The Housing Market and Demand for Building Materials: Challenges and Opportunities

Al Schuler
USDA Forest Service
Princeton, WV
aschuler@fs.fed.us

Industry Seminar
Charlotte, NC
April 27, 2005
Changes that will impact demand for residential building materials

- Demographics - demand for shelter
- Housing Construction
  - industrialization
  - substitution
- Globalization
  - new competitors
  - are we competitive in commodities?
- Structural panels & EWPs
  - D/S & product life cycles
- Satisfy key customers by adopting correct business model – innovation is key!!!!
Part I - Housing Demand

75% of structural panels and lumber are consumed in residential construction activity (new housing plus R&A).
Long Term (Trend), U.S. Housing Demand
Depends on 3 major factors

Net household formations
Population size and age, divorce, marriage, immigration

Net removals
Demolition and conversion to non-housing use

Net vacancies – includes second homes

Shelter Demand (include HUD code)

<table>
<thead>
<tr>
<th>Description</th>
<th>NAHB Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net household formations</td>
<td>1.4 – 1.5 million</td>
</tr>
<tr>
<td>Immigration has been the hardest to predict. More than 1990’s.</td>
<td></td>
</tr>
<tr>
<td>Net removals</td>
<td>0.3 - 0.4 million</td>
</tr>
<tr>
<td>Demolition and conversion to non-housing use</td>
<td></td>
</tr>
<tr>
<td>Net vacancies – includes second homes</td>
<td>0.1 - 0.2 million</td>
</tr>
<tr>
<td>Shelter Demand (include HUD code)</td>
<td>1.8 – 2.1 million</td>
</tr>
</tbody>
</table>

1 Middle and high immigration forecasts put the range at 1.82 – 2.10 million.
2 Immigration has been the hardest to predict. More than 1990’s.
3 Removals should increase by 100,000 per year from the 1990’s.
4 Second homes should grow as the population ages.

Source: Seiders, David. Chief Economist NAHB.
Stronger Than Expected Immigration Will Lift Housing Demand

*Immigrants bought 20% of new homes last 5 years*

Source: U.S. Bureau of the Census
Single Family Drives Housing Demand
Share up from 55% in 70’s to 74% this decade
Why – Affordability, Demographics & Immigration!!!

Starts and MH Shipments, Millions

Source: Consensus forecast – NAHB, major banks)
Regional shifts in housing demand
Graying population will keep moving south & west - 50% of population growth between 2000 and 2030 will be in FL, TX, and CA

Today, 72% of SF starts are in the West (26%) and South (46%)
NE down from 20% in 1986 to 7.8% today

Share of Single Family Housing starts

Source: RISI
Increasing House Size Leads to Higher Lumber and Panel Demand

Average single family home size increased 33% in the past 20 years; To increase another 5% by 2010

Source: RISI
Market Outlook for 2005 - 06 – Moderate slowdown, focused on Single Family sector as higher rates weaken affordability for 1st time buyers.

Mortgage rates

Conventional Starts, million

Source: NAHB, April 14
U.S. Remodeling Market

Remodeling expenditures are significant – they equal 40% of all housing expenditures in U.S. and Canada

Expenditures, Billion 2003$

Sources: Census – Value of construction put in Place; Harvard Joint Center for Housing Studies
Remodeling Market Drivers
Aging housing stock + strong resale market

- There are 120 million housing units in the U.S. with average age of 32 years
- Age group that spends the most spending on R&A is done by 35 - 54 year olds
  - has grown by 16.6 million since 1990
  - by 2005, it will reach 83 million
- Most consumers prefer to renovate than relocate
- House values (real) are appreciating again after 15 years of stagnant prices (1980 – 1995).
Part II – Housing Construction

