumption in the 1960's was 31.8 billion board feet. In the 1970's, average annual consumption was nearly 15 per cent higher at around 36.4 billion board feet.

Perhaps the most significant characteristic of the 1970's was the wide cyclical swings in consumption. Table 1 indicates the very sharp variations which occurred. A cycle peak was reached in 1972 when apparent consumption rose to about 39.4 billion board feet. The peak of the next cycle was in 1978 when apparent consumption reached 41.5 billion board feet.

During the low point of the cycle in 1975, softwood lumber consumption fell to around 30.3 billion feet or 23 per cent below the 1972 level. Preliminary estimates indicate that in 1980, which is expected to have been another cyclical low point, apparent consumption was in the region of 32.9 billion board feet.

TABLE 1

United States: Estimates of Softwood Lumber Apparent Consumption  
Billion Board Feet

1970	31.6	1976	35.6
1971	36.3	1977	40.1
1972	39.4	1978	41.5
1973	38.1	1979	38.9
1974	32.2	1980	32.9
1975	30.3		

Source: Woodbridge, Reed Data Base

Lumber use in new residential construction recently has accounted for 35-45 per cent of total consumption. This is the most volatile of all the markets in terms of cyclical variations in consumption. Repair and remodelling uses have accounted for a further 20-23 per cent of total consumption. Consumption for repairs and remodelling purposes tends to be relatively higher when consumption in new housing declines, so one market tends to gain in market share terms at the expense of the others. However, housing related uses, including mobile home production, recently have accounted for 55-65 per cent of overall consumption.

Non-residential construction uses include a variety of private and public sector construction projects. Major uses in this market are for commercial, industrial, public sector buildings, offices, utilities, highway construction, non-residential farm and industrial construction. Softwood lumber consumption in these uses typically varies between 12 and 20 per cent of total consumption.

The materials handling market includes use of lumber for boxes, crates and packaging, wooden pallets and dunnage. In aggregate, these account probably for 11-13 per cent of total consumption of softwood lumber in the U.S. Use of softwood lumber also is fairly significant in remanufacturing, industrial components (excluding mobile homes, trusses and other construction end-use related products), furniture and miscellaneous uses.

These major market sectors are reviewed below:

#### Residential Construction Sector

The close correlation between changes in housing start levels and those in softwood lumber consumption in the U.S. is well known. Substantially higher levels of new residential starts were reached during the 1970's at a time of relatively high rates of household formation associated with the post World War II 'baby-boom'.

Increased rates of population migration to the South, and later towards the West, increased the demand for housing in 'new' geographical areas. Improved levels of affordability in the early 1970's were reversed in the late 1970's. However, the traditional preference for single family dwelling units added further impetus to softwood lumber demand, both in new housing and in home improvement throughout the country.

TABLE 2

U.S. Conventional Housing Starts 1970-1980  
(Thousand Units)

	No.	Percent Singles		No.	Percent Singles
1970	1470	55	1976	1548	75
1971	2084	55	1977	1990	73
1972	2379	55	1978	2023	71
1973	2058	55	1979	1749	68
1974	1353	66	1980 <sub>p</sub>	1291	66
1975	1171	76			

Source: U.S. Department of Commerce  
p = provisional

The most recent peak in new housing starts in the U.S. occurred in 1978. Conventional starts (i.e. excluding mobile homes) were around 2023 thousand units.

Softwood lumber consumption, however, was higher than in 1972 when conventional starts were 2,379 thousand units.

Housing starts in the U.S. rose from around 1.5 million units in 1970 (which was a typical level for the 1960's) to a record high of nearly 2.4 million in 1972. A sharp decline occurred during the following three years and by 1975 annual starts had fallen to less than 1.2 million units. A fairly strong recovery in 1976, 1977 and 1978 resulted in starts regaining the 2 million unit level for 1978. During the subsequent cycle low, likely to have been in 1980, starts fell to just under 1.3 million units.

During this period some of the basic components of consumption shifted in favour of increased softwood lumber usage. Consumption of softwood lumber in conventional new housing construction in the 1970's, for example, was sensitive to changes in four key variables. These were:

1. The total number of starts.
2. The relative proportions of single, two family and multiple units in the total 'mix' of starts.
3. Average dwelling unit size.
4. Lumber consumption per square foot of dwelling space.

There was a higher proportion of single family unit starts in the overall mix in the late 1970's compared with the situation earlier in the decade. Conventional starts in 1973 and 1978, for example, were

approximately the same, at just over two million units. But, whereas single units in 1973 accounted for 55 per cent of the total, by 1978 they accounted for 71 per cent.

Changes took place also in average size of dwellings. A trend towards smaller sized units had been widely forecast earlier in the 1970's as pressures on land supply and so on increased.

In many urban areas, this did take place. However, major additions to the housing stock in areas where these pressures were not so pronounced resulted in an increase in the average size of unit built.

A significant increase in the average size of single-family homes took place in the early 1970's. Average sizes increased from 1,534 square feet in 1971 to 1,673 square feet in 1973, led by a 225 square foot per unit increase in the U.S. South. Following a temporary interruption in 1974 and 1975, growth in the average size resumed in 1976 and exceeded 1,750 square feet by 1978 - a 15 per cent increase from 1971.

Between 1971 and 1978, single family home sizes in the U.S. South increased by 20 per cent, compared with 12 per cent in the North Central region, 10 per cent in the North East and 8 per cent in the West over the same period. Newly constructed multi-family home sizes declined by 15 per cent between 1973 and 1978 (from 1,058 square feet to 897 square feet).

In contrast to the situation in conventional housing starts, growth in mobile home sizes continued fairly steadily through the 1970's. The main factor here was the increased production of double-wides and of larger single-wides. Even though the mobile home industry shipped fewer units in the late 1970's than in the peak year of 1973, this change in size-mix resulted in an increase in average unit size to about 1,054 square feet.

The fourth key variable is that of lumber consumption per square foot of dwelling space. Builder surveys indicate that considerable variation occurred during the 1970's, both on a regional and a local basis. But overall, it appears that softwood lumber usage per square foot of floor area has declined in conventional housing. In mobile homes, on the other hand, it has increased. These trends are expected to continue.

In single family units, substitution of other materials for lumber in roofing, framing, sheathing and sub-flooring increased rapidly in the 1960's. The rate of substitution slowed since and, in framing, lumber successfully withstood competition from non-wood materials during the 1970's. However, changes in construction, particularly a preference for concrete slab construction, reduced the need for lumber in basement areas.

More encouragingly, there have been some recent, albeit tentative, indications of a contrary trend towards increased consumption of

'appearance' lumber, solid wood panelling and siding in single family homes. Acceptance of all weather wood foundations could also provide a significant increase in lumber consumption.

Longer term trend projections to the year 2030 by the USDA/Forest Service (Appendix D, 1) anticipate that overall housing starts will peak during the period 1980-89. In actual numbers, the peak in starts in this period is expected to fall within the range 2.5 - 2.7 million units annually. This is almost 75 per cent higher than in 1980.

The projections anticipate a declining trend in overall starts in the 20 year period following 1990. A moderate recovery is expected in the following ten year period before declining to a range of 1.7 - 2.5 million units annually in the period 2020 to 2029.

Other projections are less optimistic than those of the USDA/Forest Service. They expect new construction to remain at around the levels of the 1970's, averaging between 2.0 and 2.2 million housing units per year for the next four decades.

Key assumptions generally acknowledged in relation to the U.S. housing market for the 1980's are noted below:

- household formation is expected to peak in the second half of the decade
- there will be strong demand for single family homes throughout the decade
- economic conditions are likely to force many home buyers to settle for higher density shelter options
- single family starts are likely to remain close to 60 per cent of total shelter production (conventional housing starts and mobile shipments)
- trend towards increasing average sizes of new single family homes apparent in 1970's is expected to slow and stabilize
- trend towards lower consumption of softwood lumber per dwelling unit is expected to continue but at a slightly slower rate of decline than in 1970's
- major 'new' uses for softwood lumber are expected to remain limited in comparison with the demand for conventional dimension lumber.

In the period 1981-85, the U.S. residential construction market (conventional homes and mobiles) is likely to consume on average about the same amount of lumber annually as it did in the period 1976-80. In volume terms this is likely to be around 16 billion board feet per annum.

Beyond the mid 1980's, declining levels of conventional housing starts are expected to reduce the volume of lumber consumed in this market. Also, while it will remain the most important overall market for softwood lumber, residential construction will decline in relative importance.

It should be noted, however, that there is an underlying trend towards the use of components engineered for specific purposes. Products such as trusses, webbed beam components and so on are proving acceptable to both builders and the building code authorities.

### Repairs and Remodelling Sector

The popularity of remodelling and converting existing buildings increased significantly just prior to the mid 1970's in response to the tightening supply, and rising costs, of new buildings. This trend has continued strongly since then.

While the major market is in residential buildings, remodelling and conversion of non-residential buildings also have become more important.

This growth has been stimulated by factors such as sharp increases in commuting costs which place premiums on office and living space close to urban centres. The comparative cost advantage per square foot of remodelling, as distinct from rebuilding, has become an additional factor recently. It has been facilitated by availability of substandard units for conversion in many areas.

Urban renewal and highway construction programs led to the removal of many residential dwellings in the 1950's and 1960's, to the extent of nearly 700 thousand units per year. But from 1970 to 1977, total replacements declined to an average of 515 thousand units per year because of continued strong housing demand coupled with restricted availability, particularly when new starts were lower during 1974 and 1975. Conversions of existing housing units into two or more units, and conversion of non-residential structures to housing units, have, from time to time, met a substantial part of U.S. housing needs.

During the 1970's, increased remodelling activity created an important market for lumber, plywood and reconstituted wood products in residential housing. It is estimated that approximately 50 percent of renovation and remodelling expenditures in 1978 were accounted for by the do-it-yourself trade (D-I-Y). In addition, this market involved an increasing number of professional tradesmen and building trade specialists.

Softwood lumber used in repairs and remodelling increased by 23 per cent over the period 1974-79.



The contrast between the pattern of lumber consumption in the residential construction market and the repairs and remodelling market is illustrated by the comparison made below, in Table 3. This expresses the volume of consumption in the two markets on an index basis since 1974, for easy comparison.

TABLE 3

Index of Lumber Consumption in Two Major U.S. Market Sectors

Index 1974 = 100

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980 est.</u>
Residential Construction	100	93	121	155	155	132	98
Repairs and Remodelling	100	106	112	114	121	123	119

Source: Woodbridge, Reed Data Base

It is expected that overall consumption of lumber in the repairs and remodelling market should continue to show healthy growth in the 1980's and beyond. While a slight decline is expected in softwood lumber usage per dwelling unit, this is likely to be more than offset by the number of households involved in this activity. In addition, this sector is likely to gain further in importance in relation to other major market sectors.

In the 1980's, net removals from the housing stock are projected to increase only moderately, since demographic pressure on the existing housing stock will remain high. However, it is projected that, in view of the growing number of older units in the total housing stock, there will be an increasing need to replace ageing and less energy-efficient dwelling units. Consequently, conventional removals are likely to rise to a higher annual rate in the 1990's.

Economic factors are expected to continue to provide a major stimulus to lumber demand in the repairs and remodelling market. While the number of households are expected to rise by 1.2 per cent per year between 1980 and the year 2000, real expenditures on repairs and alterations are likely to increase by close to 3 per cent per year. Projections of softwood lumber demand anticipate an average demand volume in the region of 7 billion board feet per year during the period 1981-85, or about 13 per cent higher than in the late 1970's.

### Non-Residential Construction Sector

Recently this sector has recovered some of the market position it lost in the 1970's. Nevertheless, expenditures and lumber consumption are well below the levels achieved in the 1960's. Softwood lumber use in non-residential construction declined significantly in absolute volume terms from 1974 to 1980. Nearly two thirds of the lumber consumed in non-residential construction in the mid 1970's was used in building construction. Much of this was used in connection with concrete forming and other facilitating uses. However, structural uses, such as decking, joists, rafters, beams and pre-fabricated trusses and arches accounted for the largest portion.

Plywood and specialty concrete forming boards in the 1970's appear to have captured some of the predominant market share formerly held by softwood lumber in facilitating and concrete forming uses. In addition, softwood timber consumption in non-residential applications declined as a result of cutbacks in related public sector expenditures. Lumber in this sector was the only product to experience a decline in use per constant dollar over the period 1973 to 1976. Increased expenditures on building construction failed to offset declines in lumber demand for highways and utilities.

Trends in timber products use per dollar of expenditures reflect numerous complex technological and institutional forces, many of which are not easily identified or measured with the data available. U.S.D.A./Forest Service assessments indicate that in addition, many large non-residential buildings and other projects are basically one-of-a-kind structures, differing markedly in design and materials use. Despite these limitations, some general trends can be identified. For example, much of the decline in lumber use per dollar of expenditure during the past two decades appears to have come about because of factors such as increasing use of plywood and metal for concrete forming; substitution of metal studs, joists, and decking; rising use of precast and prestressed concrete beams and other structural members in lieu of onsite forming; and such innovations as slipform and tiltwall construction.

Restrictive codes and other building regulations also have been important, as well as increased urbanization which has to some extent resulted in a tendency toward larger buildings and less use of wood products in this sector.

Countering these trends has been increased use of large structural wood framing members such as beams, trusses and arches in some building types; improvement in the durability of some products; increasing use of wood siding on some small buildings; and increases in interior panelling. Changes in architectural styles, such as the revival of the mansard roof and colonial styles of architecture, also have been important.

Demand for softwood lumber in non-residential construction uses during the 1980's is not expected to recover to the relatively high levels experienced in the late 1960's. It is projected to be in the range of 5.0 to 5.2 billion board feet per year. This is nevertheless above the relatively low average level of 4.4 billion board feet experienced in the late 1970's. Longer term projections for the 1990's and beyond anticipate further growth. By the early 1990's, average annual demand levels are expected to exceed the relatively buoyant levels of the late 1960's.

Key assumptions underlying this forecast are:

- The major population shifts to the U.S. South and West, which spurred new infrastructural and non-residential construction expenditures during the 1960's and early 1970's, are unlikely to be repeated at anything like the same magnitude.
- There is a very low probability of any new non-residential construction boom, similar to the late 1960's, in areas such as schools and colleges. This increase occurred in response to peak levels of enrolment following the earlier 'baby boom'.
- Investment in industrial and commercial construction is unlikely to increase dramatically due to relatively low growth in the national economy. There will, however, be growth in the overall level of building activity in this sector in selected regions.

#### Materials Handling/Industrial/Manufacturing Sector

As noted earlier, this market sector comprises a wide grouping of end-uses for softwood lumber ranging from re-manufacturing, industrial applications and furniture to pallets, containers and dunnage. As a result, actual volumes and growth in demand are difficult to estimate.

The overall market probably consumed, on average, close to 12 billion board feet per year of softwood lumber during the late 1970's. Within this overall sector, the materials handling market alone is likely to have accounted for between 10 per cent - 13 per cent of total softwood lumber consumption in the U.S. in recent years.

Consumption in industrial and re-manufacturing tends to follow fairly closely the aggregate movement of industrial production in the economy. In the field of furniture and fixtures production, the consumption of softwood lumber is influenced by factors such as overall new housing activity and changes in disposable incomes, comparative costs of alternatives to solid wood and changes in consumer preferences. Consumption in materials handling uses reflects overall levels of economic activity and shipping volumes.

Although consumption in these various uses fluctuates from period to period, overall consumption for the sector has grown fairly steadily in volume terms. Average consumption in industrial uses grew from around 10 billion board feet per year in the period 1976-80. Consumption in this sector is considerably less volatile than in housing-related uses.

Projections indicate that the industrial market will be the largest growth sector of the future for the softwood lumber industry. It is predicted that, while lumber consumption on residential markets declines, industrial usage will continue to climb in line with overall economic growth. Technological changes and product substitution are expected to result in a slower rate of growth in consumption than in the past. Nevertheless, growth in industrial demand will exceed growth rates in all other markets.

It is predicted that, during the first half of the 1980's, industrial uses will consume more softwood lumber than the single family housing sector. In doing so, the industrial sector will become the largest end-user market for lumber.

4.2 CANADA

Consumption of softwood lumber in Canada during the 1970's averaged about 5 billion board feet per year, compared with an average of around 36 billion board feet in the U.S. Although Canada's domestic market appears to be small in relation to the U.S., it nevertheless accounts for over 30 per cent of Canada's softwood lumber production and is by far the most important market apart from the U.S.

There are a number of significant differences between the two markets. Per capita consumption of softwood lumber in Canada is higher and overall consumption is more stable than in the U.S. Housing related uses do not account for as big a share of total consumption in Canada. Also, the outlook is for a stronger rate of growth in future consumption than in the U.S., at least in the early 1980's.

During the 1970's, consumption of softwood lumber in Canada, as in the U.S., was significantly higher than in the previous decade. Some of the same types of factors contributed to this. These included high levels of household formation as a sequel of the earlier 'baby boom' population increase; significantly higher public expenditures on schools, community buildings and infrastructure; growth in the repairs and remodelling market and higher levels of industrial demand for lumber.

Estimates of apparent consumption of softwood lumber in Canada since 1970 are shown in Table 4.

TABLE 4

<u>Canada: Estimates of Softwood Lumber Apparent Consumption</u>			
<u>Billion Board Feet</u>			
1970	3.5	1976	5.6
1971	4.4	1977	5.3
1972	4.5	1978	5.7
1973	4.7	1979	5.3
1974	4.8	1980	5.4
1975	5.0		

Source: Woodbridge, Reed Data Base

From a level of 3.5 billion board feet in 1970, consumption increased each year until 1976 when it reached a level of 5.6 billion board feet. This represented a very fast rate of consumption growth averaging 8 per cent per year. While lumber use in the U.S. also increased rapidly in the early 1970's, the trend continued upward in Canada until 1976. This

was in sharp contrast to the major decline experienced in the U.S. market in the mid 1970's. Similarly, following the 1978 lumber cycle peak in both countries, the decline experienced in the U.S. was considerably more dramatic and pronounced than the comparatively mild downturn which occurred in the Canadian market. A comparison of consumption of the two markets, which illustrates this contrast, is provided in Table 5.

TABLE 5

Comparison of Softwood Lumber Consumption - Canada and U.S.  
Index 1970 = 100

	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Canada	100	126	129	134	137	143	160	151	163	151	154
United States	100	115	125	121	102	96	113	127	131	123	104

Source: Previous tables

Reasons for the difference between softwood lumber consumption patterns in Canada and the U.S. during the 1970's include:

- Housing and housing related (i.e. home improvements) markets in Canada accounted for a smaller share of total use and had less impact on overall consumption than in the U.S.
- The U.S. softwood lumber market was more cyclical and directly reflected the greater variations in the economic activity which occurred in the U.S.
- Economic growth was comparatively stable and healthier in Canada in the period 1973-76 following the OPEC 'oil crisis' and subsequent global economic recession.
- Public housing activity and related financing operations continued longer into the 1970 's decade in Canada than in the U.S. However, by the end of the decade, public spending on housing was at a relatively low level in both countries.

These factors are discussed below in the context of consumption trends and demand projections for each of the four individual major market sectors in Canada.

### Residential Construction Sector

Estimates suggest that the residential construction sector in the late 1970's accounted for about 30 per cent of total softwood lumber consumption in Canada. This compares with an estimate of about 40 per cent for the equivalent market in the U.S.

While there were some major similarities between demographic factors at work during the 1970's in Canada and the U.S., there were also some important differences. In both cases, they had an important impact on the level, and types, of residential housing demand. The movement in the U.S. of population to the South and later to the West already has been mentioned. There was a similar westward net migratory trend also in Canada. In both countries, the age structure of the population emphasized groups in the household formation categories. Two income families, especially within these groups, were an important demand factor in both cases.

An additional factor in Canada was immigration. Net immigration, particularly of persons in the household formation categories, had a significant stimulative effect on housing demand. However, by the mid to the late 1970's, lower limits on the number of immigrants permitted to enter Canada resulted in this factor becoming much less significant.

Housing starts in Canada rose from around 191 thousand units in 1970 to a peak of 273 thousand in 1976. In subsequent years, they fell progressively to a level of just over 158 thousand units in 1980, the lowest level since 1966. Housing starts data are summarized in Table 6.

TABLE 6

#### Canada: Conventional Housing Starts 1970-80 (Thousand Units)

	No.	Percent Singles		No.	Percent Singles
1970	190.5	37	1976	273.2	49
1971	233.7	42	1977	245.7	44
1972	249.9	46	1978	227.7	48
1973	268.5	49	1979	197.1	55
1974	222.1	55	1980	158.6	55
1975	231.5	54			

Source: Canada Mortgage and Housing Corporation



Apart from changes in the level of housing starts, softwood lumber consumption in this sector in Canada during the 1970's also was sensitive to the following factors:

- The relative proportions of single detached, semi-detached and duplex, row and apartment units in the total 'mix' of starts.
- Average dwelling unit size.
- Lumber consumption per square foot of dwelling space.

In the 1970's there was a trend towards a higher proportion of single family detached housing units within the total 'mix' of starts in Canada. Experience in Canada, in this respect, was similar to that of the U.S. during the same period. However, there also was a noticeable shift in the 'mix' with regard to housing other than single family units. Row and duplex housing increased in significance.

Changes also took place in the average size of dwellings. Average sizes, particularly in single family units, are about 25 per cent greater in the U.S. than in Canada. Many of the single family units built in Canada in the early 1970's were about 1200 square feet in size. By 1980, the typical unit built averaged over 1400 square feet, a rate of increase, very similar to that in the U.S., of about 15 per cent. Increases occurred also in the average sizes of two family homes, row houses and multi-family units. Lumber consumption per square foot of dwelling fluctuated during the decade but the longer term overall pattern remains one of decline.

While softwood lumber consumption in the U.S. during the 1970's was very sensitive to the level of activity in the housing markets, the sensitivity of the Canadian market was considerably less dramatic. The lower significance of housing market activity in Canada becomes apparent from the fact that even though 1980 housing starts were 17 per cent lower than in 1970, total consumption of softwood lumber was about 50 per cent higher.

The outlook for lumber consumption in residential construction over the period 1981-85 is comparatively optimistic. The key element, of course, will be the level of housing starts. Fundamental factors, such as record levels of household formation, are in favour of a considerable recovery from recent very low 1980 levels. Projections of housing starts made in late 1980/early 1981 vary quite extensively according to assumptions about overall economic activity and future prospects in the Canadian economy. Almost without exception, however, these projections anticipate that actual demand will fall well short of its potential.

Housing start projections for Canada over the period 1981 to 1985 are summarized in Table 7 following.

TABLE 7

Projections of Housing Starts in Canada  
Thousands of Units (rounded)

1980	159 actual	1983	180-240
1981	180-190	1984	175-235
1982	190-225	1985	160-215

Source: Woodbridge, Reed Data Base

During the early 1980's, probably towards 1983, a peak in housing starts is expected in Canada. Even so, during this peak period, housing starts, at best, are still projected to fall below previous peak levels achieved in 1972/73 and 1976/77. Over the long term, the trend is expected to continue downwards. The 'mix' of units is expected to continue to reflect a preference for single family dwelling units. Multi-family units construction is likely to account for a moderately lower proportion of total activity. The recent strength in row and duplex housing is expected to be maintained.

Repairs and Remodelling Sector

The residential repairs and remodelling sector has been a major growth area in housing over the past few years. Nationally, it is estimated that the home improvements, repairs and renovation and do-it-yourself market overall (including non-building materials) involves annual expenditures in the range \$4 - 6 billion. The favourable growth rate in real expenditures in this market has made it a relatively stable and attractive market for softwood lumber.

Recent estimates for the Canadian market indicate that, in 1980, the residential renovation market became the second largest market for lumber, accounting for about a quarter of total consumption.

Non-residential renovation expenditures, although smaller in absolute terms, also have grown recently, at a similar rate. Activity has concentrated on older buildings in central locations in downtown areas. In most cases, renovation of older buildings is as costly as new construction but frequently requires less than half the lead time. It is a trend which is expected to continue.

From the point of view of lumber consumption, the residential renovation market is of considerable importance. Canada has an existing housing stock of over 8 million units of which, it is estimated, about 1.5 million units, or close to 20 per cent, are over 50 years old. So in provinces such as Ontario, where the bulk of Canada's older housing stock is located and where household growth is expected to be very strong over the next few years, renovation and lumber market prospects are expected to be favourable.

Throughout Canada, higher energy and transportation costs are encouraging a return to downtown living and families are more inclined to upgrade than move. Consequently, the residential renovation market is expected to continue to grow in real expenditure terms.

#### Non-residential Construction

Real expenditures by businesses, governments and utilities on non-residential construction fluctuated considerably during the 1970's. Private sector expenditures in many regions have been more buoyant than those of the public sector, which reflects closer constraints on government budgets than occurred in the early to mid 1970's. In addition, few of the major public sector resource development, hydro and infrastructural expenditures of the type undertaken in the mid 1970's have been repeated. More emphasis in the current pattern of expenditures now is being placed on provincial and municipal projects.

It is estimated that the non-residential construction sector recently has accounted for between one-fifth and one-quarter of Canadian softwood lumber consumption. The rate of growth in lumber consumption in the sector slowed and remained fairly stable during the late 1970's in response to the lower levels of economic activity and non-residential expenditures.

Overall the sector is likely to remain as a moderate growth market for lumber. In some regions, energy related developments are likely to result in comparatively high levels of demand. Consumption in Canada overall is expected to rise in absolute terms from recent levels and probably will maintain its current share of the overall market.

#### Materials Handling/Industrial/Manufacturing Sector

This sector comprises a wide grouping of end uses for softwood lumber ranging from pallets, containers and other materials handling uses to industrial and re-manufacturing applications. The overall level of economic activity, particularly in commodity and merchandise trade, is an important determinant of softwood lumber demand in shipping and transportation. During the 1970's, this area of softwood lumber demand was relatively buoyant, reflecting Canada's high level of exports and inter-regional trade, and the cost competitiveness, in the late 1970's, of many of the major commodities it produced.

Consumption in industrial and re-manufacturing applications also tends to reflect fairly closely the overall movement of industrial production in the economy. Markets for lumber in this area comprise a wide range of further processing and specialty trades often consuming both hardwood and softwood lumber. In addition, some proportion of the output of the various millwork and pre-fabricated component industries finds its way

back into domestic construction activities. But there is a growing volume of lumber consumed in industries which are independent of cycles in construction markets.

Estimates suggest that the materials handling/ industrial/ manufacturing sector as a whole accounted for about 20 percent of softwood lumber consumed in Canada in the late 1970's. There were considerable variations in volumes of softwood lumber consumed in the various end uses within the sector. Overall, however, consumption grew steadily throughout most of the 1970's and this was one of the most rapidly growing markets. Along with increased demand for some composite panel products, there was also a rise in consumption of softwood lumber in furniture and fittings and manufacturing.

The outlook for the sector is comparatively optimistic. Industrial and re-manufacturing uses are expected to expand in the 1980's serving domestic and, increasingly, export markets. Demand for softwood lumber in materials handling may tend to become more price sensitive and increased use of hardwood alternatives is likely. There will, however, be further additional scope for the production of specialty products particularly at the re-manufacturing level as secondary processing expands.

