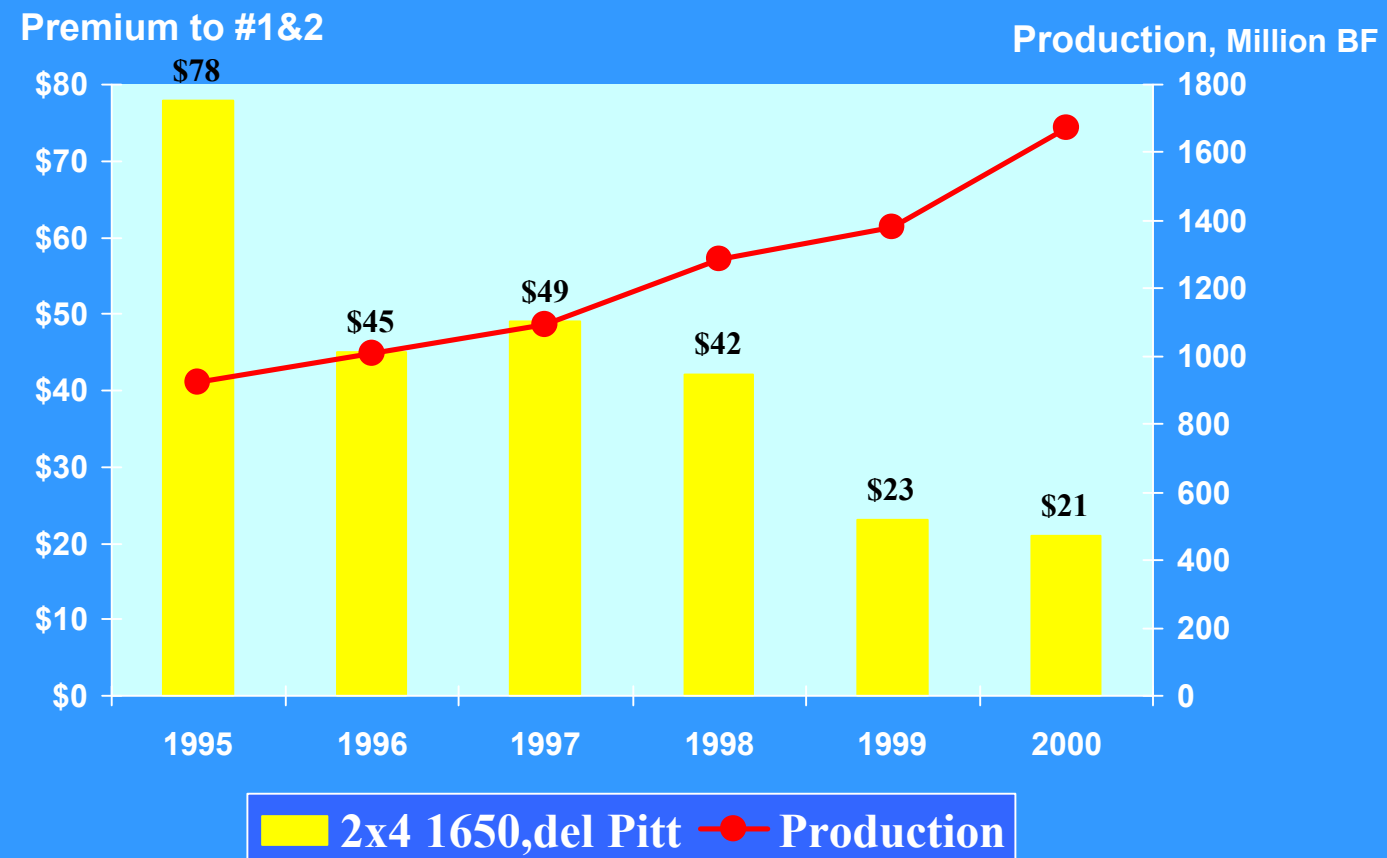


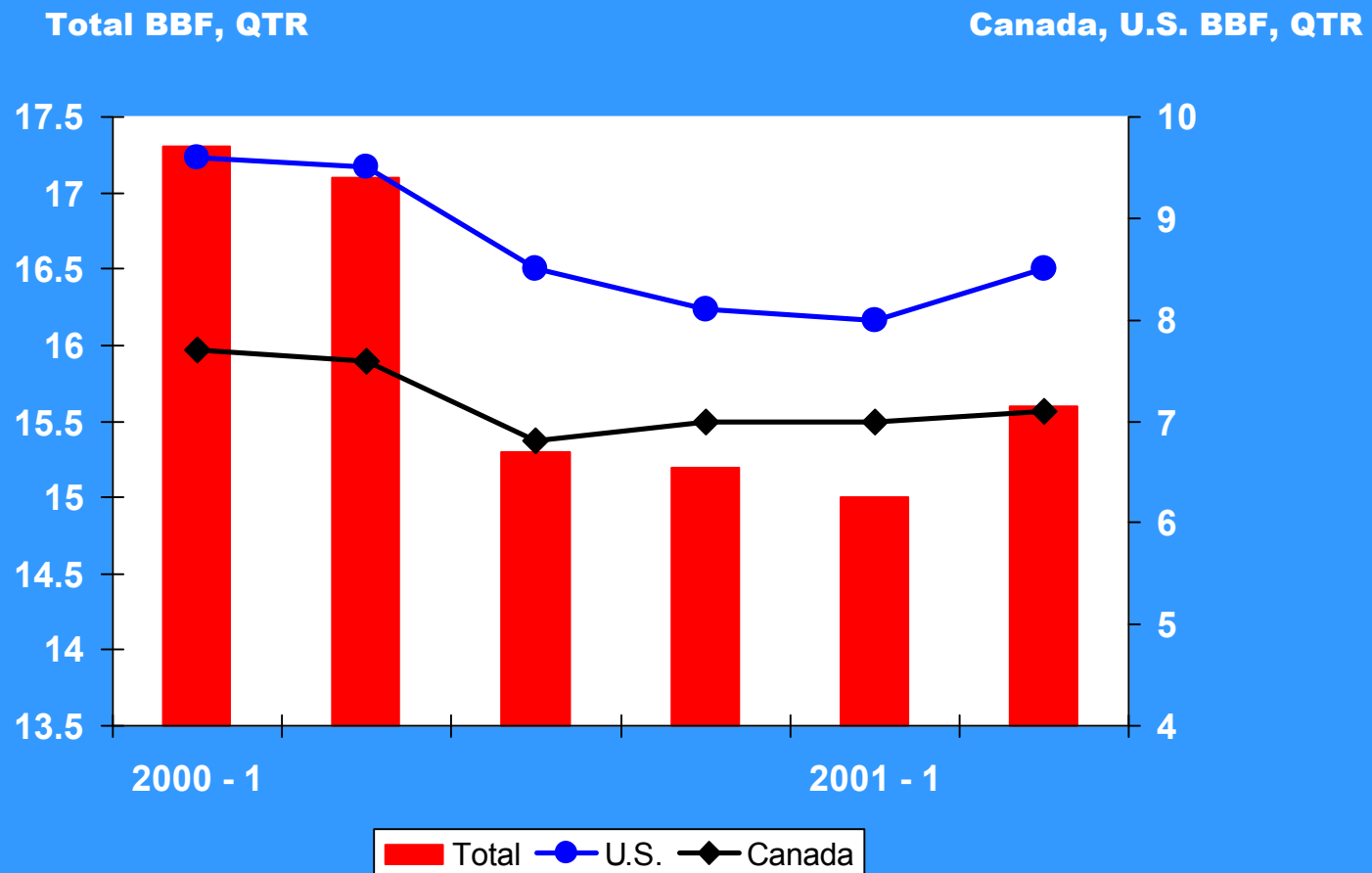
MSR Premiums Shrink as Production Soars



Source: Production - MSR Lbr. Producer's Council; Price - Random Lengths

Lumber Production

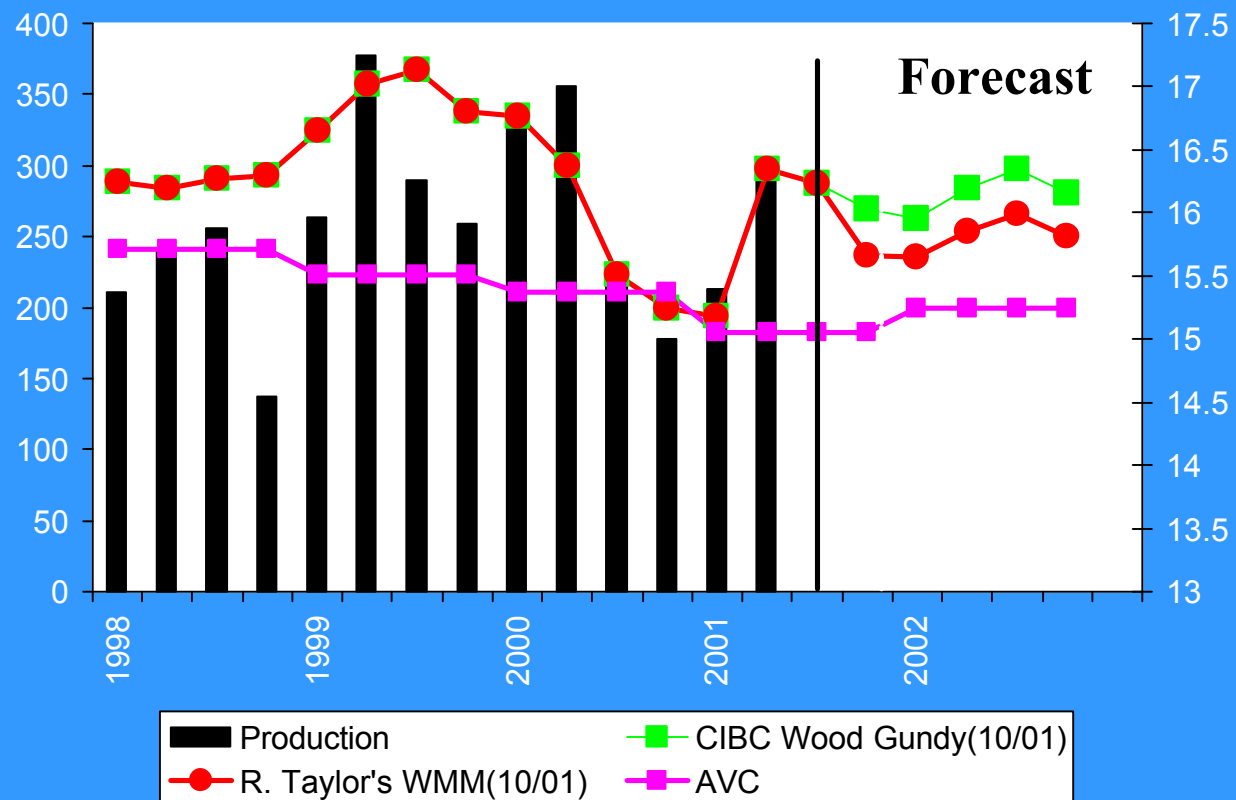
**Significant cutbacks will support
Better prices in 2002**



Lumber Price Outlook – Flat Pricing in 2002 – Final duty/AD rate will affect price

WSPF, 2X4, R/L, FOB Mill – US\$/M

NA Production, BBF, QTR



Source: AVC, RISI

Lumber Market Comments

- **Building material prices have started to decline**
- **Weakening consumer confidence affecting housing demand, remodeling, furniture etc.**
- **Lumber markets still oversupplied!!!**
- **2002 price will depend on duty – 19.3% CVD(%) plus anti dumping (%)?? The higher the duty, the higher NA lumber prices will be in 2002!!!!**

CVD, Quotas, SLA

Itinerary:

- > August 10, Commerce placed a 19.3% CVD based on preliminary determination that the Canadian government subsidizes its softwood lumber industry, primarily through cheap stumpage. New duties retroactive to May**
- > In October, Commerce will rule on a petition by CFLI (Coalition for Fair Lumber Imports) for an **anti dumping duty.****

CVD, Quotas, SLA

- **Next steps – If Commerce finds in favor of an anti dumping duty, then:**
 - > **Commerce makes final and separate determinations on each**
 - > **Intl. Trade Commission (ITC) makes final determinations on each**
 - > **Canada can appeal to NAFTA**