- Importance of housing to wood products industry
- Structural changes – industrialization trends – componentization – building more of house in the factory – driven by demographics and other issues
- Substitution – more EWPs and non wood building materials
- Builders want to simplify the construction process – they want “supply partners” to “build the house”, freeing up the builder’s time to find and develop land, provide financing to buyers, ….
Where does the wood go?... Three quarters go to residential (new housing & remodeling) - USA

**2004 Softwood Lumber**
- **60.7 BBF** (142 million Cubic Meters)
  - Industrial: 21%
  - R&A: 30%
  - New Residential*: 46%
  - NR: 3%

**2004 Structural Panels**
- **40.8 BSF(3/8)** (36 million Cubic Meters)
  - Industrial: 19%
  - R&A: 21%
  - NR: 4%
  - New Residential*: 56%

*New Residential incl. SF, MF, and Mobile Homes

Source: RISI, 2004
And... single family housing is most important

U.S. Lumber Market share

- SF Housing: 40%
- MF Housing: 3%
- HUD code: 1%
- R&A: 30%
- Other: 25%

Source: RISI

U.S. Panels Market Share

- SF Housing: 62%
- MF: 5%
- HUD code: 2%
- R&A: 20%
- Other: 11%

Source: RISI
Demographics also impact labor availability... skilled labor shortages will be with us for a long time

Share of civilian labor force – U.S.

Demographics tell us that labor shortages will get worse before they get better

Source: economagic.com/em-cgi/find.exe/civilian-labor_force
Replacing workers leaving the trades is a constant challenge for builders ... so, they are automating.

We need to find 27,000 new carpenters every year. This will drive demand for easy-to-install components and systems. Fewer people on the jobsite.

And,…they are responding with new construction methods ...
(1,000 units)

<table>
<thead>
<tr>
<th></th>
<th>1997 # Units</th>
<th>1997 %</th>
<th>2004 # Units</th>
<th>2004 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stick Built¹</td>
<td>1,175</td>
<td>79.7%</td>
<td>1,326</td>
<td>68%</td>
</tr>
<tr>
<td>Panelized²</td>
<td>105</td>
<td>7.1%</td>
<td>260</td>
<td>13%</td>
</tr>
<tr>
<td>Concrete³</td>
<td>125</td>
<td>8.6%</td>
<td>275</td>
<td>14%</td>
</tr>
<tr>
<td>Modular⁴</td>
<td>45</td>
<td>3.1%</td>
<td>58</td>
<td>3%</td>
</tr>
<tr>
<td>Steel Frame⁵</td>
<td>8</td>
<td>0.5%</td>
<td>8</td>
<td>0.4%</td>
</tr>
<tr>
<td>SIPs⁶</td>
<td>8</td>
<td>0.5%</td>
<td>16</td>
<td>0.8%</td>
</tr>
<tr>
<td>Other⁷</td>
<td>8</td>
<td>0.5%</td>
<td>10</td>
<td>0.5%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,474</td>
<td>100%</td>
<td>1,953</td>
<td>100%</td>
</tr>
<tr>
<td>Manufactured*</td>
<td>354</td>
<td>19%</td>
<td>131</td>
<td>6%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>1,828</td>
<td>100%</td>
<td>1,979</td>
<td>100%</td>
</tr>
</tbody>
</table>

Trading places: Stick building decline offset by panelization

The trend to panelization means that builders are taking steps to streamline building and lower jobsite cost.

Concrete & steel are growing. Share growth of these two is a “wood loss” of about 15,000 starts per year.

¹ stick built walls and floor with prefab roof trusses, ² panelized wood walls built in factory, ³ block or poured concrete walls, ⁴ factory built modules (not HUD), ⁵ steel framing used for at least exterior walls, ⁶ foam core with structural panels, ⁷ log homes, post & beam, etc. *HUD code

Source: APA, Craig Adair, march 2005
Using more factory built to reduce waste, labor cost, & cycle time... less lumber needed for each house

Factory Built Walls and Glulam Beams

LVL (Laminated Veneer Lumber) and OSB factory built wall panels

SIPS mean less framing lumber

Source: APA
Engineered wood plants doubled in past 15 years. They use smaller trees and more hardwoods.

