

Group B

Market Opportunities in Millwork

This page is intentionally left blank.

Group B: Market Opportunities in Millwork

This section looks at market opportunities in the US Great Lakes for wood windows, doors and other millwork. It focuses on residential construction and the remodeling market. References also are made to non-residential and factory-built markets where appropriate.

Windows and doors and their respective headers can be considered as a system. With increasing complexity of architecture and the multiple use of wood, steel and concrete in many homes, garages and industrial-commercial buildings, the structural demands on headers merits a systems approach.

The per-unit-value of windows and doors is increasing, notably in luxury homes. Faulty fittings of windows and doors are a regular key source of callbacks in all price ranges. Mold and related litigation issues in the building envelope and around window openings and settings creates opportunities for the wood industry.

New residential and remodeling markets are large consumers of fiberglass, vinyl, wood and aluminum windows. Metal, wood, vinyl and many composites are used for doors and/or door frames. Wood, MDF and composites are used extensively for mouldings. These markets are extensive users of non-wood materials as well as solid wood (domestic and exotic hardwoods), MDF, engineered laminated flooring and a variety of composite products.

Two main groups of millwork are reviewed in this report. They are:

- Wood Windows & Doors;
- Other Millwork, including Flooring.

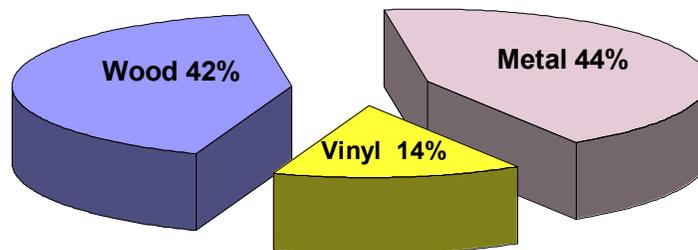
Wood Windows & Doors

Wood is a prime traditional material associated with wood windows and frames. Today, however, the homebuyer and the builder (in new residential construction) and the homeowner and design-remodeling company (in home renovations) have a wide choice of alternatives from which to choose.

Chart 55

US Demand for Windows & Doors (Residential and Non-Residential) 2002

US\$ 22BN in 2002



Peter Woodbridge & Associates Ltd.
Data Source: Freedonia Group



Wood accounted for about half of all prime residential window unit sales in the US in 2002³⁸. In general, wood is most often preferred in new construction while vinyl dominates in the window replacement market. However, the choice of material also depends on the type of housing and price point. For residential and non-residential windows and doors, Chart 55 shows that wood accounted for a smaller overall market share than metal in the residential market.

In some applications and price points, wood windows are not made of wood in isolation. Today, vinyl and aluminum are used extensively for cladding the exterior of wood windows.

Vinyl windows were introduced in Europe more than 45 years ago and are now the most widely specified material for European installations³⁹. In North America, vinyl is the fastest growing type of window. They are projected to continue to gain market share (Chart 56). Aluminum windows have been losing market share in many markets and this trend is expected to continue.

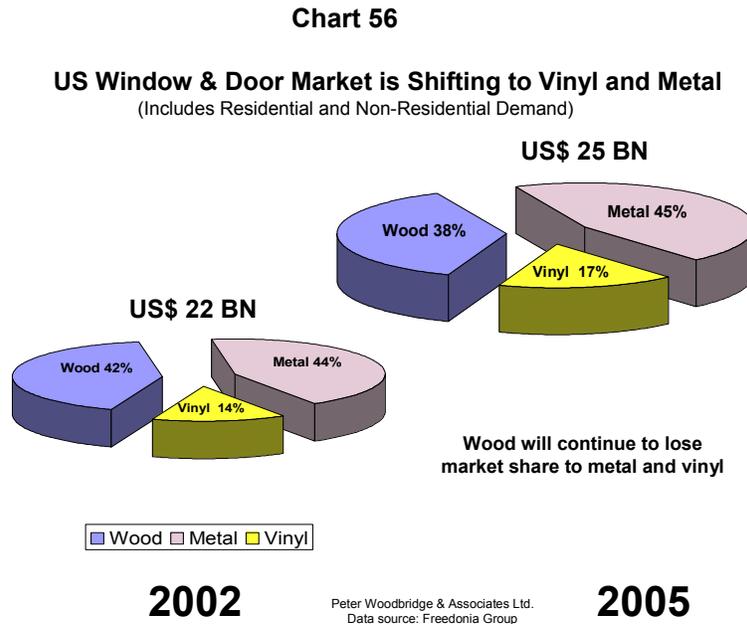


Chart 56 shows projections by the Freedonia Group. It anticipates a significant level of overall market growth in residential and non-residential windows and doors rising from around US\$22 Billion in 2002 to US\$25 Billion by 2005. This is a faster pace of growth than for residential housing starts alone and reflects strong per-structure demand both in the new construction and home improvement market.