- **Whole process could go on through 2002 and into 2003.**

Market Impacts of CVD

➤ **Any supply restriction has potential to disrupt markets**

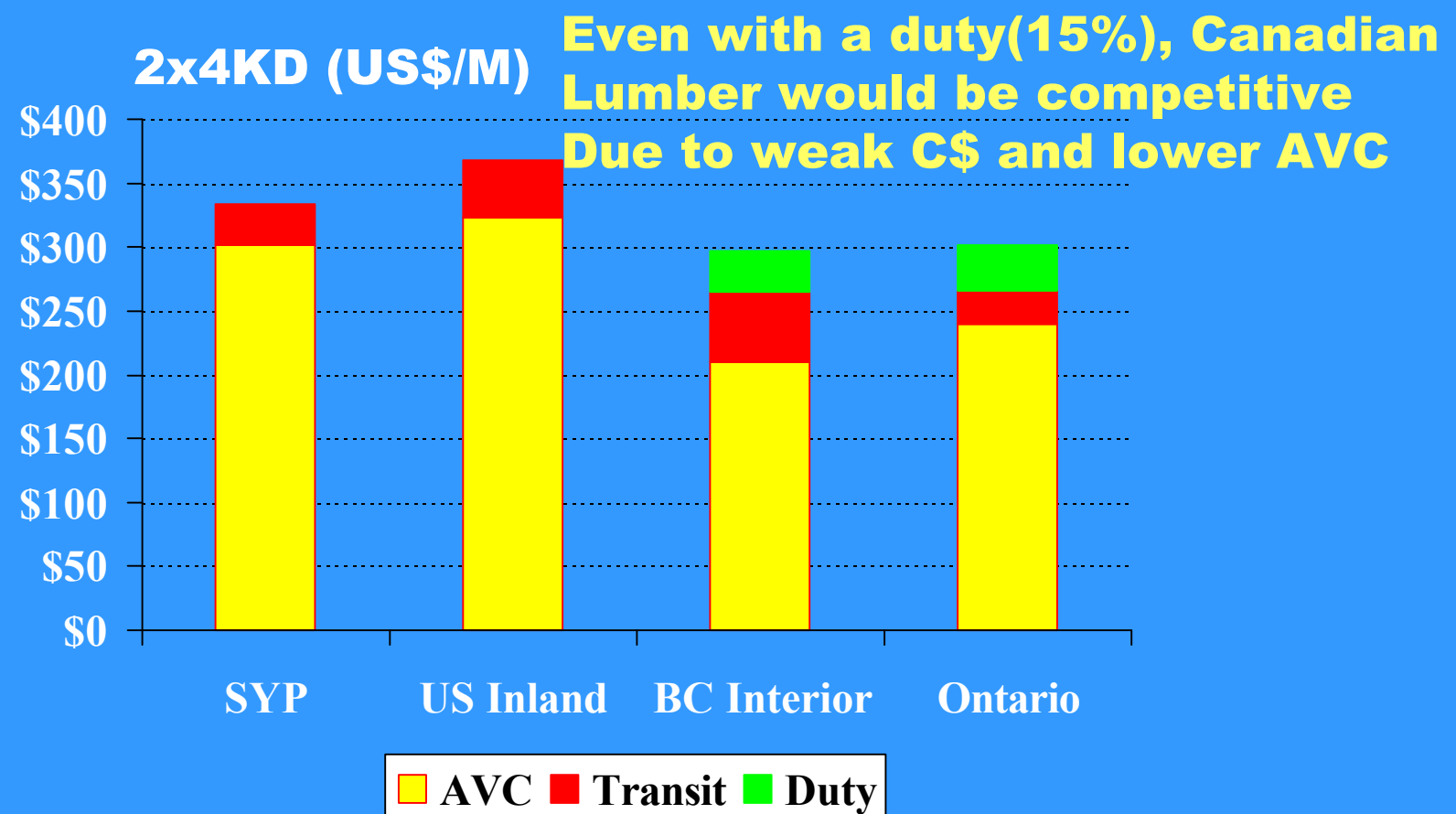
Impact will depend on several factors including

- 1. Overall demand**
- 2. Alternative supply sources**
- 3. Cost structure of Canadian industry**
- 4. Alternative demand for Canadian lumber**

CVD Market Impacts

- **Assume 15% duty on Canadian SPF**
- **SPF price increase would be less than 15% due to:**
 - 1. weaker C\$**
 - 2. lower AVC in Canada**
- **Longer term – prices would come back down due to substitution!!!**
- **Actual price increase about 10% in NA market across all structural softwood species – best guess**