Growth:
- Environmental pressure.
- Consistent quality.
- Fewer callbacks.
- More consistent price.
- Less jobsite waste.

Source: APA, Sept ’04.
And, they give higher yields from the log ... that means less waste and lower manufacturing cost ... and they are more efficient

![Graph showing final product yield percentage for different processes]

- **Sawmilling**: 50%
- **Plywood**: 50%
- **LVL**: 55%
- **Parallam**: 68%
- **Timberstrand**: 80%
- **OSB**: 90%

**40% fewer parts – less labor**

**Plus 50% less wood fiber**

- **Floor system**
  - **Piece Count**
  - **Traditional 2x4**: 85 2x10’s
  - 133 pieces total
  - **LP’s “Solid Start”**: 26 I Joists
  - 80 pieces total

Source: TJ Weyco, USDA FS, Norbord Industries
More Advantages of EWPs

Lower Price Volatility
Important to Builders in Costing Projects

Predictable performance Important to architects & Builders for Design efficiency – Deal with Liability concerns

I-Joist & 2x10 Lumber Price Per Linear Foot

- Consistent dimensions
- Straight
- Dry engineered wood products
- Predictable

- 9-1/2” & 11-7/8” I-Joist, 6-city average builder price delivered.
- 2 x 10 No. 2 & Btr. Southern Pine, KD, 14’, Westside, mid-month mill price.

And, major impacts in building material usage…

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete</td>
<td>29%</td>
<td>29%</td>
<td>31%</td>
<td>35%</td>
<td>34%</td>
<td>35%</td>
<td>37%</td>
</tr>
<tr>
<td>Steel</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Lumber joists</td>
<td>40</td>
<td>39</td>
<td>35</td>
<td>31</td>
<td>29</td>
<td>26</td>
<td>26</td>
</tr>
<tr>
<td>I-Joists</td>
<td>20</td>
<td>22</td>
<td>23</td>
<td>23</td>
<td>26</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>Open Web wood truss</td>
<td>10</td>
<td>9</td>
<td>10</td>
<td>9</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Others</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>


* Includes SF, MF, and HUD code
Resulting in major lumber substitution

North America, BBF equivalent

All substitutes

EWP’s only

Source: Russ Taylor’s Wood Market Monthly, August 2001, November 2004
Europe and Japan are older than North America – more impetus for Factory built housing/components

Japan has rapidly moved to pre-cut framing and wall panelization. They’ve gone there and we’re headed there.

Source: U.S. Census, World Population Profile, WP/98
Japan Precut Homes Increasing

Drivers - demographics, new govt. building regs – Quality assurance law, 10 year home warranty program, Kobe earthquake

Post & Beam construction is moving to factory components with CAD, cut to length, machine cut mortise and tenon, numbered parts, using more glulam and engineered wood products.

Precut Post & Beam grew from 10% to 52% in only 10 years.

Source: Japan Lumber Journal, Precutters’ Assoc.
Impact of More Prefabrication in Japan Drives Use of Glulam & Laminated Lumber

Laminated structural lumber increasing at 10% - 15% annually
Consolidation in U.S. Homebuilding will accelerate industrialization trends – **Will (is)**

Drive Consolidation in Primary Wood Industry and Supply Channels

---

**Top 100 Market Share**

- 23%
- 21%
- 19%
- 17%
- 15%
- 13%
- 11%
- 9%
- 7%
- 5%

**Top 10 Market Share**

- 35%
- 30%
- 25%
- 20%
- 15%
- 10%
- 5%

---

**Consolidation rationale**

- Lower capital costs – important because 65% is inventory
- Operating efficiencies
- Land control – land development costs exceed 25% of new home
- Brand recognition
- Deeper pockets
- **Simplify construction process**
- National vs regional focus

---

* SF Homes closed by largest for-sale builders

Source: NAHB, M. Carliner
Construction Site Waste – The Builder Doesn’t Want to Pay Twice - Builders operate on low margins (< 10%) so any Cost Savings are Important

Pounds of waste for a 2000 Sq. Ft. Home in U.S.

