

Modified Wood

Commercial Opportunities for Alberta Producers BUSINESS CASE

Prepared for Alberta Finance and Enterprise (AFE)

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1. What are Modified Woods?

Physically Modified Woods

Woods modified by *chemical* treatment (i.e. pressure treated lumber) already have a significant share of the North American decking market, as well as markets for landscape ties and other exterior product-markets where contact with the ground and/or exposure to weather are involved. For example, about 40% of the output volume of the U.S. southern pine lumber industry is chemically treated for these types of applications. Currently, '*physically modified woods*' (Chart 1) have only a small share of North American decking markets. They are more important in Europe and some other global markets (Japan is showing significant interest, for instance). Declining average quality trends, and reduced volume availability, of naturally green wood suggests that more of these products will gain market share – particularly as physically modified wood manufacturing technologies improve.

What are Physically Modified Woods?

From an economic perspective, physically modified woods are (usually) lower priced species that are processed to 'mimic' some of the characteristics of higher valued woods or other species – or to develop desired attributes, such as durability, fire resistance, resistance to moisture and insect attack. It is clear from the large scale of the chemically treated wood products industry that there is a strong potential financial imperative for creating these types of characteristics.

From a technical perspective, the surface characteristics of modified woods are altered to obtain desired properties. In cases where modified woods are used in 'appearance' situations, and not used in structural applications, the nature of the substrate material is not critical. There is a rapidly growing industry which uses lower valued softwoods as a 'substrate' or 'host' to replace higher priced, or hard to obtain hardwoods, for certain appearance characteristics. Some higher end wood window manufacturers, for instance, are using physically modified softwood in place of hardwoods.

Various technologies are available, many of which are commercially proven but others are at a developmental stage.

'Green' Markets and Chemically Treated Woods


Concerns about the potentially negative health impacts of creosote and, later, CCA (chromated copper arsenate) pressure treated woods led to action by many nations forcing these products to be phased out for most end-uses, particularly where consumers are directly involved and where run-off harmful chemicals may be created. They have been replaced in many cases (not always satisfactorily) by 'safer' chemicals including ACQ, copper azole, borates and linseed (in Australia).

As a 'green' alternative to chemical pressure treated woods, and other reasons, physically modified woods are a growing field of endeavor.

What is Modified Wood?

Chart 1

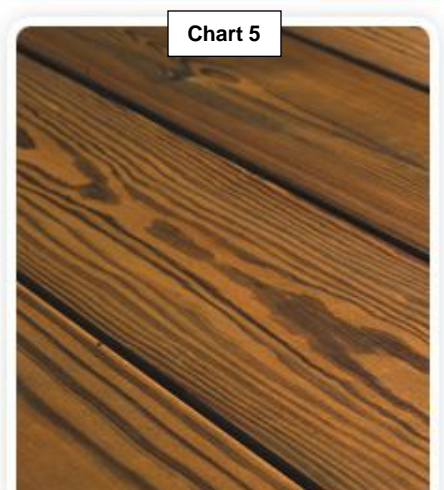
- Wood modified by means of:
 - Chemicals** (treated wood) and/or
 - Physical alteration** (e.g. heat)
 - (a) to preserve the life of the wood, or
 - (b) to render its surface characteristics suitable for targeted uses (e.g. make softwoods act like hardwoods, in some respects)
- Various technologies available, many proven and commercial; some at development stage or specialty market items.
- Extensive modified (or 'treated wood') products used in structural applications
 - ACQ (replacing CCA)
 - ~ 40% of US South pine industry is structural treated lumber



2. What Markets do Modified Woods Serve?

Physically Modified Woods: Thermally Modified

Thermal modification uses very high steam kiln temperatures to 'cook' the wood. This process modifies, to varying degrees, the chemical, physical and biological properties of the wood. Sugars and resins in the wood are permanently altered so that they are no longer digestible by insects or bacteria. The process provides the wood with increased durability, and often is rot, mold and mildew resistant. An example is 'Natural Wood Decking' (Charts 2 to 5).



Retail Price
\$2.20 per lineal foot
(\$5.25 sq ft, decking material only)



Source: www.naturalwooddecking.com

3. What Technologies are Used?

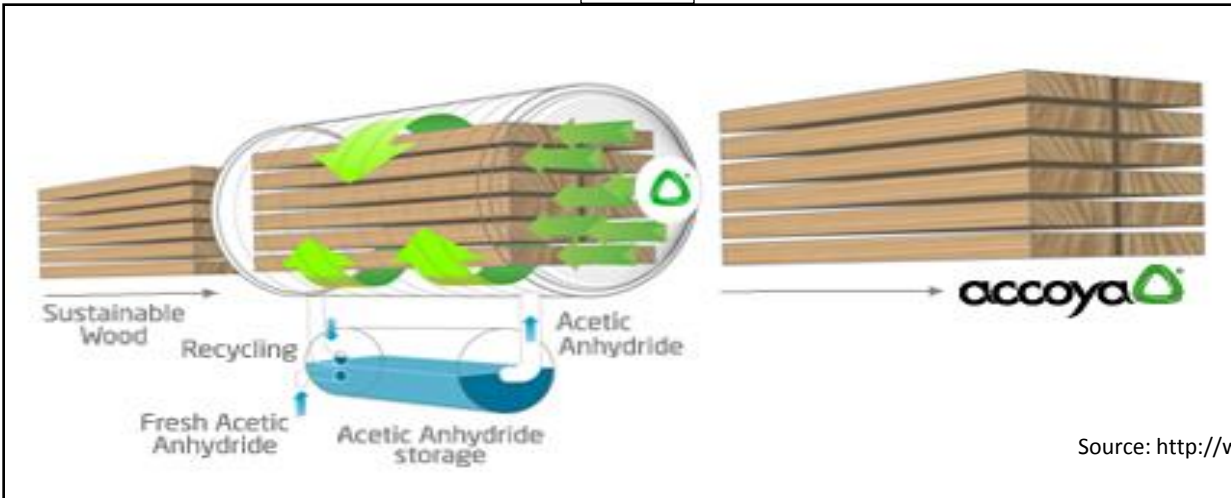
Physically Modified Woods: Acetylation

This process uses chemical modification of wood at the molecular level to improve its performance properties. Today, it is associated closely with a technical break-through of a long established, but not commercially well developed, wood modification process extending back to 1928 in Germany, patented by Titan Wood – the Acoya process (i.e. ‘Accoya wood’, Charts 6 and 7). The Company is believed to be seeking franchise opportunities.

Essentially, the process is this. Physical properties of any material are determined by its chemical structure. Wood contains an abundance of chemical groups called ‘free hydroxyls’. They readily absorb and release water according to changes in the climatic conditions to which they are exposed. This is the main reason why wood’s dimensional stability is impacted by swelling and shrinking. It is also believed that the digestion of wood by enzymes is initiated at the free hydroxyl sites - which is one of the principal reasons why wood is prone to decay (source: Wikipedia).

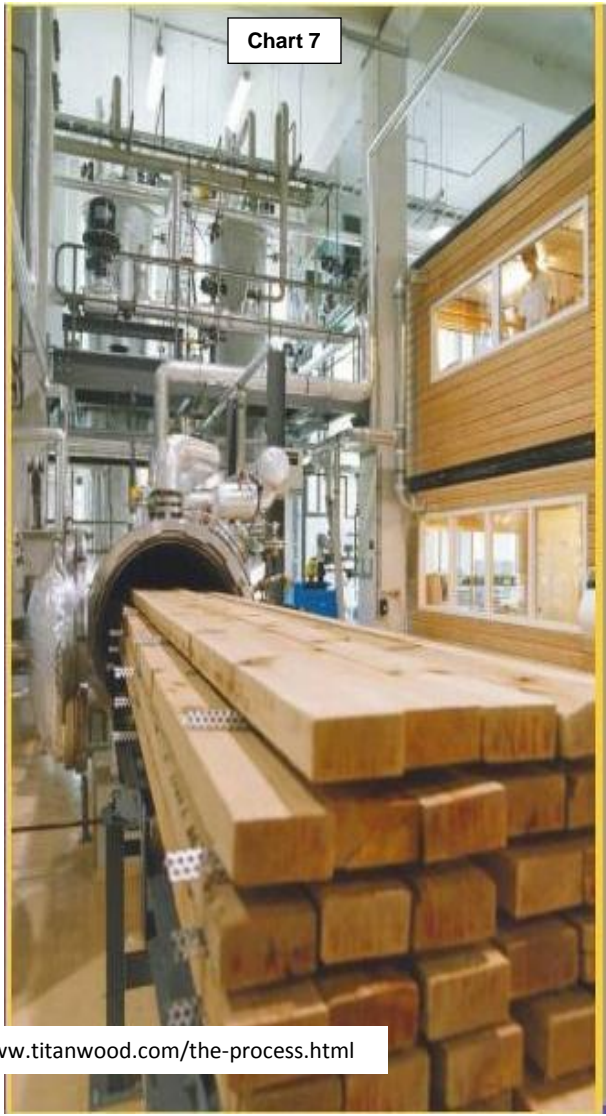
Acetylation effectively changes the free hydroxyls within wood into acetyl groups. This is done by reacting the wood with acetic anhydride, which comes from acetic acid (i.e. a concentrated form of vinegar). When free hydroxyl groups are transformed to acetyl groups, the ability of the wood to absorb water is greatly reduced, rendering the wood more dimensionally stable. Because it is no longer digestible, it becomes extremely durable (Wikipedia). Acetylated wood is non-toxic and does not have the environmental issues associated with traditional preservation techniques

Chart 6



Source: <http://www.titanwood.com/the-process.html>

Chart 7



4. What is the Competition?

4.1 Pressure Treated Lumber in Structural Markets

There are regional variations, but it was noted earlier that pressure treated wood (Charts 8 and 9) commands a dominant share among all lumber and wood products used in many exterior and ground contact applications. Woods with natural preservatives, such as cedar and redwoods, command only a small share in comparison.