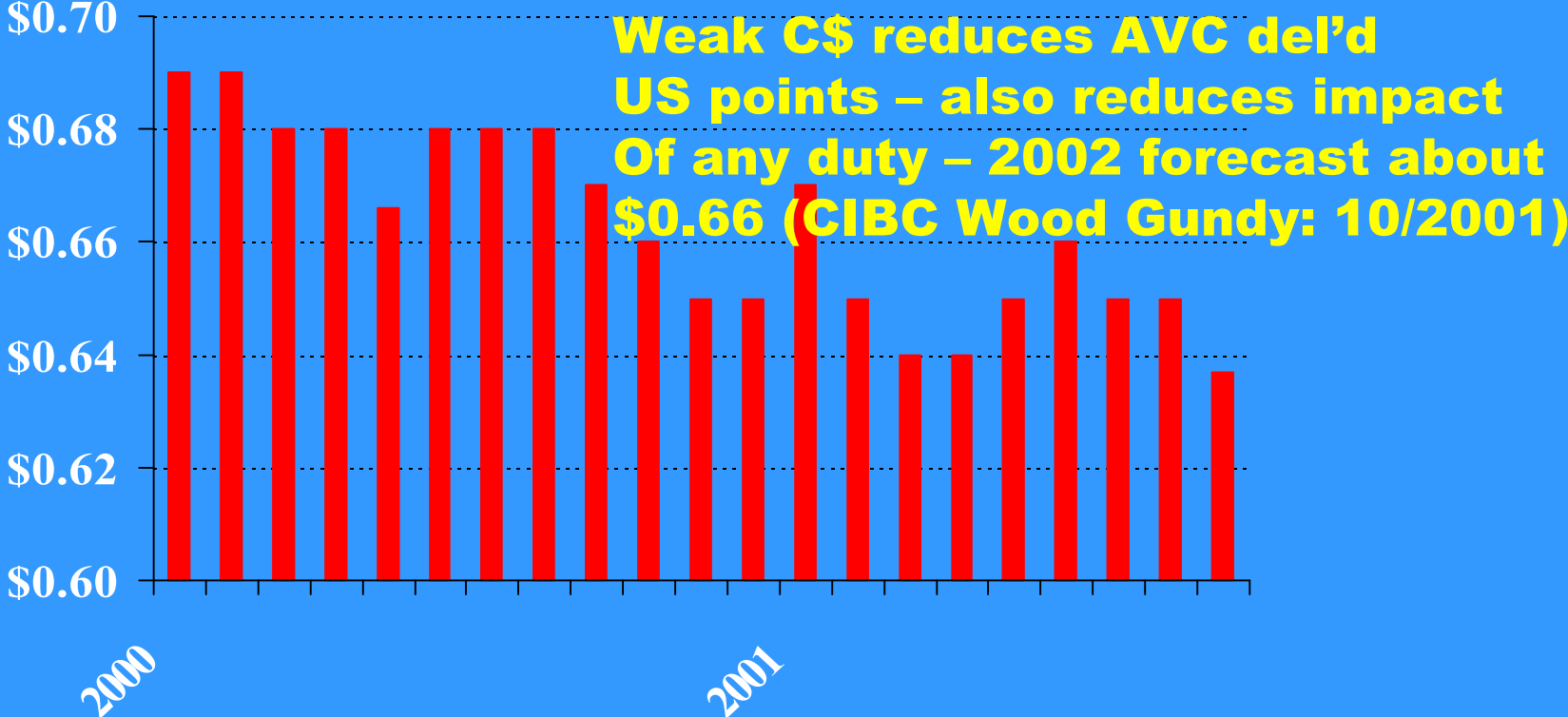
Lumber Cost* Del'd Chicago



*cost adjusted for product mix, RISI, 7/01

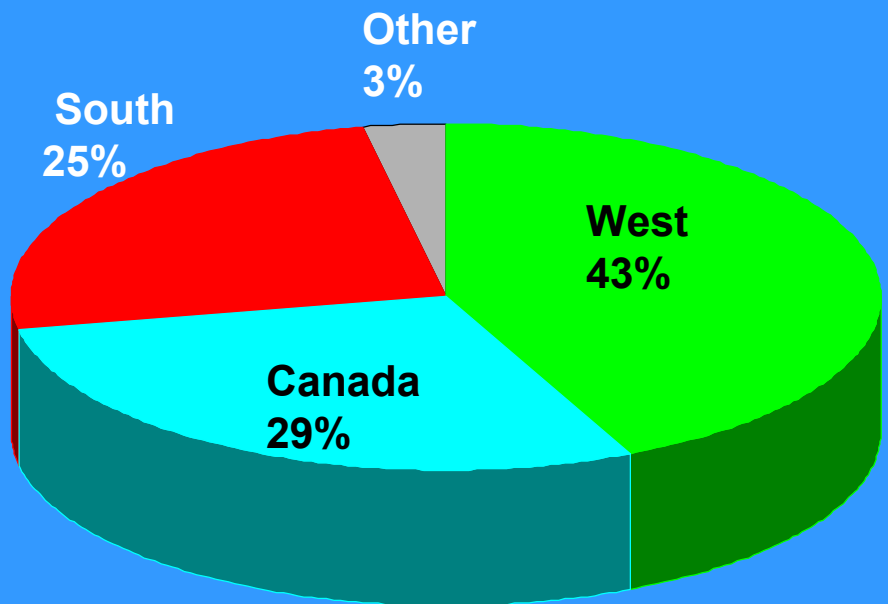
C\$ Exchange Rate

US\$ per C\$



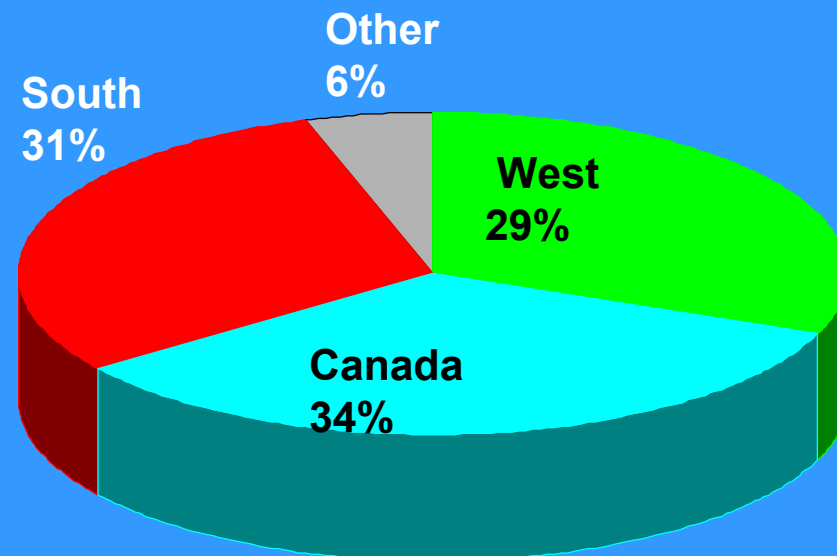
US Softwood Lumber Supply - changes impact regional fiber costs, employment opportunities, investments, etc.