8,000 pounds of waste per housing start
Will drive demand for factory built components

Source: NAHB
Supply Channel Changes

Supply channel changes – the rise of the large national homebuilder, retail product proliferation, and improved technology is driving consolidation in the residential supply chain!

(1) “with greater purchasing power, large builders can negotiate lower margins and additional services from dealers, and influence product lines that dealers “carry”. E.g. preassembly of components and product installation

(2) To provide these new products/services on a national level, the retail supply chain is consolidating. From traditional office and stocking distributors to more focus on retail sector – 1st DIY, now Pro Yards

(3) The supply chain is getting shorter – to reduce costs, many manufacturers are shipping directly to dealers who ship direct to builders (one step vs two step); some manufacturers ship direct to large builders.

Source: Residential Supply Chain in Transition; JCHS, Harvard University WO4-3; February 2004
### Pro Dealer Customer Base

#### More Sales To Large Builders

<table>
<thead>
<tr>
<th>Customer</th>
<th>1997</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>500+ Homebuilder</td>
<td>12%</td>
<td>20%</td>
</tr>
<tr>
<td>25-499 Homes</td>
<td>24%</td>
<td>32%</td>
</tr>
<tr>
<td>Smaller Builders</td>
<td>64%</td>
<td>48%</td>
</tr>
<tr>
<td>Multifamily, Remodeling</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Contractors, Homeowners</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The large pro dealer is leading the way to service large builders.

### Implications for the wood product manufacturer:

- Get to know the current and emerging players.
- Larger pro dealers getting more buying clout, may dictate more terms – **desire more strategic partnerships with primary industry?**
- They may demand more quality features, cut-to-size, better delivery schedules, “price smoothing”, inventory management, etc.

Source: Residential Supply Chain In Transition, Feb.’04. [www.jchs.harvard.edu/](http://www.jchs.harvard.edu/)
Turnkey – Components – Installation – Partnerships Trends

Strategic Partnership between Universal FP and Shawnlee, the largest framer of multi-family structures in MA:
Framing and Installation services For site built & retail sectors is fastest growing business for Universal

Pro Yard Sales Trends

<table>
<thead>
<tr>
<th>Year</th>
<th>Preassembled Components</th>
<th>Installation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>4%</td>
<td>2%</td>
</tr>
<tr>
<td>2002</td>
<td>12%</td>
<td>10%</td>
</tr>
</tbody>
</table>

Universal Forest Products Merges with New England’s Shawnlee

GRAND RAPIDS, Mich., April 9 (PRNewswire-FirstCall) — Universal Forest Products, Inc. (Nasdaq:UFPI - News) today announced an investment in the largest framer of multi-family structures in the Massachusetts area, Shawnlee Construction, LLC. Universal has purchased a 50% stake in the company.

Universal and Shawnlee expect to satisfy customer requests in the New England market for turnkey construction packages. Universal will be able to supply material from its component plants throughout the Northeast and combine it with framing services through Shawnlee Construction, LLC.

Based in Framingham, Massachusetts, Shawnlee draws on a management team and infrastructure that have more than 30 years of experience in the framing business and that completed more than $55 million in projects over the past three years. Shawnlee has approximately 280 employees. Annual labor sales for 2004 are expected to be approximately $20 million.