Over this time period, vinyl's share of the rising level of demand is forecast to increase from 14% in 2002 to 17% by 2005. This growth will be at the expense of wood (declining from 42% to 38%) and metal (declining from 45% to 44% of the market).

US Imports

The US has an extensive wood windows and doors industry, but runs a sizeable trade deficit in these products. In 2002, the US imported US\$625 million of wood windows and doors, while exporting US\$130 million. The US trade deficit in these products has been increasing consistently in recent years (Chart 57).

³⁸ *Window World* Spring 2003

³⁹ *Door and Window Maker* November 2002

Chart 57

US Trade in Wood Windows & Doors

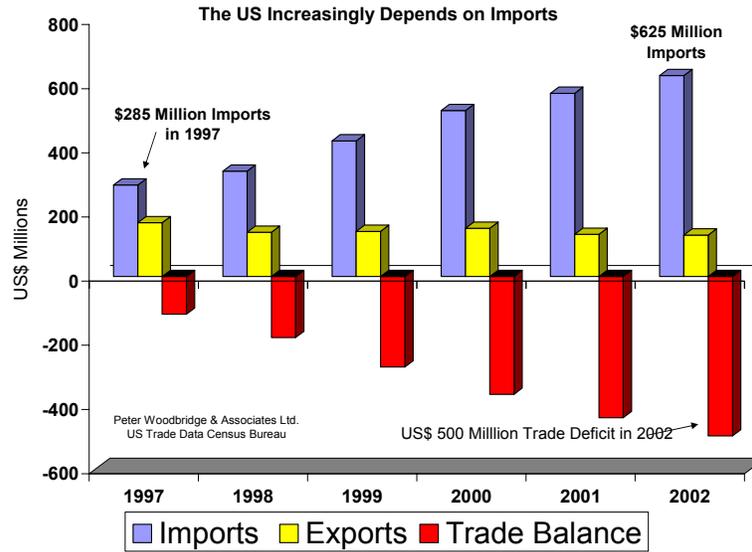
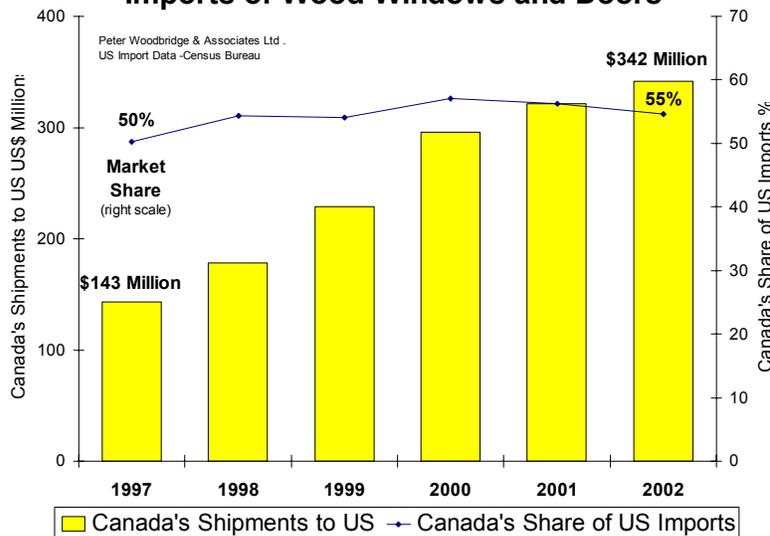


Chart 57 shows that US imports of wood windows and doors has grown by 220% from US\$285 in 1997. Many of the window imports are classified as wood, but may include significant elements of vinyl and aluminum cladding. Imported doors and frames also comprise a wide range of composites using wood as a base.

Canada is the dominant import supplier to the US of wood windows and doors. In 2002, these were valued at US\$342 million (Chart 58), up by 140% since 1997. Canada's market share in US wood window and door imports has remained fairly constant at 50%-55% of the total import market.