Canada and South Gain while West Loses



1986 - 1990

Pre Spotted Owl Days
U.S. supplies 70%

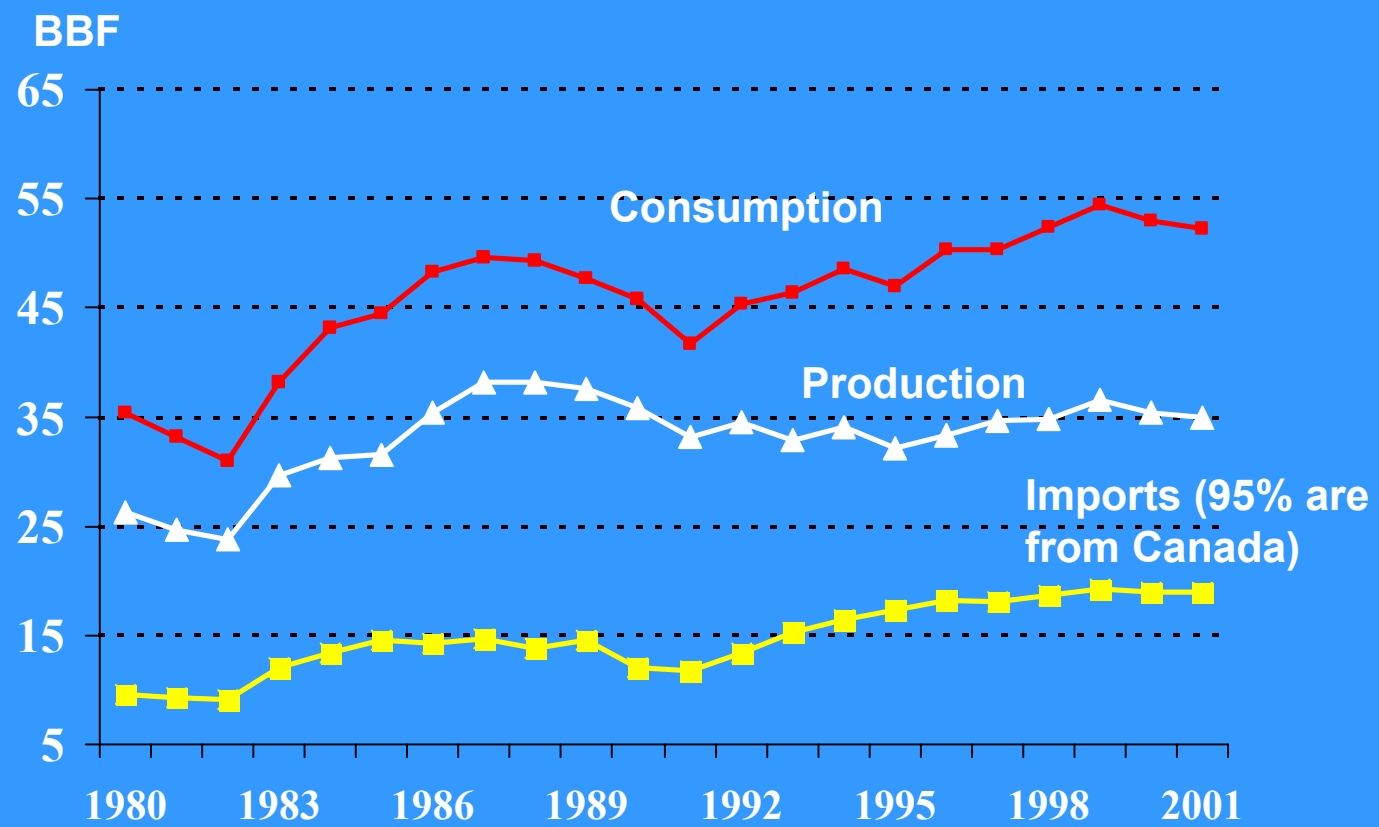


2000

After Spotted Owl
U.S. supplies 64%

Source: RISI., USDA - FS

US softwood lumber consumption : U.S. will always need to import lots of lumber

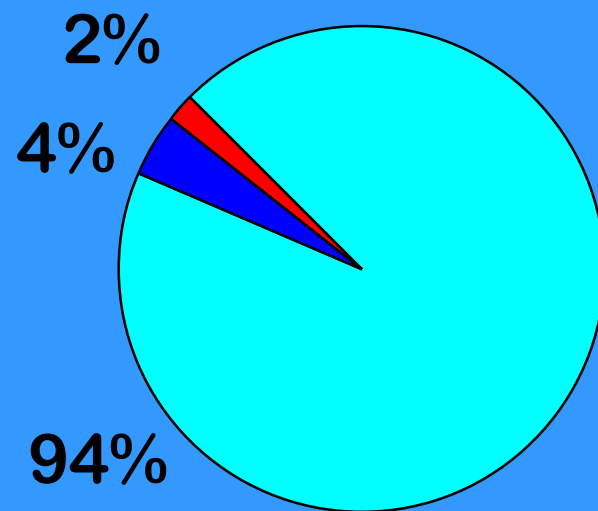


Sources of Irritation Revolve Around Wood Costs and Market Share

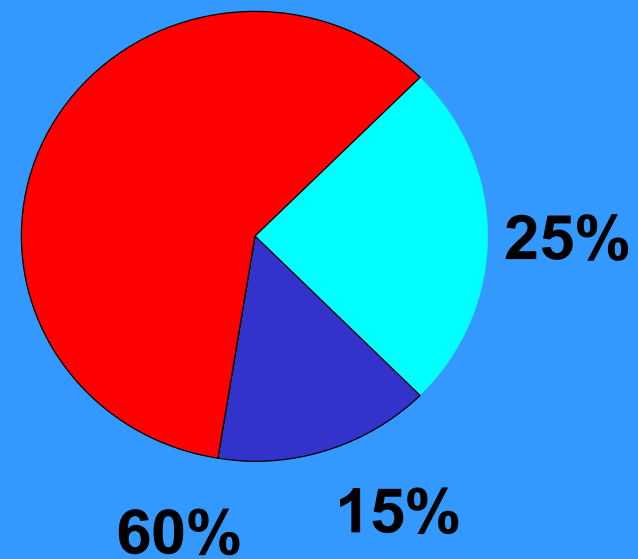
- **Forest Ownership Differences and how this impacts fiber cost and availability**
- **US Market Share held by Canada**

The Coalition for Fair Lumber Imports Believes Canadian Government Fiber is Sold at Below Market Value