SUMMARY- U.S. MarketsThe 1980's

Softwood lumber demand in the U.S. during the 1980's is likely to be significantly higher than in the 1970's.

For the period 1981-85 (roughly equivalent to a full demand cycle), projections anticipate a strong rate of demand recovery over the average level of consumption experienced in the period 1976-80. It is anticipated that softwood lumber consumption in the first half of the 1980's will grow on average by just over 1.7 per cent per annum. Demand in the late 1980's and beyond is expected to continue to grow, but at a lower rate of increase.

For the period 1981-85, the materials handling/industrial/manufacturing market sector is projected to experience the most rapid growth. The repairs and remodelling and non-residential construction sectors are expected to grow somewhat less rapidly, and at a similar rate. Comparing the late 1970's with the early 1980's, the residential construction market is expected to grow less rapidly. However, because of significant variations in housing from year to year, the residential construction market can be expected to vary significantly from the overall trend.

The 1990's

A moderate increase in softwood lumber demand is anticipated for the 1990's. Within this overall forecast, growth is expected to be most pronounced in non-residential construction, repairs and alterations and industrial markets.

- Canadian MarketsThe 1980's

In the early 1980's, softwood lumber consumption in Canada is expected to increase on average by close to 2.5 per cent per year over the levels experienced in the late 1970's. This implies a greater overall volume of consumption but a lower average rate of growth.

Higher levels of softwood lumber consumption in the new housing market sector are expected following a fairly strong recovery in single family housing in the early 1980's. As noted earlier, a peak in the new residential construction sector in Canada is probable in this period.

Beyond this relatively buoyant period, the overall trend in housing starts is expected to be downwards. The residential construction sector

is likely to consume less softwood lumber in the late 1980's than it did in the late 1970's. Correspondingly, its share of total consumption in Canada is likely to fall from around 30 per cent currently to around 25 per cent by the late 1980's. This decline is likely to be particularly apparent in the single family market.

Higher consumption levels in the early 1980's are expected in all other sectors. Growth is expected to be most rapid in non-residential and industrial production, although the repairs and alterations market is also projected to be strong, particularly on a regional basis.

### The 1990's

Further growth is expected in these sectors in the late 1980's and early 1990's. However, growth in industrial and manufacturing demand for softwood lumber is likely to exceed demand in the other sectors by quite a wide margin. By the early 1990's, the materials handling, industrial and manufacturing sector is projected to increase its share of total softwood lumber in Canada from around 20 per cent currently to over 30 per cent.

## 5. OUTLOOK FOR SUPPLY OF SOFTWOOD LUMBER

It was shown in the previous chapter that lumber demand in both the U.S. and Canada is likely to increase. In this chapter production trends are discussed together with supply projected from the various regions of U.S. and Canada. Since there is a substantial volume of production in the inland western U.S. of lumber from species similar to those available to the CLMA, specific comments are included regarding this area.

### 5.1 DOUGLAS FIR REGION

In recent years, even before the poor market of 1980, production in this region had been declining (Appendix E, Table 1). Most forecasts predict that this decline will continue until the end of the century. An aspect that could have a significant impact on this decline is the policy regarding log exports. Should exports be restricted, then it appears likely that lumber production levels would increase. However, a reduction of sawlog imports into Japan is likely to increase the Japanese demand for lumber imports. Consequently, increased U.S. production could be destined to meet this increased demand and might have little impact on supply available for U.S. needs.

The movement from an old growth timber base to a second growth forest economy in this region will accelerate between 1980 and 2000. Consequently, it is predicted that the volume of sawlog material in the annual harvest will decline while the pulpwood content will increase.

### 5.2 WESTERN PINE REGION

Under the definitions used by the National Forest Products Association, this is a very large region covering the inland portion of the Pacific states and the Rocky mountain states (Appendix E, Table 1). Softwood lumber production was about 10.5 billion board feet in the highest volume years (1965 and 1973). National forest land in the Rocky mountain region is currently underutilized. Theoretically the potential exists for significant increases in supply. This is discussed later in the section on Western U.S. supply.

### 5.3 SOUTHERN PINE REGION

This region has been regarded as the principal supply source in the U.S. with potential for significant growth. Production levels of softwood lumber from this region have, however, remained relatively static during the 1970's. The USDA in the 1980 review draft "An Analysis of the Timber Situation in the United States 1952-2030" projects that by 1990 there will be a substantial increase from 1976 softwood lumber production levels. It estimates that production will grow from 7.4 billion board



feet to 10.9 billion. Thereafter the USDA foresees a decline. The principal basis for this growth is the assumption that greater volumes will be harvested from land that is owned privately (as opposed to public or forest industry ownership). However, this projection has been subject to much criticism from a number of sources and there appears to be considerable doubt whether softwood lumber production from the South can, in reality, increase to the extent suggested.

#### 5.4 CALIFORNIA REDWOOD AND OTHER U.S. REGIONS

Production from the California Redwood region has been declining slowly for many years (Appendix E, Table 1) and appears likely to continue to do so. In contrast, however, some growth has been evident in production from other regions, particularly in the North East. The volume is relatively small and the projections indicate that no further increase is likely up to 1990, though some additional volumes may be expected thereafter.

#### 5.5 BRITISH COLUMBIA

Production of softwood lumber in B.C. grew rapidly in the early 1970's (Appendix E, Table 2), principally due to B.C. Interior production. A further increase occurred in 1976, when production levels reached 12 billion board feet, and the volume has remained relatively static since that time. Projections regarding future production levels are largely subject to B.C. government policy on harvest. Potential for expansion exists in the short term but the extent to which this will develop depends on the approach taken regarding annual allowable cuts and the use of sawlogs other than for lumber production.

#### 5.6 ALBERTA

Softwood lumber production in Alberta peaked in 1973 (Appendix E, Table 2) and has tended to follow U.S. consumption cycles since that time. There are, however, substantial economic reserves of timber in Alberta that are due to be developed. It is estimated that up to 800 million board feet of additional production could be available from this province by 1990.

#### 5.7 REST OF CANADA

The production of lumber from the provinces east of Alberta has risen dramatically since the mid 1970's (Appendix E, Table 2). The majority of this additional volume has come from Quebec, followed by Ontario. Future projections for softwood lumber production vary by province.

Though some further increases are likely in production from Quebec and Ontario, it is believed to be unlikely these will be as great as those that occurred in recent years. In the Atlantic Provinces, however, no significant increases in production are projected. Though some additional timber reserves exist in Manitoba and Saskatchewan, it is believed that lumber prices will need to increase significantly before these can be developed.

#### 5.8 INLAND WESTERN U.S. SUPPLY

The most direct competition to CLMA mills from U.S. suppliers comes from the Inland Western U.S. mills. They sell a substantial volume of mixed species groups under the general classification of "Whitewoods" (W-W) or "Engelmann spruce/lodgepole pine" (ESLP) in addition to selling individual species.

It has not proved possible to obtain statistics on shipment of these species and species groups that compete with Canadian S-P-F. The WWPA publishes statistics showing a limited breakdown of species (Appendix E, Table 3), but it is known that out of the 4 billion board feet shown for ponderosa pine shipments, a significant volume is sold as W-W. Mills that are cutting second growth ponderosa pine- also known as bull pine - have found that they can get better market acceptance when it is graded and marked as W-W. Some of the earlier production of bull pine was poorly manufactured and dried. As a result, customers had problems with warping and twisting. This gave the species a poor image in some markets.

Production of W-W and so on is available from most of the Western states but the largest producers are Montana and Idaho (Appendix E, Table 4).

On the basis of discussions with the WWPA, which calculates that about 40 per cent of W-W is ponderosa pine, it can be estimated that the U.S. production of lumber that is in a category similar to S-P-F is currently around 2,000 million board feet (this excludes Idaho white pine and mature ponderosa pine). Though this is not large in comparison with Canadian S-P-F production, it is, nevertheless, important to analyze future trends since these mills are also in a position to develop value added specialty products and a proportion of the timber available to them is similar to that available to CLMA mills.

Analysis of U.S. Forest Service data shows that whereas the forest industry owns 4 per cent of the area of commercial timberland in the Rocky Mountains (Appendix E, Table 5) its percentage share of sawtimber removals is currently over 20 per cent (Appendix E, Table 6). The U.S. Forest Service projects that sawtimber supply from forest industry lands will decline but will be compensated by an increase in supply from national forest land by the end of the decade. The Forest Service, however, notes that output of forest products in the region is

comparatively small and the forests of the Rocky Mountains are highly valued for other purposes such as recreation. There is likely, therefore, to be continuing pressure not to allocate the forests to the industry. Furthermore, extraction costs are comparatively high and much of the timber is of relatively low value. Consequently, though sawtimber removals are low as a percentage of timber inventories compared to other regions, it is judged that there will not be any significant increase in harvest.

Supply from the area is therefore likely to remain at current levels.

SUMMARY

The overall outlook for supply of softwood lumber from North America is such that there will be increasing demand pressure on the forest resource. Some increases are expected in supply from the U.S. South and from Alberta, but these are likely to be offset by decreases in availability from the Douglas fir region.

Potential, in terms of forest resource, also exists in the Inland Western region of the U.S., and it is within this area that the predominant species are similar to those available to the CLMA. It is believed, however, that extraction costs and pressures from user groups other than the forest industry are such that no significant increases in lumber production are likely.

## 6. DEMAND TRENDS IN THE U.S. AND CANADA FOR SPECIALTY SAWN PRODUCTS

### Introduction

An analysis was undertaken of the U.S. and Canadian markets for each of nine specialty product types. Since the field work activity in the study was primarily related to five specific cities, the market overview shown in this chapter was based on desk study, analysis of available published data, and telephone contact with large distributors. This was supplemented by discussions with lumber associations such as the Western Wood Products Association.

In the following chapter, each specialty sector is discussed and the market trends detailed. Brief comment is also included on market sectors that are not covered in detail by this report.

- 6.1 SIDINGS
- 6.2 INTERIOR PANELLING
- 6.3 FURNITURE COMPONENTS
- 6.4 FINGER-JOINTED LUMBER
- 6.5 TRUSS STOCK
- 6.6 TREATED LUMBER
- 6.7 PALLET STOCK
- 6.8 HOME CENTRE LUMBER
- 6.9 MOBILE HOME STOCK

### SUMMARY

## 6.1 SIDING

The Western Wood Products Association undertook a study of the market for lumber siding in the U.S. in 1980. Its field offices reported optimistically on the prospects for lumber siding but emphasized the need for a quality product. Apparently they have had considerable problems with resawn spruce and pine sidings and also with resawn green cedar. Though these problems were often caused by incorrect application, nailing and so on, the men in the field were anxious to convey the message that the producer cannot rely on the user to do the right thing. The product must therefore be relatively insensitive to bad handling and application practices.

The current use of lumber sidings in the U.S. is extremely varied from region to region. So also are the species involved. Of the regions not covered specifically in the study by the detailed market reports, the one with the greatest potential appears to be the South East. It is reported that in this general area and, in particular, in the larger cities such as Charlotte, Atlanta and Birmingham, lumber sided homes are the majority. A figure of 80 per cent was quoted as the share of lumber siding for new homes built in Atlanta.

The most popular product is cedar in a bevel pattern, but there is also a variety of patterns in Idaho white pine, ponderosa pine, Eastern white pine and even spruce. Much of this is resawn locally. Lowe's (a major retail chain in eastern U.S.) reported that, as a result of the high cedar prices in 1979, a number of southern yellow pine mills also became involved in the siding market. They found there was a substantial demand for a middle range product between the cheap hardboard lap siding and cedar.

Lowe's also reported that though the widths required in the South East were principally 6 inch and 8 inch, there appeared to be a growing consumer demand for 4 inch siding. They felt that there were some good possibilities for a siding from S-P-F, particularly if the lengths offered could be heavy to 14 ft. and 16 ft. Current acceptable price levels landed Atlanta would need to be in the region of \$300 - \$330 per thousand board feet.

The market share of hardboard siding in the South Atlantic and South East regions is dictated largely by the price for lumber siding. Since the hardboard manufacturers maintain a relatively stable pricing policy, builders change to hardboard when lumber prices increase. Conversely, they change back to lumber when the price differential decreases. The merchandising manager of one large company suggested that the recent rise in lumber siding usage was not a reflection of changing consumer tastes, but a result of prices. He therefore cautioned against the assumption that there was any significant long term trend towards lumber siding.

No statistics are available for the consumption of lumber sidings in the U.S. The most recent work undertaken to identify wood products used in housing was published in 1970 by the Department of Agriculture (Appendix D, 2) based on figures for 1968 and related only to single family detached houses inspected by the Federal Housing Authority (FHA). These figures indicate varied use from region to region. The following table shows the volume of wood siding used per single family house applied to the average annual starts that occurred in each region during the period 1976-1980.

TABLE 8

Estimated Lumber Siding Consumption - U.S.

	<u>Single Family Starts 1976-1980</u> Av. Annual no. of units	<u>Estimated Lumber Siding Used per unit</u> Board Feet	<u>Total Siding Used</u> Thousand board feet
North East	129,000	75	9,675
North Central	277,000	140	38,780
South	518,000	90	46,620
West	307,000	188	<u>57,715</u>
Total			<u>152,790</u>

Source: Woodbridge, Reed data base

Allowing for some volume of use in multi family housing, non residential construction and repairs/alterations, these figures would indicate a total lumber siding consumption level in the U.S. in the region of 200-250 million board feet annually.

This figure is, at best, only a very approximate indication but gives some idea of the order of magnitude of the siding market.

Within Canada, the situation is also extremely varied. According to the latest information published by the CMHC (Appendix D, 3), lumber siding is used for about one third of single family residential construction in B.C. and the Atlantic provinces. The equivalent figure for the Prairies is around 25 per cent and for central Canada less than 10 per cent. Unfortunately, the figures are very dated since the last time any detailed collection of primary data was undertaken was in 1969. It is likely, therefore, that the levels are overstated since they do not allow for the growth, during the 1970's, of both metal and hardboard siding. As in the U.S., it appears from discussions locally that there is some indication of a recent return to lumber siding. This may compensate to some extent for the earlier trend to other products.

Application of the CMHC data to the housing start information published for 1979 produces the following figures for consumption of lumber siding by province in Canada.

TABLE 9  
1979 Siding Consumption in Residential  
Construction in Canada

	Total Housing <u>Starts</u> (no. of units)	Estimated Lumber <u>Siding Consumption</u> (thousand bd. ft.)
B.C.	27,345	7,858
Prairies	57,461	11,537
Ontario	56,887	4,850
Quebec	41,730	3,514
Atlantic	<u>13,626</u>	<u>4,657</u>
<b>Total</b>	<u>197,049</u>	<u>32,416</u>

Source: Appendix E, Table 7

Note: Consumption per unit varies both by province and by type of unit constructed.

In addition to these volumes, some allowance should be made for consumption in non-residential construction and also in the sector of repairs and alterations. This would suggest that the total lumber siding market in Canada is around 50 million feet. As with the figure estimated for the U.S., this level is only shown in order to give some idea of the order of magnitude of the lumber siding market.



## 6.2 INTERIOR PANELLING

The number of options available to the builder or remodeller wishing to finish a wall is substantial and the variety overwhelming. The choice varies from paint to texturing, from wallpaper to solid wood, from 4 x 8 sheets of imitation wood particleboard to expensive walnut veneer plywood. Consequently, though the total size of the market is enormous, there is a great deal of very consumer-oriented competition.

In the early 1970's there was a boom in the use of lauan plywood with a paper overlay simulating a variety of wood grains. At the same time, a number of North American hardboard producers also developed a market, first for printed boards, and then for heavily embossed boards. Lauan plywood then developed an embossed and stained board, and, relatively recently, thin particleboard with a printed surface has also been on the market. These products virtually took over the remodelling market.

There is, however, growing evidence that the consumer is now looking for something better and is no longer happy with imitation wood. This trend is apparent in a number of different regions but appears to be variable within them. Thus, while in Louisiana, Arkansas and some parts of Texas the consumption of solid wood panelling is increasing, the Dallas consumer is still buying 4 x 8 sheets on sale at \$2.99 each. Similarly, though the Riverside/San Bernadino area appears to be enthusiastic about solid wood panelling, the trend in the Los Angeles area is uncertain.

There was a consensus amongst those contacted that a trend to solid wood panelling exists, but the timing of this trend appears to vary considerably. Whereas some areas such as the Midwest U.S. and Western Canada are already consuming the product in increasing quantities, in the South East and to some extent in the North East, plus Eastern Canada, the product is still at the stage of test marketing.

There is also distinct variation in the trends for interior solid wood panelling in terms of species, grade and thickness. Western red cedar and redwood have always maintained a market share in 1 inch panelling in a variety of patterns for both high quality grades and in selected knotty grades. But in addition to these, a number of lighter woods are becoming popular such as ponderosa pine, Idaho white pine and Eastern white pine. There is also an increasing number of packaged, thin, solid wood panelling products in 5/16ths and 3/8ths being marketed in a number of species including, in addition to the ones mentioned above, lodgepole pine, red pine and even aspen.

Specific details of the products being marketed are given in the individual market sections.

The WWPA undertook a study during 1980 on the market for solid wood panelling and concluded that demand was growing, but confirmed that this demand was very site specific, both in terms of intensity and the type of product preferred. Panelling is a consumer product and is therefore not subject just to the normal laws of supply and demand, but also to changing tastes which can vary from one locality to the next.

An explanation that was offered by several companies was that the reasons for the trend related to the housing market. It appears evident that the cost of housing has escalated to such an extent that many people are preferring to upgrade by improving their house rather than by moving to another. This has two effects. The first is to increase the volume of material being used in the remodelling market. The second is that there is increased demand for higher quality products. Since the homeowner intends to stay in the house, he is prepared, for example, to spend \$100 on a feature wall in a quality solid wood panelling rather than \$15 for 5 sheets of imitation wood particleboard.

Volume estimates have been made in the U.S. for the volume of lumber used in the remodelling and repair sectors. These estimates are based on analyses by the Department of Commerce of expenditures in the sectors and indicate that current annual lumber usage is in the region of 6.5 billion board feet. The WWPA believes this is low and estimates the volume at 8 billion board feet. The equivalent estimate for remodelling and repair consumption in Canada, developed by the Forest Policy Project (Appendix D, 4), is 1.3 billion board feet.

These estimates, and in particular the one for Canada, are based on very general indications and do not claim to be substantiated by detailed analysis of products being used. Consequently, there are no data available that would give indications of the volume of panelling involved. It is equally difficult to arrive at an assessment of historical production levels from which to develop projections since no production figures are available on panelling.

A special survey carried out by the Southern Forest Products Association indicates that the total panelling production in the Southern Pine region in recent years has averaged about 25 million board feet per annum. Since southern yellow pine panelling was not found to be a significant factor in the market outside the southern states, this figure is not of much significance. Equally, since production practices in the South are quite different to those in other North American regions, the fact that 0.3 per cent of their production is in panelling does not lead to any indication of activity elsewhere.

An analysis (Appendix D, 2) published by the U.S. Department of Agriculture on wood product consumption in the U.S. in 1968 shows that, on average, only 65 per cent of new housing had wood panelling. This would suggest a current annual consumption of interior solid wood panelling in new single family houses of around 8.5 million board feet. See Appendix E, Table 8 for detailed calculations.

Since interior panelling tends to be utilized more in remodelling than in new housing and since it is a product subject to consumer tastes, it is believed that the above figure, which is developed from the only data available, does not give any indication of what is currently happening in the market.

Similarly, the only data available for Canada is given in a recent publication by the CMHC (Appendix D, 3) but is based on 1969 data for residential construction. According to this information, only B.C. uses a significant volume of solid wood panelling in interior finish and this use is confined to single family and duplex units. Analysis of this data indicates that in B.C. (and therefore Canada) annual consumption of solid wood panelling in new housing is currently 1.5 million board feet. See Appendix E, Table 9 for detailed calculations.

Due to the age of the data and since the majority of interior solid wood panelling use is in the remodelling sector, it is not believed that this gives any true indication of current activity in the market.

Consequently, it has proved impossible to quantify the size of the North American market for solid wood panelling. This could only be done by extensive collection of primary data which is well beyond the scope of this study. Any figure quoted would be based entirely on guesswork and would not have even the most tentative supportive data.

It can be said with reasonable confidence, however, that the market taste is changing and is tending to favour solid wood panelling. More particularly, it appears that an aspect of this change is a preference for lighter woods with character. Consequently, the opportunity for lodgepole pine with sound tight knots appears excellent but will be very site specific.

### 6.3 FURNITURE COMPONENTS

Though furniture is manufactured in all regions of the U.S., the largest concentrations of the industry are found in North Carolina, Virginia and California. With some exceptions, the industry in the other states tends to be small and fragmented, concentrating on local requirements. Based on manufacturers' reported values in 1977, North Carolina accounted for about 33 per cent of the major items of wood furniture, while Virginia and California accounted for about 15 per cent and 7 per cent respectively. In total, all other states shipped the balance of 45 per cent (Appendix E, Table 10).

The major items referred to include:

- wood living room, family room and den furniture
- wood dining room and kitchen furniture (excluding cabinets)
- wood bedroom furniture

The value and volume of softwood lumber consumed in the furniture trade is low compared to the amount of hardwood lumber. According to the U.S. Department of Commerce, (Appendix E, Table 11), the total cost of lumber purchased by the furniture and fixture industry in 1977 was approximately \$950 million. Of this, \$160 million (17 per cent) was spent on softwood lumber and the estimated softwood volume was 770 million board feet.

Detailed analysis of the California market is given under the section on Los Angeles. Discussions were also held with members of the trade in the North Carolina area and it was learnt that, whereas pine furniture was still popular, there appeared to be a trend towards hardwood. The fashion for pioneer-type pine furniture, spurred by the Bicentennial activities, is said to be waning.

This trend, plus the fact that the large manufacturers buy green furniture grade white pine at only \$250-265 per thousand board feet delivered factory, would suggest that the Southeastern U.S. furniture manufacturers do not represent a significant potential market to CLMA producers.

In Canada, the furniture and fixture industry is concentrated in Ontario and Quebec. According to the latest data from Statistics Canada (Appendix E, Table 12), the value of shipments from these two provinces accounts for over 85 per cent of the total for Canada.

The cost of softwood lumber purchased by the industry is small relative to hardwood, even though softwood is utilized to a much greater extent than in the U.S. - 31.5 per cent of total lumber cost against only 17 per cent in the U.S.

The volume of softwood lumber consumed by the Canadian furniture industry would appear to be in the region of 100-125 million board feet. It is

understood, however, from discussions with the industry in central Canada that much of the softwood consumed is in eastern species and it would not appear that the opportunity for furniture components produced from CLMA S-P-F would be very great.

Specific programmes could be developed with individual furniture manufacturers but this would require considerable marketing effort by individual CLMA mills and would be against severe competition from eastern mills.

The quality required by furniture manufacturers could also present a problem to CLMA mills. A study was published in 1978 on the yield of furniture cuttings from various grades of white pine lumber. It was found that when sorting lumber suitable for furniture components, the NELMA grading system was preferable. There was a 3 to 4 per cent increase in average yield and a 25-30 per cent increase in yield of components with sound tight knots.

It is important to realize, therefore, that the way in which a furniture manufacturer looks at grade, and the physical characteristics he regards as relevant, are quite different from the normal NLGA concept. This applies both to the U.S. and Canada.

The most encouraging opportunity in North America for the CLMA appears to be in the Los Angeles area and this is discussed in detail in the section on Los Angeles.

#### 6.4 FINGER-JOINTED LUMBER

Within the general concept of finger-jointing, there are two distinct categories. The first can be described as industrial and the second structural. Under industrial are products such as door stock, moulding stock and fascia boards where the objective is basically knot free lumber. These are very different from the structural category which refers almost entirely to studs since finger-jointed random length lumber has not yet been really accepted in the market in any significant volume. While availability of the longer lengths continues at a reasonable price, it is difficult to see the market for random length finger-jointed lumber increasing significantly. Once this supply becomes restricted and price differentials increase, as in the case of Scandinavia, this situation is likely to change.

For the purposes of this study, only finger-jointed material in the structural category was considered. Finger-jointed spruce boards for trim, fascia and sidings are a possibility from the production point of view but market reactions indicated that it could be some time before such a product would be acceptable to consumers in any volume.

It was found that in the majority of regions finger-jointed studs have not yet gained market acceptance. There is a distrust about the reliability of the joint and this is coupled with the conviction that the product should be much cheaper than a solid stud. This conviction stems from the experience the market had with the introduction of industrial finger-jointed material which was offered at prices well below that of clears.

The main market of real consequence for finger-jointed studs currently is Texas and this market is discussed in detail in the Dallas section of this report. One other area showing promise is the eastern and desert region of California.

The principal and most promotable asset of finger-jointed studs is stability. And it is this quality that is of prime importance to regions with climatic extremes such as Texas. Consequently, other areas that should be potential markets in the future would include Arizona and New Mexico. It might be expected that Phoenix would be a city where finger-jointed studs should be as well accepted as in Dallas.

However, this market has not yet developed to the same extent. The principal reason for this lies in the construction methods used in this city where timber frame has been a relatively recent factor compared to the traditional concrete block.

So far the individual retail buyer has viewed finger-jointed studs with suspicion. Even in the Dallas area, where the product is well accepted

at the builder level, the D-I-Y customer prefers solid studs. A number of retailers commented that it was a matter of consumer education and that they were in the sales business, not the education business. They felt that if manufacturers wanted to sell structural finger-jointed lumber at a retail level, the manufacturers would either have to price the product well below solid studs or make an extensive promotional effort - possibly both.

Due to the wide variation in market attitude towards finger-jointed studs - ranging from overwhelming acceptance by builders in Dallas to almost total rejection in the majority of the U.S. - it is difficult to be other than cautious in projecting the future potential for the product. Growth in the Texas market is likely to be limited to growth in housing activity due to the market penetration already achieved. There appears to be growth potential in some other selected areas, but the ability of the U.S. and Canadian markets to absorb significant capacity increases in finger-jointed stud manufacture seems limited at present. If the producers were able to develop a combined promotional effort to educate the consumer this could change.

The opportunity for a significant market in finger-jointed, and possibly edge-glued long lengths, should be favourable in the long term assuming that construction demand will increase and the availability of large diameter timber, from which to obtain premium lengths of wides, will decrease. There are, however, two negative factors that could influence this potential:

- a) The growth of truss systems. These are already providing alternatives to the builder who needs, for example, an 18 foot span but does not want to pay for 2 x 12. There are also a number of engineered beams of both the box and I type which are being developed and sold.
- b) The economics of finger-jointing. These depend to a great extent on the alternative opportunity value of the material being finger-jointed. This value, in turn, depends on the market for chips, shorts, economy grades and so on. The lowest common denominator of all these is the value of chips.

The majority of forecasts regarding world-wide and North American long term trends indicate an increasing shortage of softwood fibre relative to the demand for paper and paperboard.