"Our partnership with Shawnlee bring to the table a top-notch organization with strong leadership and a reputation for excellence in everything they do," said William G. Currie, Universal CEO and vice chairman. "Our philosophies and business practices are closely aligned, we both set a high bar for performance. We're excited about this opportunity and believe the partnership will be a dynamic one."
Residential Components* Growing Faster than Lumber because Builders want Installed Sales/Turnkey Services to Reduce Labor, Waste, Cycle Time, & Litigation

![Graph showing shipments and distribution firms offering installation services from 1992 to 2002.](image)

- **Shipments, $ Billion, FOB mill**
- **Percentage of distribution firms Offering installation services**

- Includes: Wood trusses (NAICS 321214), EWP (321213), Prefab wood buildings (321992), (precut, panelized form, modular). Excludes components used by HUD code manufactured homes.

Source: U.S. Census
More U.S. Home Builders now offer Customization/Design options because their customers demand them. This means more interchangeable components like wall panels, engineered floor systems, and other “installed sales options” like complete framing packages (Remember the auto industry example) – no guarantee it will be wood.
Globalization Issues

• New competitors
• Is U.S. competitive in commodities????
• Some of us need to “move up the food chain” or add value!!!
• Innovation in products, services, systems, management, marketing, sales,.....
Supply to U.S. Markets - Domestically-produced shares of U.S. consumption declined for most wood products from 1990 to 2002, especially for more labor-intensive products . . .

Source: Census, BLS
U.S. Softwood Lumber supply – Imports absorbed almost all the growth in demand

Imports are 38% of demand

Demand* = domestic consumption plus offshore exports

Source: RISI, SFPA
Softwood lumber imports from Canada are huge, and non-Canadian imports are also growing . . .

Big shifts in framing lumber trade with Europe (in wides and narrows) began in the late 1990s . . . (a quality issue)

Source: RISI, USDA FAS
Softwood Lumber Imports

MLB – Canada/Maritimes

Estonia - Europe
Also, with expanded pine plantation output, the Southern hemisphere & Latin America emerged as a growing softwood lumber supply source . . .

**Plantation Pine Timber Harvest from Southern Hemisphere**

- 1990: 40 Million M³
- 1992: 50 Million M³
- 1994: 60 Million M³
- 1996: 70 Million M³
- 1998: 80 Million M³
- 2000: 90 Million M³
- 2002: 100 Million M³
- 2004: 110 Million M³

**U.S. Lumber Imports (MMBF) from Chile, Brazil, Mexico, NZ, Australia**

- 1991: 5 Million BF
- 1992: 10 Million BF
- 1993: 15 Million BF
- 1994: 20 Million BF
- 1995: 25 Million BF
- 1996: 30 Million BF
- 1997: 35 Million BF
- 1998: 40 Million BF
- 1999: 45 Million BF
- 2000: 50 Million BF
- 2001: 55 Million BF
- 2002: 60 Million BF
- 2003: 65 Million BF
- 2004: 70 Million BF

Source: R. Taylor, WMM
Similarly, in structural panel markets, imports absorbed almost all the growth in demand.

*Demand = domestic consumption plus exports

Source: RISI
Plywood is coming from Brazil, and OSB from Canada . . .

Billion Square Feet (3/8”)

Softwood Plywood

OSB

Source: USDA, FAS
Foreign panel mills currently certified by North American accreditation agencies.

Source: APA
Can the U.S. compete in these product sectors?

Some reasons why you want to avoid Commodities unless you have cheap wood, cheap power, fewer regulations, cheap labor, ....
Some reasons why commodity prices (real, inflation adjusted dollars) will decline

- Lower production costs resulting from technological improvements
- Lower industry marginal costs due to closure of higher costs mills via recent M&A activity
- Increasing supply from lower cost regions (production shift from North hemisphere to Southern hemisphere)
- Falling “use factors” (consumption per unit – e.g., lumber per SF floor area of a house) due to substitute products
Why is U.S. losing commodity wood markets??
Here are some clues

Fiber as % of Mill Gate Operating cost

**Primary Industry**

**Secondary Industry**

Source: CIBC World Markets
Some realities to consider . . .

Global average wood fiber (chip) prices have fallen by 15 to 20% in the past 15 years ... that implies lower real (inflation adjusted) commodity prices in future??