Canada



USA



North American Forest Ownership



Impact of Demographics on Building Materials Industry

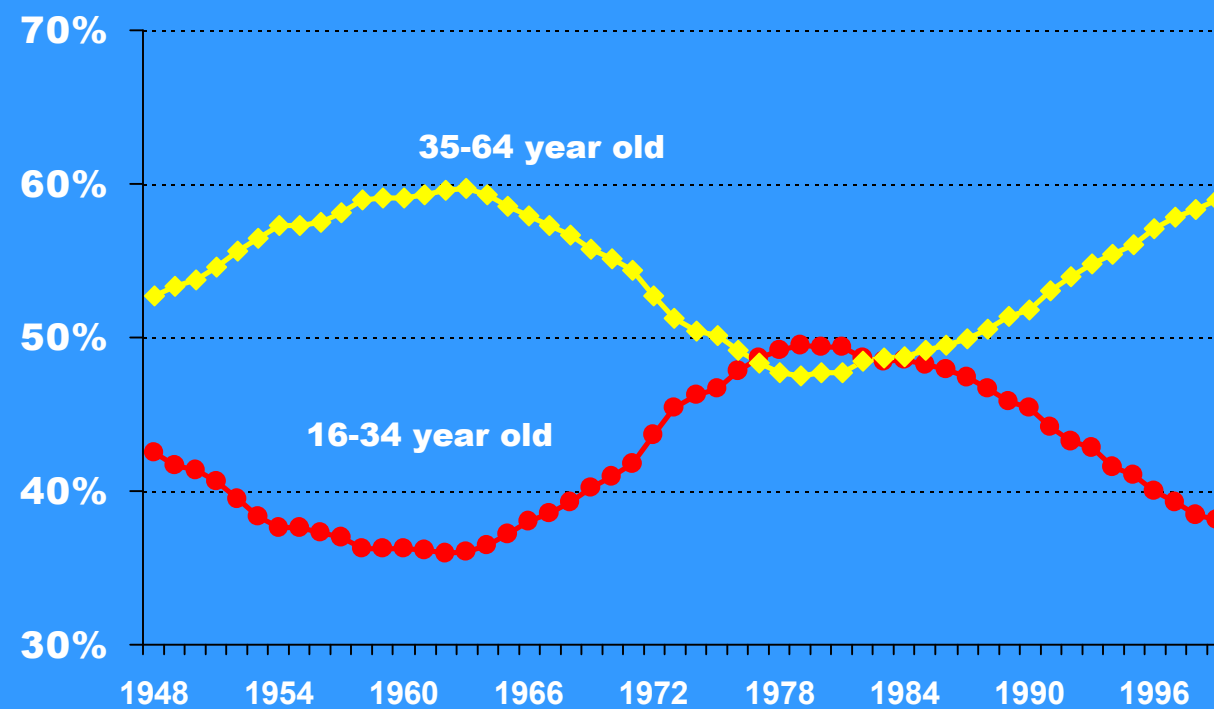
**Opportunities to use more
engineered products?**

**Opportunities for automation in
house construction?**

Labor Force Demographics

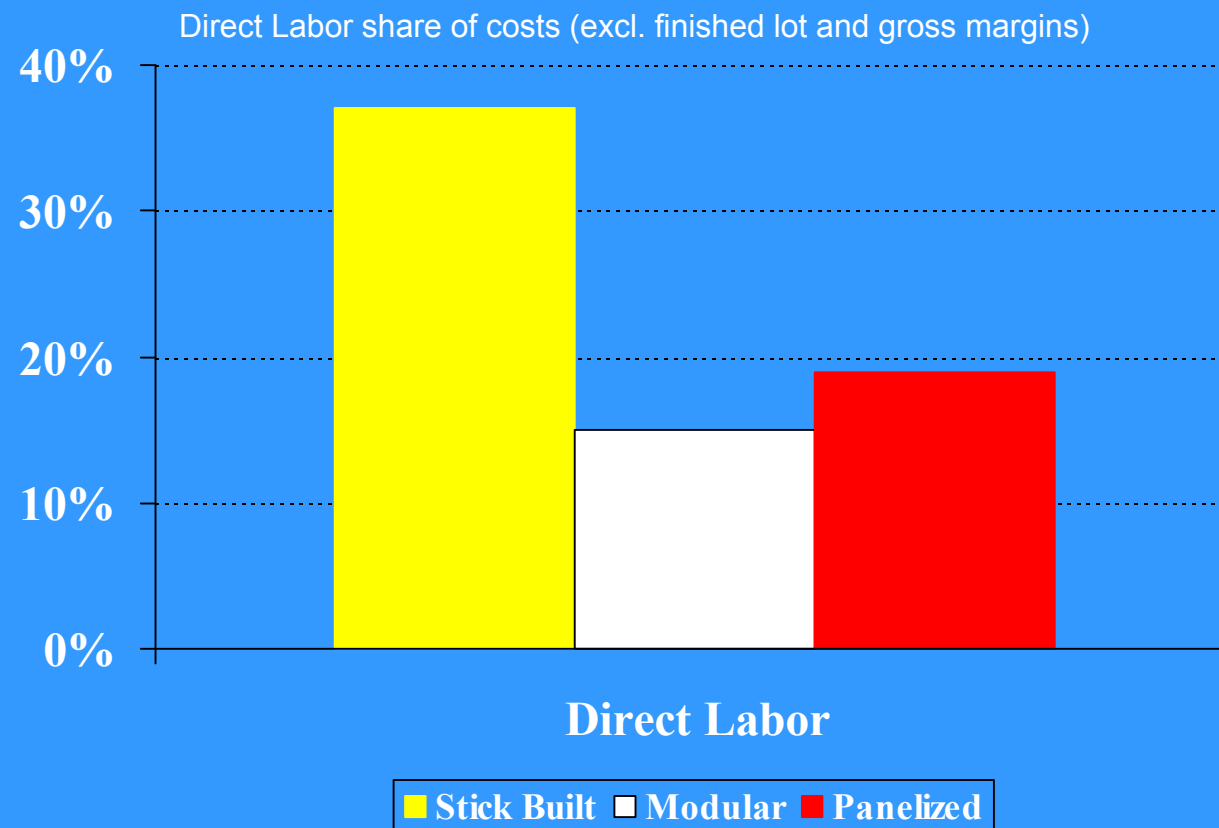
*Implications of a older labor force?
More expensive labor!!!
Encourages automation! – manufactured housing,
Components (trusses, panelized wall systems, etc.)*

Share of employed civilian labor force



Source: www.economagic.com/em-cgi/data.exe

Labor Cost Advantages for Manufactured Housing



Source: Hallahan Associates, November 2000

Labor Saving Efficiencies Examples

| Applications | Conventional Solution | EWP Solution |
|---------------------------------|--|---|
| 1. Garage Door Headers | two 2x10's nailed together | one LVL beam |
| 2. Floor System | conventional floor with 133 pieces | I-Joist system with 80 pieces (40% less) |
| 3. Carrying Beams | three or four 2x12's nailed | one 3 1/2" LVL beam one Parallam beam |
| 4. Roof Truss truss system with | metal plate wood truss with conventional lumber chords | metal plate wood MSR chords (15% less lumber) |