Chart 58

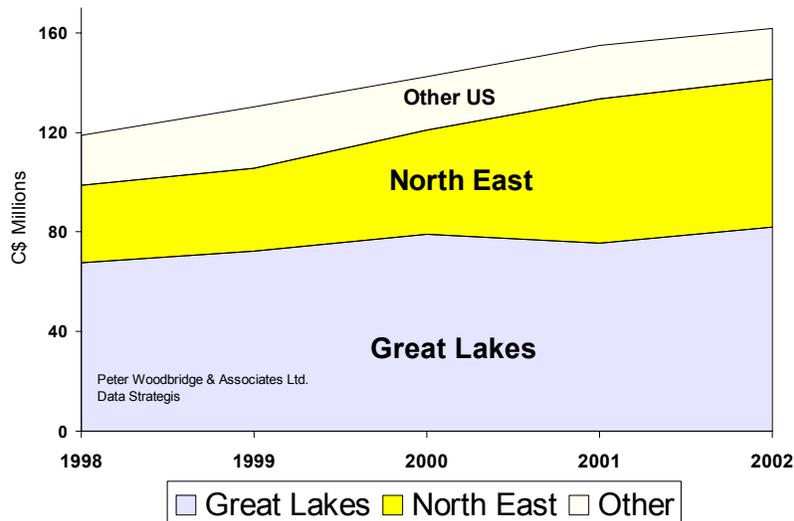
Canada is the Dominant Supplier Of US Imports of Wood Windows and Doors



Ontario's wood windows and doors industry is a key supplier to the United States and ships products that reflect, not just wood usage, but the full range of vinyl, aluminum and composites discussed above. The importance of various US markets for Ontario's wood windows and doors exports is summarised in Chart 59.

Chart 59

Ontario Wood Window & Door Exports to the United States



The chart shows that the US Great Lakes region is the most important market for Ontario accounting for 51% of its exports of these products to the United States in 2002. This was down from 57% in 1997. Much of the growth in Ontario's exports has been to the North East region, notably Massachusetts and Connecticut. Shipments to the North East have doubled in value over the past five years. However, shipments to the Great Lakes also increased by about 20% over this period.

Technology ⁴⁰

By using advanced bonding systems, window and door makers can recycle off-cuts from wood window production into composite products. These offer many of the advantages of wood, but typically are available with greater uniformity of quality and are cheaper.

Andersen Windows in Michigan is the world's largest window manufacturer. It already makes most of its windows using its patented material *Fibrex* – a mixture of wood fibres and PVC. Mikron Industries uses a wood-plastic composite based on a thermoplastic alloy. In addition to providing the main profile, composite lumber can be used for parts of window and door frames. In Canada, Loewen Windows, which is among the country's largest wood window producers, uses Douglas-fir, but clads the exteriors with aluminum.

Windows and Doors in Factory-Built Structures

There are few special demands relating to windows and doors in the factory-built housing market, except with specialty units where, for example, high levels of insulation are required. In most cases, windows and doors are purchased in large volumes and consumer preferences currently reflect a preference for vinyl or vinyl-clad wood.

⁴⁰ Adapted from *Window World* Spring 2003

At higher price points, and in many pre-cut homes, wood windows with more elaborate design offer a strong selling point to marketers. We did not identify any special needs for headers, beyond those discussed in general in the previous section for single-family new construction.