Source: Wood Resource Quarterly, WRI, Bob Flynn
Fiber prices are falling because ...

Supply exceeds demand ... Future timber glut?

Million M3, Hardwoods and Softwoods

Million cubic meters

Source: Jaakko Poyry

Source: U.S.A. - AF&PA; others - R. Taylor, WMM, 2/2003; UN/ECE
Global expansion of wood fiber plantations is one reason for declining global fiber costs . . .

900% growth in past 20 years (20 million HA to 180)

Fiber Plantation Expansion in China (supported in part by state subsidies)

Additional Million Acres Planned by 2015

Source: AF&PA

Klabin de Papel e Celulose plantations in Brazil
Also, the United States is *not* the lowest cost producer of forest products, such as lumber . . ., but the recent weakening of the USD is helping.

**Global Sawmilling Costs – 2002**

<table>
<thead>
<tr>
<th>Region</th>
<th>Net wood</th>
<th>Mill costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>S. Hemisphere</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Europe/Russia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W. Europe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

U.S.$/net M³, lumber basis

Source: WMM Nov. 2003, R.E. Taylor, USDA FS
... as other regions have provided more profitable returns on capital investments ... guess where the new money is going???

**ROCE by Region: 1998-2003**

<table>
<thead>
<tr>
<th>Region</th>
<th>ROCE (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>South America</td>
<td>7.0%</td>
</tr>
<tr>
<td>Other Asia</td>
<td>6.7%</td>
</tr>
<tr>
<td>Europe</td>
<td>6.3%</td>
</tr>
<tr>
<td>Canada</td>
<td>5.5%</td>
</tr>
<tr>
<td>USA</td>
<td>5.1%</td>
</tr>
<tr>
<td>Japan</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

Source: PWC, CIBC World Markets (March 2005)
Consolidation in Lumber and Structural Panels...

Implications .. It’s about scale economies – consolidation to drive costs down and lock up customers ... and, larger companies are more global in sourcing fiber and products.

North American Lumber

With import competition and consolidation, U.S. mills are getting bigger - more efficient and automated ... If you stay in commodities, this is the way to go, but make sure you have the resources to “pull it off”

170% capacity increase in past decade
Avg. mill: 245 MMSF to 411 MMSF

U.S. sawmill statistics

Output - MMBF/year

Number of Mills

Regional OSB Capacity, MMSF(3/8”)

Source: RISI
Structural Panels and EWPs

- Demand/supply analysis
- Market share – high concentration in few end uses/markets – becoming commodities
- Product life cycles – even some EWPs are becoming mature
- Increasing margin pressure on commodities ....
- More reasons to move up the food chain!!!
  with innovation in products, building systems, .... Innovative business model(s), innovative business solutions
North American OSB Prices: supply is just as important as demand

Capacity additions, BSF (3/8”)

NC, 7/16” FOB mill

Starts, million

Source: APA

Source: Census, Random Lengths
High prices in 2004 are driving Capacity additions

# New Mills Planned for 2005 and Beyond

<table>
<thead>
<tr>
<th>Company</th>
<th>Country</th>
<th>MMSF (3/8”)</th>
<th>Start Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chatham Forest Prod.</td>
<td>USA</td>
<td>500</td>
<td>2006??</td>
</tr>
<tr>
<td>Ogdensburg, NY (recently bought by Ainsworth)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LP/Canfor</td>
<td>Canada</td>
<td>820</td>
<td>Sept 2005</td>
</tr>
<tr>
<td>Fort St. John, BC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Martco, Louisiana</td>
<td>USA</td>
<td>850</td>
<td>2006?</td>
</tr>
<tr>
<td>LP – Alabama</td>
<td>USA</td>
<td>800</td>
<td>late 2007</td>
</tr>
<tr>
<td>GP, Florida</td>
<td>USA</td>
<td>500</td>
<td>early 2005</td>
</tr>
<tr>
<td>Ced-Or Forest Prod.</td>
<td>Canada</td>
<td>210</td>
<td>????</td>
</tr>
<tr>
<td>Bearn, QC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kruger, Longlac Ont.</td>
<td>Canada</td>
<td>750</td>
<td>2007?</td>
</tr>
<tr>
<td>Huber – SC or GA</td>
<td>USA</td>
<td>700+</td>
<td>2007?</td>
</tr>
</tbody>
</table>