With very limited supplies of cedar and redwoods and equivalent imported natural preservative woods, ample and growing supplies of pressure treated lumber have been essential to meet market needs.

For instance, treated wood accounts for 88-92% of the lumber used in the new housing porch market in Texas compared with 3-5% for cedar and redwoods. In decking (Charts 11 and 12) treated lumber typically accounts for 90% of all wood used in new home construction and 70-80% in remodeling. For utility poles (Chart 13) and landscaping ties, treated species are invaluable.

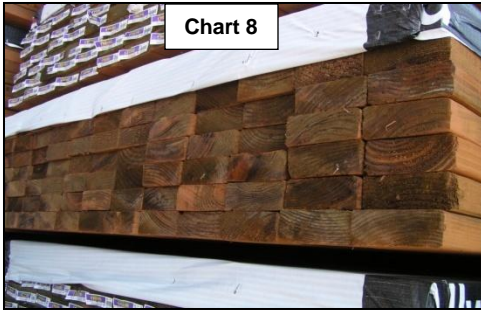


Chart 8

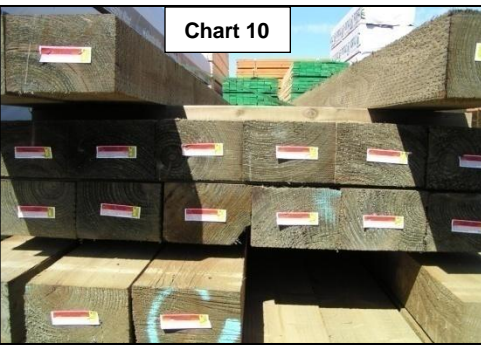


Chart 10



Chart 11



Chart 9



Chart 12



Chart 13

4. What is the Competition?

4.1 Pressure Treated Lumber in Structural and Appearance Markets

As a 'modified' wood, chemically impregnated and pressure treated lumber is economically attractive because it is comparatively low priced compared with naturally preserved woods, and is able to utilize large volumes of lower valued species, including pine and hemlock. As a result of its volume availability, treated lumber has positioned itself as the widely accepted 'commodity product' in the marketplace for many exterior applications whereas cedar and redwoods are specialty species in several applications. There are, however, at least three competitive 'strikes' against treated lumber. Firstly, it involves chemical treatment (against which there has been a progressively more vocal environmental backlash). Secondly, the effectiveness of the various pressure treating processes (e.g. incising, Charts 14-15, varies widely. Thirdly, in appearance situations, the end product is not always visually attractive (Charts 16-17) or dimensionally stable.



Chart 15



Chart 16



Chart 17



Chart 14

5. Why are Modified Woods Being Considered for Manufacturing Investment in Alberta?

There are several reasons why investors should consider Alberta as the location of a manufacturing plant to produce 'physically modified woods'. The key elements of a business case for the investment include the following:

- 1. Numerous firms in Alberta's forest industry already are in the 'modified wood' business, except that nearly all of them use chemical, pressure treated processing technologies. (Chart 18)
- 2. Alberta has all the natural resource attributes (Chart 19) to become a producer of 'physically modified woods' which could capture some (but not all) market share from chemical pressure treated wood products. In addition, the industry has a well-developed network for distribution.
- 3. These 'new' products could be part of Alberta's platform of higher volume green building products.

Chart 20 provides a schematic of the concept for a development strategy. It shows that chemical pressure treated wood is vulnerable to market share loss – on environmental grounds. In addition, because of the superior surface characteristics of physically modified woods (as a replacement for more expensive hardwoods), they will capture market share from this sector too.



Chart 18

Potential Market Share Gains by Physically Modified Woods

Chart 20

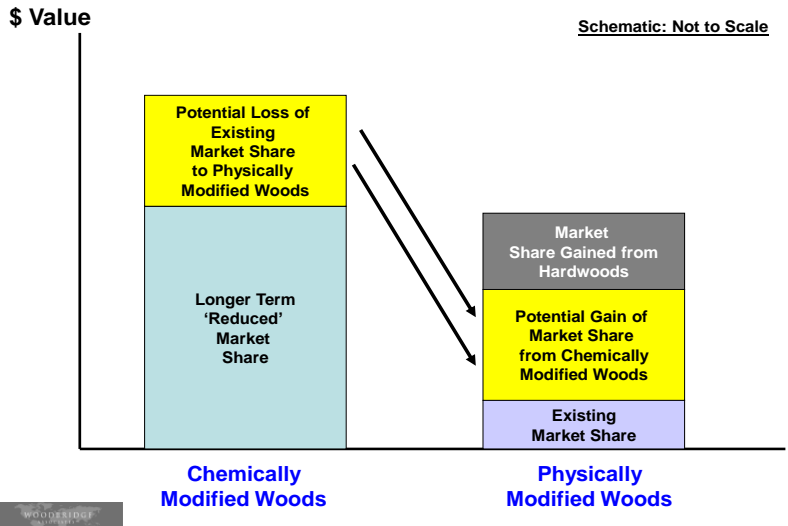


Chart 19

6. Manufacturing Profile of the Region

Production Economics

Alberta's wood products manufacturing industry is a modern, large scale and highly efficient industry (Chart 21). It ranks among the most competitive worldwide. Several of the world's largest softwood lumber and OSB producers have mills located across the province, including some state-of-the-art "supermills". The Alberta industry also includes some large and medium scale specialized mills, including some which are key to the forest economies of rural areas.

Sawmills are widely distributed across the province (Chart 22), often located far from major centres of population.

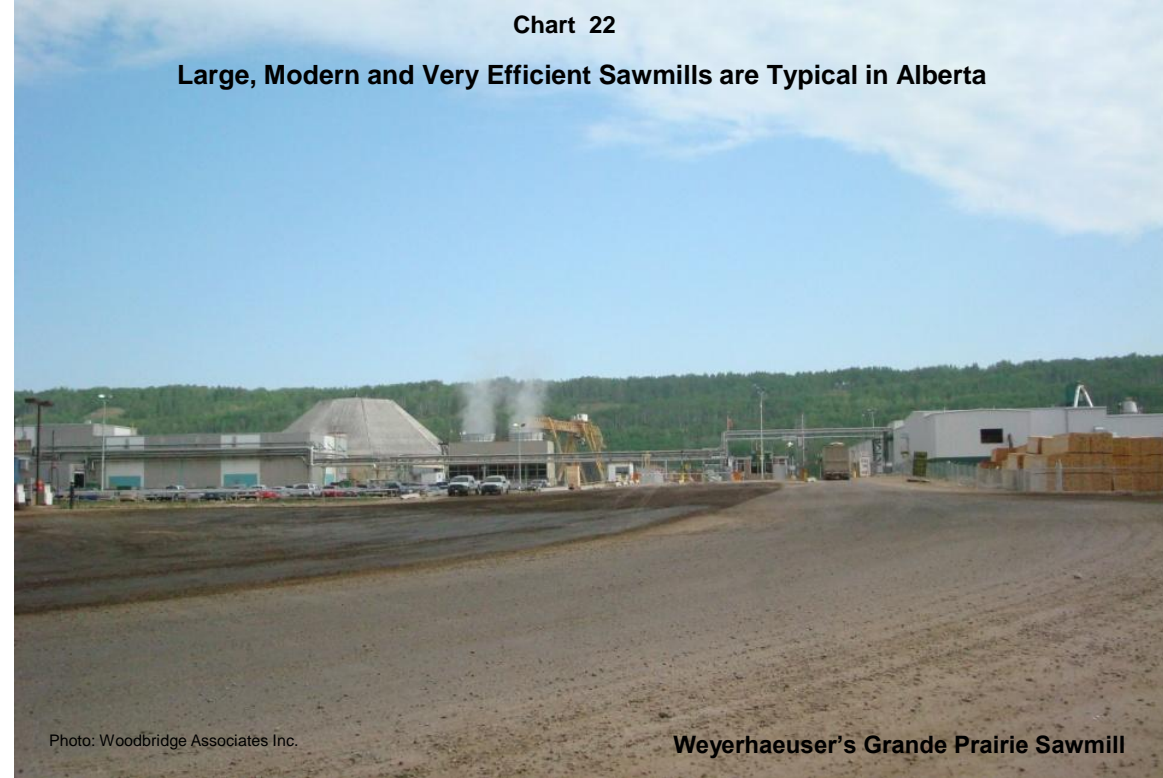


Chart 22

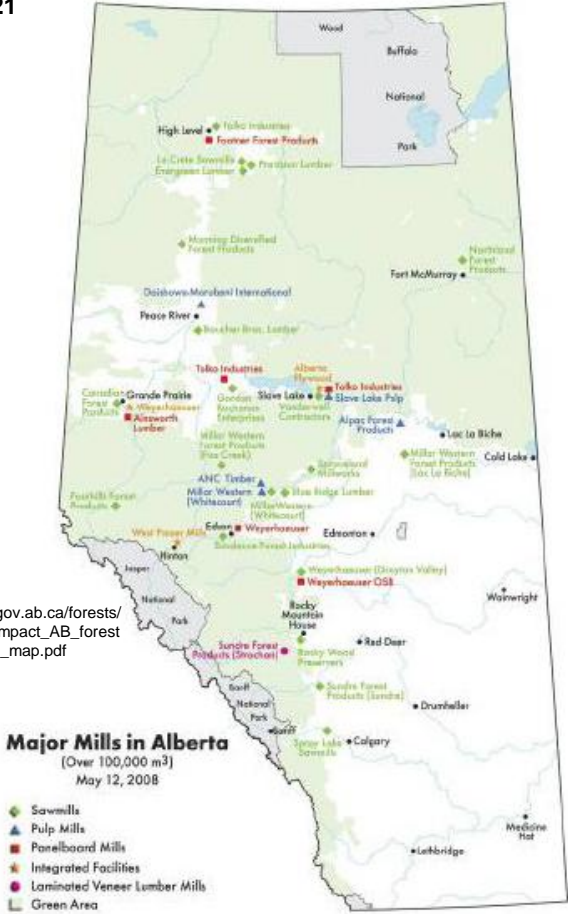
Large, Modern and Very Efficient Sawmills are Typical in Alberta

Photo: Woodbridge Associates Inc.