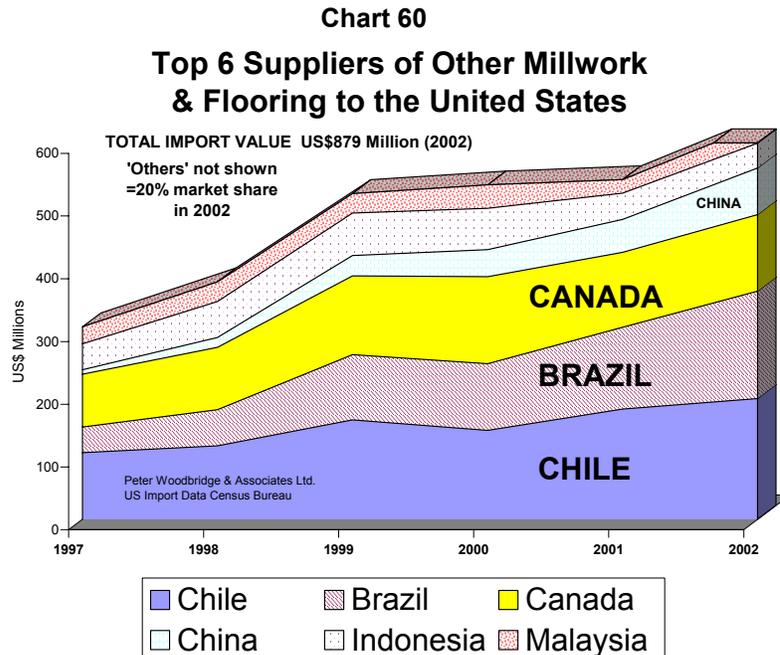
Other Millwork

Other millwork comprises a wide range of items including mouldings, staircases, flooring and numerous other applications where wood and other materials are required for non-structural construction and in appearance and finishing applications. Many of these products are now imported as ready-to-assemble (RTA) components.

In the past, western species such as White Pine and Ponderosa Pine, have held a significant market share in many of these end-uses. Increasingly, solid wood has been displaced by fingerjoint lumber, MDF mouldings and non-wood materials, including composites. Many of these composites are made from wood waste combined with plastics.

US imports of other millwork in 2002 totaled US\$879 million (Chart 59). This was an increase of over 70% from 1997. The top six import suppliers are shown in the chart. Chile is the largest supplier of millwork and mouldings to the US, shipping US\$192 million in 2002 compared with US\$106 million in 1997.

Brazil is the #2 supplier at present, with US\$171million shipments to the US in 2002. This was up from US\$41 million in 1997, or an increase of over 300% over the period. Canada was in #3 position, shipping US\$122 million to the US in 2002. Canada's recent export sales performance in the US has shown very little growth over the past few years and currently is below the peak attained in the year 2000 (Chart 60).



From the point of view of examining Ontario's opportunities for other millwork sales to the US and Great Lakes specifically, it is worthwhile noting the fast rates of import market share growth being achieved by offshore suppliers.

Examples include China (US\$74 million sales to the US in 2002, with a very fast growth rate), Brazil and Chile. Indonesia and Malaysia have been significant suppliers in the past, but their market share is growing comparatively slowly.

There are important strategic considerations for the Ontario industry as it continues to increase its exports to the US. There appear to be close working relationships, and ownership ties, between many firms in this business on both sides of the border. Ontario seems already to have a well defined role in the overall trade and is able to serve several high end niche markets in the Great Lakes.

Apart for Canada's exchange rate advantage, it is not clear, however, what key drivers of further major capacity expansion exist in this business.

Demand for Wood Windows & Doors in the New Construction Market

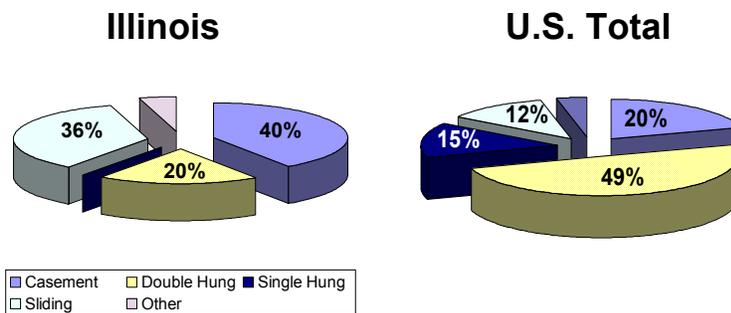
In the new construction market, homebuilders and homebuyers vary widely in their choice of window type. The options vary according to price point of the home and reflect differences in climate and housing type (single family and multi-family). Chart 61 shows typical types of windows chosen in Illinois compared with the US average, in 2001.

In Illinois, there is a strong preference in single family new residential construction towards casement type windows. These accounted for 40% of the market. Sliding windows were the next most popular type, with a 36% market share in the state. Double hung windows, which are popular in the North East and South, accounted for just 1 in 5 windows installed in 2001.

Chart 61

Wood Window Consumption in Illinois, by Type

Homebuilders and Homebuyers Vary Widely In their Choice of Window Type



#2885 WA 205a 205b

Peter Woodbridge & Associates and NAHB Research Centre

In the United States overall, total consumption patterns show that double hung windows accounted for nearly half (49%) of all windows used in new residential construction. Casement windows accounted for 20% of overall consumption, in contrast to the popularity of this window type in Illinois. Single hung windows (15% of national consumption by type) are popular in new homes in many areas, while sliding windows accounted for just 12% of the US average in 2001.