The U.S. Forest Service project that by 1990 seventy-five per cent of the fibre demands by the pulp and paper industry in the U.S. will be in the form of roundwood rather than residue, compared to 60 per cent at present. A significant part of the reason for this will be the lack of residue from the wood products industry. Consequently, the value of chips is likely to rise to close to the cost of whole log chipping. The

probability of this occurring is enforced by recent history. When lumber production (and therefore residue) declined in the Pacific North West in 1980, while the pulp and paper demand continued strong, chip prices increased dramatically. Prices went from \$60 per Bone Dry Unit (B.D.U.) to as high as \$140.

The long range indications are that this will be the trend for the future. Therefore, the economics of finger-jointing could be affected adversely by a considerably higher opportunity value for the input material. The implications of this trend will, of course, be very site specific and will depend on the location and situation of each individual mill.



## 6.5 TRUSS STOCK

The truss market in North America represents a very sizeable proportion of softwood lumber consumption - probably over 5 billion board feet. The bulk of this is in the manufacture of roof trusses, though trusses for non-residential construction, for floors and, more recently, for headers are all becoming increasingly apparent in the market. It is estimated that over 70 per cent of roofs in residential construction in the U.S. and Canada are now using a truss system rather than on-site roof construction. The cost of on-site labour, plus increased manufacturing flexibility within the truss component companies, have been the key factors.

Between half and two thirds of the lumber used in truss manufacture is stress graded and the principal dimension used is 2 x 4. The species used vary by region depending on the transportation costs from the supplying areas. In the South, the stress graded southern yellow pine is predominant, whereas, in the North West, Douglas fir is the principal species. During the late 1970's, an increasing volume of lumber graded by machine rather than visually has been entering the market.

The truss manufacturer has to know two basic strength values for the material he uses for his truss in order to design the truss for the span and loadings required by the builder and the local codes. These two values are:

- Fibre Stress, Bending - "f"

This determines the amount of bending stress a piece of lumber can take without breaking when loaded anywhere between supporting points. The figures commonly used in North America, such as 1650f, 1850f and so on, are expressed in pounds per square inch.

- Stiffness - "E"

This determines how much a piece will bend under a given load and is known as the Modulus of Elasticity or "E" value. In North America, the figures used such as 1.5E or 1.8E are expressed in millions of pounds per square inch.

As a result of extensive tests carried out by the many grading and national code authorities, a relationship was developed between the visual grade of a piece of lumber of a particular species and the strength values that the piece would be expected to have.

Though the concept is by no means new, it has only been in recent years that both manufacturers and users have appreciated the value of actually mechanically testing on a machine each piece of lumber in order to determine what the real strength figures are for the particular piece. It is then stamped with the values determined eg. 1650f/1.5E.

Machine stress rated lumber (MSR) has a number of advantages for producer and truss manufacturer. Since the objective of this study is not to promote MSR lumber but simply to identify the potential market, these advantages are not listed but can be summarised as follows:

- the producer can upgrade his dimension lumber. This is of particular interest to the S-P-F producer for whom the assessed value of the visual grade is very low due to some of the very weak species allowed within the S-P-F grouping.
- the truss manufacturer can be sure of the exact capability of every piece of lumber used.

In 1980, there were 16 companies with a total of 24 stress rating machines of various types in the U.S. and Canada. The total MSR production in 1980 is estimated at 400 million board feet. The principal proponents of MSR lumber production are Weyerhaeuser, Simpson, and Pope and Talbot and it is believed that Weyerhaeuser are intending to install MSR machines at almost all their sawmills. They already have 7 and state that another 7 are currently being planned. An additional factor said to be influencing their decision is the aspect of product liability.

Bearing in mind that the potential market is in the region of 3 billion board feet, and is projected to grow, it seems clear that there is a significant opportunity for MSR lumber. Currently, the penetration is less than 15 per cent of the market.

It should be noted, however, that the time spent during this study on the single aspect of trusses was limited since it was only one of many areas to be covered. Therefore, though the overview analysis indicates a very favourable outlook, detailed study is required to ensure that there are no hidden negative influences such as local codes, building inspector prejudices, builder prejudices (he, not the truss manufacturer, is the ultimate consumer), competition from suppliers of visually stress graded lumber, and so on.

At present, the regional development of consumption of MSR lumber is extremely varied. It is partly a function of the location of the supply and partly dependent on policy decisions by individual truss manufacturers. Local interpretation of building codes has also been significant.

In addition to their consumption of stress graded lumber, truss manufacturers also consume a large volume of standard and better, and utility lumber in short lengths for webbing. Conceptually, this appeared to be a possible area of interest for cut-to-size components. The general reaction from truss manufacturers was, however, negative to this concept. They advised that the variation in lengths required for all the many truss designs was too great. Thus, purchasing regular quantities of particular lengths would create substantial inventory problems. Apparently Weyerhaeuser endeavoured to develop a programme on these lines but were unsuccessful.

## 6.6 TREATED LUMBER

There has been a considerable increase recently in the use of preservative treated lumber in the eastern states. A similar trend appears to be evident in Ontario and there are also early signs of increasing utilization of treated lumber in the Mid West region of the U.S.

The bulk of this has been for use in decking, in competition with cedar. When cedar increased in price in 1978/79, retailers started to stock pressure treated lumber as a cheaper alternative. In a number of areas, this proved so successful that even though cedar prices came down they continued to carry, and their customers continued to buy, pressure treated lumber. Extensive promotional and advertising campaigns by companies like Koppers have been responsible for the demand at the consumer level.

The concept of all weather wood foundations has been heavily promoted by various groups including the American Plywood Association (though not the WWPA whose members appear to be unenthusiastic about the concept). Though coding authorities in many regions have accepted the technique, builders have been slow to adopt it, with the exception of some particular regions i.e. the North East and South East U.S. The Prairie market has also proved receptive and Koppers-Hickson in Calgary estimate that in 1980 ten per cent of residential housing starts in the region used treated wood foundations. The principal supply is jack pine from Ontario.

The principal species used generally in the U.S. is southern yellow pine, though in the North East there is some segregation of jack pine and red pine for pressure treatment.

In the west, where treated lumber is of much less significance, the principal species is hemlock.

It is reported by Koppers that the consumption of treated softwood lumber in Ontario is 70-80 million board feet, the bulk of which is from local sawmills. These mills segregate the pine prior to sawing in order to ensure that they do not include any species that are resistant to penetration of the treating salts. Koppers and other trade sources estimate that the total Canadian market for treated softwood lumber and posts is in the region of 125-150 million board feet equivalent.

This is well in excess of the levels estimated by Statistics Canada, whose figures indicate a level in 1978 of 80 million board feet equivalent, including ties. Total softwood tie production in Canada in 1978 was 774,000 which at 38 board feet per tie is equivalent to 23

million board feet. Since the majority of ties are treated, the Statistics Canada level for lumber and posts would be around 60 million board feet. Even after allowing for increases since 1978, it would seem that industry estimates are high.

In their 1980 proceedings, the American Wood Preservers Association indicated that for 1978 the total volume in the U.S. of CCA salt treated lumber and timber was 48.8 million cubic feet. This is equivalent to approximately 700 million board feet depending on the breakdown between lumber and timbers. Discussions with people in the U.S. treatment business indicated that this is far too low a figure and that the total volume for all treated lumber and timber has been close to 1.5 billion board feet per annum in recent years.

Before it is worthwhile for any CLMA mill to consider the opportunity of being involved in the treated lumber market, it will be necessary for the mill to establish whether the lumber produced can be treated to the necessary penetration. Spruce is not allowed in most cases and though lodgepole pine can, in theory, be treated satisfactorily this varies from area to area. Tests would have to be carried out on the production of the particular mill and even then results could vary depending on the stand from which the pine was cut. A variety of incising patterns would also need to be tried in order to see which gives the best penetration. There are a number of facilities, including Forintek, that would be capable of undertaking this type of analysis.

If the mill is able to segregate the species within the S-P-F grouping and if the lodgepole pine lumber produced proves satisfactory, it would appear that a growing market opportunity exists for the sale of treated lumber. Competition will, however, exist from various sources:

- local treatment plants
- southern yellow pine
- Eastern Canadian producers

At present, the areas which are showing the best potential for treated lumber are in regions where the last two have transportation advantages. Furthermore, jack pine and southern yellow pine are easier to treat than lodgepole pine.

If the Mid West and Prairie markets continue to grow these could provide good potential for CLMA mills. As the demand grows, more wholesalers should become interested in carrying inventory of treated lumber and will therefore be able to purchase car load quantities from mills, instead of simply arranging for local treatment of stock items.

## 6.7 PALLET STOCK

The consumption of lumber in the manufacture of pallets in North America accounts for the majority of the lumber used in the packaging and shipping sector. Though over 50 per cent of the lumber consumed tends to be low value domestic hardwoods, there is, nevertheless, a significant volume of softwood lumber in pallets - probably over 2 billion board feet currently.

The pallet manufacturing industry in the U.S. and in Canada is very fragmented with around 3,000 companies in the U.S. and a minimum of 150 in Canada.

Basically two types of pallet are manufactured - reusable and expendable. For the reusable pallets, it is principally hardwood that is utilised, whereas the lowest grades of softwood lumber tend to be used for expendable pallets.

Due to the very fragmented and varied nature of the pallet industry, detailed investigation of the potential for shipping pre-cut pallet stock into Canada and the U.S. was not undertaken. Though some potential may exist, this consuming sector was given a low priority since it appears that the philosophy of most of the pallet manufacturers is to buy the cheapest possible grade of lumber and recover whatever is possible. The best quality recovered goes into reusable pallets, the next into expendable pallets and they find some local requirements which they can satisfy with the rest - tomato stakes, furring strips and so on. Consequently, the opportunity for CLMA mills to obtain a significant market for value added products in the pallet manufacturing industry does not seem good.

## 6.8 HOME CENTRE LUMBER

In addition to the smaller sizes required by bed frame manufacturers and the mobile home industry, there appears to be a significant volume of small section items such as 1 x 2, 1 x 3, 2 x 2 and so on. The generic name used for this type of product is "Home Centre" as it is principally sold at the retail level for furring strips and a large number of general household uses.

It has proved impossible, within the scope of this study, to quantify the volume of this group of product, much of which is being remanufactured in the area of consumption. Most yards and retailers have a volume in stock and advise that regular quantities are moved. The principal problem appears to be that there are no large consumers even though there are a large number of consumers. One wholesaler commented that though he had a regular need, the last thing he wanted was a car load of 1 x 2 which he would then have to re-distribute to about 25 different customers. He therefore preferred to buy small quantities from a local remanufacturer.

It was suggested by a number of wholesalers that the ability of a mill to include some units of 1 x 2 x 8 ft. in a car load of studs would be of real value, particularly if it was bundled in a form suitable for the retail trade. It is reported that a number of Ontario and Quebec sawmills are taking advantage of this. They have installed saws directly behind the planer which can be utilized to produce large volumes of small section lumber on an ad hoc basis. Some U.S. manufacturers such as Chandler in Idaho and Weyerhaeuser in Spokane have also entered this market with plants specifically designed to purchase regular sawmill production and remanufacture it into these smaller sizes.

The ability of any individual mill in the CLMA to undertake this type of activity depends, apart from economics, production flow, etc., on the type of business being done. If the mill is largely dealing with wholesalers concentrating on the building trade, then availability of home centre lumber is unlikely to be of interest. If, however, significant car load volumes are going to large chain outlets such as Wickes, Handy Dan, Lowe's and so on, then the potential for remanufacture would appear to exist. The competition would be the local remanufacturer who may often already be a customer of the mill and whose costs tend to be very low.

Marketing and distributing this type of product present particular problems. Commodity products, though being consumed by a very large number of people, are in large volumes of standard grades and sizes. On the other hand, non-standard specialty items such as MSR lumber or furniture components go to relatively few customers and products such as panelling can be promoted. In contrast, 1 x 2 furring strips are consumed by a large number of people each using a relatively small volume. Therefore, though the aggregate quantity is substantial, it is difficult to organize distribution from large producing units a long distance from the consuming area.

## 6.9 MOBILE HOME STOCK

Mobile home production in the U.S. peaked in the early 1970's at 576,000 units in 1972. Production fell drastically in 1975 to only 213,000 but there has been a recovery to an average of around 260,000 units per year during the period 1976-1980. Around half of the production is in the South and, for the balance, Indiana and California are the most important producing states.

During the period 1976-80, it is estimated by the Forest Policy Project (Appendix D, 4) that softwood lumber consumption in the U.S. mobile home industry was around 760 million board feet or 2 per cent of total U.S. softwood lumber consumption.

This estimate is based on the data regarding the use of wood in mobile homes which was collected by the U.S. Forest Service and published in 1978. (Appendix D, 5)

Many of the manufacturers are using S-P-F and CLMA mills are already supplying the industry with the sizes required. Since the mobile home trade is well known to CLMA mills, no time was spent on this market sector.

## SUMMARY

1. The use of lumber siding has been growing in recent years. A potential market exists for S-P-F siding, particularly if cedar prices rise to substantially above those for S-P-F. The potential is very variable from region to region.
2. The use of solid wood panelling is also increasing. There are a large number of competitive products but there is a definite potential for S-P-F panelling - particularly in lodgepole pine. Consumer tastes vary substantially within relatively small distances.
3. The potential market for furniture components or furniture grades appears to be limited to the Los Angeles area.
4. The acceptance of finger-jointed structural lumber is relatively limited in the U.S. and Canada. It currently appears only to be highly regarded in Texas and in some parts of California. Wider market penetration will depend on promotion, price and, possibly in the long term, restricted availability of solid lumber.
5. A substantial market appears to exist for MSR lumber for truss manufacture. Penetration of this market will depend on consumer education. There does not appear to be a potential for the sale of cut-to-size webbing components.
6. The use of treated lumber has been increasing rapidly in recent years. The potential for S-P-F will depend on the availability of lumber that can be treated to the necessary specifications.
7. A substantial volume of home centre lumber is utilised in the U.S. and Canada. The potential for sales of this type of remanufactured product by CLMA mills will depend largely on the development of suitable distribution channels.



## 7. MARKET ANALYSIS OF FIVE SELECTED CITIES IN THE U.S.

### Introduction

The results of the field trips to each of the cities, or metropolitan complexes, are presented in a standard format, with the exception of Boston. General information on population, economy, housing activity and the lumber trade is followed by specific analysis of the activity in the construction market, the retail market and the furniture industry. This analysis indicates the types of specialty products currently being used and an assessment is made of the potential S-P-F. Principal conclusions are presented at the end of each section.

Lists of the companies and associations contacted are shown in Appendix A.

- 7.1 DALLAS
- 7.2 DENVER
- 7.3 LOS ANGELES
- 7.4 MINNEAPOLIS
- 7.5 BOSTON

## 7.1 MARKET ANALYSIS - DALLAS

### Background

#### Construction Market

- profile of activity
- exterior cladding
- interior panelling
- trusses
- finger-jointed material
- preservative treated lumber
- fire retardant treated lumber

#### Retail Market

- sidings
- interior panelling
- finger-jointed material

#### Furniture Industry

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Background

Though Dallas itself has a population of under one million, the population of the metropolitan complex including Fort Worth and the newly developing areas such as Plano amounts to close to three million. The area studied and discussed in this section was the whole metro area and not just that of Dallas.

The economy of Dallas/Fort Worth is considerably better than that of the U.S. overall, with unemployment figures well below the national average despite continuing in-migration of work force. 1980 housing starts were, however, well below those for the previous two years and the major effect was felt in multi-family units. The housing start figures published by the NAHB for Dallas/Fort Worth for the past six years are as follows:

TABLE 10Housing Starts - Dallas/Fort Worth

	<u>Single Family</u>	<u>Multi-Family</u>	<u>Total</u>
1974	20,182	10,471	22,653
1975	11,800	4,363	16,163
1976	16,142	7,329	23,471
1977	23,300	18,956	42,256
1978	26,480	20,950	47,430
1979	25,699	20,080	45,779
1980(e)	20,080	10,200	30,280

Source: NAHB Economic News Notes

It does not seem, however, that this 34 per cent reduction in housing in 1980 has been directly reflected by a similar drop in the volume of lumber consumption. The consensus of those contacted in the lumber trade was that 1980 volume would be only around 15 per cent off that of 1979. The main reason for this appears to have been the growth of the repair, renovation and D-I-Y business which previously had tended to be less than the national average since the activity in Dallas was one of boom and expansion.

There has also been a significant change in recent years in the acceptance of S-P-F and the U.S. equivalent - whitewoods (W-W). Whereas in the mid-1970's these species groups amounted to only 10 per cent of the market, they now account for almost 20 per cent. Southern yellow pine has maintained market share and it has been other western species, such as Douglas fir, that have lost their position in the market.

No statistics are available for the amount of lumber consumed in the Dallas area. Discussion with the trade and analysis of the distribution figures from the major producing areas indicate that the 1979 level of consumption is in the region of 650-750 million board feet.

The trade structure in Dallas is surprisingly rigid given the expansionist, entrepreneurial atmosphere of the Dallas economy. There are a number of large wholesalers who buy from mills and sell strictly to retailers, who in turn sell to the construction and D-I-Y trades. It was with some resentment, however, that the wholesalers advised that whereas they did not sell to contractors, the retailers often went direct to mills. With the current emphasis on minimum inventories, due to high interest rates, this short circuiting of the system is presently of relatively minor significance.

Apart from southern yellow pine, the major part of the lumber is transported to Texas by rail. Buyers tend to prefer shipment by truck and are prepared to pay up to \$15 more for the convenience and the smaller quantity. The principal limitation, at present, appears to be a shortage of trucks.

## Construction Market

### - Profile of Activity

Statistics on historical activity in the residential construction market were shown earlier. Analysis of these statistics shows that the average level of house construction activity, on a per capita basis, in the Dallas area has been twice that of the U.S.

In single family starts particularly, the market is dominated by 3 or 4 major companies who develop large tracts of land, producing 'instant' communities often with shopping centre complexes and all the necessary infrastructure for living. These companies account for 60 - 70 per cent of the market and the largest of them is Fox & Jacobs which built 5000 single family houses in Dallas in 1979. All construction by this company is based on prefabrication of wall sections which are then shipped to the site for erection in a number of different configurations. The company purchases from wholesalers on a fixed price annual basis and was one of the first companies to appreciate the benefits of the S-P-F species group. It is also heavily committed to the use of finger-jointed studs since stability is of prime importance in prefabrication.

The other major companies adopt a combination of prefabricated and stick-built systems, though all roofs are constructed on a truss basis. Some companies have their own wall component fabrication while others purchase from a number of companies such as Barns Truss which manufacture both trusses and wall components.

The balance of the single family construction is undertaken by many, relatively small, custom home builders who tend to be considerably more flexible in the type of materials used depending largely on the price level of the house being built.

Whereas some years ago the bulk of multi-family starts was in high rise apartments, the present trend is towards row housing and garden type condominiums. There are a large number of construction companies involved and they are the same group of companies that handle much of the non-residential activity in shopping centres, light industrial complexes and so on.

### - Exterior Cladding

The building regulations in each municipality within the Dallas/Fort Worth metropolitan complex vary. In all of them, however, the exterior cladding of a residential unit must have a proportion of brick. In some cases, this proportion is 60 per cent, which automatically eliminates a significant part of the market potentially available for spruce siding. Since the large tract builders are essentially committed to hardboard

siding of the 'Masonite' type, it is clear that currently the total of the market for lumber sidings is a relatively small part of the total exterior cladding.

At present, the majority of any lumber siding being used is either cedar or redwood and is for high priced custom built homes. When cedar prices rose sharply in 1978, and the housing market was very strong, a number of opportunistic operators, often remanufacturers, started offering spruce siding. Unfortunately, much of this was produced from 2-inch stock, that had been subjected to the normal rapid kiln cycle, and did not perform well on site. Cupping, twisting and end splits were the worst problems caused by the very extreme climatic conditions that exist in Dallas.

With the housing market and cedar prices both currently at relatively low levels, the volume of spruce siding in the market at present is small. Few yards stock the product and, if a builder specifically demands it, the wholesaler will either place an order with a mill or arrange for one of the local remanufacturers to produce the necessary volume. It was difficult to obtain any reliable idea of volumes since the demand was so sporadic and job specific; the best estimate was that between 2 and 4 million board feet of spruce siding would have been used in the Dallas metro area in 1980. The bulk of this would be in 1 x 8 channel siding.

Hardboard siding is predominant due to its price. On the other hand, in cases where quality housing is being built, the purchaser often is prepared to pay a few hundred dollars more in order to have redwood or cedar siding. Since spruce can neither compete in price with hardboard nor in quality with redwood and cedar, a number of wholesalers were extremely negative about the prospects of significant volumes of spruce sidings in the market.

A more positive approach was taken by a few wholesalers and supported, in concept, by some builders interviewed. They felt that there was an excellent opportunity for a product that could offer a compromise between the two extremes of material that are currently available. They insisted, however, that a quality, sound tight knotted product was required, i.e. no cupping, etc., and felt that a significant amount of promotion would also be needed to overcome the poor image that spruce siding holds at present. Though some builders advised that they would want the spruce siding weather-proofed prior to application, the wholesalers suggested that it would be better to do this locally, as required, rather than at the mill.

The companies that were involved in the spruce siding market, such as Moses & Cline, advised that there was no constant relationship of any sort between the prices of S-P-F dimension and that of spruce siding. Since the number of producers and the demand were both somewhat limited, small fluctuations in the supply/demand balance for sidings could have effects on prices that were totally unrelated to activity in the

commodity dimension markets. Though this is logically valid relative to the short term, it seems clear that over the long term some relationship must exist. Local remanufacturing costs for 2 x 8 S-P-F into resawn channel 1 x 8 siding were in the region of \$40-\$50 per thousand board feet. Consequently, even if some allowance is made for fall down on grade (and this was reported to be relatively low), it would seem unlikely that spruce siding could consistently command a premium of more than \$40 over 2 x 8. The lower figure is used since local remanufacturing is preferable to the wholesalers or retailer as they can avoid double inventory.

An aspect which could have the effect of improving this premium for an imported siding is quality. Remanufactured 2 x 8's have the tendency to cup when split to 1 inch, whereas if the mill was to produce the siding from lumber dried as 1 inch, or from 2 inch on a modified drying system, then an improved product could be offered which may be saleable at a premium. Wynndel Lumber, for example, produces siding from boards and its product is well regarded in the market. Similarly, The Pas Lumber, which also produces a quality product, uses a modified steam cycle for drying 2 inch that is to be split.

#### - Interior Panelling

Very little solid wood panelling is used either at the contractor or D-I-Y level. Where contractors wish to have a quality feature wall, the tendency is to use an ash or birch faced plywood with picture mouldings to give a three dimensional panelling effect. The current fashion is for this to be given a fairly dark stain.

The major part of the feature panelling in cheaper housing was printed particleboard and hardboard or overlaid lauan plywood.

#### - Trusses

It is estimated that over 80 per cent of the roof structures in Dallas use prefabricated trusses. It is only in custom built homes with unusual roof lines, or sometimes where small contractors are involved, that site built roofs are used.

The truss manufacturers tend to use southern yellow pine almost exclusively for their trusses. For the important structural members, the grade used is #1 and #1 dense structural. The latter, in particular, has a very high stress rating which is not always necessary in the design of the truss but the grade is needed for other physical characteristics.

The truss manufacturers appear very interested in the concept of machine stress rated lumber (MSR) which currently is not being used to any

significant extent in the Dallas area. They were a little concerned about whether there would be sufficient availability of S-P-F with ratings of 2100 f and 2400 f. The principal attraction to them, and to industrialised users such as Fox and Jacobs, was the stability of S-P-F relative to southern yellow pine.

There appeared to be little interest in the concept of purchasing cut to length low grade material for webbing. They felt that the number of sizes required was so great that this type of programme would create a costly and unmanageable inventory problem. Furthermore, they found that by the judicious purchase of random length and shorts, they were able to develop a cutting programme that reduced waste to a relatively insignificant factor.

An interesting comment was made regarding packaging by one company that was involved in purchasing 4 ft shorts. They required these to be packaged in 8 ft length bundles using a top and bottom layer of full length lumber.

Truss companies in Dallas already have expanded into floor trusses for multi-family and non-residential building. Current new developments include header trusses for two car garages and the next step is likely to be into headers for picture windows.

Quantification of the market opportunity for MSR lumber in the Dallas area is difficult but, on the basis that roof truss manufacturers use in the region of 70-90 million board feet, then the potential market for MSR lumber could be up to 50 million board feet. As the acceptance of other trusses increases, this volume should grow. However, the competition from the high quality and high strength southern yellow pines currently being used is likely to be severe.

#### - Finger-Jointed Material

Texas, in general, and the Dallas area, in particular, have been the prime consuming areas of all finger-jointed studs produced in North America. The product is well accepted both by the industrial builders and by the general contractors. It has been estimated by the trade in Dallas that 60 to 70 per cent of all studs consumed in the area are now finger-jointed.

Personal observation of yards and building sites suggested that even the 60 per cent estimate seems high for consumption, particularly bearing in mind that the D-I-Y trade is still almost totally solid studs. If it is assumed that, currently, finger-jointed studs account for about half of the stud consumption in the Dallas area, the volume of the finger-jointed stud market would be 40 - 60 million board feet.



It was also stated by members of the trade that 80 per cent of all finger-jointed studs produced in North America are consumed in Texas. Unfortunately, there are no reliable statistics available on finger-jointed stud production and it is difficult even to make a reasonable estimate due to the number of small remanufacturers that produce sporadically.

Discussions with producers in the CLMA area regarding the destination of their shipments supported the feeling that 70 per cent would be a better estimate. There are, however, a number of finger-jointed stud producers in Texas selling locally and this would raise the percentage.

It is important to note that the trade categorised finger-jointed studs into two classes; those jointed before dressing and those that were jointed after dressing and were not further manufactured. Though the performance of both may be similar, the former was highly regarded whereas the latter was considered a doubtful product. It is worth passing on a comment by one major wholesaler who said that he regarded the Pinette & Therrien stud as the "Cadillac of the finger-jointed studs".

The market for random length finger-jointed material has not yet been developed. Some wholesalers advised that they had tried but there seemed to be little interest at the consumer level.

#### - Preservative Treating

The market for treated lumber is small in the Dallas area. Residential construction is effectively all on concrete slab with no basement or even crawl space and therefore the opportunity for the development of preserved wood foundations is negligible. There is a small volume of treated 2 x 4 for bottom plate stock but the bulk of this is treated locally. This is not a market worth considering in depth at this stage.

#### - Fire Retardant

A limited volume of lumber treated with fire retardant is required in some commercial downtown construction. The market is small and treating facilities exist within the area. It is considered that this market is not worth pursuing.

### Retail Market

The importance of the retail trade (or D-I-Y, shoulder trade, and so on), has been growing dramatically over the past few years in Dallas. There are a large number of new, well laid out chain store outlets throughout the area in addition to the older family businesses.

A significant volume of the general construction lumber stocked was S-P-F or W-W and the CLMA stamp was quite often evident. Of particular interest was the volume of 1 x 2 x 8 ft. furring strips being handled. Many of these showed part of a CLMA or COFI S-P-F stamp and had been remanufactured locally from studs. The retail price was around \$180 per thousand higher than 2 x 4 S-P-F studs but similar to the price quoted for 2 x 6 x 8 ft and 1 x 4 x 6 ft. which had been resawn from shorts. Unfortunately retail pricing is not necessarily a reflection of wholesale prices; therefore, these differentials do not give a valid indication of the premiums that can be obtained for remanufactured lumber on a carload basis. It was not possible to obtain either from wholesalers or from retailers any reliable indication of the differential in price that could be expected for this type of product relative to studs.