Weyerhaeuser's Grande Prairie Sawmill

Major Mills in Alberta

Chart 21



Source:
http://www.srd.gov.ab.ca/forests/pdf/economic_impact_AB_forest_industry_2008_map.pdf

Major Mills in Alberta
 (Over 100,000 m³)
 May 12, 2008

Produced by Resource Information Management Branch, Finance & Administration Division
 Base map data provided by Spatial Data Warehouse Ltd.
 ©2008 Government of Alberta

6. Manufacturing Profile of the Region

Markets and Transportation Infrastructure (continued)

There is a significant domestic market for wood products, but export markets account for the bulk of sales revenues for the province's forest industry. Alberta is well connected (Chart 23).

During typical years (represented by 2004-2007 averages in Table 1) around 78% of the province's exports were shipped to the United States. The remainder went mostly to Asian markets, with Japan being slightly larger in demand for Alberta's forest products than South Korea and China.

Within North America, most of Alberta's wood products exports are shipped to the US West Coast (54% in 2003). A further 28% was shipped to the US Midwest (Chart 24).

Most of the wood products shipments to these U.S. markets, from Alberta overall, are structural wood products.

As such, they have a high degree of dependency on the U.S. housing market – which, both cyclically and systemically, has been weak in recent years.

Table 1

Total Forest Products Exports (\$'000,000) ⁴				
	2004	2005	2006	2007
US	2,925	2,627	2,321	1,822
Japan	250	204	181	160
South Korea	168	156	125	117
China	189	114	113	106
Other	241	256	199	215
Total	3,773	3,357	2,939	2,420

Source: http://www.srd.gov.ab.ca/forests/pdf/economic_impact_AB_forest_industry_2008_map.pdf

Chart 23

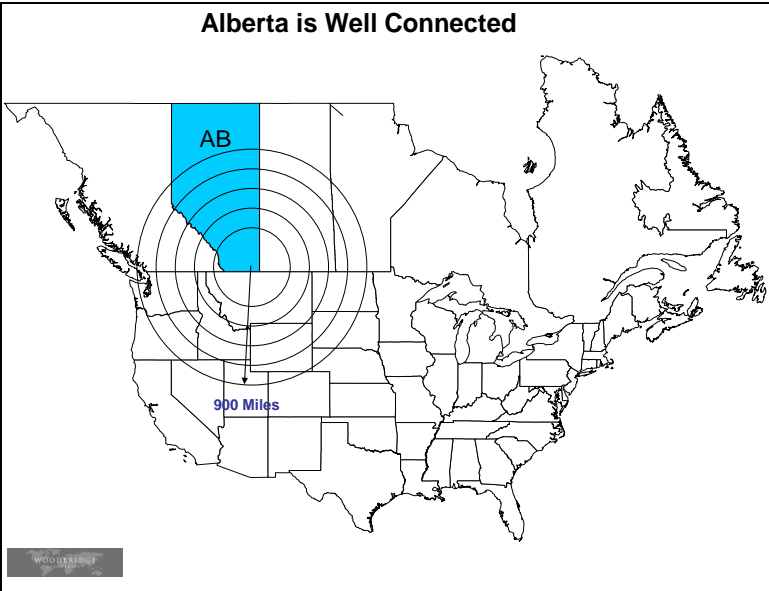
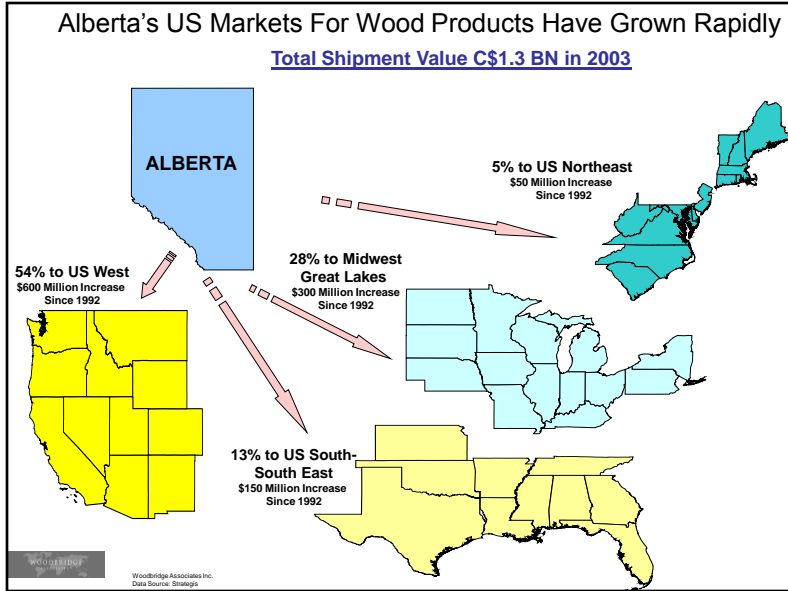


Chart 24



7. Outlook for Existing Industries

Tough Times for the Sector

The extent of the current North American and global downturn is illustrated in Chart 25. It shows capacity utilization rates for Alberta’s pulp and paper sector, wood product manufacturers and furniture producers.

During Q2 2009, the capacity utilization rate in Alberta’s wood products manufacturing industry fell to 61% – from a normal rate between 85% to 90%, and recent peak rates of close to 100%.

The last time this low level of activity was experienced was in the early 1990s, coincident with the US economic recession at the time.

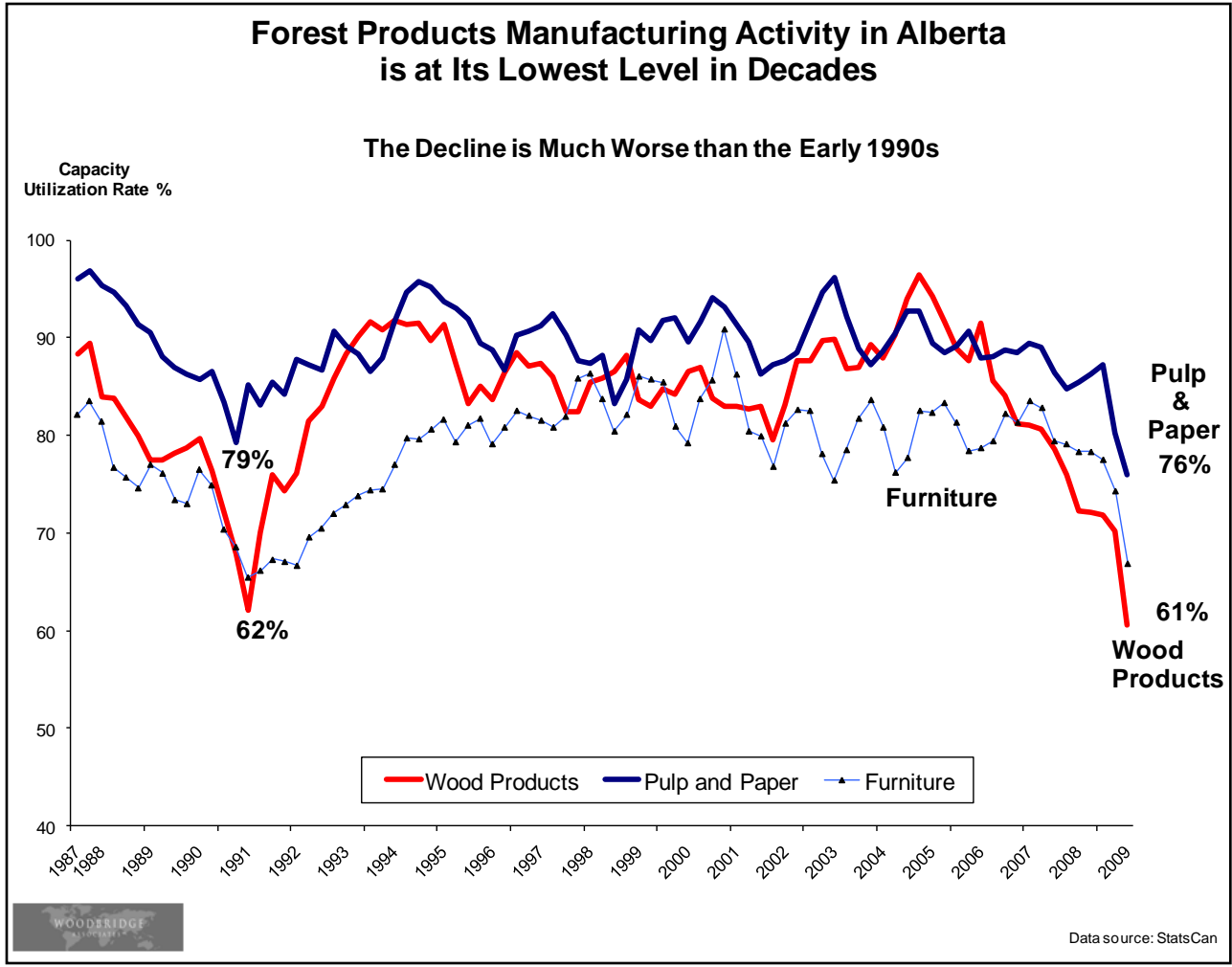
Alberta’s pulp and paper sector is experiencing its worst levels of manufacturing capacity utilization for many decades.