Marketing of windows to different areas of the US needs to reflect regional and local preferences and underscores the need for detailed market knowledge and a strong distribution network. The linkages created by Ontario wood window manufacturers in the US Great Lakes are an important part of effective sales and a source of competitiveness.

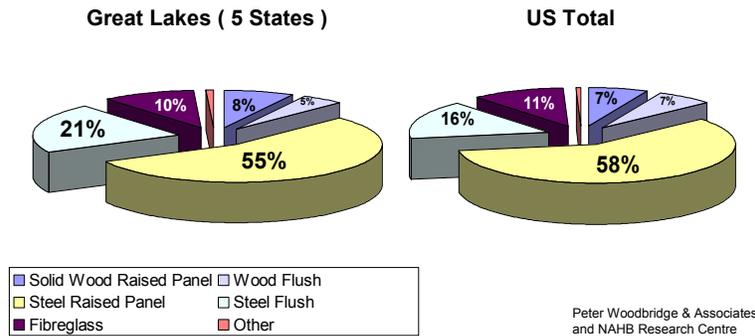
Exterior Doors

In contrast to the individuality found in the windows market, the types of exterior doors used in new homes are fairly standard throughout the United States. Chart 62 shows that the pattern of consumption across the Great Lakes market region is almost identical to that for the United States as a whole.

Chart 62

Exterior Doors: Choices are Fairly Standard Across the US

Steel Dominates the High Volume Market,
 Wood Exterior Doors are a Niche Product



Approximately 55% and 60% are steel raised panel doors in each case. Steel flush doors account for another 16% to 21%. 10% to 11% are fiberglass and between 17% and 18% are wood-based doors – either wood flush or solid wood raised panel. Ontario is a producer of several types of doors sold into residential markets, and produces some high-end wood doors for luxury homes.

Demand for Wood Windows & Doors in the Remodeling Market

The US\$150 billion (annual sales) US remodeling market is a large consumer of wood windows and doors. Direct sales from large producers, such as Pella and Andersen, to big-box stores such as Home Depot and Lowes dominate the market for domestic products.

The large retailers and distributors serving the pro-dealerships also purchase sizeable volumes of supplies from offshore (notably interior doors), and these are capturing market share quite rapidly. However, the low unit cost of the US domestic industry generated by its very large scale, automated and very efficient plants results in domestic window suppliers dominating the retail window market.

The US Wood Windows Industry

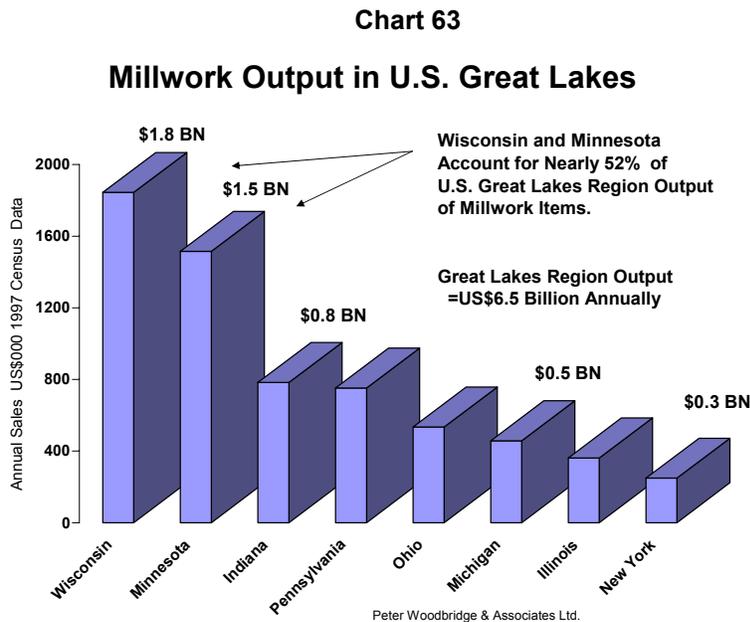
The US Great Lakes is an important region in the production of wood windows and doors. Based on Census data⁴¹, there were over 1400 establishments in the US with their primary

⁴¹ US Census Manufacturing – Industry Series 1997.

manufacturing activity in wood windows and doors. They produced a total shipments value of \$8.7 billion in 1997. There was consolidation among larger firms in the industry during subsequent years and by 2001, the total shipments value was US\$11.3 billion, or an average increase of nearly 6% per year.