Census Changes

- **Underestimated population growth by 7 million in 1990's**
- **Most of the undercount was “missing” net immigrant growth by 5.5 million**
- **Actual household formations in 90's were 1.35 million/yr (the estimate was 1.15 million or 200,000/year lower)**
- **Significance:**
 - 1. Population in 25-34 age group didn't shrink as much as we thought**
 - 2. That means demand for starter homes and rental housing (multi family) is higher than previously thought, and this supports better “move up” demand later in the decade!!**
 - 3. More people in 35-45 and 45-54 age groups too – that supports better 2nd home demand and remodeling activity!! , and it means that demand for shelter by the “baby boomer” group will hold up better in this decade than previously thought**

Comparing the Census with Pre-Census Estimates

| Age | 1990 Census | 2000 Est. | 2000 Census | Change 1990-2000 | 2000 Census vs Est. |
|--------------|---------------|---------------|---------------|------------------|---------------------|
| 15-24 | 36774 | 38189 | 39184 | 6.6% | 2.6% |
| 25-34 | 43176 | 37474 | 39892 | -7.6% | 6.5% |
| 35-44 | 37579 | 44825 | 45149 | 20.1% | 0.6% |
| 45-54 | 25223 | 36820 | 37678 | 49.4% | 2.3% |
| 55-64 | 21148 | 23850 | 24275 | 14.8% | 1.8% |
| 65 + | 31242 | 34682 | 34992 | | |
| Total | 248740 | 274519 | 281422 | 13.2% | 2.5% |

Census Changes

➤ Immigration

Estimates – 867,000 per year

Census – 1,400,000 per year

➤ Biggest impact on 25-34 age cohort

Census = 39,892,000

estimate = 37,474,000

difference = 2.5 million people

**Sign: this group buys starter homes and rents
(good for multi – family starts)**

➤ Other impacts – ages 35-55

Census – 82,857,000

estimates – 81,645,000

difference – 1.21 million people

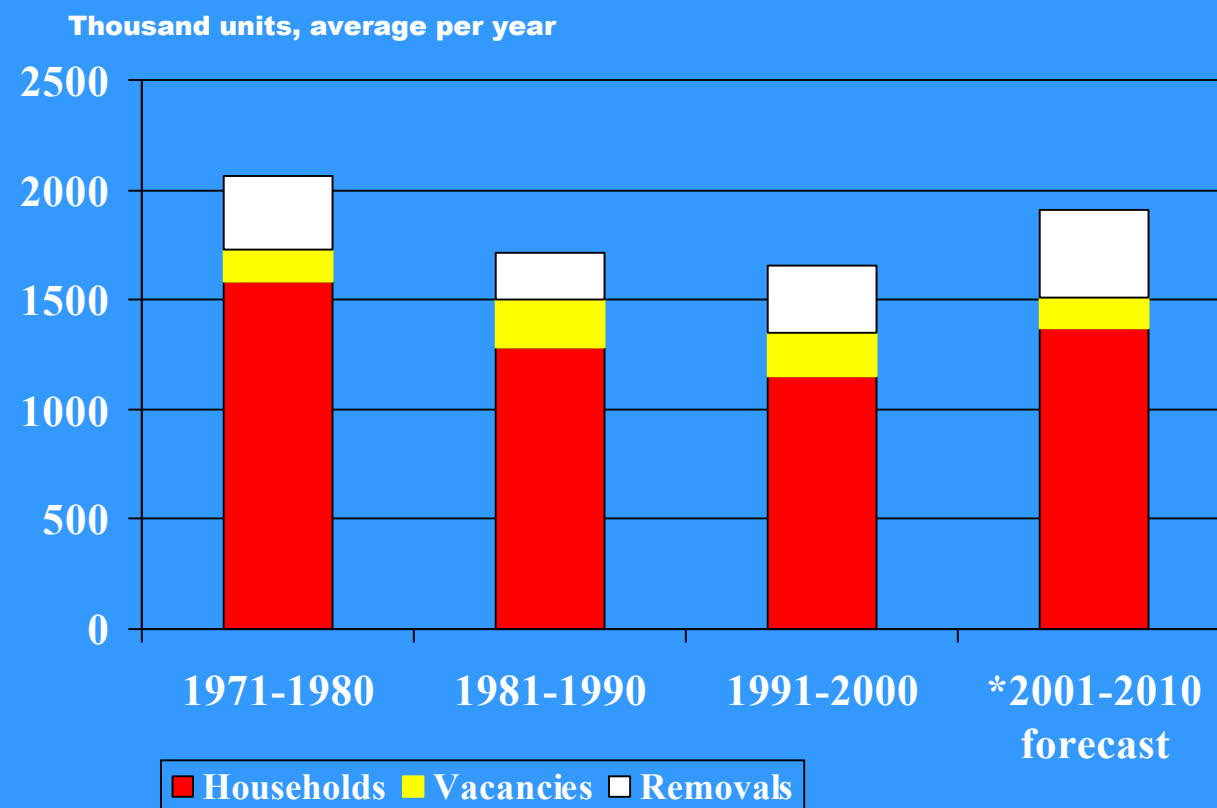
**Sign: supports 2nd home demand, remodeling
demand, and housing in general**

Census Shifts

- **Three broad regions in USA**
- **“Melting Pot”** – where most of immigrants go – Cal.(LA, SF), TX, Ill.(Chicago), NY(NYC), FL(Miami), and NJ – **If Sept 11 changes immigration trends, could see major impact in this region!!!**
- **“New Sun Belt”** – Migration – NV, GA, and CO – white middle class – growing rapidly – Atlanta, Phoenix, Denver, and Dallas
- **“Heartland”** – SD, NEB, MN – white and aging, **but not growing!**

Remember - immigrants accounted for 25% of housing demand during past 3-5 years!!!!