The province’s furniture industry, which includes the manufacturing of many secondary processed wood products, currently is at lows also not experienced for nearly 20 years.

The severe current downturn is leading to extensive curtailments of capacity. Most of these are indefinite closures of mills and plants – but there have been many permanent closures too.

Corresponding to the mill and plant closures, the sector’s workforce also is not operating to its full potential. Layoffs have been extensive, and many experienced people have left the industry. This will have significant repercussions when the economic recovery gains momentum.

Chart 25



7. Outlook for Existing Industries

In order to help predict which wood products are likely to experience growth in demand and sales revenues, an understanding of past trends and recent performance is useful. A summary of sales revenues from the main wood product groups manufactured in Alberta since 1992 is summarized in Chart 26.

Chart 26

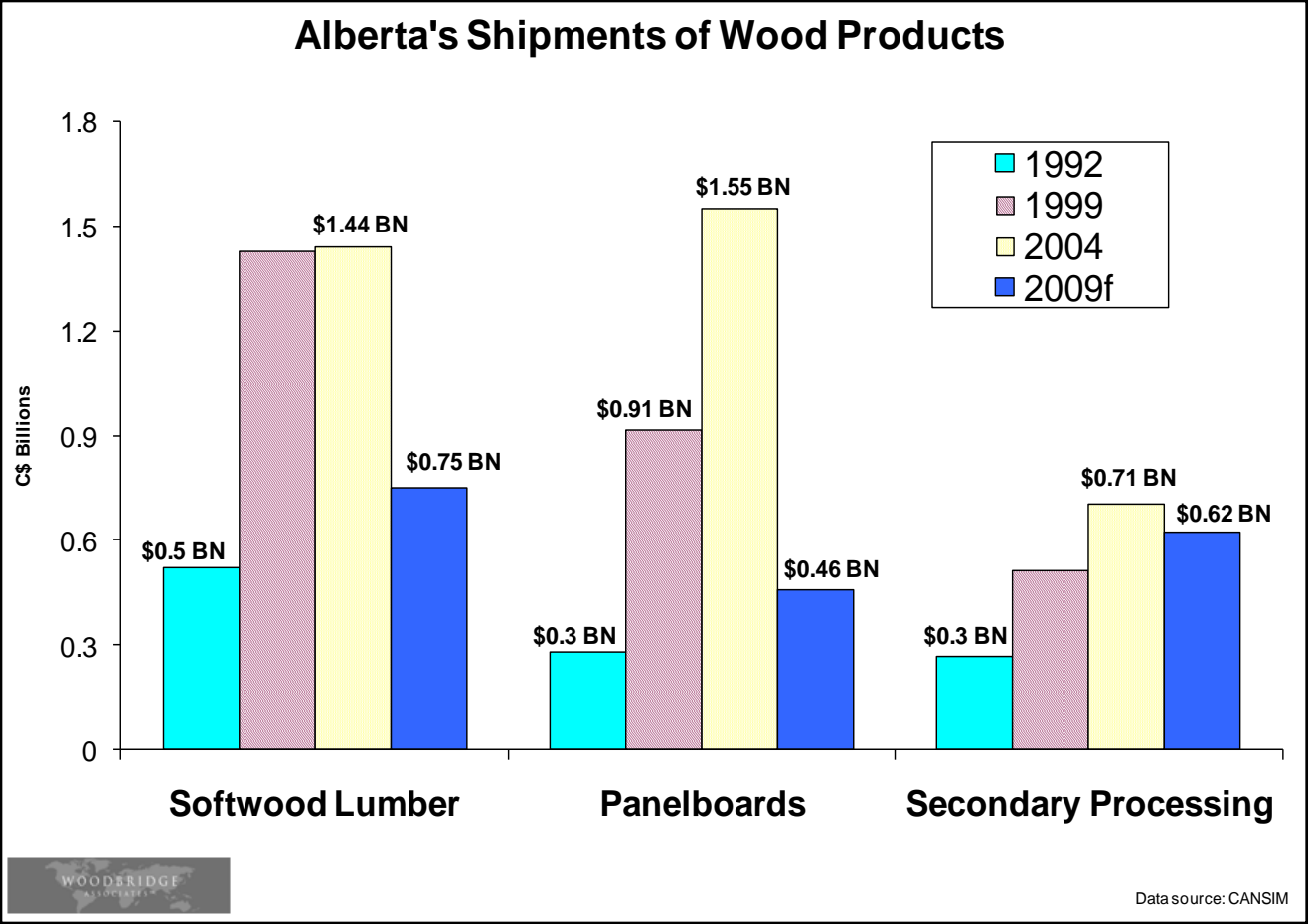
Softwood lumber manufacturing capacity in Alberta expanded rapidly during the 1990s. This was driven by several factors. The U.S. market was expanding rapidly and Alberta (along with other parts of Canada, but less so BC) was poised competitively with a low valued dollar to supply this rapid growth in demand. US supply was constrained, notably in the US West because of the 'spotted owl' capacity curtailments of the late 1980s.

Alberta's softwood lumber growth began to flatten out, and by the early 2000s other supportive growth factors –including available timber supply – reached their limits.

OSB manufacturing in Alberta saw spectacular growth as firms harvested formerly under-utilized hardwood species (aspen/poplar) to fill a void in supply vacated by plywood – and boosted by U.S. housing demand. It was expected (even as recently as 2005/06) that the OSB capacity growth boom would continue as OSB further displaced plywood. But the onset of the 2007 housing market meltdown in the U.S. halted this trend.

Softwood lumber, and – even more so – OSB revenues have been badly hit during the current North American and global downturn.

Further processed wood products manufactured product revenues have not been immune from the demand recession, but have fared better than Alberta's mainly commodity grade primary wood products.



Note that 2009 data are forecasts by Woodbridge Associates based on 6 months annualized 2008 data

8. Modified Wood Markets in the U.S.

Decking Markets (continued)

In new single homes, the historical trend among builders has been towards building homes without decks. However, there are initial signs that this may be changing. Moreover, while this is a national trend, there is a wide variation regionally because of housing and lifestyles and also at various price points. Fewer new homes in the U.S. South, for instance, are built with decks than in the North East. On the other hand, more houses in the U.S. South are built with a porch than in the North East. There are wide differences too between new homes built in rural as distinct from urban areas. National and regional trends for most of the past two decades are shown in the charts below.

For Alberta, an important 'takeaway' regarding the deck market is the apparent reversal of the long decline in builder-constructed decks. In 1992, 37% of new single family homes nationally were built with decks (Chart 27). More new houses were built in the South and west in the ensuing two decades, where the incidence of decks is lower (Chart 28) so, by 2006, only 25% of new homes had builder-constructed decks. But, as the chart shows – and, beneficially, from the point of view of cedar producers – except for the North East there is a recent trend in favor of builder-built decks. Recent homebuyers seem to be signaling that they want decks on their homes. We believe that this trend will continue as long as builders are avoiding 'spec built' construction and taking the wishes of homebuyers into account. We do not expect a return to 'spec' building until at least 2014-15.

Chart 27

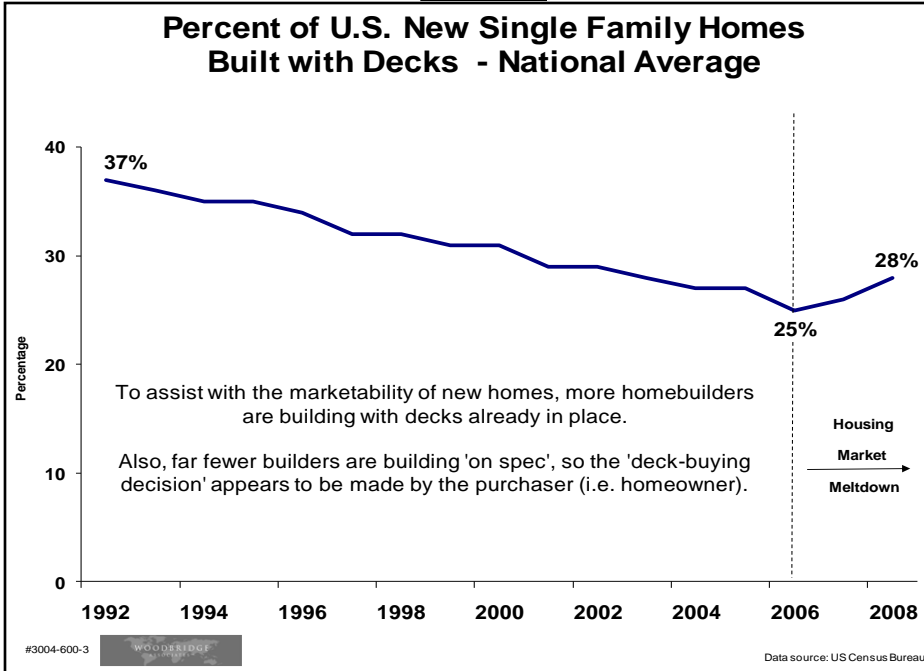
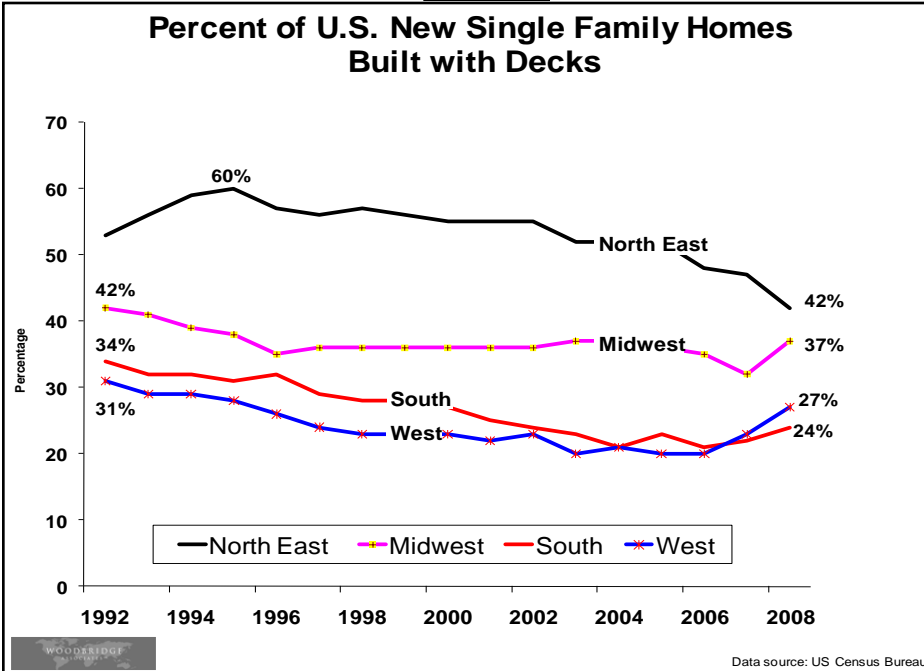