Geographically, the wood windows and doors industry is represented in most states but is concentrated heavily in Wisconsin (#1 in the US), Minnesota (#2), Iowa (Pella), California, Texas and Oregon. Much of the high valued old growth species from the west that was used for wood windows and doors traditionally came from Oregon. This aspect of the industry has since declined, but the state is still the home of some leading manufacturers, such as Jeld-Wen .

Chart 63 shows millwork output in the Great Lakes and illustrates the dominance of Wisconsin and Minnesota. Together, these account for nearly 52% of millwork output from the region, valued in 1997 at over US\$6.5 billion.



Throughout the US and Canada, one of the characteristics of the wood windows and doors business is that many of the manufacturers involved are private firms. Several are large global players. Volume 4 provides further details and examines the implications and future opportunities for Ontario's wood windows and doors industry.

The US Other Millwork Industry

The US Great Lakes region ranks well down the list as a manufacturing area for other millwork, including flooring.

Based on Census data, there were about 1450 establishments in the US involved in the manufacturing of these products in 1997. The largest producing states were California, Tennessee (oak flooring), North Carolina, Georgia, Virginia, Missouri and Oregon. Many of these are based traditionally on indigenous hardwoods or high value softwoods.

As an industry, the other millwork, mouldings and flooring business in the United States has not grown in shipments value at anything like the rate of the wood windows and doors sector. Much of the domestic growth in both sectors has been diverted to offshore suppliers, but the mouldings and flooring businesses within the US have suffered particularly badly due to imports.

Chart 64 compares the change in shipments value from domestic manufacturers over the period 1997-2001 for the two sectors. Only limited growth has taken place in shipments of other millwork from domestic suppliers within the US. With a peak in 2000, these rose from US\$4.4 billion in 1997 to US\$4.9 billion by 2001.

Increasingly, imported flooring is replacing traditional North American hardwoods such as oak.

New markets are being developed for a wide range of indigenous North American species, notably as wood flooring displaces carpeted floors in consumer preferences.

Maple, ash, alder and even western hemlock have been developed for this purpose. Even so, with the widespread availability of offshore supplies of solid hardwoods and engineered wood floors (EWF), usually at lower per square foot cost for materials than the domestic brands, the market share of imports seems set to climb.

Demand for Other Millwork and Flooring in Factory-Built Housing

The HUD-based manufactured homes industry is a significant consumer of mouldings and some basic millwork, but per floor usage rates for other millwork in total is significantly lower than for single family new construction.

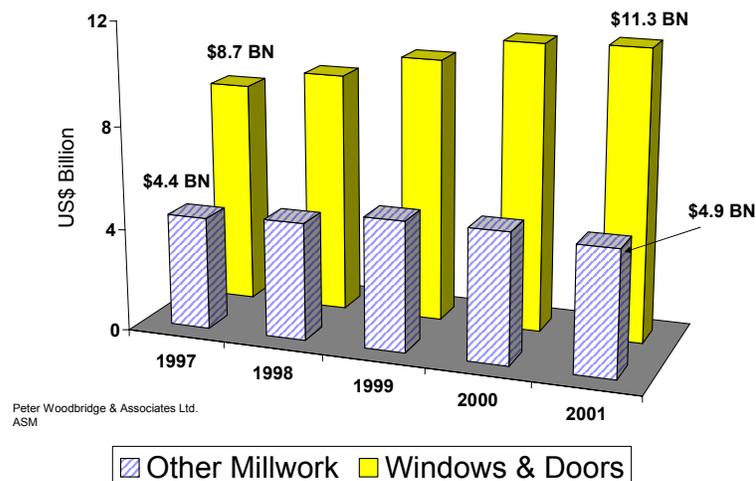
Usage rates climb in concert with higher price points in HUD code housing and installed carpets are being displaced by laminated wood floors in many instances.

In conventional code factory-built two-storey housing, usage rates climb and can mirror those for starter homes and move-up homes in new residential construction.

Demand for Other Millwork in the Remodeling Market

The US remodeling market consumes significant volumes of other millwork annually. Home improvement centres and pro-dealers have done much to promote the availability and choice of high quality mouldings and interior woodwork for the consumer.