### - Sidings

The principal wood siding seen at retail yards was southern yellow pine 8 inch pattern 105. This was a profile used extensively some years ago and there is a constant demand for small volumes for replacement and remodelling. Also in evidence were T1-11 4 x 8 panels but this was often for interior, decorative use.

There was a certain amount of 1 x 8 channel siding in cedar but it did not appear that any significant volumes were being moved. Spruce siding seems unknown at the retail level.

It is considered that the retail market does not offer worthwhile potential for spruce siding at this stage.

### - Interior Panelling

The attitude towards panelling at the retail level is similar to that in construction.

In outlets such as the Handy Dan or Payless Cashways chains, the products being promoted were the relatively inexpensive, printed and overlaid 4 x 8 sheets.

Several wholesalers and retailers commented that the average 'week-end wonder' was interested primarily in price and was not expecting to live in his present house for more than the next couple of years. He was

therefore not prepared to allocate any significant part of his disposable income to a quality product such as solid wood panelling. In none of the lumber yards visited was any panelling of this type seen.

It was felt that this might change over the next five years as the Dallas economy becomes more diversified and stable. At that time, a strong promotional effort to persuade the consumer to spend, for example, \$100 on a quality solid wood feature wall rather than \$15 on an imitation may have some chance of success.

- Finger-Jointed Material

In spite of the overwhelming acceptance of finger-jointed studs in the building trade, the D-I-Y trade is not prepared to buy them. The concept has been accepted for clear boards in redwood for fascia, in some joinery stock and door jambs in ponderosa pine and for mouldings. However, this has been forced on the market by the high cost of solid clear lumber together with a lack of availability. The same pressures do not exist in the case of structural lumber and the retail buyer is insufficiently concerned about stability to even consider paying more for a finger-jointed stud.

It is felt that it will be some time before the retail market will have significant potential for finger-jointed studs.

### Furniture Industry

Though the furniture industry is not large in the Dallas area, there are a number of companies involved in the manufacture of bed frames.

The approach taken by these companies is extremely varied. Some, such as Simmons, purchase 1 x 2 and 1 x 4 PET on a consignment basis from a wholesaler who is then responsible for ensuring that Simmons always has on hand its immediate needs. The lengths and widths have to be exactly as needed for the furniture being manufactured since they have no equipment for trimming or otherwise altering the lumber.

At the other end of the spectrum, there are companies such as Leggatt & Platt in Ennis which buy utility and economy grades of dimension and boards and recover the necessary lumber for their operations. Between these two extremes, there is a large number of small operators, some using only 40/50,000 board feet every month or two, whose approach varies from using PET 1 inch lumber to remanufacturing from low grades.

Information obtained from some CLMA mills indicates that this market is already known to them and that specified length component stock is being shipped for use in the bed frame market.

The balance of the furniture market in the Dallas area is of relatively minor significance. It can be seen from Appendix E, Table 11 that whereas almost 9 per cent of the material purchased for mattress and bed frame manufacture in the U.S. is bought in Texas, the remainder of the Texas furniture industry accounts for only 3 per cent of the U.S. activity. This would suggest that the softwood lumber consumption in the Dallas furniture industry, other than bed frame, would certainly be under 10 million board feet and probably less than 5 million board feet.

## Fencing

There is a large fencing trade in Dallas, with pages of fencing contractors listed in the local telephone directory. Though many of these contractors are very small in size, there is a significant number of large companies.

The traditional material used has been cedar but, in recent years, a number of the more competitive companies have started using S-P-F both for pickets and rails.

The pickets tend to be 1 x 4 x 6 ft. with two or three different profiles on the top. Some fencing contractors purchase 2 x 4 shorts and do their own remanufacture, but the majority prefer to purchase 1 inch resawn stock in order to avoid problems with any fall-down.

There was one small to medium size company, Liberty Fence, which purchases about one million board feet a year of S-P-F 2 x 4 x 74 inch from Crown Zellerbach (Canada). It was stated that C-Z production was specifically chosen since a special grade which is 95 per cent spruce (lodgepole pine is not favoured by the fencing business) with no loose knots and limited wane could be purchased. From this product, Liberty Fence claimed that the volume of fall-down was limited to only 1 or 2 per cent. These statements were checked with C-Z (Canada) which confirmed that it sells considerable volumes of S-P-F 6 ft. into Texas for remanufacture into fencing and that there seems to be a strong preference for its product. It was denied, however, that this was a special grade or that there was any guarantee on spruce content. Shipments involve normal stud grade production from C-Z's Kelowna mill and, depending on log input, could have a large proportion of pine.

Liberty Fence also advised that it arranged for the 2 x 4 to be delivered directly to a local remanufacturer for splitting into 1 inch. This costs \$19.50 per thousand board feet for unloading and splitting plus \$5.50 per thousand for transportation to its plant.

This remanufacturing cost was confirmed by other, larger companies which do their own splitting. These companies also suggested that they would be reluctant to buy remanufactured 1 x 4 since their past experience in cedar indicated that all the best pieces were graded out by the mill and sold for different uses.

The potential for 1 x 4 S-P-F in the Texas fencing market appears to be growing. However, the present size of the market is not large and would be unlikely to account for more than 5 - 10 million board feet. Due to the large number of fencing companies, it would be difficult to develop a consistent program of carload lots in competition with the existing remanufacturers. The added value component is not large, the wastage factor appears to be low, and the majority of the fencing companies do not have adequate facilities to handle rail car delivery.

Conclusions - Dallas

1. When cedar prices increase relative to S-P-F, and building activity improves, there is a potential market for up to 10 million board feet of spruce siding in 1 x 8 channel. Promotion and good quality production will be needed to maintain a reasonable share of this market.
2. The Dallas market is not ready for solid wood panelling.
3. There is a substantial bed frame market and this is already known to CLMA mills.
4. Finger-jointed studs are well accepted by builders and have already substantially penetrated the market. Future growth will tend to depend on building activity since further substitution against solid studs will be limited.
5. An excellent opportunity exists for MSR S-P-F lumber in the truss market. S-P-F is already well accepted in the building trade and truss manufacturers are actively interested in the concept of MSR lumber.
6. There is no significant potential for sales of treated lumber from CLMA mills.
7. There is a growing market for S-P-F in fencing but CLMA mills may find that the potential is better for 2 x 4 x 6 ft. rather than 1 x 4.
8. A substantial market exists for home centre lumber, such as 1 x 2, at the retail level but it will be extremely difficult to penetrate in car load volumes from B.C.

## 7.2 MARKET ANALYSIS - DENVER

### Background

#### Construction Market

- profile of activity
- exterior cladding
- interior panelling
- trusses
- fascia and trim
- finger-jointed material
- preservative treated lumber
- fire retardant treated lumber

#### Retail Market

- sidings
- interior panelling

#### Furniture Industry

#### Conclusions

### Background

The Denver/Boulder metropolitan area has a population of close to 1.5 million which represents 55 per cent of the population of the State of Colorado.

The overall economy in the area is very buoyant with an annual net in-migration rate of around 50,000 people. Unemployment is below the national average even though wage rates appear to be somewhat higher. The two principal reasons for the strength of the area are activity in the oil industry and growing employment opportunities in the government sector. Denver is becoming a regional centre for the shale oil expansion in Colorado and Wyoming, and is said to be the largest government centre outside Washington. It is widely believed that the area should continue to expand for at least the next ten years. U.S. government estimates show that the population of Colorado is likely to increase at a rate of around 2 per cent per annum over the next ten years and the majority of this growth is likely to be in Denver.

Housing starts for the Denver/Boulder area are shown in Table 11. They had been growing dramatically during the 1970's although, in 1980, there was a significant decline from earlier levels. It was reported that this was a result of earlier overbuilding and high interest rates. Currently, the inventory of unsold houses is said to be manageable and there is considerable pent up demand. Consequently, starts are expected soon to return to previous levels of around 20,000 units per year.

Table 11

#### Housing Starts - Denver

	<u>Single Family</u>	<u>Multi-Family</u>	<u>Total</u>
1974	7,821	3,403	11,224
1975	8,194	876	9,070
1976	11,505	2,553	14,058
1977	19,311	3,407	22,718
1978	19,258	6,751	26,009
1979	15,853	5,057	20,910
1980(e)	10,214	4,686	14,900

Source: NAHB Economic News Notes

Due to the climatic conditions in the area, the market is essentially for KD lumber with hemfir currently being the principal species group used. Douglas fir/larch, both KD and green, used to be the most important items but have been declining while the use of KD whitewoods (W-W) and S-P-F has been increasing, particularly for studs and plates. At present, an estimated 25 per cent of consumption is in these species with a ratio of 3:1 in favour of shipments from U.S. mills.



Around 10 - 15 per cent of the total volume consumed is cedar and redwood - mainly for fascia, trim, sidings and interior panelling. A significant proportion, probably close to 15 per cent in 1980, of the lumber shipped to Denver is being used in the neighbouring mountain recreation areas such as Keystone, Vail and Aspen. Second home development in these areas is very buoyant and the volume of lumber used is substantial, particularly for decorative purposes, both interior as well as exterior.

This volume, plus an expansion of the D-I-Y market, has meant that lumber consumption in 1980 was only around 15 per cent below 1979 levels despite the much lower level of housing starts. No volume statistics are available but it is estimated, on the basis of figures from producing areas and discussion with the trade, that 350-400 million board feet would have been shipped in 1979 into the Denver/Boulder area.

The trade structure is fairly rigid following the standard distribution pattern of mill/broker to wholesaler to retailer and finally to contractor/industry/D-I-Y and the end user.

There are, however, some exceptions and there are at least two groups of small independent retailers which have formed co-operative buying groups, such as Denver Reserve Supply, that operate as wholesalers on behalf of their members.

A number of comments were made concerning the difficulty and cost of rail shipment from the B.C. Interior. In some instances, the routing is via Winnipeg and Minneapolis which apparently can involve considerable uncertainties on arrival times.

As in Dallas, the trade prefers shipment in truck load lots for which it is prepared to pay a premium of around \$10 per thousand board feet. Availability and cost of trucks from the supplying areas is such, however, that 70 per cent of shipments are by rail.

## Construction Market

### - Profile of Activity

Unlike the situation in Dallas, the housing market in Denver/Boulder is not dominated by relatively few, very large, construction companies. The concept of large tract building creating 'instant' communities with all the associated infrastructure of shipping complexes and so on, is well established but there are a considerable number of companies involved. Even U.S. Home Corporation, a major company in the area, only accounts for less than 5 per cent of the new housing starts.

Though roof trusses are used in over 80 per cent of housing, prefabricated wall sections represent a relatively small part of construction. One of the larger companies, Wood Bros., has a prefabricating plant, but it only uses a component system for a third of its construction and most of the other companies utilize an on-site construction system.

Multi-family starts normally represent only about 25 per cent of starts in the Denver area, in contrast to the Dallas region where they were 45 per cent until 1980.

The building codes in each municipality in the region are based on the Uniform Building Code, though each varies somewhat and they tend to adopt different interpretations. This code is somewhat stricter than those used in the Southern part of the U.S. and the use of grades below #2 and standard is restricted.

### - Exterior Cladding

The exterior cladding traditionally used in Denver was brick, with lumber siding being used in the cheaper houses. This has now changed to hardboard siding with relatively little brick. The tract builders have converted almost entirely to hardboard, while lumber siding is only used on the more expensive custom built homes, plus the second homes in the mountains discussed earlier. Lumber siding also is used for some feature elements in row housing. Some 4 x 8 T1-11 panels are being used but the volume appears to be relatively small. Aluminum siding is not a factor in the market.

The lumber siding being used is mainly cedar in 1 x 8 channel and it is estimated that the volume consumed is in the region of 10 million board feet per year. Current wholesale prices are \$500 - \$520 per thousand board feet FOB yard. On a square foot coverage basis, this equates to \$625 per thousand square feet compared with hardboard siding which can cost as little as \$300 or up to \$500 per thousand square feet for the more expensive, textured and primed product.

A limited volume of spruce siding is evident in the market. The majority appeared to be remanufactured locally or within the U.S. The main proponent of spruce siding, Kaibab, produces this item in its Colorado mill. Kaibab supplements this volume by bringing in around 2 million board feet a year of S-P-F from Canada into its Utah mill for running into channel siding and WP4. Considering that this volume is sold throughout its Rocky Mountain Division (covering Colorado, Wyoming, western Nebraska and Kansas plus part of South Dakota), it does not appear that the influence of spruce siding is very strong.

There are relatively few remanufacturers in the area but one of the principal of these, Reed Mill & Lumber, produces about 6 million board feet of 1 inch panelling and siding. Around one third of this is purchased in 1 x 4 x 6 ft. and 8 ft. S-P-F from ILMA mills which Reed then runs into channel siding and a WP4 pattern. The product is used locally for both interior and exterior applications. The company advised that the local market increasingly was accepting spruce. It now sells over 90 per cent of its production in Colorado, whereas a few years ago 80 per cent was shipped out of state. It claimed to be purchasing a #2/btr. grade from which they graded out 10 per cent prior to running. This limited the fall down to almost zero and allowed the company to make a different product from the cull.

Spruce siding prices at the wholesale level were about \$435 per thousand board feet for 1 x 8 channel, i.e. \$75 less than cedar. Wholesalers advised that the product would have to land at their yards at around \$300 in order to compete.

The views in the Denver trade on the potential for spruce siding were extremely diverse. The majority of wholesalers said they did not handle it and were doubtful of its place in the market since it was neither as inexpensive as hardboard nor a recognised quality product like cedar. One retailer, J.W. Metz which supplies all U.S. Home Company's requirements, went so far as to say that when a builder requested it, they would try to dissuade the builder from using the product. If the builder insisted, Metz would then require a letter from the builder absolving them from any responsibility. Only when this was received would they place an order for the necessary volume with the wholesaler.

Also on the negative side was the statement by a lumber broker, K.V. Lumber, that of its 60 million board feet of annual sales in the area none was in spruce siding. The company stated, however, that it was aware of some small volumes going to retail yards and small builders.

These comments were very different from those made by others, particularly Kaibab. This company claims that it can sell all it can get in spruce siding. It had recently sold a truck load to one of the medium sized tract builders on a trial basis and was optimistic that if this was successful, a considerably expanded market could result.

It is probable that the cause of this wide variation of opinion relates back to the opportunistic production practices referred to earlier in the section on Dallas. Thus, market acceptance is particularly sensitive to quality in the case of spruce siding and, unless it is carefully manufactured to avoid cupping and warping, the product is unacceptable and can quickly develop a bad image. Discussions with builders suggested that if the retailers had a good quality spruce siding available at a reasonable price, there should be a place in the market. They would need convincing on quality.

With such widely varying views on market acceptance, it obviously is extremely difficult to make a sound estimate on the potential volume for spruce siding. On the assumption that residential housing starts are likely to be in the region of 20,000 units per year and that non-residential construction activity continues at current levels, the total square footage of exterior cladding (including an allowance for non-residential construction and recreational developments) is in the region of 40 million sq.ft. This would indicate a potential demand of close to 50 million board feet. Currently cedar has, on present ratings, about a 20 per cent market share of this potential. Spruce probably has less than 5 per cent and the rest is basically hardboard with some brick.

Good quality, well-promoted spruce siding should be able to penetrate this market further. If a 15 per cent share can be obtained, this would indicate 7.5 million board feet market per year.

#### - Interior Panelling

The majority of those contacted felt that there were indications of the beginning of a trend towards solid wood panelling at the contractor level. Though most tract builders still concentrated on inexpensive materials, some were beginning to feature panelled walls in order to attract purchasers. An interesting aspect of this was that contractors appeared to be more interested in one inch panelling than thin solid wood panelling. The reverse side of channel siding or a reversible WP4/WP18 profile appears to be in favour though the market is still so small that it is difficult to identify any distinct consumption pattern.

#### - Trusses

At least 80 per cent of roofs in the area use roof trusses, the majority of which are fabricated locally. Effectively all the local companies use MSR lumber and the principal stress grade is 1650 f. The majority utilise MSR S-P-F from Weyerhaeuser, Pope & Talbot and Simpson, though there is at least one company buying MSR hemfir from a U.S. mill.

The truss companies visited also advised that they had no problem obtaining the volumes they required. It should be borne in mind that their current production is low due to the low level of activity currently in the housing market.

The price paid FOB mill for 1650 f 2 x 4 S-P-F was in the region of \$220-230 per thousand board feet or around \$40 higher than standard and better. The price paid for higher stresses only appeared to be \$10/15 per thousand board feet more.

Due to building regulations in the area, they have to use a standard and better grade for webbing material and many of them purchase 6 ft., rather than random lengths, in order to keep costs down. Though there was concern about the waste factor, there did not appear to be much interest in the concept of purchasing car load quantities of cut-to-length stock for webbing.

The ratio of stress graded wood to webbing in an average truss is about 2 to 1. Therefore, on the basis of 20,000 housing starts per year, the potential demand volume of MSR lumber in the Denver area could be 30 - 40 million board feet per year for roof trusses.

A new trend also evident in the market involves the production of floor trusses. Some companies are already fabricating these and a number of others advised that they intended to develop facilities when the housing market improved. The potential for header trusses did not appear to be recognized as yet. If demand for floor trusses and, later, for headers develops, then the size of the market should increase above the level estimated.

#### - Fascia and Trim

Though one remanufacturer advised that a rough 1 inch board in sound tight knotted grade S-P-F was acceptable for fascia, this was not a view shared by the majority. Most felt that the fascia and trim market still demanded a clear grade, though a finger-jointed, edge glued product was now readily acceptable in ponderosa pine (usually dressed) or cedar/redwood. A surprisingly low figure of \$440 per thousand board feet was quoted for finger-jointed or edge glued 1 x 6 ponderosa pine pre-grooved and primed.

This is unlikely to be a market worth considering until ponderosa pine and cedar prices rise very substantially.

#### - Finger-jointed Material

With very few exceptions, all those contacted were totally negative regarding the potential for finger-jointed studs or random length. There were a few builders who insisted on finger-jointed studs but the majority advised that the product would not sell unless it was offered at a substantial discount to solid studs. One retailer showed in his yard 8 thousand board feet of unsold finger-jointed studs which had been in stock for two years.

The consensus of opinion was that it would be several years before it was even worthwhile trying to educate users on the advantages of stability and so on.

Extremes of atmospheric humidity varying from 90 per cent to 4 per cent over a relatively short time make lumber stability a problem in this market. This is the reason for the past trend to KD products. It seems that builders are not having any significant problems with the lumber they are presently using and it will be difficult to persuade them to change. This is in contrast to the situation in Dallas where users' problems with southern yellow pine made them very receptive to the advantages of a stable product.

- Preservative Treated Lumber

Though the building codes officially accept all weather wood foundations and even though most houses have basements, the Denver market has not yet developed into this technology. The volume of preservative treated wood used in the area is low and can be handled by local plants. The building codes contain provision for the use of treated sill plates but treatment is not required if they are above grade. This market is not worth considering.

- Fire Retardant Treated Lumber

Under some circumstances in commercial buildings, the codes demand non-combustible materials. Current practice is usually to use steel studs though there is some limited demand for treated lumber. The market appears to be too small to be worth pursuing even if steel stud prices increase drastically.

## Retail Market

The retail trade has been growing rapidly and most of the new shopping centres contain one of the large "Home Centre" types of chain outlets. Much of the general construction lumber observed in these stores was S-P-F or W-W. Prices varied considerably and without any apparent logic. For example; 1 x 6 x 6 ft. was selling at 'Mr. Plywood' for \$380 per thousand board feet and at 'Handy Dan' for \$660, whereas 'Mr. Plywood' demanded \$277 per thousand board feet for 1 x 2 x 8 ft. and the price at 'Handy Dan' was only \$226 per thousand board feet. The product was S-P-F and the grades appeared to be the same in all cases. It was not possible to ascertain the prices paid by the retailers for the lumber.

The volume of 1 x 2 x 8 ft. in most stores was large. It is an item that moves steadily throughout the year. Much of it is remanufactured locally, though one wholesaler advised that he purchased from a remanufacturer in Idaho.

### - Sidings

No spruce siding was evident at the retail level. Most of the siding handled was cedar in 1 x 8 channel, though the majority of stores also carried T1-11 4 x 8 for which there was a regular demand for both interior and exterior application. There was also a limited volume of T & G V-joint in cedar and one remanufacturer advised that this pattern was also being sold at retail stores in S-P-F for the interior panelling market.

### - Interior Panelling

There is a strong trend away from the low cost printed and overlaid sheets in favour of more expensive products. Most stores appeared to carry a number of different solid wood panelling products in addition to expensive hardwood face veneer 4 x 8 panels. The following products were observed.

- |       |   |
|-------|---|
| Aspen | <ul style="list-style-type: none"> <li>- 3/8" x 4" and 6" width R/L up to 8 ft in cartons of 64 sq.ft. and 96 sq.ft. of coverage</li> <li>- V-joint T &amp; G on sides and ends</li> <li>- KD to 8-10 per cent</li> <li>- available in natural or 4 different stains</li> <li>- sells at \$0.87 to \$1.03 per sq.ft. for natural or \$0.15 more for stained.</li> </ul> |
| Cedar | <ul style="list-style-type: none"> <li>- 1/8" x 4" veneer strips 1 ft. to 4 ft. in packages of 32 1/2 sq. feet coverage.</li> <li>- sells at \$0.30 per sq.ft. on sale, with a regular price of \$0.45.</li> </ul>  |

- Cedar - 3/16" x 4" 1 ft. to 4 ft. in packages of 32 1/2 sq.ft.  
- sells at \$0.55 per sq.ft.
- Cedar - 3/8" x 4" R/L to 8 ft. V-joint T & G ends and sides in  
packages of 32 sq. ft.  
- Sells at \$1.10 per sq. ft.
- Cedar - rough sawn 3/16" x 4" 1 ft. to 4 ft. square edged in  
packages of 32 sq.ft.  
- sells at \$0.37 per sq.ft.  
- This was also said to be available in redwood, blue pine  
and alder.
- 'Knotty'  
Cedar - 3/8" x 4" R/L to 8 ft. T & G on sides but not ends in  
packages of 31 1/2 sq.ft.  
- sells at \$0.77 on sale.
- Cedar (from - 5/16" x 6" R/L to 8 ft. T & G on sides in packages of  
Gregory) 23 sq.ft.  
- sells at \$1.30 per sq.ft.
- Knotty Pine - 5/16" x 4" R/L to 8 ft. T & G on sides in packages of  
(LPP from 23 sq. ft.  
Gregory) - sells at \$0.90 per sq. ft.
- 'Wormy'  
Pine - 3/8" x 4" R/L to 8 ft. T & G on sides in 32 sq. ft.  
packages  
- sells at \$0.61 per sq.ft.
- Ecopine - 3/8" x 4" R/L to 8 ft. T & G on sides and ends in 64 and  
(blue 96 sq. ft. packages  
stained) - sells at \$0.87 per sq. ft.

There were indications that other products would soon be on the market including 1/2 inch T & G V-joint hardwoods in 4 inch and 6 inch widths, shrink-wrapped in packages of 19 to 32 sq. ft. coverage.

The most established product on the market is the aspen which is produced by a small mill in Englewood, Colorado called Great Scot Timber & Logging. Apparently, it produces 2 - 3 million board feet a year, does little or no promotion and still sells all it offers. It also produces the panelling in lodgepole pine but this currently only represents 5 per cent of production.

Louisiana Pacific is also entering the aspen panelling market from its mill in Montrose, Colorado. Other new competitors in the thin solid wood panelling include Champion which is now offering the same type of product as Gregory in lodgepole pine at a price to the retailer in Denver of \$10.60 per 21-2/3 sq.ft. carton. This is equivalent to about 50 cents per sq. ft. and compares to 46 cents per sq. ft. FOB mill, which was the price quoted by one wholesaler as the level Gregory requires from his for truck load quantities.



Due to the large number of retail outlets, the diverse buying methods of these retailers and the number of different products involved, it was not possible to estimate the potential volume of the market for lodgepole pine panelling in the Denver area.

It is clear, however, that a good market exists at present and the indications are that there will be continued growth in solid wood panelling, both as the overall D-I-Y market increases and as the trend away from low cost imitation materials continues.

### Furniture Industry

The furniture industry in Denver is not a significant consumer of softwood. There are a few small companies but they mainly use domestic hardwoods, except for the manufacturers of bed frames.

Legatt & Platt has a plant in Denver which purchases around 1 million board feet per year of 1 x 2 and 1 x 4 S-P-F #3/btr. allowing 10/15 per cent in #4. It buys from a local remanufacturer who is responsible for supplying it with 21 different lengths varying from 10 1/2" to 79". Any culls from the material supplied can be readily utilised in small braces and blocks. The company could see no advantage in obtaining precut material from the mill. There is no significant potential in the furniture component market in Denver.

Conclusions - Denver

1. A potential market opportunity exists for good quality, well promoted spruce channel siding. The market volume would depend on the extent of penetration into the cladding market but should be in the region of 5 million board feet annually at a minimum with potential growth up to 10 million board feet annually.
2. An excellent market exists for a pine solid wood panelling in nominal 1 inch and also in consumer oriented, packaged, thin panelling. Since the market already accepts this product, many other suppliers are present and there is therefore severe competition.
3. The furniture component market in Denver is too small to be worth considering.
4. Finger-jointed structural lumber or studs will need a great deal of promotion before the market can be developed.
5. MSR S-P-F lumber is already well accepted in the market. The potential market is currently 30 - 40 million board feet per year and is likely to grow.
6. Treated lumber is not a significant factor in the market.

### 7.3 MARKET ANALYSIS - LOS ANGELES

#### Background

#### Construction Market

- profile of activity
- exterior cladding
- trusses
- finger-jointed material
- treated lumber

#### Retail Market

#### Furniture Industry

#### Conclusions

### Background

The total Los Angeles metropolitan area, including all the surrounding cities such as Anaheim, Santa Ana and so on, has a population of 10.5 million. This is approximately half the population of California and represents the major part of the industrial activity in the state.

Economic activity in the area is far from depressed but has felt the effect of the recent recession and is therefore not expanding at the rate prevalent a few years ago. Unemployment is close to the national average and wage rates are comparatively low.

Housing start figures are shown in Table 12 for the Los Angeles-Long Beach area which has a population of 7 million. It can be seen that the decline for 1980 is more dramatic than the national average. Furthermore, it is interesting to note that the actual levels for the past several years are well below those which would be expected on a national per capita basis. This may be due to the fact that the expansion in the region has been into surrounding areas not included by NAHB in the boundaries defined for Los Angeles/Long Beach.