Chart 28



Chemically-treated lumber decking is cheaper than cedar, but is losing market share to redwoods and cedar in key remodeling markets. At the same time, wood plastic composites – which are more expensive – also are losing to redwoods and cedar

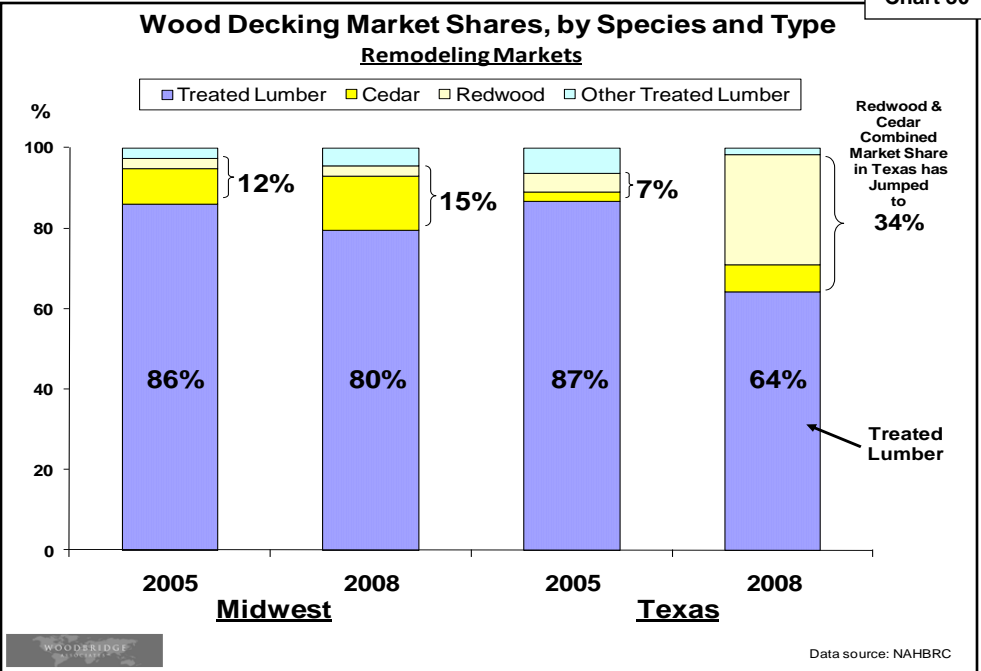
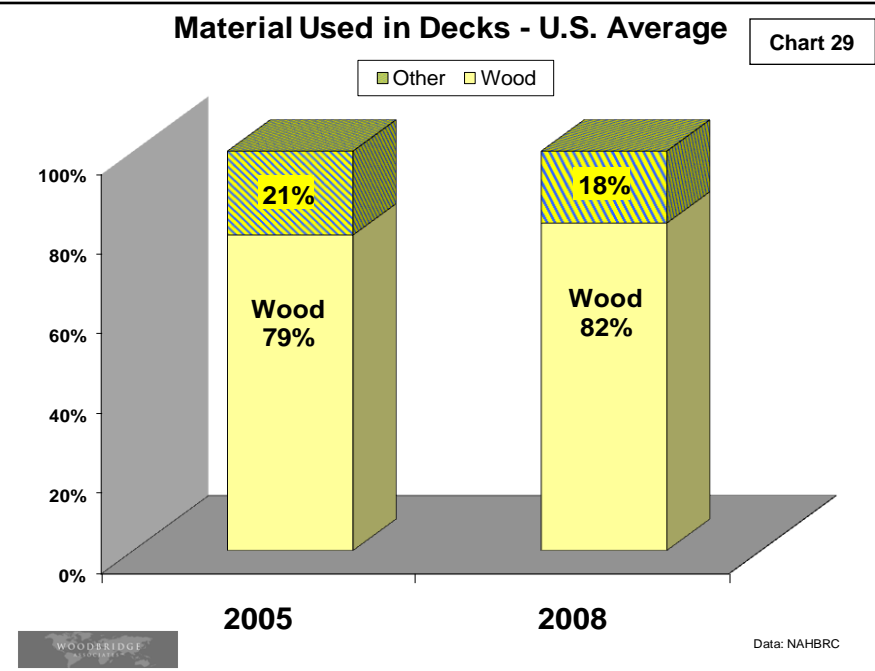
8. Modified Wood Markets in the U.S.

Decking Markets (continued)

Wood Share of Decking – U.S. National Trends and Regional Remodeling Markets

A wide range of materials is used for building decks. Typical materials include treated lumber, cedar lumber, redwood lumber, wood plastic composites (such as Trex and Choice Deck) and various other combinations of natural materials and synthetic composites. Nationally, the share of wood (all types) used in decking, compared with other materials, has risen from 79% in 2005 to 82% by 2008 (Chart 29).

The good news is that wood use in decks appears to be gaining market share from composites in key remodeling markets of importance. NAHBRC data confirm that, in the Midwest and Texas, cedar used for decking in home remodeling has been capturing market share in recent years (Chart 30) even though its overall share is still comparatively small. Cedar had a market share of 13% of wood and 11% of all materials in the Midwest remodeling deck market in 2008, and 7% of wood and 6% of all materials in Texas. Very importantly, the combined share of 'natural wood' versus treated wood is rising –and has jumped sharply in Texas since 2005 – to a combined share of 34% of the wood used for decks in the remodeling market. Home owners carrying out DIY decking projects find wood easier to deal with than plastic composites, It is too early to confirm a trend at this point, but the data may indicate (a) a growing negative reaction among homeowners (against composites *and* chemically-treated woods) and (b) a greater desire for the natural product. We believe that it is more than just a price issue, for the reasons noted above.



8. Modified Wood Markets in the U.S.

Decking Markets (continued):

New Construction.

Chart 31 provides an example of a builder-built deck on a new high-end home in the Midwest. Cedar decks are sometimes provided by these builders (but sometimes are only provided in the show home, as in this example). The square foot area is above average. More frequently, decks on new construction are smaller in size (Charts 32 and 33) especially in multi-family housing.

Competing products and emerging trends among homeowners and builders are discussed later



8. Modified Wood Markets in the U.S.

Decking Markets (continued)

New Construction

As noted earlier, only about 12% of the square foot area of decking installed in the United States during 2008 was in new construction. The equivalent share of new homes was only 21% in 2005 when housing markets were buoyant, so the new housing market for deck materials clearly is over-shadowed by the remodeling market. Even so, consumption trends for wood (and the various species and types of wood) in the new homes market are important when considering total market demand.

Competition to wood from other materials, including wood plastic composites (Chart 57) is much stronger when builders make the choice of decking materials to be installed. Chart 34 shows that in the U.S. new housing market in 2005, 32% of materials used in decking were non-wood. By 2008, this had increased to 38% non-wood. Regionally, even though wood usage in decks on newly constructed homes declined between 2005 and 2008, in the Midwest the share of cedar and redwood (very limited volume) combined within all wood used remained fairly constant at 31%. In Texas, however, the 'natural woods' lost market share to treated lumber. In decks installed in newly constructed homes, treated lumber now accounts for 90% of the Texas market (Chart 35). Most probably, this is because of the need of builders to use the lowest cost materials available.