Source: Wood Based panels Intl. – March 2005
Outlook – North American Structural Panels
New capacity plus fewer starts will mean lower prices during 2005 - 2006

Demand/Cap
Price

Price: Random Lengths Structural Panel Composite. Annual average -

Source: Demand/Cap RISI

Demand: North American domestic market demand + offshore exports
Capacity: North American total
OSB already has a high share of home construction. The sheathing market is getting filled up with OSB and OSB may come after industrial next.

Source: APA-The Engineered Wood Association. '03 preliminary.
Competition in sheathing markets - 2003

Source: NAHB Research Center
Wood Wall Sheathing Losing Share
a Question of Economics (less labor, inspection
time, framing lumber,..) to the Builder

Advertisement:
“The principle benefits of the Strong-Wall Shearwall® are its consistency and strength... ...this allows for more windows and doors in the house design because you use 30-70% less shearwall than typically required.”
Translation – less OSB!!!
Wood Wall Sheathing Losses

- Foil faced kraft board and foam sheathing.
I-joist Market Share
Raised Floors – approaching saturation???

Single Family

Share of raised floor area


Open Wood Web Truss – 14%

Lumber – 39%

I - Joist – 46%

* SF + MF + HUD

Source: NAHB Research Builder surveys; APA
LVL Stats

Million cubic feet


Beams/Headers 57%
I-Joist flanges 37%
Rimboards 2%
Industrial 4%

Source: APA
Alternatives to Lumber and Plywood

conventional wood expected to continue losing market share to materials with less maintenance, stronger, predictable performance, …
I-Joist Life Cycle

Share of Residential Wood Floor Area

Manufacturing Capacity
Canada
U.S.

Source: Bill Walters, Weyco Truss Joist
North America Engineered Lumber
(LVL, Parallam™ PSL and TimbrStrand™ LSL)

Source: Bill Walters, Weyco/Trus joist
Engineered Lumber Capacity

- Introduction of Parallam and TimberStrand
- I-Joist Flanges
- LVL Production

Source: Bill Walter, Trus Joist
Where We Are Today with many wood products including EWPs

- Approaching the plateau of the life cycle for many products
- Major producers are large, vertically integrated companies
- Customers are becoming increasingly price conscious
- Capacity approaching expected demand (unless industry develops new products, systems, innovations …..)
- Off shore production is increasing – more of this production is coming to North America (both conventional products and EWPs)
Keys To Future Success

- Know your strengths and weaknesses
- Know who your key customers are and what they want from their suppliers – builders want to simplify construction process – goof proof products – shared liability....
- Maintain high standards of performance, reliability and convenience in your business
- Cost Improvement – higher performance products & more efficient use of wood
- Marketing – educate your customers re: your products/services
- **Innovation** – new products for new markets; new & enhanced applications; new systems; new business model (s)??
Where does the wood go? – Too many eggs in one basket? Think about opportunities in Industrial and Non residential??
2004 U.S. Construction Expenditures vs Lumber & Panel Consumption

Structural Panels

Lumber

Source: construction expenditures - U.S. Commerce, Report C-30; Panel consumption - RISI
Commercial Application – construction expenditures for non residential markets equal residential expenditures, but only 25% of the value of wood products go to non residential markets – lots of room for innovation!!!!!!
Furniture & fixtures – 30%  Transportation – 21%
Materials handling – 26%   Other – 23%

Needed innovation in properties & performance – appearance, surface qualities, milling, thickness / size tolerances ..... “flexible manufacturing”