Table 12

#### New Housing Starts - Los Angeles/Long Beach

	<u>Single Family</u>	<u>Multi-Family</u>	<u>Total</u>	<u>Per Cent</u>
	<u>----- (No. of Units) -----</u>			<u>Multi-Family</u>
				<u>%</u>
1974	5,937	14,432	20,369	71
1975	8,882	8,908	17,790	50
1976	14,272	15,012	29,284	51
1977	17,856	21,566	39,422	55
1978	13,556	28,981	40,537	67
1979	11,893	24,189	36,082	67
1980(e)	7,200	18,300	25,500	72

Source: NAHB Economic News Notes

Another interesting aspect is the consistently high proportion of multi-family units within the total. This is well above the national average and would suggest that the importance of the housing sector within total lumber consumption would be much less than normal.

The market is principally for Douglas fir and hemfir, plus substantial volumes of ponderosa and sugar pines. S-P-F and W-W have a very small share of the market - less than 5 per cent.

Analysis of statistics from producing regions indicates that around 6 billion board feet of lumber are shipped into California. This would suggest that the Los Angeles metropolitan area consumes close to 3 billion board feet. Since consumption in new housing construction has been shown to be relatively low in the region, it is apparent that consumption in uses other than construction is comparatively high.

This deduction, derived from statistics, was generally confirmed by trade contacts in Los Angeles who felt that general industrial uses probably accounted for close to 50 per cent of consumption in the area. This is well above the 30 per cent level estimated for the whole country.

One consequence of this emphasis on industrial activity is that the trade structure is considerably less rigid than in the other areas and most wholesalers are willing to sell directly to industrial accounts without going through retail yards. In fact, some of these industrial accounts buy directly from mills. An example of this was Commercial Wood Products, a pallet maker, which purchases over 60 million board feet annually of economy grade fir directly from Weyerhaeuser in barge load quantities from Portland.

Another consequence is that, despite the existence of a substantial number of remanufacturers, most wholesalers also have extensive remanufacturing capability. They can purchase standard grades, re-sort and remanufacture into the grades and sizes desired by the industrial end user. Some of them, for example United Wholesale, base their entire business on market sectors other than construction.

## Construction Market

### - Profile of Activity

Detailed discussions with builders were not undertaken since the principal objective in this market area was not related to construction. The comments made in this section are a summary of information obtained principally from wholesalers, lumber association people and some truss manufacturers.

Lumber used for structural purposes in construction in the Los Angeles market is almost entirely green Douglas fir/larch and hemfir. Where S-P-F is used, it is principally in appearance applications - mainly fascia and starter boards. In contrast to the other markets where fascia tends to be 1 inch, the Los Angeles market is mainly 2 inch, with widths of 6 inch and 8 inch. Only rarely are soffits used. S-P-F has become popular in this use and dressed 2 x 8 is purchased from B.C. for remanufacture into 2 inch SISIE.

The remanufacturers advised that they preferred to buy from mills which had a high proportion of spruce and a number of them specifically quoted Crestbrook as being a mill providing a suitable grade. They advised that they obtained a very low percentage of fall down from regular #2/btr. and no special grade was needed. The product is sold as "resawn from #2/btr". It may be, however, that builders would prefer a higher quality product and are presently absorbing some wastage that cannot be used.

### - Exterior Cladding

The principal material for exterior cladding appears to be stucco, though some wholesalers advised that lumber siding was becoming more popular. Some S-P-F siding in a channel pattern was being used but this appeared limited. Though small volumes were being imported from Winton, the majority of S-P-F siding appeared to be remanufactured locally and the production costs quoted were \$50 per thousand for 1 x 8 patterned lumber from 2 x 8. Cedar was being used in 1 x 8 bevel or channel siding. The price differential at a wholesale level between cedar and spruce is around \$150 per thousand board feet.

There appears to be considerably more growth in the lumber siding market east of the Los Angeles area in San Bernadino and Riverside where the single family housing sector represents 70-75 per cent of starts. In this region, resawn spruce and ponderosa pine siding is becoming a recognised alternative to cedar and redwood.

### - Trusses

Trusses account for 80 per cent of all roofs in new building in the area and the truss manufacturers are also heavily involved in production of floor trusses, particularly for row housing and low rise apartment buildings. Only a limited volume of MSR hemfir is being used and the majority of trusses are manufactured from Douglas fir.

It was suggested by manufacturers that before they could consider the use of MSR S-P-F, a considerable amount of education would be needed at the city code authority level. Once this had been achieved, it would be a matter of economics whether MSR S-P-F could replace Douglas fir.

This is a market that could be pursued since it appears that the building code is due for revision in the near future and the MSR lumber concept will be recognized. The remaining hurdle would be to persuade individual inspectors of the merits of S-P-F. Though this should not be impossible, it was commented that the inspectors have only just accepted hemfir instead of Douglas fir in standard building.

- Finger-jointed Material

Finger-jointed studs are becoming increasingly accepted in the eastern and desert areas of California but appear to be totally unacceptable in the Los Angeles area.

- Treated Lumber

The market for lumber treated with preservative or fire retardant was not investigated in any depth but does not appear to be substantial.

### Retail Market

The size of the Los Angeles region is such that several days would be necessary to ensure that reliable information was obtained. From the random test marketing visits made and from discussions with wholesalers, it appears that the retail market has been expanding. A number of new West Coast chain outlets have been opened in recent years.

The nature of the market varies considerably from area to area. Whereas solid wood panelling was evident in some stores, other retailers advised that only the low cost 4 x 8 printed boards were in demand.

One of the principal manufacturers of solid wood panelling in the area, whose product was seen in Denver also, is 'Plywood of Los Angeles'. The company was very optimistic about the potential for solid wood panelling and has recently taken on the local distribution of Gregory panelling. This viewpoint was not shared by another manufacturer, 'South Bay Forest Products', which claimed that it had been producing 3/8 inch x 4 inch panelling in redwood, cedar and knotty pine for some time with singular lack of success. It was not possible to assess whether this was true or was stated deliberately to discourage further market research. In principle, it would seem that a market area of 10 million people with a West Coast type of life style should be likely to favour solid wood panelling.

The South California Lumber Association believes that the home remodelling market is due to double over the next three to four years. This would suggest that the Los Angeles market provides an excellent opportunity for a lodgepole pine panelling. Whether this would be in 3/8 inch or 1 inch would need further investigation.



## Furniture Industry

There is a very large furniture industry in Los Angeles and the value of the materials purchased by this industry is currently estimated to be over \$1 billion per year. It is extremely varied and there are manufacturers of every type of furniture from upholstered goods to waterbeds and unpainted furniture, some of which is of very high quality.

This diversity extends to the types of lumber purchased, even for manufacturers in the same line of business. Moisture content specifications varied from 7 per cent maximum for one company to 14 per cent for another with a variety of other levels being quoted. Though the majority of lumber purchased is in 1 inch material, some companies buy rough and some dressed, some in specified widths, some in random widths. Similarly, some companies buy directly from mills, others from wholesalers.

Where softwood was used, and the proportions of softwood to hardwood varied considerably, the main species were ponderosa pine and sugar pine with increasing interest being shown in lodgepole pine. This interest is caused by an awareness that ponderosa pine is declining in both quantity and quality and that lodgepole pine is an excellent joinery species.

The principal grades purchased were #2, #3 and #4 common and most of the large companies rip the boards and edge glue up to the widths needed. One producer who purchases #4 advised that his yield was 50 per cent, whereas another buys #2 and claims to obtain 70-80 per cent yield. Since many remanufacture in this way, a frequent comment was that the wider the board, the better, because their percentage waste was lower.

There was general agreement that some volume of blue stained material would be acceptable but it seems that wane up to the limits allowed is very undesirable. Again, the value of the piece to the manufacturer is a function of the total width of the board and the number of square edged pieces he can obtain from it. Since some of them also need substantial volumes for drawer rails, wane is not always a problem.

All the manufacturers interviewed, and also the wholesalers, showed very great interest in the possibility of buying lodgepole pine. They insisted, however, that this would have to be segregated and that spruce would be totally unacceptable due to its different characteristics. Several asked for quotations for car load quantities-one manufacturer asked for prices on 2 x 4 x 6 ft. for the bottom rail of case goods, another for 1 x 6 KD to 10 per cent in #3/btr. A wholesaler questioned why he was never offered lodgepole pine from Canada.

There is little doubt that the species would be acceptable in the market in terms of quality. The principal difficulties would relate to the required widths and the moisture content. The volume of softwood in the lower grades being consumed in the area is estimated to be in the region of 100 million board feet per year.

One wholesaler, 'South West Forest Products', claimed that it sells only to small furniture manufacturers and markets 50 million board feet of softwood lumber a year. This would suggest the estimate of 100 million board feet for the market as a whole is low, but discussions with the furniture industry itself indicated that the use of a higher figure would overstate real demand.

Though there did not appear to be any appreciable interest in cut-to-size imports, the availability of a product graded to their needs rather than regular NLGA grades would be of considerable interest to manufacturers. As freight rates rise, the cost of waste becomes more and more significant. Consequently, a selectively graded product, possibly with some of the potential waste trimmed off, could be of value.

The general advice of the trade was that the Random Lengths price shown for ponderosa pine in California was a good guide to price movements for furniture stock. To the price levels shown, \$20 - \$25 per thousand board feet should be added for freight. The market for shorts is about \$40 below that of random length. On the basis of current price levels, this would suggest a delivered price of about \$255 per thousand board feet for 1 x 6 #3 common, random length.

A comparison of price movements over the last two years shows that the volatility of this market is considerably less than that for S-P-F. Consequently, several wholesalers expressed misgivings relative to a commitment on their part to a lodgepole pine programme. They feared that if the construction prices increased, mills might tend to pull out of a specific furniture programme. A short term opportunistic profit approach of this sort would be very undesirable from the point of view of the wholesalers and furniture companies. Almost certainly it would destroy any long term opportunity for a mill to maintain a position in the furniture component market.

Due to the diversity of companies involved and the variety of the product specifications used, the Los Angeles market for furniture stock is not an easy market to enter. A great deal of local market knowledge and time would be required to dovetail normal production practices at a CLMA mill into the manufacturing practices at any particular furniture company so that the maximum benefits could be achieved by both parties. Local market expertise already exists amongst stocking wholesalers in the Los Angeles area, but they are insufficiently aware of the capabilities that exist at the mill level.

GENERAL

Dept. of Industry, Trade & Commerce - Ottawa  
Mobile Home Association - B.C.  
Forintek - B.C.  
Koppers International Canada Ltd. - B.C.  
Koppers - U.S. - Pittsburgh  
Revelstoke Building Materials - Calgary  
Canadian Wood Pallet & Containers - Oshawa  
Canfor - B.C.  
Marks Lumber - Ontario  
Crown Zellerbach - B.C.  
Western Wood Products Assn. - Oregon  
National Wooden Pallets & Containers - Washington, D.C.  
National Association of Home Builders - Washington, D.C.  
Wickes - Oregon  
Lowe's - North Carolina  
Edward Hines - Chicago  
U.S. Forest Service - Oregon  
Hardwoods of Morganton - North Carolina  
Payless Cashways - Missouri  
U.S. Customs - Washington  
Forest Policy Project - Washington

There is nothing to prevent individual mills going to Los Angeles and spending time with the furniture industry to develop special programmes. It is believed, however, that the amount they would have to learn about the market in order to maximize the opportunities available would, in most cases, involve too great an expenditure of time and effort to be justified by the benefits.

On the other hand, if CLMA mills, who know their production capability and limitations, can develop close contact with some of the Los Angeles wholesalers, who know the furniture trade, an excellent opportunity for a higher value outlet appears to exist. Clearly, potential mill returns might be reduced by the involvement of local wholesalers, but this could be offset by a reduction in direct marketing costs to the producing mill.

Conclusions - Los Angeles

1. A small market for spruce siding exists locally, but the potential appears to be considerably better further east in the San Bernadino/Riverside areas.
2. The interior panelling market may hold potential for lodgepole pine but needs detailed investigation.
3. The opportunities for sales of lodgepole pine to the furniture industry are excellent. The industry is becoming increasingly concerned about the future availability of ponderosa pine and believes that lodgepole pine may offer a suitable alternative. Market requirements are very diverse in terms of grade and size. Special furniture grades have a better opportunity than furniture components.
4. Finger-jointed structural lumber has little sales potential in the Los Angeles market, but eastern and desert areas of California could offer considerably better opportunities.
5. S-P-F MSR lumber may have excellent sales potential if a substantial educational effort is undertaken at the building inspector level.
6. S-P-F is primarily utilised in appearance applications and is remanufactured locally. This may offer some potential but local remanufacturing costs appear significantly below those in B.C.

7.4 MARKET ANALYSIS - MINNEAPOLIS

Background

Construction Market

- profile of activity
- exterior cladding
- interior panelling
- trusses
- finger-jointed material
- preservative treated lumber
- fire retardant treated lumber

Retail Market

- interior panelling

Furniture Industry

Windows

Conclusions

### Background

The population of the seven county Minneapolis/St. Paul region is a little over 2 million, which is almost exactly half that of the State of Minnesota.

Though it has not been growing as dramatically as some areas in the west and south of the U.S., it is nevertheless an established and comparatively affluent area. Unemployment levels are lower than the national average and the local economy appears robust and strong. The major growth industries have been electronics and computers, followed by food production and processing.

It can be seen from Table 13 that housing starts have dropped significantly over the past two years. This decline has been similar to the national average, though actual starts in the Minneapolis area on a per capita basis were above the average for the country in 1980.

Table 13

	<u>Housing Starts - Minneapolis</u>		
	<u>Single Family</u>	<u>Multi-Family</u>	<u>Total</u>
1974	7,350	5,000	12,350
1975	7,400	1,700	9,100
1976	10,600	3,900	14,500
1977	15,000	4,100	19,100
1978	15,800	4,700	20,500
1979	11,600	4,900	16,500
1980	8,300	4,400	12,700

Source: NAHB Economic News Notes

The general view was that lumber volumes were only down about 15 per cent in 1980 from the level of the previous year. This was due to continued strength in other consumption sectors such as retail and industrial. It was also suggested that consumption in residential housing within the metropolitan area accounts for a relatively small percentage of the lumber volume shipped into the area. This was partly due to the volume of new housing being constructed just outside the recognised metro area and partly due to the demand from the agricultural communities immediately surrounding the metropolitan region.

Traditionally, Minneapolis has been a green fir market, at least within the city. This has been changing and now, including the surrounding area, it is basically a KD market. S-P-F has a major share of the stud and plate stock market while Douglas fir/larch and hemfir are dominant for most other uses.

The Northwestern Lumberman's Association reported that, according to its estimates, 75 per cent of the lumber coming into the Minneapolis region is by truck. This appears to be very high when compared with the information obtained from producing regions which show 75 per cent coming in by rail, even after allowing for forwarding to other states on shipments from Canada. On the other hand, the volume apparently consumed in Minnesota, deduced from these statistics, appears much higher than would otherwise be expected and it could be assumed that the allowance in the Canadian statistics for onforwarding has been insufficient. Consequently, a 50/50 ratio of road to rail is believe to be reasonably representative.

Consumption volumes are even more difficult to ascertain for Minneapolis than the other areas due to this onforwarding aspect. Judgemental analysis of the statistics and discussions with trade indicate that the market volume has been in the region of 350 to 400 million board feet per year during the late 1970's. 1980 levels would be a little below this.



## Construction Market

### - Profile of Activity

Due to the stable and mature nature of the economy in the region, there is relatively little of the large tract development that was observed in Dallas and Denver. New housing therefore typically tends to be custom built, or takes place in relatively small developments with 20 or 30 houses, or as condominium developments.

Roof trusses are dominant but virtually all walls are constructed on-site. One company started producing prefabricated wall components a few years ago, but was unable to persuade contractors to adopt the concept even for apartment buildings and reportedly closed down its production line after a year.

### - Exterior Cladding

About half of the exterior cladding used in the Twin City region is hardboard. The use of aluminum siding is growing and some steel siding is also used. Wood is not a major item and is used principally in bevel siding. One large retailer who sells primarily to the construction trade and who claims to represent about 20 per cent of the new housing market reported the following breakdown for his average annual volumes:

Cedar bevel siding	400-500 thousand board feet per year.
Cedar channel siding	130-140 thousand board feet per year.
Redwood bevel siding	450-550 thousand board feet per year.

This was all in 8 inch and 10 inch stock. On the rare occasions when a builder requests 6 inch channel siding, this retailer has the remanufacturing capability to run it himself.

There appears to be a limited volume of spruce siding in the market, promoted principally by Winton Sales (from its The Pas mill in Prince George). Some volumes have also been sold from Wynndel. Prices for a quality product of the type produced by these mills tend to be \$80-\$100 per thousand board feet higher than 2 inch dimension.

The total volume of the lumber siding market is estimated currently to be in the region of 5 million board feet or around 20 per cent of the exterior cladding market.

The consensus was that there appears to be a trend back to the lumber siding for the better quality homes. The majority of the trade people spoken to, however, felt that demand would be for cedar or redwood and that spruce would not be a factor. Even Winton did not appear too optimistic about the potential for substantial sales volumes in the area. It emphasized, moreover, that introduction of a poorly manufactured product which cupped and warped would totally destroy whatever potential that might exist. Winton was anxious that this message should be passed on to the CLMA.

In contrast to the situation in Dallas and Denver, where the availability of a medium priced spruce siding could encourage builders to move away from hardboard, it is felt that in Minneapolis the more affluent nature of the community is such that the builder will tend to change directly to the high price cedar and redwood and would not be interested in spruce.

It is therefore considered that the spruce siding market in Minneapolis should not be a priority at this stage, unless it becomes evident that cedar prices are likely to increase drastically or that sales penetration by Winton is successful.

#### - Interior Panelling

Though the volume of solid wood panelling used by builders is still small, there appears to be a significant trend towards the use of 1 inch panelling in 6 inch and 8 inch widths with a WP4 and WP6 pattern. It is being used for application to ceiling and walls and is preferred to the thin panelling since a better three dimensional effect is obtained.

The total market at the new housing level is unlikely to exceed 2 to 4 million board feet per year.

Knotty lodgepole pine would be suitable for this type of panelling but would have to compete with cedar, redwood, daho white pine and ponderosa pine. Current pine prices for a tight-knotted 1 inch profiled board were quoted at around \$300 per thousand board feet FOB wholesaler's yard.

Though the potential sales volumes are not large in the construction market, they become more significant when added to the potential in the retail trade, discussed later. It is evident that there could be a market volume of up to 2-3 million board feet per year in pine panelling.

#### - Trusses

Roof trusses account probably for 70 to 80 per cent of roof construction in the Twin City region. These are produced by up to ten local truss manufacturers, few of which were interested in MSR lumber. The main grades used were standard and better Douglas fir/larch and dense structural southern yellow pine for structural members with utility grades in webbing.

The concept of cut-to-length lumber for webbing was not received with any enthusiasm. Apparently Weyerhaeuser tried this some time ago but without success. The typical objection about the number of different lengths required, and therefore the inventory problems, was quoted.

It is estimated that the volume of lumber consumed in roof trusses is 40 million board feet per year, of which around 25 million could be MSR. Manufacturers were generally noncommittal about the future for MSR S-P-F, but the impression obtained was that if they could be assured of supply in the long term, they might change their designs in order to utilize it.

Many of the truss manufacturers have expanded into floor trusses for which they are using #1 dense structural southern yellow pine with a design stress rating of 2500 f. They did not appear to be dissatisfied with this species and it appears unlikely that they would be easily persuaded to change to MSR S-P-F. A favourable selling factor here would be if they could be sure of a steady volume of 2400 f graded material.

The manufacturers do not yet appear to have expanded into header trusses.

There is little doubt that potential for sales of MSR S-P-F exists in the Minneapolis region, but it is unlikely that this potential will be developed fully in the immediate future.

- Finger-jointed Material

The trade was almost unanimously negative regarding finger-jointed construction lumber. Redwood boards for fascia and ponderosa pine for mouldings were said to be acceptable in finger-jointed material, but some poor experiences in the past with studs appear to have totally soured this market, even if priced lower than solid studs.

- Preservative Treated Lumber

The local market for treated lumber has been growing dramatically in recent years and one rural wholesaler reported that his 1980 volume was double that of 1979. So far, not much treated lumber is being used in all weather wood foundations, though these are approved by local building codes and are beginning to break into the market. The great majority of treated lumber is still used in decking and the principal species is southern yellow pine. It was reported that Louisiana Pacific is currently trying to develop a programme with ponderosa pine.

Though some treating plants exist in the area, it was reported that the majority of the lumber brought in was already treated. It was difficult to quantify the volumes but the fact that wholesalers are carrying treated lumber in inventory, as opposed to arranging treatment locally when required, suggests that there is a significant enough volume being traded.

Technical problems of obtaining adequate preservative penetration with spruce would suggest that this is not a suitable outlet for the S-P-F group at this time. Lodgepole pine is approved by the American Wood Preservers for use in ground contact, provided that 90 per cent of the

lumber has 3/8 inch penetration. Whether the pine available from any individual CLMA mill can meet this requirement is not known. It may be necessary for CLMA mills to arrange for specific tests to be carried out by an authority such as Forintek.

- Fire-Retardant Treated Lumber

Some limited volumes are necessary in commercial buildings but the volumes reported are small and the treatment is carried out locally.

This market is not likely to be of interest to CLMA mills.

### Retail Market

The lumber retail trade in the Minneapolis area is well developed and the volumes consumed, on a per capita basis, tend to be higher than the average for the U.S. as a whole. This is a reflection of the relative stability and affluence of the region. Unlike Dallas, where the typical family expects to move within 2 or 3 years of buying, and occupies a relatively new house, the Minneapolis resident tends to be more interested in improving his existing home and is prepared to spend money doing so.

Considerable volumes of 1 x 2 and 2 x 2 x 8 ft. are handled through the retail trade. Some is remanufactured locally and truck load quantities are brought in from Montana and Eastern Canada. FOB wholesalers' yard prices were quoted at \$220 per thousand board feet for 1 x 2 and \$245 per thousand for 2 x 2.

#### - Interior Panelling

As a result of consumer tastes, there is a strong trend away from the low cost printed and overlaid panels towards solid wood. Plywood Minnesota, for example, is in the process of radically altering the sales emphasis in its outlets in order to display and promote solid wood panelling.

One large suburban retail yard which was visited typified the growing recognition, at the retail level, of this trend. The display areas were being redecorated and cedar and lodgepole pine produced by Gregory were being used to panel the walls. The owner commented that his clientele were not really too concerned about the cost of the material and wanted a quality result of which they could be proud.

A number of different solid wood panelling products were observed in the stores visited. Apart from Gregory's products, there were two or three other thin panelling products, but the principal volume appeared to be 1 inch panelling in cedar and pine (including "Blue pine").

Prices for the thin panelling were around \$1.00 per sq. ft. of coverage. For square edged 1 inch panelling, they were somewhat cheaper at \$0.70 per sq. ft. for pine and \$0.85 for knotty cedar in a #3/btr. grade. Profiled 1 inch panelling was more expensive.

Assessment of potential volumes of panelling is difficult. Some idea of the order of magnitude can be obtained from estimates of the total repairs and renovation market in the area. This is about 100-125 million board feet per annum. It seems unlikely that the proportion of interior wood panelling can be greater than 5-10 per cent of this, which would suggest that the market is around 5-10 million board feet per year. The market share which could be obtained by lodgepole pine panelling would be probably in the order of 1 to 2 million board feet per year.

### Furniture Industry

There is relatively little activity in Minnesota in the general category of furniture and fittings. In 1977, the Minnesota share of materials purchased for furniture manufacture was only 0.5 per cent of the U.S. total whereas on a population basis, the state represents 2 per cent. The bulk of the material used within this rather limited furniture industry tends to be domestic hardwoods. The potential for S-P-F furniture components in this market is not considered to be worth pursuing.

### Windows

The largest manufacturer of wooden windows in North America, Andersons, is located just east of Minneapolis. It tends to use a shop grade of lumber. When the company commenced utilizing a vinyl overlay, it also experimented with sound, tight knotted S-P-F but did not find it suitable. There is no indication at present that the company is expecting to use any significant volumes of S-P-F.

Conclusions - Minneapolis

1. There does not appear to be any immediate potential market for spruce siding from CLMA mills.
2. The potential for the development of an outlet for pine panelling in nominal 1 inch and in 3/8 inch appears excellent and growing.
3. The furniture industry is not a potential market for S-P-F furniture components.
4. Finger-jointed structural lumber does not appear to be acceptable in the market at this time.
5. Truss manufacturers would need an educational promotional effort before a market could be developed for S-P-F MSR lumber.
6. Treated lumber is becoming increasingly important in the market. The ability of CLMA mills to obtain a share of the growth will depend on production economics and species suitability within the S-P-F group.
7. A substantial market exists for home centre lumber at the retail level.

## 7.5 MARKET ANALYSIS - BOSTON

Background

The objective of visiting the Boston metropolitan area was principally to identify the types of specialty sawn products evident in the market. Since the majority of the S-P-F, eastern white pine and other species being consumed in the area is produced in New England and in Eastern Canada, the intention was to obtain an indication of the level of development in the East relative to specialty sawn products.

The Boston and surrounding area has a total population of close to 4 million, which is about two-thirds of the total population in the state of Massachusetts.

Housing starts for the "Standard Metropolitan statistical area" of Boston are shown in the following table. The population in this area is about 2 1/2 million.

TABLE 14

Housing Starts - Boston

	<u>Single-Family</u>	<u>Multi-Family</u>	<u>Total</u>
1974	2,834	4,257	7,091
1975	4,508	6,932	11,440
1976	3,982	3,173	7,155
1977	4,650	3,816	8,466
1978	4,975	4,450	9,425
1979	4,600	4,200	8,800
1980 (e)	3,918	3,780	7,698

Source: NAHB Economic News Notes

These are very low, on a per capita basis, and well below the national average. On the other hand, they are significantly more stable than average starts for the country and the decline in 1980 was small in relation to that experienced in other areas. The effect of this relative stability was evident from the general comments of people in the trade who stated that their 1980 volume of business had held up reasonably well.

On the basis of the shipment figures obtained from producing regions, it appears that lumber consumption in the area is only 350-400 million board feet per year which is very low in relation to the population. This would be due partly to the low level of housing starts and partly to the general level of manufacturing activity in the area. There are



indications, however, that this may improve in the future. The 'drift' to the South and West may be slowing and there has been considerable publicity recently about the return of industry to New England.

Of this consumption, close to 60 per cent is in various categories of spruce and pine from Canada and local sources, while 20 per cent comes from the Southern U.S. The balance is principally Douglas fir and hemfir plus some small volumes of Idaho white pine and ponderosa pine.

Of particular significance in recent years has been the growing trend towards importing more lumber from Eastern Canada and less from Western Canada. Typical of this trend was Furman Lumber which advised that it now buys half its Canadian needs from the East, whereas ten years ago virtually all came from the West.

### Principal Market Observations

Since the objective of visiting this area was to observe market activity rather than to estimate potential, the results obtained are presented here as series of observations on various aspects.

#### 1. Quality

The quality of product offered by Eastern Canadian and New England mills has improved dramatically over the past few years.

#### 2. Flexibility

Wholesalers find that local U.S. mills have become very willing to produce non-standard items at short notice. Though this is clearly a reflection of today's poor market, the wholesalers claimed that, even in 1978/79, the mills had already been showing an increasing trend towards responding to specific market needs.