Chart 34

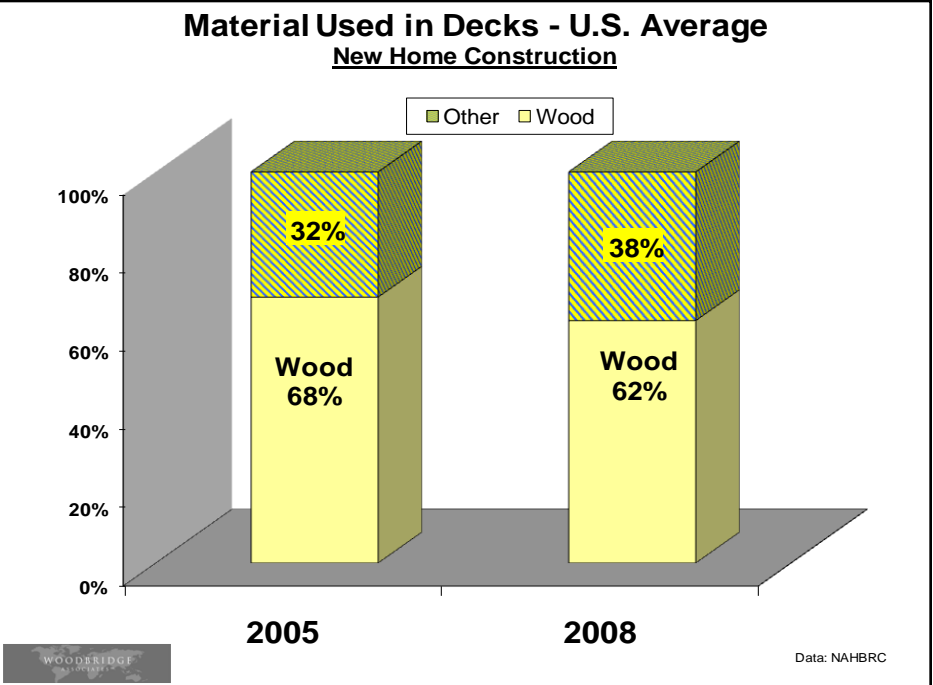
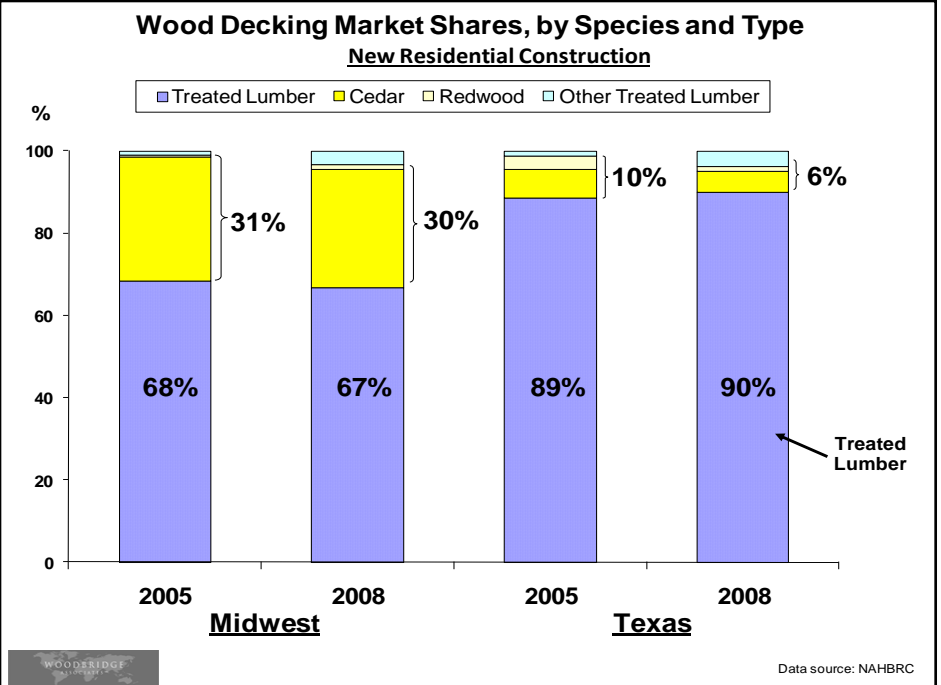


Chart 35



8. Modified Wood Markets in the U.S.

Siding Markets

There are perhaps more siding materials and variety of choices than in any other area of the new residential construction industry. Today, vinyl siding dominates (Chart 37, shows vinyl siding, plus a brick-faced garage). However, fiber cement siding (Chart 38) and various types of wood siding (Chart 39), including modest volumes of profiled cedar, also have a notable market share in some locations.

Regionally, there are wide variations in the types of siding material preferred. In many dry, hot climates within the U.S. (e.g. southern California, Arizona and New Mexico) the cool-effect of stucco is still preferred (Chart 36). Other issues (e.g. fire risk) also determine the choice of siding material.



Chart 38



Chart 39



Chart 36



Chart 37

8. Modified Wood Markets in the U.S.

Siding Markets

Within wood siding markets, which wood products produced in Alberta are increasing their market share? Chart 40 provides usage data for the Midwest and Texas. In the Midwest, lumber continues to be the largest of the wood products used in the remodeling market. It accounted for around 52% of total wood used in wood siding applications in 2005. Several 'new' lumber products, similar in exterior texture to the fascia boards shown in Chart 41, have been introduced into the market in recent years – and are capturing market share quite rapidly. They have the advantages of a pre-painted and finished appearance, but the on-site flexibility of traditional lumber. In addition, they lend themselves to off-site panelization. Lumber siding dominates also within the Texas market for wood siding, and these new appearance products have started to gain some market share in recent years.

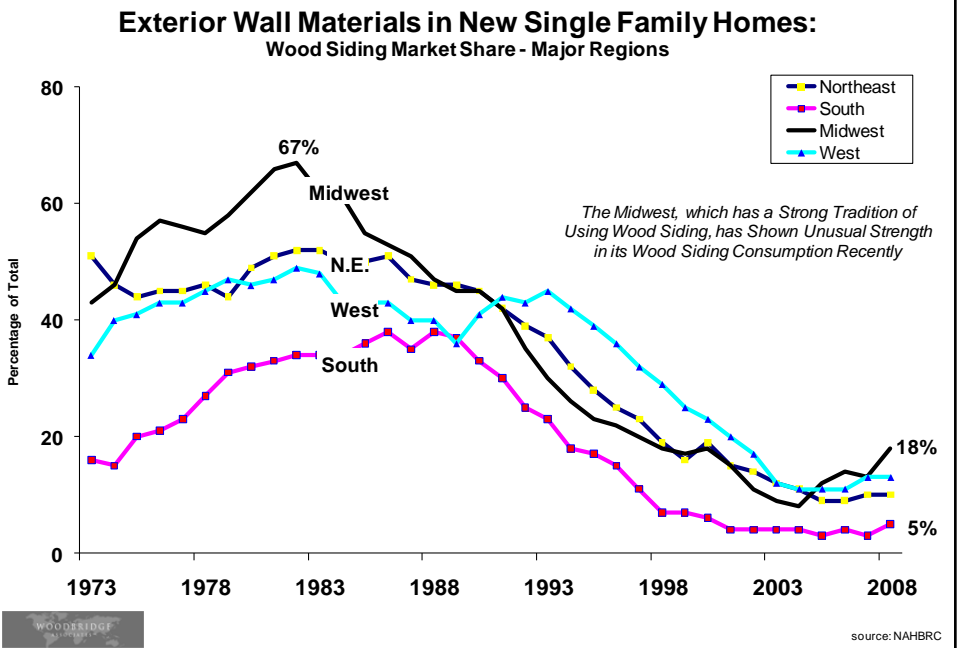
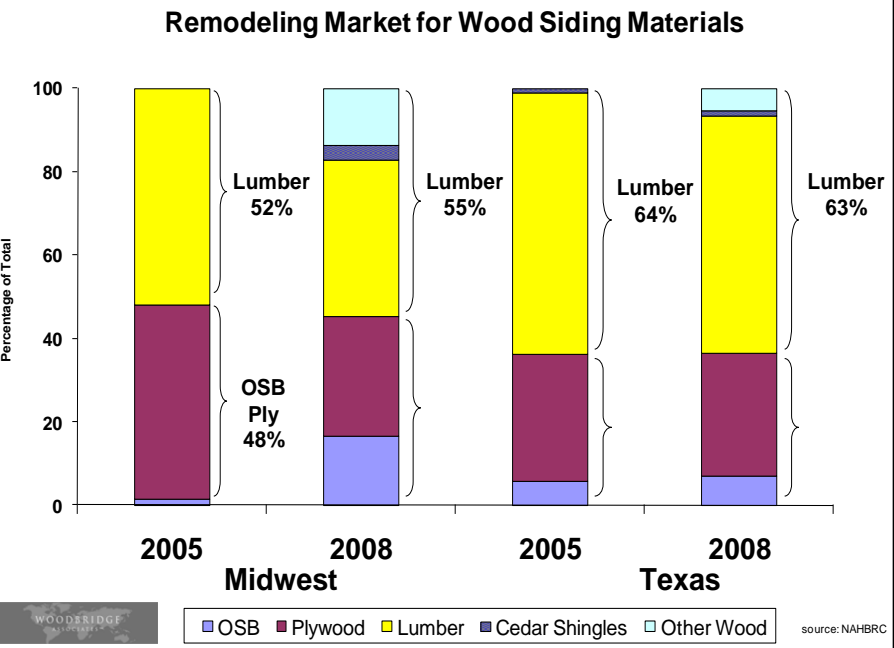
It seems likely that they will continue to capture market share within the wood siding products used in remodeling, and could help wood siding recover further market share in the new construction market (Chart 42) especially (in the immediate future) in the Midwest which, as noted, has a strong traditional wood siding culture. If so, this would bring increased competition for cedar profile siding.



Chart 41

Chart 40

Chart 42



8. Modified Wood Markets in the U.S.

Fascia and Soffit Markets

At first glance, the size of the fascia and soffit market for wood products, and cedar in particular, may not seem to be very large (Chart 43). In fact, in new housing in the United States, the soffit market alone is about five times the square foot area of the deck market in new housing. In addition, lumber consumption levels in fascia boards are substantial –and of potentially significant interest to Alberta.

There are wide regional variations in the types of materials used for fascia and soffits. Materials such as vinyl and aluminum wrap have a large share of the fascia market in some regions, but not in others. Vinyl and aluminum are even more regionally significant in the soffit market. For the U.S. as a whole, however, lumber and wood materials hold a sizeable share of both markets. Wood is under competitive threat particularly in the new housing market, whereas many homeowners prefer to use wood in DIY projects –and ,as a result, the threat of market share loss by wood materials is not as great in the remodeling market.

In addition, several trends (such as the long term shift towards the use of components built off-site, and assembled on-site using cranes) indicate that extrapolation of recent past substitution levels and shifts in market share, may not continue into the future.

U.S. Overview: Wood Use in Fascia and Soffit Materials

In the United States, at the peak of the housing market around 2005, the total area of all fascia materials totaled an estimated 935 million linear feet. Of this, the new home sector accounted for 68% and the remodeling sector for 32%.