Chart 64
Growth in US Wood Window & Doors Production has Outstripped Production of Other Millwork



The Ontario Wood Window, Door and Other Millwork Industry

Ontario has a large and thriving industry producing these products, located in southern Ontario, and is well represented in several millwork products. For example, it is the home base of one of the world's largest door manufacturers, Masonite International Corporation, formerly Premdor (Mississauga, ON). The headquarters of the Royal Group of Technologies is a major supplier of mouldings. The group recently expanded its plant capacity at Woodbridge, ON. Alexandria Mouldings is also a significant producer, notably in MDF mouldings. Sauder is another Canadian player, but most of its production capacity growth is in the US.

Within Ontario, the millwork sector does not depend for its supplies on the province's wood producing industries. The same "disconnect" is evident in the US where millwork plant locations are no longer tied strongly to domestic and traditional wood sources (e.g. Ponderosa Pine in the West). Windows and doors producers use wood, but also use extensive volumes of non-wood materials (e.g. vinyl, fibre-glass, metal and composites). In these products, Ontario competes with some of the world's other largest and most efficient manufacturers located in the Great Lakes states and elsewhere which have their strength in extruded plastics and metals, along with distribution, and which increasingly source their wood needs from overseas.

Despite the province's strong connection with the "marquee" names outlined, most of the high volume production manufacturing capacity of these larger firms is located outside Ontario and outside Canada. Masonite, for example, operates 70 plants in twelve countries.

There are some plants in northern Ontario linked to Ontario's hardwood resources as well as recent technological innovation in OSB sub-flooring by Kruger at Longlac, ON ('Dricore') that can use domestic hardwood overlays.

Like many firms in the US, companies in the Canadian millwork industry tend to be either small, or very large with linkages to US operations (e.g. Royal Group and Royal Mouldings of Toronto). A large percentage have fewer than 50 employees due to the specialty and high-end niche markets they serve.

Hardwood Lumber

In Ontario, hardwood lumber is derived from deciduous species such as maple, birch, beech, aspen, ash and oak. Hardwoods are used in Ontario for pulp and papermaking, structural EWPs and lumber.

In its resource development policies on public lands, central Canada has tended to neglect and frequently disregard the potential value of many of its higher density hardwood species. In contrast, the hardwood industries based in the US North East and parts of Atlantic Canada are much further developed commercially.

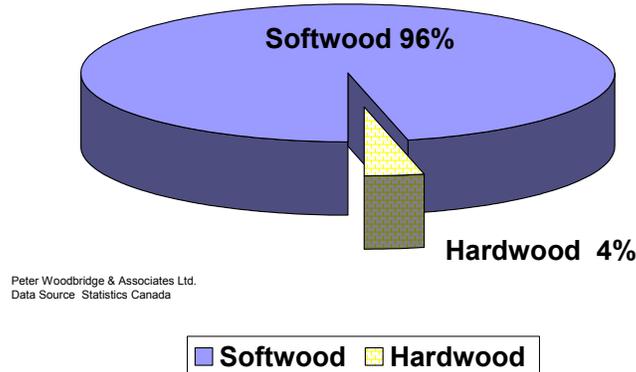
For most parts of Canada, until recently, the over-riding culture of utilization has been in favour of softwoods. This has been changing, notably in the use of aspen and other low density hardwoods for OSB. The TimberStrand mill at Kenora, Ontario is based on aspen. This situation historically has not served the wood windows, doors, mouldings and other millwork to advantage. Canada has consistently incurred a trade deficit in hardwood lumber (e.g. Ontario, in 2002).

Product certification Issues

Forest products certification (e.g. FSC, CSA, SFI) lies outside the scope of this report. However, this is an important commercial issue and may be a driver of future competitiveness and market access for Ontario's wood product manufacturers.

Chart 65

Hardwood Lumber Production in Ontario 2002



The Phase I study pointed out that in Europe, while industrial and non-structural use dominates the demand for softwood lumber, the European furniture and millwork industries dominate demand for primary hardwood lumber. It also noted that value-added manufacturers are a key market for all primary hardwood mills.

Chart 65 shows the estimated production of softwood and hardwood lumber. Most of the current uses of Ontario hardwoods today are for structural end-uses. There is a significant “disconnect” between the Ontario forest industry, on the one hand, and the province’s wood windows, doors, mouldings and other millwork industries.

This page is intentionally left blank.