#### 3. Interior Panelling

There is a limited volume of solid wood panelling being offered on the market. This market has not been developed to the same extent as in the West, but there is considerable interest amongst manufacturers, particularly those with a substantial volume of eastern white pine.

Some bundled T & G boards in 1/2 inch and 3/4 inch were being produced, but the concept of a shrink-wrapped consumer oriented product like that of Gregory appears new to them.

A number of retailers expressed considerable interest, but stated that no one was trying to promote such a product. The major part of the market is still the low cost prefinished 4 x 8 panel, and the Boston area appears to be only at the initial stage of a change to a better product. This could be due to a lack of supply and promotion.

#### 4. Siding

Limited volumes of 1/2 inch and 5/8 inch bevel siding in 6 inch pine and some 8 inch channel siding in cedar and pine are in the market, but lumber siding does not appear to be a big item.

#### 5. Finger-jointing

The Eastern consumer appears to have no interest in a finger-jointed product and even finger-jointed stock for door jambs and mouldings is viewed with suspicion. Production of any finger-jointed material in either Eastern Canada or New England is negligible, though Forex has a plant currently under construction and other plants are being considered.

#### 6. MSR

The Boston market is not familiar with the concept of machine stress rated lumber. No facilities have been installed in Eastern Canada or New England and the product does not seem to have been promoted in the region.

#### 7. Preservative Treated Lumber

There has been a dramatic increase in the volume of treated lumber being consumed in the area. All weather wood foundations are finding increased acceptance by the builder and this offers a very significant increase in lumber consumption.

So far very little treated lumber is coming in from Canada. The majority is being treated locally. Wholesalers, such as Dutton, are re-sorting S-P-F by species and then treating. Due to difficulties often experienced in doing this, there has been considerable concern expressed by experts in the trade that a proportion of the product being sold may not have the necessary penetration.

#### 8. Fire Retardant Treated Lumber

The trade advised that occasionally they receive enquiries for lumber that has been treated with fire retardant but have great difficulty obtaining supply.

#### 9. Renovation Market

There is a consensus that the renovation market has been increasing steadily during the late 1970's and will continue to do so for the next five years.

#### 10. Furniture Components

Almost all lumber consumption is in hardwoods. Even the local sawmills, which are willing to cut special sizes, appear to be unable to penetrate this market to any extent.

#### 11. Industry Structure

Large retailers have tended to bypass the wholesale trade due to ready availability of truck load volumes from mills. However, the need to minimize inventories has caused many of them to return to the stocking wholesalers.

#### 12. Specialty Sawn Products

The Department of Industry Trade and Commerce (DITC) in Ottawa carried out an exploratory analysis of the New England market for specialty items based on some unpublished Statistics Canada data supplemented by checks on specific invoices. Its conclusion was that the New England market for specialty lumber products is in the region of 60 million board feet per year, of which 20 million are exported from Eastern Canada.

The definition of specialty products used by DITC included lumber remanufactured to smaller sizes, e.g. furring strips. Further discussions indicate that there is very little production of items such as sidings or panelling, but many mills have the flexibility to position a resaw immediately behind the planer and can produce large volumes of small sizes quickly against specific orders.

Summary - Boston

An increasing share of the Boston market is being supplied by Eastern Canadian mills, at the expense of Western mills. Though the market has not yet developed significantly into many of the specialty products under consideration, there has been a substantial development of sales of preservative treated lumber. It also appears that the demand for smaller size lumber is being met by sawmills, and not by local remanufacturers. The proximity of Eastern Canadian mills and the ability to deliver in truck load quantities at short notice are factors that contribute to this tendency.

Due to the transportation disadvantages, in terms of cost and time, incurred by CLMA mills and due to the fact that similar species are available in the East, it appears unlikely that a large market potential exists for specialty products from the Cariboo region.

## 8. REMANUFACTURING IN B.C

To provide some perspective to the supply of specialty wood products from B.C., a brief survey of the remanufacturing industry in the Lower Mainland was carried out. The objective was to ascertain the types of processing activity taking place, the species being used, and the opportunity for further value added in S-P-F lumber.

According to estimates by the Independent Lumber Remanufacturers Association (ILRA), which was formed relatively recently, the remanufacturing industry in B.C. has sales in the region of \$200 million annually and employs 1500 people. Its membership, currently of eleven companies, has sales of \$60 million out of this total and produces about 200 million board feet per year.

B.C. remanufacturers' activities vary widely from simple sorting and regrading or remanufacturing for export, to production of panelling, siding, cross arms, mouldings, spindles and so on. Sales are heavy to the U.S. - probably 60 to 70 percent of the total; offshore export markets account for about 10-15 percent; and the balance is for domestic consumption.

It was found that within this volume many of the companies do a substantial amount of custom cutting for wholesalers and also for mills. The principal species involved is cedar followed by fir and hemlock. There is only a limited amount of S-P-F apart from one company producing lodgepole pine panelling. A number of companies had produced a spruce siding in 1978/79 when cedar prices were very high. In most cases, this was remanufactured from dressed 2 x 8 and there appear to have been a number of problems. The appearance of the product was excellent, particularly if stained prior to application, but it was very sensitive to incorrect application and builders had a number of call-backs. The principal markets at that time were relatively local - Vancouver B. C., the state of Washington and the Prairies.

The consensus was that there would be very limited potential for spruce siding until the differential between cedar and S-P-F prices increases substantially from current levels. While green cedar standard and better 1 x 6 board prices remain in the range of \$300 - \$350 per thousand board feet, as has been the case for the past 18 months, it was felt that no future exists for spruce. However, once cedar prices go above the \$400 - \$450 per thousand range (they reached \$550 in March, 1979 according to Madisons), and assuming the differential from S-P-F widens accordingly, then the economics of spruce siding apparently become more attractive. It should be noted, however, that to comply with CMHC requirements spruce siding must be 13/16 inch minimum thickness as opposed to 3/4 inch for cedar. This cannot be recovered from dressed 2 inch lumber.

Lower Mainland remanufacturers do not appear to be using much S-P-F for manufacturing into home centre lumber items such as 1 x 2. On the other hand, there are a number of companies south of the border, such as Weyerhaeuser in Spokane, Chandler in Idaho and so on, which take volumes of Canadian S-P-F for remanufacture into a variety of small sizes. The final product was observed in the retail yards in the U.S. during the field visits. In many cases, when the pieces were inspected, half a CLMA or COFI SPF stamp could be seen.

The majority of the remanufacturers in the Lower Mainland appear to concentrate on coastal species and few could foresee much potential for S-P-F within their own operations. Transportation problems and costs were suggested by some as being one of the reasons. Currently, for example, trucking costs are \$20 to \$25 per thousand board feet from the Central Interior and trucks frequently are unobtainable. Rail rates are no cheaper and apparently milling-in-transit rates offer no advantage for product from the Central Interior. Since transportation costs are outside the scope of this study, this aspect was not investigated.

During discussion with local remanufacturers, a number emphasized that there were some essential differences between the concept of remanufacturing and that of producing commodity lumber. These can be summarized as follows:

- Value not volume

They believed that the remanufacturer must concentrate on obtaining the maximum value out of every piece of lumber and must sacrifice production speed if necessary. In contrast, a large dimension mill often cannot afford to increase production costs by slowing down its rate of production since it is unlikely that the extra value obtained from a relatively small quantity of a specialty item can compensate for the additional cost on the total production volume.

- Flexibility

They stated that, whereas the dimension mill aims to avoid down time, the remanufacturer must have the flexibility to change production runs quickly and often. He must also have a mental flexibility in order to develop a cutting pattern that will allow for the maximum value and minimum unsaleable waste. An integral factor in developing this is discussed in the next paragraph.

- Marketing

The production and sale of remanufactured items requires knowledge of end user requirements. The remanufacturer must either spend time and money developing this or at least work closely with wholesalers specializing in non-standard lumber items. This knowledge can then be used to successfully market the products he cuts from the lumber. A typical

enquiry is shown in Appendix B. If the remanufacturer is to quote against this type of requirement, he must know how he can profitably utilize the off-cuts and fall-down. In contrast, the dimension mill can keep its marketing costs low by concentrating on a commodity product with standard specifications designed for a general market that can be traded to wholesalers.

- Innovation

They also emphasized that the remanufacturer must constantly be alert to the need to develop new product lines. Often, as an item becomes saleable in any substantial volume, his lumber suppliers themselves tend to develop their own production capability - thus cutting out the remanufacturer. In these cases, he must have developed another product. Innovations at dimension mills tend to relate to improved yield and production methods since the product being produced remains basically constant.

Due to these conceptual differences, it was suggested by some remanufacturers that it was often difficult to develop a remanufacturing facility in conjunction with a dimension sawmill. It is interesting to note that recent expansions by major companies into remanufacturing have tended to favour separate locations. The most recent example of this has been the Tahsis Company which has established its remanufacturing plant in Burnaby.

## 9. CLMA SITUATION ANALYSIS

### Introduction

A questionnaire was sent to CLMA member mills in order to obtain an indication of the species being cut within the S-P-F group, the type of products being manufactured and the distribution of these products by market. Specific information regarding past experience related to the sale of specialty products was also sought.

This information was supplemented by an analysis of the most recently published data from the Ministry of Forests regarding the resource in the area and from Statistics Canada on production and shipment.

### 9.1 RESOURCE

The Cariboo Region has been divided into three Timber Supply Areas (TSA's), the Quesnel, the Williams Lake and the 100 Mile. Although the Regional Ministry of Forests staff has completed the timber supply analyses for these TSA's, the reports have not yet been released. Consequently, the following discussion is based upon the more general information contained in the Forest and Range Resource Analysis Technical Report of 1980 and other Ministry documents.

On average, the Cariboo lumber and plywood industry utilizes about 6.6 million cubic metres of sawlogs and veneer logs each year. During the buoyant lumber markets, the regional annual cut has been as high as 7.5 million cubic metres. The committed allowable annual cut from managed forests lands is, however, only 6.1 million cubic metres. According to Ministry of Forests records, about 500,000 cubic metres per year is cut from private lands.

The Forest and Range Resource Analysis indicates that for the Cariboo Region as a whole, cutting at the existing level of timber commitment can be maintained indefinitely. However, an attempt to maintain this harvest from the stand types and age classes now being utilized by the industry would lead to a one-third decline in the annual harvest within 10-15 years. Sustaining the harvest will require increased cutting in pine types to offset the declining availability of Douglas fir types. This will mean a much higher proportion of small wood in the annual harvest than is now the case. A comparison in inventory volumes with actual harvests is given in Appendix E, Table 13.

In future years, S-P-F will account for an increasing percentage of the softwood lumber produced in the Cariboo Region. Douglas fir will suffer a proportionate decline. Within the S-P-F category, lodgepole pine will remain the dominant species while there will likely be a decline in the spruce volume. Some increases in balsam fir may be expected as it would appear that this species is not being fully utilized.



The individual responses of the mills indicated that lodgedpole pine is the major species within the S-P-F group for the majority of mills, with some stating that 75 per cent or more of the S-P-F cut was in this species. There were a few mills, however, for whom spruce was the major element.

Mills did not foresee any drastic change in their resource, though most were expecting some decline in average log diameter.

## 9.2 PRODUCTION

Statistics Canada compile data for a number of mills identified as "Central Interior Mills". These are not exactly the same as the mills in the CLMA. The principal differences are that Ernst and Houston Forests Products are included in the Statistics Canada figures, whereas Balco, BCFP, Evans (Savona) and the smaller mills are not included. It has been found, however, that a reasonable similarity exists between CLMA shipment figures and those of Statistics Canada.

Recent production volumes, according to Statistics Canada, remained remarkably constant at around 1.4 billion board feet annually (Appendix E, Table 14) . S-P-F production accounts for 80 per cent of this volume and Douglas fir 18 per cent, with small volumes of cedar and hemlock accounting for the balance.

With one exception, mills were unanimous in stating that, under the general category of S-P F, the product produced was graded as S-P-F and there was no segregation of species either in log form prior to cutting or as lumber.

The production profiles of the mills were very mixed, with some producing only studs, some only random length and others a combination of both. Similarly, there was a wide variation in the production figures quoted for 1 inch. Some mills advised that only 1 or 2 per cent of their production was in 1 inch material, whereas others were as high as 15 per cent.

The range of answers regarding the percentage of low grade material was also wide - varying from 24 per cent to only 5 per cent.

## 9.3 MARKET DISTRIBUTION

Analysis of Statistics Canada figures (Appendix E, Table 15) shows that shipments to the U.S. have been over 75 per cent of total shipments during the late 1970's. However, this was well below the percentage that applied in the early 1970's and the level estimated for 1980 is only 72

per cent. This latest reduction is due primarily to increased shipments overseas.

As a result of the discussions with the mills, it was found that, though the majority indicated that the U. S. accounted for 80 to 85 per cent of sales, there are, nevertheless, individual mills that specialize in the overseas markets and one whose market is entirely domestic.

#### 9.4 SPECIALTY PRODUCT SALES

The volume of S-P-F sawn specialty products manufactured at CLMA mills is small relative to total production. There is a significant volume of specific item business being done with the mobile home industry, but this trade is now so well established that the items are no longer regarded as specialties. To some extent, the same can also be said of the 1 inch items being sold to bed frame manufacturers since a number of mills are already involved in this element of "furniture components".

Some mills have developed the facility to produce finger-jointed material and one has recently commenced the production of a thin solid wood panelling in lodgepole pine. Some mills are also involved in a programme to select sound, tight knotted, 2 x 4 lodgepole pine for sale to remanufacturers producing thin panelling.

Other specialty items also manufactured in small volumes, on a sporadic basis, are 2 inch decking, siding and 1 inch panelling. A number of mills manufacture ties, though these have not been regarded as a specialty item for the purpose of this study.

Though this would appear to be an impressive list of specialties, the majority of mills advised that they were not currently in the business of producing sawn specialties in S-P-F. Consequently, the number of mills who were able to advise details of U.S. companies currently involved with CLMA members on specialties was very limited.

#### 9.5 SPECIALTY PRODUCT POTENTIAL

The potential to produce sawn specialty products also varies extensively from mill to mill. There are some that are so limited by the land they occupy that it would be virtually impossible to include even regrading facilities, let alone remanufacturing. Others have a highly mechanised

production flow and any interruption in this flow adds appreciably to the unit cost of total production. There are a number, however, where the potential exists for a significant volume of selection, regrading and remanufacture provided that the cost of any of these activities is justified by the increased return. This economic calculation will vary radically from mill to mill due to the diverse nature of each. It is therefore unrealistic to endeavour to assess for the CLMA as a whole what the potential is for the economic production of sawn specialty products in S-P-F.

Summary

Lodgepole pine is currently the principal species available to most CLMA mills, and projections indicate that this situation will continue. The great majority of lumber production, however, excluding Douglas fir and cedar, tends to be as the mixed species group "S-P-F", and very little species segregation takes place. Most of the production is dimension lumber, with a small volume of boards and a very limited amount of specialty sawn products.

The principal market is the US, which accounted for over 75 per cent of shipments during the 1970s. The balance has traditionally been sold principally within Canada, though in 1980 the offshore export market was developed significantly, and accounted for 8 per cent of production.

Though the volume of specialty products is small relative to total production, there are, nevertheless, a variety of specialties that are produced. The principal of these is finger jointed studs and there is also a significant volume of cut-to-size lumber being sold to the mobile home and the bed frame industries.

The potential of each member of the CLMA to produce specialty sawn lumber varies widely depending on mill lay out and equipment. Consequently, the economic justification of a specialty programme will tend to be very specific to each mill.

## 10. U.S. TARIFFS

The tariff situation for commodity lumber into the United States is straight forward - no duty. However, this becomes more complicated when value added products are being considered.

Discussions with U.S. Customs authorities indicated that there are two basic concepts which lead to the imposition of a tariff on a piece of imported lumber. The first is "Dedication" and the second, "Beautification". These concepts are explained below.

Dedication - The general rule is that, if a piece of lumber is specifically dedicated to use in, say, the furniture industry without any remanufacture, it is subject to a tariff of 8.5 per cent ad valorem under tariff item 727.40 (Appendix C). In practice, however, the interpretation of this rule in most cases appears reasonably favourable to Canadian mills. Thus, a piece of 1 x 4 PET to 52 1/4 inch which is being sold, for example, to Simmons and which will be used, without recutting, in a bed frame, would be allowed in free of duty, apparently on the grounds that it could be used for something else. Similarly, a piece of lumber 7 inch x 30-1/8 inch bullnosed and grooved along the length of the piece would also be duty free since, though it is dedicated for drawer sides, it is to be cut into two pieces of 15 inch, i.e. remanufactured before being used. On the other hand, if it was cut to the exact length required by the manufacturer for his drawer side prior to import, then the duty of 8.5 per cent applies.

Beautification - This applies to treatment or staining. Pressure treatment is allowed duty free, but any treatment or staining (where the principal objective is beautification of the lumber) incurs a tariff of 3.8 per cent ad valorem. If it can be shown that this treatment is primarily for the purpose of maintaining the lumber in its rough, dressed or worked condition until installation or further manufacture, then no tariff is imposed. Thus, anti-stain treatment is acceptable and the Weyerhaeuser/Canfor 'cherry tone' protection stain also proved acceptable after some discussions. On the other hand, a primer stain on siding would not be considered as protection and would incur the 3.8 per cent tariff.

The customs authorities advised that fire retardant treatment would count as protection, not beautification and would therefore be duty free.

In addition to these two basic concepts, the definition of what is allowed as "worked" lumber is very specific. The lumber can be worked, i.e. tongued and grooved or shaped in some way, on the edges or on the ends but not both. Consequently, interior panelling is acceptable with a T & G V-joint on the edges, but if it was also end matched then it would be subject to duty at 7.3 per cent ad valorem under item 207. This may

appear to be somewhat inequitable, but the U.S. Customs authorities confirmed that this would be their interpretation. On the other hand, a relatively small producer of panelling in Vancouver which produces end matched items advises that so far this tariff has not been applied to sales it has made to the U.S.

There are also some specific rules regarding end-glued (finger-jointed) or edge glued lumber. Provided that the piece is more than 6 ft. long and not over 15 inches in width, or depth, it is classified as lumber. If it is shorter or wider, then a tariff of 3.8 per cent ad valorem applies under item 202.54.

One further aspect which could be of concern relates to sanding. If the lumber is sanded, a tariff of 3.8 per cent applies. At present, the definition of the term 'planing' does not include the process of abrasive planing. Any lumber planed in this way would be deemed to be sanded and therefore be dutiable. The concept of sanding includes 'hit or miss' sanding and sanding on only one face.

## 11. CONCLUSIONS

### 11.1 U.S. DEMAND FOR SOFTWOOD LUMBER

Softwood lumber demand in the U.S. during the 1980's is estimated to be significantly higher than during the 1970's. The market sector with the least total growth, but the greatest annual fluctuations, is likely to be residential construction.

### 11.2 CANADIAN DEMAND FOR SOFTWOOD LUMBER

Consumption of softwood lumber in Canada is expected to continue to increase during the 1980's. This is likely to be due initially to a strong recovery in single family starts, and subsequently to a continued strength in the non-residential and industrial sectors. Consumption in repairs and alterations is also likely to be an increasingly significant factor in some regions.

### 11.3 U.S. SUPPLY OF SOFTWOOD LUMBER

It appears unlikely that there will be sufficient increases in supply from U.S. sources to meet the increased U.S. demand for softwood lumber. The USDA assume that additional imports from Canada will fulfill U.S. needs.

### 11.4 CANADIAN SUPPLY OF SOFTWOOD LUMBER

The potential for increased production of softwood lumber exists in some regions of Canada. As demand pressures increase, it seems likely that the economics of developing less accessible timber will alter and therefore more production, in the short term, will become available.

### 11.5 MARKET POTENTIAL FOR SPECIALTY SAWN PRODUCTS FROM S-P-F

A number of opportunities appear to exist for value added products that can be produced from the S-P-F species group. The following chart has been developed to present in a simplified form the conclusions drawn from the marketing studies undertaken in each of the five cities and the overview analysis.

Summary of Conclusions on Potential Markets  
for S-P-F Specialty Sawn Products

The definitions of the terms used are as follows:

excellent	- immediate potential for sales
good	- there is definite potential for a quality product but needs sales effort
fair	- some potential may exist but will require effort to develop
poor	- there is no indication that the product is acceptable at present
negligible	- the market is too small or fragmented to be worth pursuing at present
long term	- there is likely to be potential within 5 years

Market Sector	Product	Dallas	Denver	Los Angeles	Minneapolis	Boston	U.S. General	Canada General
Construction	siding	good	good	fair	poor	poor	good	fair <sup>1/</sup>
	panelling	poor	fair	-- <sup>2/</sup>	fair	poor	fair	fair <sup>3/</sup>
	MSR lumber	excellent	excellent	long term	good	long term	excellent	excellent
	finger-jointed studs	excellent	poor	poor	poor	poor	fair <sup>4/</sup>	long term
	random length	poor	poor	poor	poor	poor	poor	poor
	treated	negligible	negligible	--	excellent	excellent	excellent <sup>5/</sup>	excellent <sup>6/</sup>
Retail	siding	poor	poor	--	poor	poor	--	--
	panelling	poor	excellent	good	good	fair	excellent	excellent
	finger-jointed studs	poor	poor	poor	poor	poor	poor	poor
	random length	poor	poor	poor	poor	poor	poor	poor
	home-centre	excellent	excellent	--	excellent	--	excellent	excellent
Furniture	components	excellent <sup>7/</sup>	negligible	fair	negligible	negligible	negligible <sup>8/</sup>	negligible
	selected grades	negligible	negligible	excellent	negligible	negligible	negligible <sup>9/</sup>	negligible

This relates primarily to B.C. and the Prairies.  
Where insufficient information was obtained from which to draw a reasonably valid conclusion, no comment is made.

This relates primarily to B.C.

At present, principally in Texas.

The North East and South East regions have already shown substantial increases in consumption and the trend has extended to the Mid West region.

Primarily Ontario.

Principally bed frame stock.

Apart from bed frame stock and some long term potential in Los Angeles.

Apart from Los Angeles.



#### 11.6 REMANUFACTURING IN THE LOWER MAINLAND, B.C.

Local remanufacturers concentrate primarily on coastal species and do not foresee a significant trend to use of S-P-F. They believe there are significant conceptual differences between the activity of a remanufacturer and that of a dimension mill.

#### 11.7 CLMA SITUATION ANALYSIS

The opportunity for significant increases in lumber production is limited by the availability of the resource. Lodgepole pine will remain the dominant species.

#### 11.8 TARIFFS

Some specialty products can be subject to duty. Prior to the development of a particular product line, the tariff implications need careful investigation.

## 12. ANALYSIS OF PRODUCT-MARKET OPTIONS

### Introduction

There are basically two broad options to the CLMA mill wishing to increase revenue by selling added-value products. The products from standard production can be upgraded, or they can be remanufactured. This chapter reviews the principal opportunities. It analyses related market opportunities and assesses the marketing implications for CLMA mills.

#### 12.1 PRODUCT UPGRADING

- Selective grading
- Treating
- MSR
- Finger-jointing

#### 12.2 REMANUFACTURED LUMBER

- Siding
- Panelling
- Furniture components
- Home centre lumber

## 12.1 PRODUCT UPGRADING

Selective Grading and Species Segregation

The simplest form of upgrading is to select, from standard specification production, lumber that can meet a more restrictive specification and which will command a higher value. Examples of this would be lumber with no wane or only with live knots.

The most attractive current opportunity for this type of product is for furniture stock in the Los Angeles market. In order to secure markets for furniture stock, a mill would need to establish a relationship either with some of the Los Angeles wholesalers or with furniture companies directly. Subsequently, the mill would need to develop a regrading programme.

## Advantages

- a new outlet for lumber from CLMA mills would be established.
- higher value could be obtained for some part of regular production.
- there should be no appreciable capital cost.

## Disadvantages

- there is likely to be some reduction in the quality of the commodity lumber sold since some premium items would have been graded out. This might impose a limitation on the volume of furniture stock a mill could develop without causing any significant problems with regular commodity customers.
- demand and prices for furniture stock tend to be much less volatile than for regular specification S-P-F. Therefore, there may be times when S-P-F prices peak and for a period remain above those which could be obtained for furniture stock.
- marketing effort, and therefore direct costs to the producer would be incurred. This may be avoided by the use of established wholesalers in the Los Angeles area.
- it would be necessary to segregate species.

There also appears to be growing potential for interior panelling produced from lodgepole pine. In order to obtain sales of a selected grade for this market, mills would need to establish a relationship with suitable remanufacturers.

### Advantages

- basically these would be the same as for furniture stock and the marketing effort required could be limited.

### Disadvantages

- currently, there is only a limited number of remanufacturers utilizing lodgepole pine for panelling. New remanufacturing capacity may develop but this could well be tied to other sawmills.
- species segregation would be necessary.

### Treating

A growing market exists in the U.S. and Canada for preservative treated lumber. CLMA mills that are able to segregate species, and can produce lumber suitable for treating would be able to develop a sizeable new market outlet for lumber from the S-P-F group of species. The lumber could be treated by the mill or sold to wholesalers for treatment in their local markets. A third option could be to channel the lumber through established B.C. treatment plants. Before any of these alternative strategies should be considered, the mill will need to decide first whether species segregation is possible. If it is, then tests would have to be carried out to discover whether any of the segregated species can be treated adequately to meet market requirements.

### MSR Lumber

The potential market for MSR lumber appears to be excellent. This would represent a significant new outlet for S-P-F for the CLMA members since visually stress graded S-P-F is not currently utilized by truss manufacturers. Initial marketing and promotional effort has already been undertaken by existing producers of MSR S-P-F lumber. However, a great deal of promotional and educational effort would be needed at an industry level before the full potential could be realized.

### Advantages

- higher value from regular production though, if the number of MSR producers increases dramatically, past differentials between stress graded and dimension lumber may be reduced.
- a new market sector would become available to CLMA mills.
- sales and marketing channels would be similar to those currently used.

### Disadvantages

- the problem of marketing lumber that does not achieve an adequate rating.
- the need for promotional effort, possibly in the form of financial support, for an industry approach. This may not be excessive since many truss manufacturers are already enthusiastic about the concept of MSR lumber.

### Finger-jointing

This is considered here to be product upgrading, though finger-jointing could also be categorized as remanufacturing. The market potential for finger-jointed materials, even for studs, appears to be less easy to define than for the previous items. This was discussed in detail in the chapter on demand trends for specialties. The major marketing implication for finger-jointed studs relates to the method of manufacture.

It was clear from discussions in the market that studs jointed after dressing were less highly regarded than studs that went through the planer after jointing. It is difficult to quantify this market preference in terms of a dollar differential, but it appears that the better looking finger-jointed stud can sell, on occasion, for up to \$15 per thousand board feet more. It is certainly more easily saleable when priced at the same level as the alternative.

The advantages and disadvantages for finger-jointed lumber are primarily economic and relate to production and alternative opportunity costs.

## 12.2 REMANUFACTURED PRODUCTS

### Siding

As U.S. housing market activity levels increase, and as cedar prices rise, so too will the potential for S-P-F siding. The principal problems facing a CLMA mill wishing to enter this market, apart from economics, relate to the need for a quality product and the poor image that currently exists of 'spruce' siding.