The total area of all soffit materials used in housing markets totaled 845 million square feet, of which new homes and remodeling accounted for almost the same percentage as in fascia materials (i.e. 67% and 33%, respectively).

By the year 2008, the total installed areas of these two sectors had declined to 420 million linear feet for fascia, and 405 million square feet respectively. These declines averaged between 50% and 55% in both cases.

The new construction market fared the worst (e.g. an 82% decline in wood soffit demand, compared with a 22% decline in remodeling).

The full brunt of the U.S. new housing market decline (and more) was cushioned substantially by the moderating influence of the more buoyant remodeling sector.

Chart 43



8. Modified Wood Markets in the U.S.

Fascia Markets (continued)

The market share of wood within fascia and soffit markets in residential construction in the U.S. is summarized in Charts 45 and 46. In both, wood has lost share to non-wood materials. In the fascia market, wood has declined from 40% of all fascia materials used to 30%. In the soffits market, wood has declined from 32% to 26% of all fascia materials used.

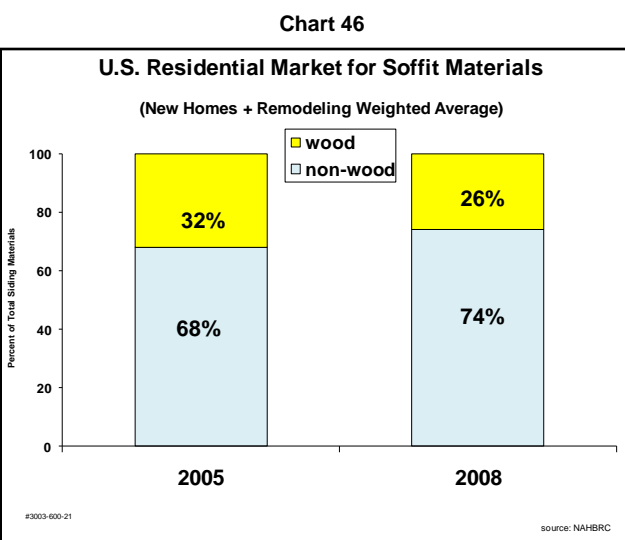
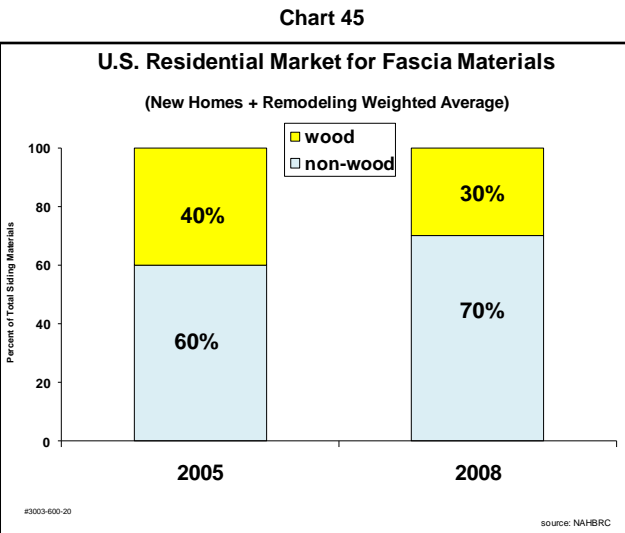
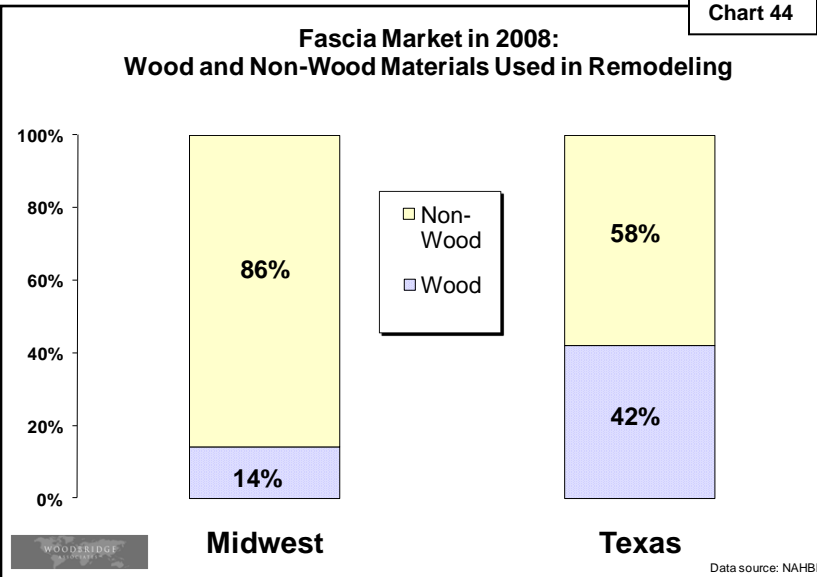
Putting this in perspective, wood is an abundant and comparatively low cost raw material. It established a dominant market share in housing construction long before many of the 'new' fascia and soffit materials popular today became available. Even though wood is losing market share in these applications, there is still a longer term positive trend in the rate of growth in demand for wood in these uses. Moreover, as housing markets recover, the rate of growth in volume demand will accelerate – creating better market conditions for all fascia and soffit materials, including wood.

As noted, there are wide regional variations within this national average – which reflect differences in buildings and climate. Builders in Texas, for example, tend to use more wood for fascia than builders in the Midwest. This pattern also is reflected in the Texas remodeling markets – where wood fascia materials account for 42% of all fascia materials used (Chart 44).

The chart shows that, in the Midwest vital market for Alberta, homeowners prefer to use non-wood fascia materials, notably vinyl and aluminum, for around 86% of the linear foot usage of all fascia materials.

Other fascia materials that are widely used in remodeling markets the Midwest are urethane and polyurethane plastics and fibre cement. Steel also is a fascia material used in the region.

Since the year 2005, non-wood fascia materials usage in the Midwest has increased – particularly at the expense of MDF and softwood lumber.



9. Nationally, What are the Demand Trends?

As is the case with wood decking, the market size for physically modified woods in siding has increased along with growth in residential construction activity and home improvement spending. Thus, wood siding volumes have increased significantly over the past several decades. However, the market share of wood siding has changed.

The sharp decline over the past thirty-five years in the proportion of wood siding used in exterior wall applications was noted in the previous section. The analysis showed that wood siding went from 44% to 7% of the U.S. siding market, before recovering recently to a 9% market share. It was also noted that the siding market is served by a plethora of competing products, each with a market share – and a story. The context for the decline in wood siding is the emergence of a succession of alternative products. In the U.S. single family new housing market, approximate phases of declining and ascending market shares for the major products are summarized below:

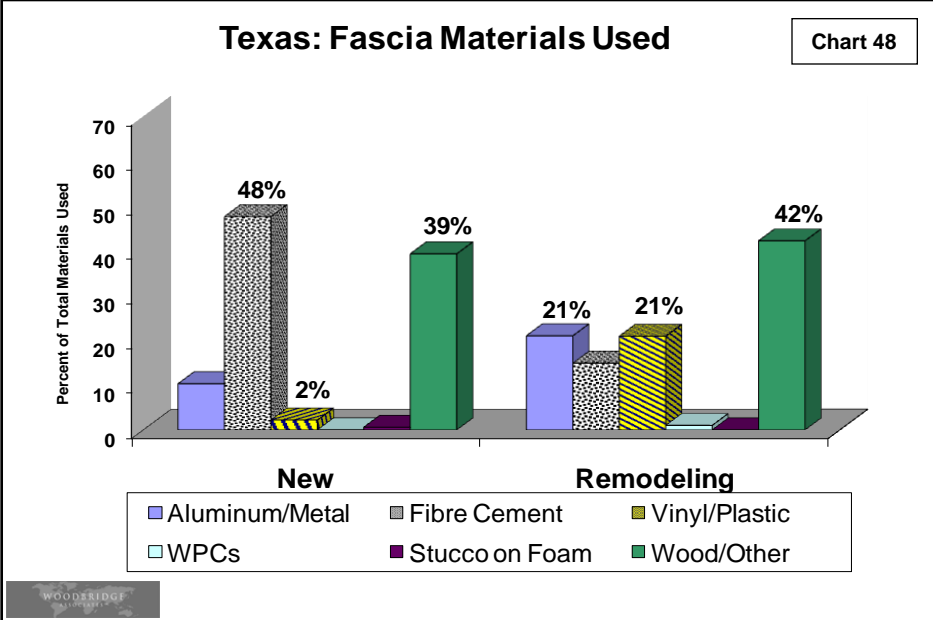
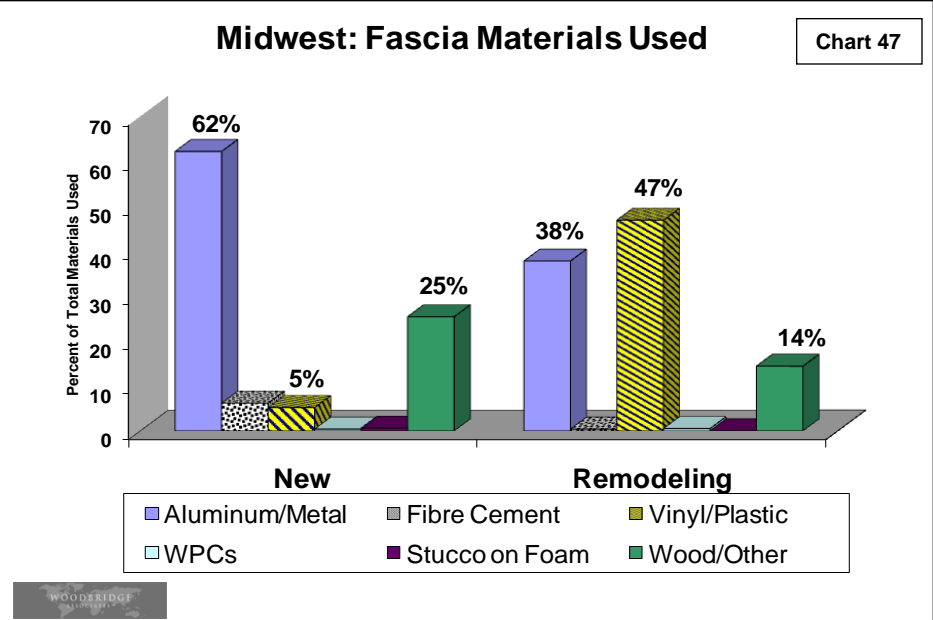
- Aluminum siding:** Growth until the early 1970s, when high energy prices (a large component of aluminum production costs) linked to the OPEC I, and later the OPEC II, oil crises made this product very expensive, and less readily available. From a 12% market share in 1974, aluminum siding's share of all U.S. siding market materials used in single family new homes dropped to 1% by 1999 – where it remains today. Its use is greatest in the Midwest and North East.
- Stucco:** Although it had a national share of 21% of all siding materials used in 2008, stucco use is highly regional. In the West, stucco had a 55% share of the single family siding market in 2008 –similar to its share in the mid-1980s and higher than its 45% market share in the early 1970s. Stucco as a siding material traditionally had a low market share in the U.S. South (around 5% in the early 1970s) but this has risen sharply in recent years –starting around 2005. In 2008 it accounted for 15% of all siding materials used in single family new homes. In considering its significance at the national average usage level, it should be remembered the West and south have accounted for the bulk of single family starts in recent decades. Moreover, if multi-family housing units were to be included (large users of stucco), the overall significance of stucco is readily evident.
- Fiber Cement:** A similar regional story emerges in the use of fibre cement boards (e.g. HardieBoard). Nationally, fibre cement products had a 12% market share in 2008 – which was roughly the same as its market share in new single family home construction over the previous three years. Even so, these products have enjoyed very fast growth in the West rising from 15% in 2005 to 22% in 2008. Usage in the South is lower (10%), and tracks the national average. Fibre cement is not used extensively in the North East (3% market share) and has a modest, but fairly quickly growing, market share in the Midwest (around 8% of all siding materials used in new single family construction).
- Brick:** From its 35% national share of all siding materials used in single family new construction in the early 1970s, the use of brick increased in volume terms, but has declined slowly in overall market share. Brick dominates among siding materials used in the U.S. South –but its share declined from 65% in the early 1970s to 42% by 2008. Other regions, especially in higher priced homes, have varied in their use of brick and stone. In the Midwest, the use of brick has declined from 23% to 12% of total over the same period. It has remained stable in the North East (7% in 2008) and declined in the West from 6%, in the early 1970s, to 1% by 2008.
- Vinyl Siding:** Vinyl has the largest market share nationally, and in the North East and Midwest – where it accounted for 77% and 58% of all siding materials used in new single family homes in 2008. Vinyl is not used extensively on SF new homes in the West (where stucco dominates) and held only 8% of the Western market in 2008. In the South it is more important, with a 25% market share in 2008. In all regional markets, vinyl's share peaked around 2001-02, coincident with higher oil prices (petroleum feedstock) and concerns about vinyl's fire risk and possible carcinogenic impacts on home occupants of vinyl off-gassing.

10. How Can Alberta Compete?

Focus on Existing Strengths

There are many opportunities for Alberta to attract investment in modified wood production aimed at 'green' markets. The two major ones are decking/fascia and non-structural (windows and cabinets). Based on Alberta's competitive strengths, we recommend focusing on Alberta's already significant position in decking and fascia. We also recommend a geographical market focus on the US West and Texas (Charts 47 and 48).

Numerous Alberta dimension lumber manufacturers (e.g. Canfor, Chart 49) provide significant volume of combed primed fascia (Chart 50) to the Texas market. It is expected that there will be a growing shortage of fascia boards from BC as the pine beetle impacts reduce available volumes from this source. Modified wood decking has a very small market share at present, but this could expand significantly over the next five years.



11. Business Case

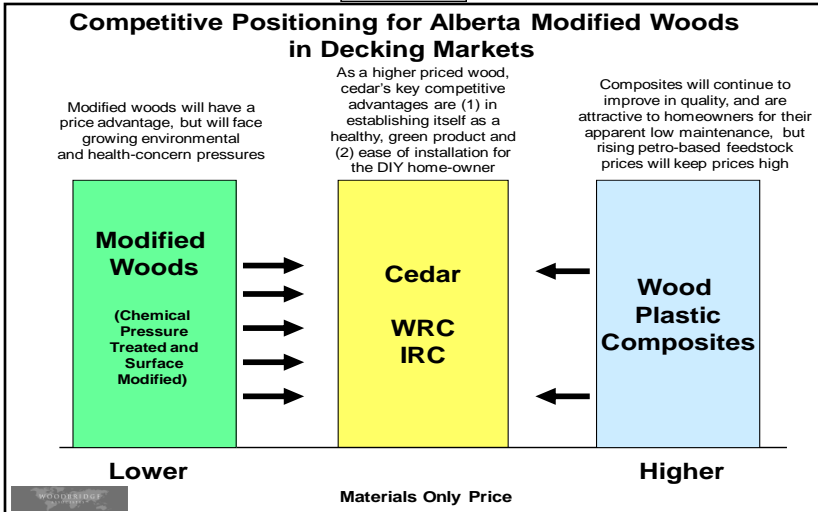
Some Conclusions for Modified Woods

Follow Up

If Alberta were to consider a dedicated modern plant to produce physically modified woods, a sizeable proportion of its output most likely would be targeted at the decking market. Usage trends and the competitive advantages/disadvantages of wood and cedar already have been noted. In terms of materials cost, cedar and modified woods (e.g. pressure treated lumber) have a price advantage over wood plastic composites – which, as already noted, have been losing market share. Composites are more expensive. Trex, for example, is priced at the retail level at about double the price of cedar 5/4. The competitive advantage of composites, and their rapid growth in market share until recently, is their apparent low maintenance.

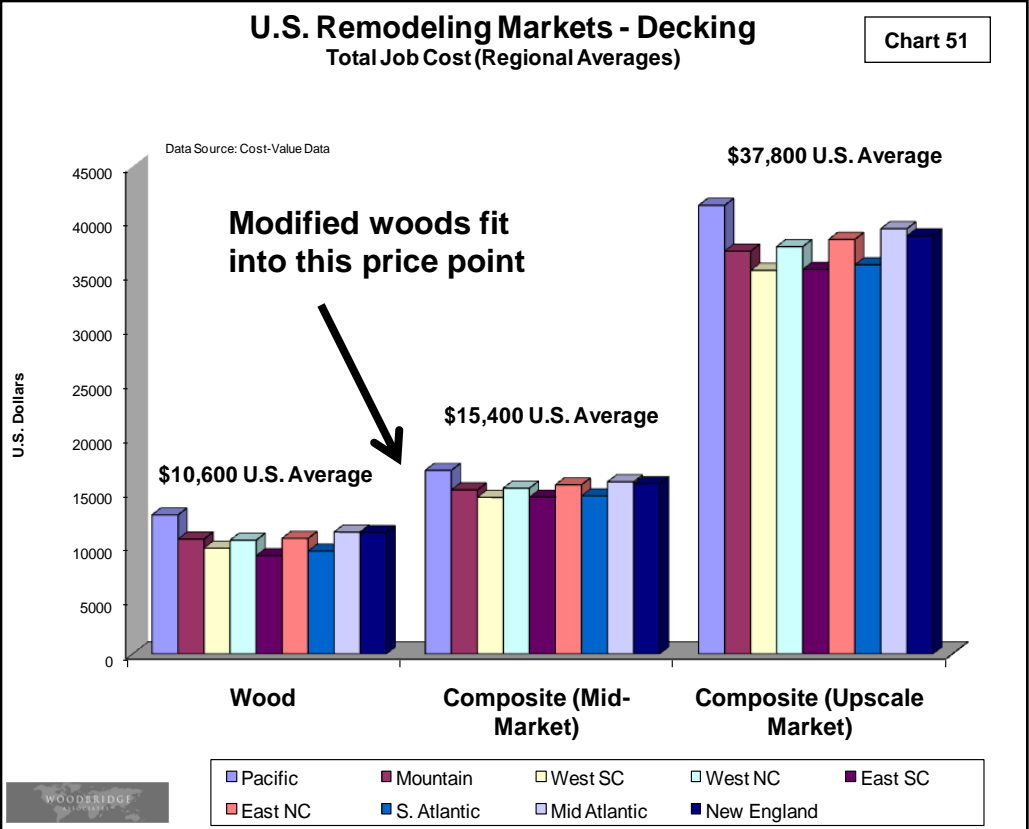
Over the next decade, it seems likely that the quality of most composites will continue to improve. Rising costs of feedstock, however, will keep their price high (Chart 51). Moreover, physically modified wood’s positioning as a ‘natural’ green product in the retail market could limit further market share losses to composites. High installed costs for composites also will limit these losses. It is more likely that the heaviest competition for natural woods will come from modified woods (Chart 52). Again, their positioning as a natural green product (and niche market volume) suggest that Alberta should brand its product (Big Box store own-labels) and merchandise this advantage in retail sales.

Chart 52



U.S. Remodeling Markets - Decking
 Total Job Cost (Regional Averages)

Chart 51



For Further Information Regarding the Potential Investment Opportunity
Presented in this Report, Please Contact:

Alberta Finance and Enterprise

Contact Details to be Added