#### Advantages

- an added value product
- the standard sales and distribution channels can be utilized

#### Disadvantages

- market reaction, particularly in dry climatic areas, to siding resawn from KD 2 inch has tended to be unfavourable
- the competition for resawn siding would be principally from local manufacturers who are already customers for S-P-F. Their costs are frequently well below those of the B.C. producer.
- if a quality product (i.e. not resawn from KD 2 inch) is produced, some initial marketing effort would be needed to demonstrate that the product is better.

### Panelling

The opportunity for sale of lodgepole pine panelling in both 1 inch and thin, packaged grades appears favourable. Consumer tastes vary significantly, however, and a mill commencing production of this type of product would need to spend a considerable amount of time organising distribution channels in specific regions and developing suitable promotional programmes. The type of marketing and sales effort required is very different to that needed for commodity lumber. To some extent, this can be avoided by establishing an exclusive distributor arrangement with a large Canadian or U.S. company. However, the more this responsibility is passed to another company, the less control the manufacturer has over sales development and the lower the return. How these factors could be balanced would depend on individual company policy.

#### Advantages

- considerable value added potential
- a large number of potential customers (an advantage compared with selling panelling stock)

### Disadvantages

- species segregation necessary
- marketing and promotion costs involved.

### Furniture Components

There may be potential for sales of furniture components, however the furniture trade in Los Angeles is extremely varied in terms of the lumber specifications required. Consequently, it appears difficult to identify any single item which would be acceptable to a significant number of furniture manufacturers. It is therefore believed that the development of a cut-to-size furniture component business should be given a lower priority than the development of a furniture grade. There are also tariff problems to be considered. The exception to this would be the bed frame business where a component programme already exists for some CLMA mills.

### Home Centre Lumber

A significant market exists for home centre lumber in a number of small sizes that can be remanufactured from commodity lumber. The products are handled in small volume lots through normal wholesale channels. The principal marketing problem relates to distribution, since it appears unlikely that full rail car lots could easily or regularly be sold. On the other hand, a mill with the capability of including, for example, some volume of furring strips in a car of studs could find sales easier when the market is poor.

There is sufficient evidence from Eastern Canada and in the U.S., just south of the border, to suggest that economic remanufacture and sales of these items is viable. Furthermore, the field visits in the markets demonstrated that S-P-F is readily acceptable at the retail level.

### Advantages

- greater sales flexibility
- opportunity to upgrade economy/utility/lumber

### Disadvantages

- distribution and sales are likely to require a greater sales effort per unit volume than commodity lumber. Development of contracts with large retail chain outlets could reduce the problem.
- the added value does not appear to be as significant as items such as panelling.

13. RECOMMENDATIONS

1. CLMA mills wishing to develop a siding programme should analyse the cost of manufacturing a good quality siding. Trial production runs and some test marketing should be undertaken, but full programme development should be delayed until the differential between S-P-F and cedar prices becomes sufficient to allow economic production.
2. Individual CLMA mills should decide whether species segregation is feasible. If this can be done
  - trials should be initiated to ascertain the suitability of the production for preservative treatment.
  - the mills should investigate in detail the economics of producing and marketing interior panelling.
  - a furniture grade programme should be developed. Due to the complicated nature of this market, the CLMA should initiate a visit by a group of key Los Angeles wholesalers to view CLMA mill production. Mills should note that development of a furniture grade programme will involve a long term commitment regardless of short term opportunity costs.
3. Initial marketing studies indicate a favourable potential for MSR lumber but CLMA members should await the more detailed investigation due later this year. Interim actions could be related to trials on regular production to ascertain the values likely to be developed.
4. CLMA mills considering the development of a finger-jointing capability should bear in mind that dressing the lumber after jointing is preferred by the market. They should also note that finger-jointed structural lumber is not yet widely accepted in the U.S. and Canadian markets.
5. CLMA mills with the capability of remanufacturing home centre lumber should offer trial shipments, preferably on a mixed car basis.



**Appendix A**

**List of contacts made**

- Dallas
- Denver
- Los Angeles
- Minneapolis
- Boston
- Vancouver
- General

DALLAS

Wiener Lumber	Retail
Handy House	Retail
Boise Cascade	Retail
Irving Lumber	Retail
Pfiel Lumber	Retail
Sutherland Lumber	Retail
Moses & Cline	Wholesale
Fox & Jacobs	Consumer
Georgia Pacific	Wholesale
Cedar Supply	Remanufacture/consumer
Liberty Fence	Consumer
Richardson Lumber	Remanufacturer
Quality Fence	Consumer
Casa Linda Fence	Consumer
Slaughter Bros.	Wholesale
Slaughter Inc.	Wholesale
Handy Dan	Retail
Payless Cashways	Retail
Simmons	Consumer
Kroehler	Consumer
Home & Appt. Bldrs. Assoc.	General
J. Stiles	Consumer
Allen Builders	Consumer
Overhead Door Corp.	Consumer
Flintcote	Wholesale
Weyerhaeuser	Wholesale
Texas Crating Inc.	Consumer
Dallas Bldg. Authority	General

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DENVER

Georgia Pacific	Wholesale
Denver Truss	Consumer
Denver Wood	Remanufacture/retail
U.S. House	Consumer
Alpine Lumber	Retail
K-Mart	Retail
Kaibab	Wholesale
Legatt & Platt	Consumer
Mertz	Retail
Boddington	Wholesale
Flintco	Consumer
Reeds Planing	Remanufacture
Hurley Lumber	Retail
Gittings Lumber	Wholesale
Mr. Plywood	Retail
Handy Dan	Retail
Hugh M. Woods	Retail
Payless Cashways	Retail
Thriftway Lumber	Retail
Mountain States Lumber Dealers Association	General
Housing Association	General
Kenneth D. Camp & Assoc. Architects	
Vantage Homes	Consumer
Building Division, City of of Denver	General
Ridgewood Realty	Consumer
Denver Reserve Supply	Wholesale
Van Schach Realty	Consumer
Fabricated Wood Products	Consumer
Wood Bros.	Consumer
KV Lumber Sales	Wholesale

LOS ANGELES

MacClellan Planing	Remanufacture
Bayshore Lumber (Johns Manville)	Retail
Double J Lumber	Retail
South Bay Forest Products	Wholesale
Gillespie Furniture	Consumer
Lane Vance Stanton	Wholesale
Lumber Assoc. of S. California	General
Weyerhaeuser	Wholesale
Morris Furniture	Consumer
Standard Cabinet Works	Consumer
L.A. Period Furniture	Consumer
Bassett (E.B. Malone)	Consumer
Roman Industries	Consumer
Fremont Forest Products	Wholesale
Georgia Pacific	Wholesale
Robert Osgood Ltd.	Wholesale
Southwest Forest Industries	Wholesale
Commercial Wood Products	Consumer
United Wholesale Lumber	Wholesale
Builders Emporium	Retail
Al's Unpainted Furniture	Retail
Trussco	Consumer
Kim Truss	Consumer
Merchant Magazine	General
Ed Fountain Lumber	Wholesale
Plywood Los Angeles	Wholesale
Western Wood Products Assn.	General

MINNEAPOLIS

Northwestern Lumbermans Assoc.	General
Littvin Lumber Co.	Consumer/Wholesale
Knox - Brooklyn Park	Retail
Knox - St. Pauls	Retail
Canton Lumber	Wholesale
Louisiana Pacific	Wholesale
Georgia Pacific	Wholesale
Ed Hines	Wholesale
Sage Cedar	Wholesale
Rum River	Retail
K-Mart	Retail
Warren Hardware	Retail
Emmer Bros.	Wholesale
Scherer Bros. Lumber	Retail
Jones Lumber	Wholesale
Interior Wood Products	Consumer
W.R. Shaw Lumber	Consumer/Wholesale
Lampert Home Centre	Retail
Winton Sales Co.	Wholesale
Villaume Industries	Consumer

BOSTON

Shepherd & Morse	Wholesale
Plywood Ranch	Retail
George McQueston Co. Ltd.	Wholesale
Hughes Lumber	Retail
Furman Lumber	Wholesale
Grossman	Wholesale/Retail
Brewsters	Retail
Warren Trask	Wholesale
A.C. Sweezey	Retail
Holt & Bugsbee	Consumer
Palmer & Parker	Consumer
A.C. Dutton	Wholesale
Plyboard of New England	Wholesale
Fabritek	Consumer
S & K Lumber	Wholesale
N.E. Lumbermans Association	General
Lumber Sales Management Corp	Wholesale
Davenport & Peters	Wholesale
Gerrity Lumber Co.	Wholesale
Sawyer Lumber Co.	Retail
Coop. Reserve & Supply	Wholesale
Diamond International	Wholesale
L.R. McKoy & Co.	Wholesale
Summerville Lumber & Supply	Retail
Village Home Centre	Retail

VANCOUVER AREA

Allmac Lumber  
Amm & Hudson  
Antrim Yards  
Haney Cedar Products  
Leslie Forest Products  
Uneeda Wood  
City Lumber  
Faulkner Wood Specialties  
Stanley Doors (Washington, U.S.)  
Island Lumber Specialties  
Nikolai  
B.C. Clean Wood Preservers  
Wolf Independent Lumber  
Sawarne Lumber  
Tahsis  
Dicks Lumber  
Spools Lumber  
Curtis Lumber  
Olympic Industries  
Can Am Industries  
Port Mann Industries  
Orchardson Forest Products  
Vaga Wood Services  
Gregory Panelling  
Timber Specialties  
CMHC

GENERAL

Dept. of Industry, Trade & Commerce - Ottawa  
Mobile Home Association - B.C.  
Forintek - B.C.  
Koppers International Canada Ltd. - B.C.  
Koppers - U.S. - Pittsburgh  
Revelstoke Building Materials - Calgary  
Canadian Wood Pallet & Containers - Oshawa  
Canfor - B.C.  
Marks Lumber - Ontario  
Crown Zellerbach - B.C.  
Western Wood Products Assn. - Oregon  
National Wooden Pallets & Containers - Washington, D.C.  
National Association of Home Builders - Washington, D.C.  
Wickes - Oregon  
Lowe's - North Carolina  
Edward Hines - Chicago  
U.S. Forest Service - Oregon  
Hardwoods of Morganton - North Carolina  
Payless Cashways - Missouri  
U.S. Customs - Washington  
Forest Policy Project - Washington



## Appendix B

Enquiry received from Stanley Doors  
Kent, Washington

"S-P-F in a sound tight knot grade

1 3/32" x 1 5/8"	16'1"
1 3/32" x 1 5/8"	18'1"
1 3/32" x 2 1/4"	16'1"
1 3/32" x 2 1/4"	18'1"
1 3/32" x 3 3/8"	20'1"

semi trailer of each per month"

**Appendix C**

**U.S. Tariffs**

TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1981)

SCHEDULE 2. - WOOD AND PAPER; PRINTED MATTER  
Part 1. - Wood and Wood Products

2-1-A, B  
200.75 - 200.95

C S P	Item	Stat. Suf- fix	Articles	Units of Quantity	Rates of Duty		
					1	LDDC	2
	200.75		Wood fence pickets, palings, and rails, whether or not assembled into fence sections.....	.....	Free		Free
		20	Unassembled.....	X			
		40	Assembled.....	X			
	200.80		Wood railroad ties (except switch or bridge ties).....	.....	Free		Free
		20	Treated.....	M.bd.ft.			
		40	Untreated.....	M.bd.ft.			
	200.85		Wood shingles and shakes.....	.....	Free		Free
		20	Red cedar.....	Square			
		40	Other.....	Square			
			Wood dowel rods and pins, plain, or sanded, grooved, or otherwise advanced in condition:				
			Plain:				
			Softwood.....	Lin.ft.	2.5% ad val.		5% ad val.
			Hardwood.....	Lin.ft.	Free		3% ad val.
			Advanced in condition.....	.....	14.4% ad val.	7.6% ad val.	33-1/3% ad val.
			Softwood.....	Lin.ft.			
			Hardwood.....	Lin.ft.			
A*	200.91	00					
	200.93	00					
	200.95						
		20					
		40					
Subpart B. - Lumber, Flooring, and Moldings							
Subpart B headnotes:							
1. This subpart covers lumber, wood siding, wood flooring, wood moldings, and certain wood carvings and ornaments, including such products when they have been drilled or treated.							
2. For the purposes of this part, the following terms have the meanings hereby assigned to them:							
(a) <u>Lumber</u> : A product of a sawmill or sawmill and planing mill derived from a log by lengthwise sawing which, in its original saved condition, has at least 2 approximately parallel flat longitudinal sawed surfaces, and which may be rough, dressed, or worked, as set forth below:							
(i) <u>rough lumber</u> is lumber just as it comes from the saw, whether in the original sawed size or edged, resawn, crosscut, or trimmed to smaller sizes;							
(ii) <u>dressed lumber</u> is lumber which has been dressed or surfaced by planing on at least one edge or face; and							
(iii) <u>worked lumber</u> is lumber which has been matched (provided with a tongued-and-grooved joint at the edges or ends), shiplapped (provided with a rabbeted or lapped joint at the edges), or patterned (shaped at the edges or on the faces to a patterned or molded form) on a matching machine, sticker, or molder.							
Edge-glued or end-glued wood over 6 feet in length and not over 15 inches in width shall be classified as lumber if such wood as a solid piece without glue joints would be deemed to be lumber as defined above.							
Notes: For explanation of the symbol "A" or "A*" in the column entitled "CSP", see general headnote 3(c).							

TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1981)

SCHEDULE 2. - WOOD AND PAPER; PRINTED MATTER  
Part 1. - Wood and Wood Products

2-1-B  
202.03-202.09

C S P	Item	Stat. Suf- fix	Articles	Units of Quantity	Rates of Duty		
					1	LDDC	2
			<p>(b) <u>Softwood</u>: Wood from trees of coniferous species (order Coniferae).</p> <p>(c) <u>Hardwood</u>: Wood from trees of non-coniferous species.</p> <p>(d) <u>Drilled or treated</u>: Drilled at intervals for nails, screws, or bolts, sanded or otherwise surface processed in lieu of, or in addition to, planing or working, or treated with creosote or other wood preservatives, or with fillers, sealers, waxes, oils, stains, varnishes, paints, or enamels, but not including anti-stain or other temporary applications mentioned in headnote 4 of this subpart.</p> <p>(e) <u>Standard wood moldings</u>: Wood moldings worked to a pattern and having the same profile in cross section throughout their length.</p> <p>3. Lumber, including certain flooring provided for in this subpart, is dutiable on the basis of "board measure" for which the unit of measurement is the board foot. For the purposes of this subpart, a board foot is the quantity of lumber contained in, or derived (by drying, dressing, or working, or any combination of these processes) from, a piece of rough green lumber 1 inch in thickness, 12 inches in width, and 1 foot in length, or the equivalent of such piece in other dimensions.</p> <p>4. The treatment of lumber or other products provided for in this subpart with anti-stain or other temporary applications which serve only for the purpose of maintaining the products in their rough, dressed, or worked condition until installation or further manufacture shall not affect their classification under any of the provisions of this subpart.</p>				
			Lumber, rough, dressed, or worked (including softwood flooring classifiable as lumber, but not including siding, molding, and hardwood flooring):				
			Softwood:				
	202.03		Spruce ( <u>Picea</u> spp.).....	.....	Free		\$4 per 1000 ft., board measure
		20	Rough.....	M.bd.ft.			
		40	Dressed or worked.....	M.bd.ft.			
			Pine ( <u>Pinus</u> spp.):				
	202.06		Eastern white pine ( <u>Pinus strobus</u> ) and red pine ( <u>Pinus resinosa</u> ).....	.....	Free		\$1 per 1000 ft., board measure
		20	Rough.....	M.bd.ft.			
		40	Dressed or worked.....	M.bd.ft.			
	202.09		Other pine.....	.....	Free		\$4 per 1000 ft., board measure
			Lodgepole pine ( <u>Pinus contorta</u> ):				
		25	Rough.....	M.bd.ft.			
		45	Dressed or worked.....	M.bd.ft.			
			Other:				
		65	Rough.....	M.bd.ft.			
		85	Dressed or worked.....	M.bd.ft.			

TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1981)

SCHEDULE 2. - WOOD AND PAPER; PRINTED MATTER  
Part 1. - Wood and Wood Products

2 - 1 - B  
202.12 - 202.38

C S P	Item	Stat. Suf- fix	Articles	Units of Quantity	Rates of Duty		
					1	LDDC	2
			Lumber, rough, dressed, or worked, etc. (con.): Softwood (con.):				
	202.12		Parana pine ( <i>Araucaria angustifolia</i> ).....	.....	Free		\$4 per 1000 ft., board measure
		20	Rough.....	M.bd.ft.			
		40	Dressed or worked.....	M.bd.ft.			
	202.15		Douglas-fir ( <i>Pseudotsuga menziesii</i> ).....	.....	Free		\$4 per 1000 ft., board measure
		20	Rough.....	M.bd.ft.			
		40	Dressed or worked.....	M.bd.ft.			
	202.18		Fir ( <i>Abies</i> spp.).....	.....	Free		\$4 per 1000 ft., board measure
		20	Rough.....	M.bd.ft.			
		40	Dressed or worked.....	M.bd.ft.			
	202.21		Remlock ( <i>Tsuga</i> spp.).....	.....	Free		\$4 per 1000 ft., board measure
		20	Rough.....	M.bd.ft.			
		40	Dressed or worked.....	M.bd.ft.			
	202.24		Larch ( <i>Larix</i> spp.).....	.....	Free		\$4 per 1000 ft., board measure
		20	Rough.....	M.bd.ft.			
		40	Dressed or worked.....	M.bd.ft.			
	202.27		Cedar ( <i>Thuja</i> spp., <i>Juniperus</i> spp., <i>Chamaecyparis</i> spp., <i>Cupressus</i> spp. and <i>Libocedrus</i> spp.).....	.....	Free		\$3 per 1000 ft., board measure
		20	Western red cedar ( <i>Thuja plicata</i> ):				
		40	Rough.....	M.bd.ft.			
			Dressed or worked.....	M.bd.ft.			
			Other:				
		60	Rough.....	M.bd.ft.			
		80	Dressed or worked.....	M.bd.ft.			
	202.30		Other.....	.....	Free		\$3 per 1000 ft., board measure
		20	Rough.....	M.bd.ft.			
		40	Dressed or worked.....	M.bd.ft.			
			Hardwood:				
			Balsa ( <i>Ochroma lagopus</i> ) and teak ( <i>Tectona grandis</i> ):				
	202.32	30	Rough.....	M.bd.ft.	Free		\$3 per 1000 ft., board measure
	202.33	03	Dressed or worked.....	M.bd.ft.	Free		\$3 per 1000 ft., board measure
	202.34		Mahogany ( <i>Suaeda</i> spp. or <i>Khaya</i> spp.).....	.....	Free		\$3.10 per 1000 ft., board measure
		20	Rough.....	M.bd.ft.			
		40	Dressed or worked.....	M.bd.ft.			
			Spanish cedar ( <i>Cedrela</i> spp.), ebony ( <i>Diospyros</i> spp.), lancewood ( <i>Oxandra</i> spp.), and lignumvitae ( <i>Guaiacum</i> spp.):				
	202.35	00	Rough.....	M.bd.ft.	Free		15% ad val.
	202.37	30	Dressed or worked.....	M.bd.ft.	Free		15% ad val.
	202.38		Boxwood ( <i>Buxus</i> spp.), Japanese maple ( <i>Acer</i> spp.), and Japanese white oak ( <i>Quercus</i> spp.).....	.....	0.8% ad val.	Free	15% ad val.
		20	Rough.....	M.bd.ft.			
		40	Dressed or worked.....	M.bd.ft.			

Note: For explanation of the symbol "A" or "A4" in the column entitled "CSP", see general headnote 3(c).

TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1981)

SCHEDULE 2. - WOOD AND PAPER; PRINTED MATTER  
Part 1. - Wood and Wood Products

Z - 1 - B  
202.40 - 202.48

C S P	Item	Stat. Suf- fix	Articles	Units of Quantity	Rates of Duty		
					1	LDDC	2
	202.40		Lumber, rough, dressed, or worked, etc. (con.): Hardwood (con.): Philippine mahogany (almon ( <i>Shorea almon</i> ), bagtikan ( <i>Parashorea plicata</i> ), red lauan ( <i>Shorea negrosensis</i> ), white lauan ( <i>Pentacme contorta</i> and <i>P. mindanensis</i> ), mayapis ( <i>Shorea squamata</i> ), tangile ( <i>Shorea polysperma</i> ) and tisong ( <i>Shorea</i> spp.); meranti ( <i>Shorea</i> spp.); red seraya ( <i>Shorea</i> spp.); and white seraya ( <i>Parashorea</i> spp.).....	..... Free			\$3 per 1000 ft., board measure
		20	Rough.....	M.bd.ft.			
		40	Dressed or worked.....	M.bd.ft.			
	202.42		Alder ( <i>Alnus</i> spp.), ash ( <i>Fraxinus</i> spp.), aspen and cottonwood ( <i>Populus</i> spp.), basewood ( <i>Tilia</i> spp.), beech ( <i>Fagus</i> spp.), birch ( <i>Betula</i> spp.), black or cupelo gum ( <i>Nyssa</i> spp.), huckeye ( <i>Asaculus</i> spp.), cherry ( <i>Prunus</i> spp.), elm ( <i>Ulmus</i> spp.), eucalyptus ( <i>Eucalyptus</i> spp.), hickory ( <i>Carya</i> spp.), magnolia ( <i>Magnolia</i> spp.), maple ( <i>Acer</i> spp.), oak ( <i>Quercus</i> spp.), oak ( <i>Kalopanax</i> spp.), sweet (red or sap) gum ( <i>Liquidambar</i> spp.), sycamore ( <i>Platanus</i> spp.), walnut ( <i>Juglans</i> spp.), willow ( <i>Salix</i> spp.), and yellow poplar ( <i>Liquidambar</i> spp.).....	..... Free			\$3 per 1000 ft., board measure
		10	Maple ( <i>Acer</i> spp.) (except Japanese maple): Rough.....	M.bd.ft.			
		13	Dressed or worked.....	M.bd.ft.			
		25	Birch ( <i>Betula</i> spp.): Rough.....	M.bd.ft.			
		30	Dressed or worked.....	M.bd.ft.			
		35	Beech ( <i>Fagus</i> spp.): Rough.....	M.bd.ft.			
		45	Dressed or worked.....	M.bd.ft.			
		50	Oak ( <i>Quercus</i> spp.): Rough.....	M.bd.ft.			
		55	Dressed or worked.....	M.bd.ft.			
		65	Other: Rough.....	M.bd.ft.			
		70	Dressed or worked.....	M.bd.ft.			
	202.44	00	Other: Rough.....	M.bd.ft. Free			\$3 per 1000 ft., board measure
	202.45	00	Dressed or worked.....	M.bd.ft. Free			\$3 per 1000 ft., board measure

TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1981)

SCHEDULE 2. - WOOD AND PAPER; PRINTED MATTER  
Part 1. - Wood and Wood Products

2-1-B  
202.47-202.66

C S P	Item	Stat. Suf- fix	Articles	Units of Quantity	Rates of Duty		
					1	LDC	2
	202.47		Wood siding (weatherboards or clapboards), not drilled or treated: Resawn bevel siding.....	.....	Free		\$2 per 1000 sq-ft., surface measure
		20	Western redcedar ( <i>Thuja plicata</i> ).....	M.sq.ft.			
		50	Other: Softwood.....	M.sq.ft.			
		80	Hardwood.....	M.sq.ft.			
	202.48	00	Other: Western redcedar ( <i>Thuja plicata</i> ).....	M.sq.ft.	Free		\$3 per 1000 sq-ft., surface measure
	202.50		Other.....	.....	Free		\$4 per 1000 sq-ft., surface measure
		10	Softwood.....	M.sq.ft.			
		30	Hardwood.....	M.sq.ft.			
	202.52		Lumber and wood siding, drilled or treated; and edge-glued or end-glued wood not over 6 feet in length or over 15 inches in width, whether or not drilled or treated: Softwood lumber and siding, drilled, or pressure treated with creosote or other wood preservative, or both, but not otherwise treated.....	.....	Free		10% ad val.
		10	Drilled but not treated.....	M.bd.ft.			
		30	Other.....	M.bd.ft.			
	202.53	00	Hardwood, edge-glued or end-glued, not drilled or treated.....	M.bd.ft.	Free		10% ad val.
A	202.54		Other.....	.....	3.6% ad val.	Free	20% ad val.
		20	Treated with creosote or other permanent wood preservative.....	M.bd.ft.			
		40	Other.....	M.bd.ft.			
	202.56	00	Wood flooring, whether in strips, planks, blocks, assembled sections or units, or other forms, and whether or not drilled or treated (except softwood flooring classifiable as lumber): Hardwood flooring in strips and planks, whether or not drilled or treated: Oak ( <i>Quercus</i> spp.).....	M.bd.ft.	3% ad val.	Free	8% ad val.
	202.58		Other.....	.....	Free		8% ad val.
		20	Maple ( <i>Acer</i> spp.), birch ( <i>Betula</i> spp.), and beech ( <i>Fagus</i> spp.).....	M.bd.ft.			
		40	Other.....	M.bd.ft.			
A	202.60		Other.....	.....	6.8% ad val.	3.2% ad val.	33-1/3% ad val.
		20	Softwood.....	M.bd.ft.			
		40	Hardwood.....	M.bd.ft.			
	202.62	00	Wood moldings, and wood carvings and ornaments suitable for architectural or furniture decoration, whether or not drilled or treated: Standard wood moldings, not drilled or treated: Pine ( <i>Pinus</i> spp.).....	M.lin. ft.	1.5% ad val.		5% ad val.
	202.64		Other.....	.....	Free		5% ad val.
		20	Softwood.....	M.lin. ft.			
		40	Hardwood.....	M.lin. ft.			
A	202.66	00	Other.....	X.....	7.5% ad val.	4.5% ad val.	40% ad val.

Note: For explanation of the symbol "A" or "A\*" in the column entitled "CSP", see general headnote 3(c).

TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1981)

SCHEDULE 2. - WOOD AND PAPER; PRINTED MATTER  
Part 1. - Wood and Wood Products

2 - 1 - C, D  
203.10 - 204.30

C S P	Item	Stat. Suf- fix	Articles	Units of Quantity	Rates of Duty		
					1	LDDC	2
<b>Subpart C. - Densified Wood and Articles Thereof</b>							
Compression-modified or densified wood, whether or not impregnated with synthetic resin, and articles of such wood:							
A	203.10	00	Blocks, plates, sheets and strips.....	Lb.....	9% ad val.	5.8% ad val.	50% ad val.
A	203.20	00	Tool handles including knife, fork, and spoon handles, and handles and backs for brooms, mops, and brushes.....	Lb.....	9c per lb. + 7.3% ad val.	4.5c per lb. + 3.5% ad val.	50c per lb. + 40% ad val.
A	203.30	00	Other.....	Lb.....	9c per lb. + 7.3% ad val.	4.5c per lb. + 3.5% ad val.	50c per lb. + 40% ad val.
<b>Subpart D. - Wooden Containers</b>							
<u>Subpart D headnote:</u>							
1. The provisions of this subpart do not cover —							
(i) luggage, handbags, or flat goods (see part 1D of schedule 7);							
(ii) furniture (see part 4A of schedule 7);							
(iii) cases for musical instruments (see part 39 of schedule 7);							
(iv) cases or containers imported and classifiable with articles provided for in part 3E of schedule 6 or in part 2 of schedule 7; or							
(v) cases suitable for pipes or for cigar or cigarette holders (see part 9B of schedule 7).							
A	204.05	00	Baskets, of wood.....	No.....	14.7% ad val.	7.7% ad val.	50% ad val.
Casks, barrels, hogsheads, other coopers' products, and parts thereof, all the foregoing of wood:							
A	204.10	00	Casks, barrels, and hogsheads.....	No.....	3.3% ad val.	2.8% ad val.	15% ad val.
A	204.15	00	Staves and hoops; right barrelheads of soft-wood.....	X.....	Free		Free
A	204.20	20	Other.....	.....	7.3% ad val.	5.1% ad val.	33-1/3% ad val.
		40	Coopers' products.....	X			
			Other.....	X			
Complete packing boxes, cases, and crates, and other containers and holders chiefly used for packing, transporting, or marketing merchandise, all the foregoing (except baskets and coopers' products) of wood, whether wholly or partly assembled or not assembled:							
	204.25	00	Packing boxes and cases with solid sides, lids, and bottoms.....	No.....	Free		15% ad val.
	204.27	00	Containers designed for use in the harvesting of fruits and vegetables.....	No.....	Free		Free
A	204.30	00	Other.....	No.....	16-2/3% ad val.		33-1/3% ad val.
Note: For explanation of the symbol "A" or "A*" in the column entitled "CSP", see general headnote 3(c).							



## TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1981)

## SCHEDULE 2. - WOOD AND PAPER; PRINTED MATTER

## Part 1. - Wood and Wood Products

2 - 1 - D, E  
204.35 - 206.98

C S P	Item	Stat. Suf- fix	Articles	Units of Quantity	Rates of Duty		
					1	LDDC	2
			Jewelry boxes, silverware chests, cigar and cigarette boxes, microscope cases, tool or utensil cases, and similar boxes, cases, and chests, all the foregoing of wood:				
A	204.35	00	Cigar and cigarette boxes.....	No.....	3% ad val.		60% ad val.
			Other:				
A	204.40	00	Not lined with textile fabrics.....	No.....	14.2% ad val.	6.7% ad val.	33-1/3% ad val.
	204.50	00	Lined with textile fabrics.....	Lb.....	1.7¢ per lb. + 3.7% ad val.	1¢ per lb. + 2.9% ad val.	5¢ per lb. + 20% ad val.
			Subpart E. - Miscellaneous Products of Wood				
A	206.30		Wood doors with or without their hardware.....	.....	7.5% ad val.		33-1/3% ad val.
		20	Flush doors.....	No.			
		40	Other.....	No.			
			Forks and spoons, of wood:				
A	206.45	00	Of mahogany ( <i>Svietenia</i> spp. or <i>Khaya</i> spp.).....	X.....	6.4% ad val.	4.5% ad val.	33-1/3% ad val.
A*	206.47	00	Other.....	X.....	5.3% ad val.		33-1/3% ad val.
			Tools; tool bodies; tool handles, including knife, fork, and spoon handles; handles and backs for brooms, mops, and brushes; all the foregoing of wood:				
A*	205.50	00	Broom and mop handles, 3/4 inch or more in diameter and 38 inches or more in length.....	No.....	3% ad val.	Free	33-1/3% ad val.
A	206.52	00	Paint brush and paint roller handles.....	X.....	3% ad val.	Free	33-1/3% ad val.
A	206.53	00	Brush backs.....	No.....	6% ad val.	4.4% ad val.	33-1/3% ad val.
A	206.54	00	Other.....	X.....	8% ad val.		33-1/3% ad val.
A*	206.60	00	Picture and mirror frames, of wood.....	X.....	6% ad val.		33-1/3% ad val.
			Wood blinds, shutters, screens, and shades, all the foregoing, with or without their hardware:				
A	206.65	00	Consisting of wooden frames in the center of which are fixed louver boards or slats, with or without their hardware.....	X.....	16-2/3% ad val.		33-1/3% ad val.
	206.67	00	Other.....	X.....	14% ad val.	8% ad val.	50% ad val.
			Toothpicks, skewers, candy sticks, ice cream sticks, tongue depressors, drink mixers, and similar small wares, all the foregoing of wood:				
	206.85	00	Toothpicks.....	X.....	6% ad val.		25% ad val.
	206.87	00	Other.....	X.....	8% ad val.		33-1/3% ad val.
			Household utensils and parts thereof, all the foregoing not specially provided for, of wood:				
A	206.95	00	Of mahogany ( <i>Svietenia</i> spp. or <i>Khaya</i> spp.).....	X.....	8% ad val.	7% ad val.	33-1/3% ad val.
			Other:				
	206.96	00	Coat and garment hangers.....	X.....	7.3% ad val.	5.1% ad val.	33-1/3% ad val.
A*	206.98	00	Other.....	X.....	5.1% ad val.		33-1/3% ad val.

Note: For explanation of the symbol "A" or "A\*" in the column entitled "CSP", see general headnote 3(c).

TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1981)

SCHEDULE 2. - WOOD AND PAPER; PRINTED MATTER  
Part 1. - Wood and Wood Products

2 - 1 - F  
207.00 - 207.01

C S P	Item	Stat. Suf- fix	Articles	Units of Quantity	Rates of Duty		
					1	LDDC	2
			Subpart F. - Articles Not Specially Provided For, of Wood				
			<u>Subpart F headnote:</u>				
			1. This subpart covers all products of wood which are not provided for elsewhere in the tariff schedules.				
A	207.00		Articles not specially provided for, of wood.....	.....	7.3% ad val.	5.1% ad val.	33-1/3% ad val.
		20	Wood carvings.....	X			
		25	Shoe lasts, shoe trees and shoe stretchers.....	X			
		35	Pencil slats.....	Cross			
		45	Complete window and door casings.....	X			
		55	Window units and sash, of wood, whether or not knocked-down, open, or glazed.....	X			
		60	Fabricated structural wood members.....	X			
		65	Prefabricated buildings, panel assemblies and three-dimensional assemblies for prefabricated buildings.....	X			
		70	Ladders and scaffolding.....	X			
		80	Other.....	X			
	207.01	00	If Canadian article and original motor-vehicle equipment (see headnote 2, part 6B, schedule 6).....	X.....	Free		

Notes: For explanation of the symbol "A" or "A\*" in the column entitled "CSP", see general headnote 3(c).

## TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1981)

SCHEDULE 7. - SPECIFIED PRODUCTS; MISCELLANEOUS AND NONENUMERATED PRODUCTS  
Part 4. - Furniture; Pillows, Cushions, and Mattresses; Nontextile Floor Coverings

7-4-A

G S F	Item	Stat. Suf- fix	Articles	Units of Quantity	Rates of Duty		
					1	LDLC	2
			<p><b>PART 4. - FURNITURE; PILLOWS, CUSHIONS, AND MATTRESSES; NONTEXTILE FLOOR COVERINGS</b></p> <p><b>Subpart A. - Furniture, Pillows, Cushions, and Mattresses</b></p> <p><u>Subpart A heading:</u></p> <p>1. For the purposes of this subpart, the term "<u>furniture</u>" includes movable articles of utility, designed to be placed on the floor or ground, and used to equip dwellings, offices, restaurants, libraries, schools, churches, hospitals, or other establishments, aircraft, vessels, vehicles, or other means of transport, gardens, patios, parks, or similar outdoor places, even though such articles are designed to be screwed, bolted, or otherwise fixed in place on the floor or ground; and kitchen cabinets and similar cupboards, seats and beds, and sectional bookcases and similar sectional furniture, even though designed to be fixed to the wall or to stand one on the other; but the term does not include ---</p> <p>(i) antique furniture provided for in part 11B of schedule 7;</p> <p>(ii) articles of concrete, of stone, or of ceramic ware (see parts 1 and 2 of schedule 5);</p> <p>(iii) lamps and other lighting apparatus (see part 5 of schedule 6);</p> <p>(iv) floor coverings (see part 2B of schedule 2, part 5 of schedule 3, and subpart B of this part);</p> <p>(v) blinds, shutters, curtains, screens, and shades (see parts 1E and 2B of schedule 2);</p> <p>(vi) furnishings provided for in part 5 of schedule 3;</p> <p>(vii) mirrors (see part 3 of schedule 5);</p> <p>(viii) waste paper baskets;</p> <p>(ix) game tables and equipment, or toys (see part 5 of this schedule);</p> <p>(x) safes (see part 3F of schedule 6);</p> <p>(xi) refrigerators, freezers, dishwashers, stoves, clothes washers or dryers, television sets, radios, and phonographs (see parts 3F, 4, and 5 of schedule 6);</p> <p>(xii) furniture specially designed for X-ray work (see part 2B of schedule 7); or</p> <p>(xiii) furniture specially designed for sewing machines (see part 4E of schedule 6).</p>				

## TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1931)

SCHEDULE 7. - SPECIFIED PRODUCTS; MISCELLANEOUS AND NONENUMERATED PRODUCTS  
PART 4. - Furniture; Pillows, Cushions, and Mattresses; Nontextile Floor Coverings7-4-A  
727.02 - 727.55

C S P	Item	Stat. Suf- fix	Articles	Units of Quantity	Rates of Duty		
					1	LDDC	2
A	727.02	00	Furniture designed for hospital, medical, surgical, veterinary, or dental use; dentists', barbers' and similar chairs with mechanical elevating, rotating, or reclining movements; and parts of the foregoing: Dentists', barbers' and similar chairs with mechanical elevating, rotating, or reclining movements, and parts thereof.....	X.....	5.1% ad val.	3.9% ad val.	35% ad val.
A	727.04	00	Other.....	X.....	7.7% ad val.	5.3% ad val.	40% ad val.
A	727.06	00	Furniture designed for motor-vehicle use, and parts thereof.....	X.....	3.8% ad val.	3.1% ad val.	25% ad val.
	727.07	00	If Canadian article and original motor-vehicle equipment (see headnote 2, part 6B, schedule 6).....	X.....	Free		
			Furniture, and parts thereof, not specially provided for:				
			Of unspun fibrous vegetable materials:				
	727.11	00	Of rattan.....	X.....	16% ad val.		60% ad val.
A	727.12	00	Other.....	X.....	16% ad val.		60% ad val.
			Of wood:				
A*	727.15	00	Bent-wood furniture, and parts thereof.....	X.....	11% ad val.	6.6% ad val.	42.5% ad val.
			Other:				
			Chairs:				
			Folding:				
A*	727.23	00	Director's chairs.....	No.....	7.7% ad val.	5.3% ad val.	40% ad val.
A	727.25	00	Other.....	No.....	7.7% ad val.	5.3% ad val.	40% ad val.
			Other:				
A	727.27	00	Of teak.....	No.....	7.2% ad val.	3.4% ad val.	40% ad val.
A	727.29	00	Other.....	No.....	7.7% ad val.	5.3% ad val.	40% ad val.
A*	727.35	20	Furniture other than chairs.....		4.4% ad val.	2.5% ad val.	40% ad val.
			Convertible sofas, sofa beds, and similar dual-purpose furniture.....	X			
			Other.....	X			
A	727.40	40	Parts of furniture.....		8.5% ad val.		40% ad val.
			Bedsprings.....	X			
			Other.....	X			
A	727.45	20	Of textile materials, except cotton.....		14.9% ad val.	7% ad val.	80% ad val.
			Bedsprings.....	X			
			Other.....	X			
			Of rubber or plastics:				
A	727.47	00	Of reinforced or laminated plastics.....	X.....	12.8% ad val.	6% ad val.	65% ad val.
	727.49	00	Furniture, if certified for use in civil aircraft (see headnote 3, part 6C, schedule 6).....	X.....	Free		65% ad val.
A	727.50	00	Other.....	X.....	2.4% ad val.		25% ad val.
	727.51	00	Furniture, if certified for use in civil aircraft (see headnote 3, part 6C, schedule 6).....	X.....	Free		25% ad val.
A	727.52	00	Of copper.....	X.....	5.6% ad val.	4.2% ad val.	45% ad val.
A	727.53	20	Other.....		8.5% ad val.	4% ad val.	45% ad val.
			Convertible sofas, sofa beds, and similar dual-purpose furniture.....	No.			
			Bedsprings.....	No.			
			Other.....	X			
	727.55	00	Furniture, except of leather, if certified for use in civil aircraft (see headnote 3, part 6C, schedule 6).....	X.....	Free		45% ad val.

Notes: For explanation of the symbol "A" or "A\*" in the column entitled "CSP", see general headnote 3(c).

**Appendix D**

**Documents referred to in text of report**

Documents referred to in text of report

1. "An Analysis of the Timber Situation in the United States 1952-2030" Review Draft

United States Department of Agriculture, Forest Service

2. "Wood Products used in Single Family Homes"

United States Department of Agriculture, Forest Service  
Statistical Bulletin No. 452.

3. "Materials used in Residential Construction"

Central Mortgage and Housing Corporation

4. "Forest Policy Project" - Preliminary Interim Draft.

Washington State University.

5. "Use of Wood in Mobile Homes is Increasing"

United States Department of Agriculture, Forest Products  
Laboratory.

**Appendix E**

**Tables**

Appendix Table 1

Estimated Regional Softwood Lumber Production - U.S.

	Southern Pine	Douglas Fir	Western Pine	California Redwood	Other U.S.	Total	Import
1960	5,660	8,046	9,168	2,310	1,488	26,672	3,631
1965	6,628	8,913	10,432	2,105	1,217	29,295	5,233
1970	7,063	7,475	9,227	1,935	1,407	27,107	5,769
1971	7,734	8,283	10,019	2,000	1,396	29,432	7,246
1972	7,884	9,983	10,395	2,114	1,497	30,873	8,977
1973	7,895	9,074	10,564	2,158	1,598	31,289	9,002
1974	6,921	7,777	8,973	1,895	1,627	27,193	6,807
1975	6,967	7,134	8,445	1,690	1,475	25,711	5,711
1976	7,598	8,322	9,789	2,001	1,633	29,343	7,950
1977	8,239	8,796	10,309	2,000	1,643	30,987	10,380
1978	8,267	8,845	10,033	1,902	1,852	30,899	11,825
1979	7,938	8,427	9,780	1,818	1,781	29,744	11,118
1980(e)	6,800	7,300	7,900	1,700	1,200	24,900	9,610

Source: NFPA Fingertip facts.



Appendix Table 2

Softwood Lumber Production - Canada

	<u>B.C.</u>	<u>Alberta</u>	<u>Other</u>	<u>Total</u>
1970	7,652	463	2,670	10,785
1971	8,934	496	2,845	12,275
1972	9,502	582	3,360	13,444
1973	10,417	789	3,702	14,908
1974	8,736	643	3,622	13,001
1975	7,444	425	3,281	11,150
1976	10,626	509	3,967	15,102
1977	12,025	616	4,562	17,203
1978	12,531	687	5,249	18,467
1979	12,518	700	5,278	18,496
1980(e)	12,000	640	5,660	18,300

Source: Statistics Canada 35204 - up to 1978  
35002, 35003, 1979, 1980

## Appendix Table 3

Western Region U.S. 1/  
Softwood Lumber Production - Selected Species

	<u>Ponderosa Pine</u>	<u>Sugar Pine</u>	<u>Lodgepole Pine</u>	<u>Engelmann Spruce</u>	<u>Idaho White Pine</u>	<u>Mixed Softwoods</u>
1971	3,839	328	574	508	395	74
1972	4,094	385	670	401	406	126
1973	4,021	364	705	510	369	24
1974	3,293	281	492	330	267	125
1975	3,461	268	395	304	291	203
1976	3,929	283	461	366	294	368
1977	4,228	292	550	434	293	243
1978	4,159	330	500	374	245	222
1979	3,886	311	419	365	198	399

1/ Washington, Oregon, California, Idaho, Montana, Wyoming, Nevada, Utah, Colorado, Arizona, New Mexico, South Dakota (west)

Source: Statistical Year Book of the Western Lumber Industry - WWPA

## Appendix Table 4

Western Softwood Lumber Production - 1979  
By State  

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(million board feet)

	<u>Total</u>	<u>Estimated Volume</u> Lodgepole pine, Engelmann spruce & mixed softwoods	<u>Estimated Volume</u> Ponderosa pine, Sugar pine
Arizona	337	3	294
California-Nevada	4,639	60	1,285
Colorado	170	142	21
Idaho	1,893	174	352
Montana	1,257	392	215
New Mexico	227	149	29
Oregon	7,312	139	1,448
South Dakota (west)	97	-	97
Utah	54	29	20
Washington	3,841	146	392
Wyoming	198	139	35
	<u>20,025</u>	<u>1,373</u>	<u>4,286</u>

Source: Statistical Year Book of the Western Lumber Industry - WWPA

Note: Estimated species volumes do not conform exactly with volumes shown in the previous table due to a different method of analysis by WWPA

The volume shown for lodgepole pine etc. has been increased to 2,000 million board feet of W-W on page 26 by the inclusion of a substantial volume of ponderosa pine.

## Appendix Table 5

Area of Commercial Timberland - 1977  
by Ownership  
Rocky Mountain State

	<u>Rocky Mountain</u>	
	million	per
	acres	cent
National	36.4	63
Other public	6.7	12
Forest Industry	2.1	4
Farmer & Other		
private	<u>12.5</u>	<u>21</u>
Total	57.8	100

Source: An Analysis of the Timber Situation in  
the United States 1952-2030 - USDA

## Appendix Table 6

1976 Sawtimber Removals - Softwood  
by Ownership Class

	<u>Rocky Mountain</u>	
	million	per
	board feet <sup>1/</sup>	cent
National	2,658	55
Other public	524	11
Forest Industry	1,015	21
Farmer & Other		
private	<u>630</u>	<u>13</u>
Total	4,828	100

<sup>1/</sup> International 1/4" log rule

Source: An Analysis of the Timber Situation in  
the United States 1952-2030 - USDA

Appendix Table 7

**Siding Consumption - Canada**  
**By Province and Type of Housing**  
**1979**

	<u>B.C.</u>	<u>Prairies</u>	<u>Ontario</u>	<u>Quebec</u>	<u>Atlantic</u>
Single family starts	17,792	29,768	28,261	22,069	11,227
Av. lumber siding use per house	406	337	129	136	401
Total usage MFBM	7,224	10,032	3,646	3,001	4,502
Duplex starts	780	4,151	7,899	3,221	245
Av. lumber siding per unit	256	151	106	102	350
Total usage	200	627	837	329	86
Row starts	1,993	4,863	5,745	459	187
Av. lumber siding per unit	143	142	56	53	200
Total usage	285	691	322	24	38
Apt. & other starts	6,780	18,679	14,982	15,981	1,965
Estimated av. lumber siding per unit	22	10	3	10	16
Total usage	149	187	45	160	31
Total starts	27,345	57,461	56,887	41,730	13,626
Total siding consumption MFBM	7,858	11,537	4,850	3,514	4,657

Source:

Woodbridge, Reed data base

## Appendix Table 8

Calculation of Solid Wood Panelling Consumption  
in New Single Family Homes - U.S.

Average annual single family starts - 1976/80		1,230,000 units
65% have dens	=	800,000 units
4% of dens use wood panelling	=	32,000 units
Average floor area per den	=	194 square feet
Assuming two panelled walls - panelled area per den	=	225 square feet
.		
. . Total wall coverage with wood panelling = 32,000 x 225	=	7,200,000 sq.ft.
Assuming nominal 1" lumber	=	8,640,000 bd.ft.

Information Source: Woodbridge, Reed data base

Appendix Table 9

Calculation of Solid Wood Panelling Consumption  
in New Single Family Houses - Canada (only B.C.)

	<u>Single Detached</u>	<u>Duplex/ Semidetached</u>
Average annual starts - 1976-80	19,000	1,350
Average area of finished interior wall per unit <u>square feet</u>	2,975	2,868
Percentage of wood use in interior finish	2%	2%
. . Total area of solid wood panelling - <u>square feet</u>	1,130,000	80,000
Total - Detached and Semi Detached square feet	1,210,000	
Assuming 1" nominal lumber Total board feet	1,452,000	

Information Source: Woodbridge, Reed data base



## Appendix Table 10

Wood Furniture - U.S.  
Value of Shipments - 1977  
 millions of dollars

	<u>N. Carolina</u>	<u>Virginia</u>	<u>California</u>	<u>All other States</u>	<u>Total</u>
Wood living room, family room and den furniture	199	95	64	502	860
Wood dining room and kitchen furniture (Excl. cabinets)	431	122	69	340	962
Wood bedroom furniture	<u>410</u>	<u>244</u>	<u>91</u>	<u>545</u>	<u>1,290</u>
Total	<u>1,040</u>	<u>461</u>	<u>224</u>	<u>1,387</u>	<u>3,112</u>

Source: U.S. Dept. of Commerce  
 Census of Manufacturers - 1977

Appendix Table 11  
U.S. Furniture Industry Statistics - 1977

	<u>Number of Establishments</u>						<u>Value of Shipments - million \$</u>						<u>Cost of Materials - million \$</u>						<u>Softwood Lumber</u>		
	Massachusetts	Minnesota	Texas	Colorado	California	Total U.S.	Massachusetts	Minnesota	Texas	Colorado	California	Total U.S.	Massachusetts	Minnesota	Texas	Colorado	California	Total	Total Cost of Lumber Purchased (incl. frames)	Cost	Volume MMBF
Wood - household	101	32	118	39	548	2,982	89	14	99	5	401	4,140	45	8	49	2	192	1,931	539	102	424
Upholstered - household	48	N	65	14	263	1,473	52	N	103	8	371	2,931	25	N	57	4	184	1,511	236	23	108
Mattresses & Bedframes	30	18	74	10	113	962	29	23	118	21	191	1,399	17	11	67	12	103	789	33	23(e)	85(e)
TV & Radio Cabinets	N	1	N	N	25	94	N	3(e)	N	N	54	305	N	2(e)	N	N	33	155	35(e)	3.2	13
Household Furniture NEC	N	N	12	N	46	201	N	N	10(e)	N	33	302	N	N	5(e)	N	16	173	NA	NA	NA
Wood Office	2	N	21	N	88	331	2(e)	N	20(e)	N	85	312	1(e)	N	8(e)	N	36	239	32	3	12(e)
Public Bldg. & related	N	5	28	6	58	401	N	28	57	7(e)	71	787	N	11	29	3(e)	34	382	19	3	12(e)
Wood Partitions & Fixtures	40	33	90	29	256	1,598	16	24	56	19	141	1,106	6	9	19	7	55	496	44	19	80(e)
Metal Partition & Fixtures	12	11	15	N	82	536	19	32	47	N	104	1,303	9	11	27	N	52	630	3	1	4(e)
Furniture & Fixtures NEC	11	10	26	9	90	541	13	13	17	5	94	705	5	6	7	3	43	310	11	3	32
Total	244	110	449	107	1,569	9,119	220	137	527	65	1,545	13,290	108	58	268	31	748	6,616	952	160	770
State % of U.S. Total	2.7	1.2	4.9	1.2	17.2		1.7	1.0	4.0	0.5	11.6		1.6	0.9	4.0	0.5	11.3				

Source: U.S. Dept. of Commerce - Census of Manufactures  
 N - negligible

Appendix Table 12

Furniture Manufacturers - Canada  
 Value of Shipments - 1978  
 \_\_\_\_\_  
 millions of dollars

	<u>Quebec</u>	<u>Ontario</u>	<u>All Other</u>	<u>Total Canada</u>	<u>Cost of Materials</u>	
					<u>Hardwood Lumber</u>	<u>Softwood Lumber</u>
Furniture upholstery & repair shops	18	20	23	61	N/A	N/A
Household furniture manufacturers	350	437	101	888	43.2	15.1
Office furniture manufacturers	76	149	22	247	2.7	1.3
Miscellaneous furni- ture and fixture manufacturers	<u>125</u>	<u>242</u>	<u>90</u>	<u>457</u>	<u>7.1</u>	<u>8.0</u>
Total	569	848	236	1,653	53.0	24.4
	—	—	—	—	—	—

Source: Statistics Canada 35-211, 35-212, 35-213.

Note: The statistical survey of material costs only shows the figures for large establishments and is therefore likely to be understated.

Appendix Table 13  
 Cariboo Forest Region  
 Inventory of Mature Timber  
Compared to Volume Scaled by Species  
 (per cent)

<u>Species</u>	<u>Mature Volume</u> <sup>1/</sup>	<u>Average Annual Harvest</u> <sup>2/</sup>
Douglas fir	16.4	24.5
Lodgepole pine	43.1	40.0
Spruce	25.9	29.0
Balsam fir	7.8	4.7
	<u>76.8</u>	<u>73.7</u>
Hemlock	1.8	0.1
Cedar	3.6	1.3
Other Species	1.2	0.4
	<u>100.0</u>	<u>100.0</u>

<sup>1/</sup> 7.1 in. + dbh to a 4 in. top

<sup>2/</sup> 1973-79 average.

Source: Ministry of Forests data.

Appendix Table 14

Softwood Lumber Production <sup>1/</sup>- Central Interior MillsMillion board feet

	<u>Douglas Fir</u>	<u>Hemlock</u>	<u>WRC</u>	<u>Spruce</u>	<u>Other</u>	<u>Total</u>
1968	370	1	4	245	149	769
1969	318	-	-	201	177	697
1970	275	-	-	330	134	739
1971	226	-	-	478	187	891
1972	244	13	1	539	272	1069
1973	230	27	10	544	357	1168
1974	294	11	-	476	314	1095
1975	282	2	1	450	376	1111
1976	286	6	2	460	439	1193
1977	271	6	2	507	545	1330
1978	258	-	2	537	608	1406
1979	278	-	12	1193 <sup>2/</sup>	2	1485
1980(e)	241	13	21	1146	2	1423

<sup>1/</sup> Includes ties<sup>2/</sup> Definition changed to S-P-F

Source: Statistics Canada 35-003

Appendix Table 15

Shipments - Central Interior Mills  
Million board feet

	<u>Canada</u>			<u>U.S.</u>	<u>Export</u>	<u>Total</u>	<u>Percent U.S.</u>	
	<u>B.C.</u>	<u>Prairies</u>	<u>Other</u>	<u>Total</u>				
1968	198	11	11	220	520	9	749	70
1969	66	10	9	85	622	-	707	88
1970	57	11	42	110	609	14	733	83
1971	55	9	47	111	744	23	878	85
1972	67	12	60	139	932	19	1089	86
1973	68	18	56	142	915	27	1084	84
1974	145	30	68	243	797	27	1067	75
1975	164	45	91	300	859	13	1173	73
1976	142	54	69	265	883	30	1178	75
1977	116	42	42	200	1077	49	1327	81
1978	139	56	40(e)	235	1127	42	1404	80
1979	203	54	13	270	1087	79	1437	76
1980(e)	213	49	27	289	1026	115	1430	72

Source: Statistics Canada 35003

(e) Estimated