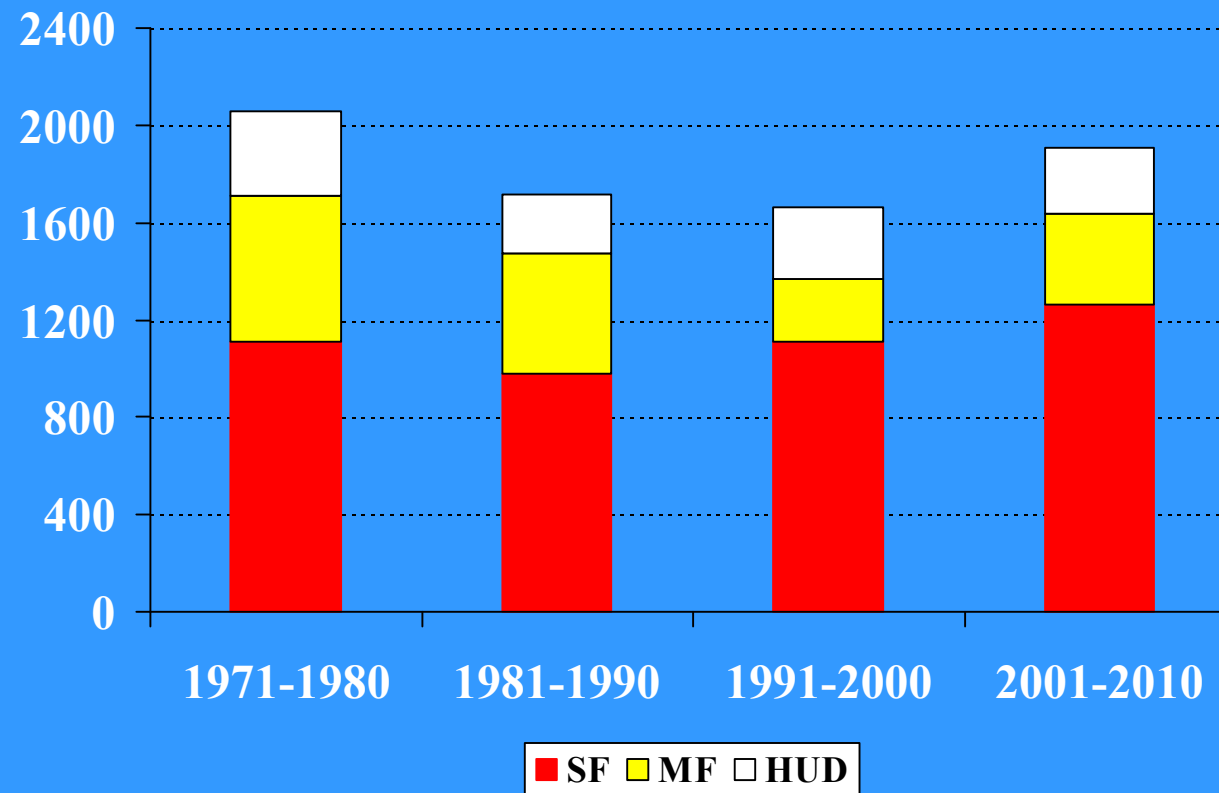
Housing Demand – Stronger demographics in this decade



Sources: (1971-2000: NAHB, Home Builder's Forecast, 6/2001;
2001-2010: RISI NA Lumber Forecast, July 2001)

Housing Supply – Demographics Drive SF

Average per year, 1000 units



Sources: (1971-2000: NAHB, Home Builder's Forecast, 6/2001;
2001-2010: RISI NA Lumber Forecast, July 2001)

Componentization of the U.S. Housing Industry

The U.S. housing industry is not turning to fully manufactured housing as much as it is rapidly evolving towards the use of components such as roof, floor and wall systems –

Conclusions from:

Forintek, U.S. Dept. Housing & Urban Development, NAHB, and others

U.S. Housing Starts by Building Method - 2000

Source: APA

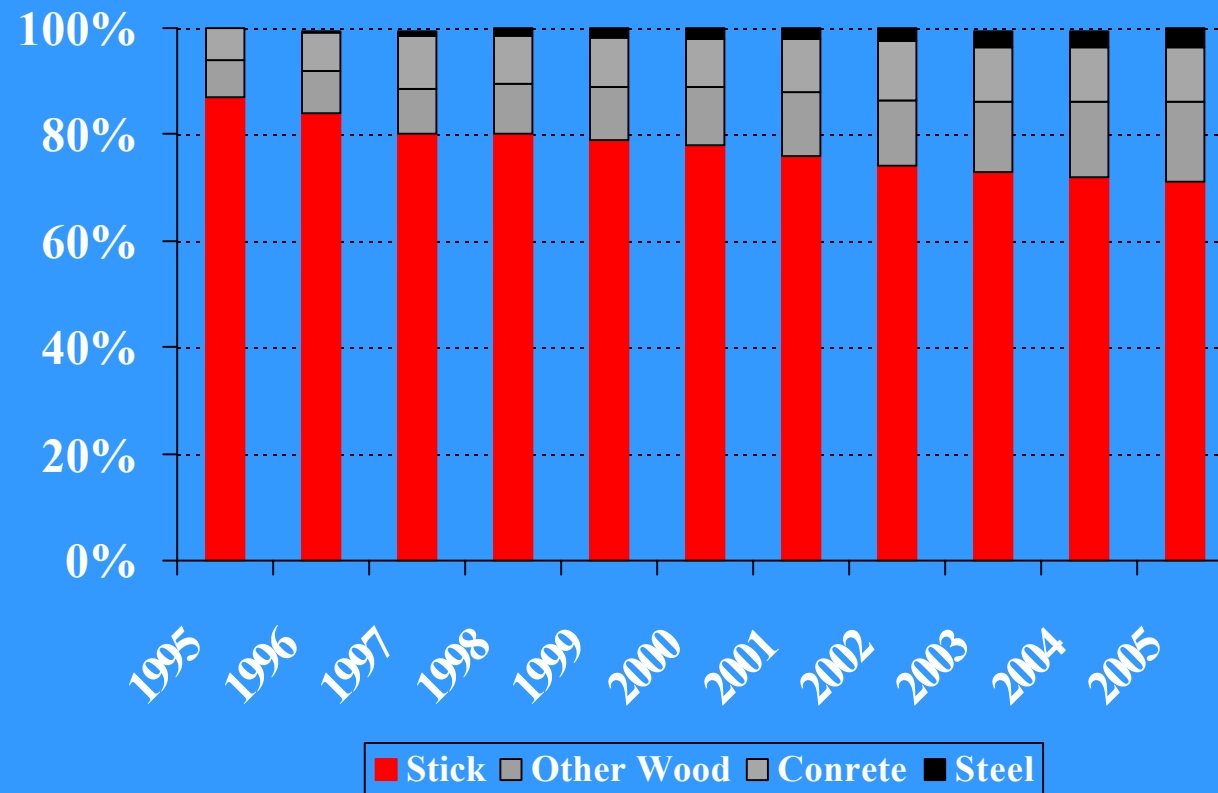
| | Single Family | Multi - Family | Total | Share |
|-------------------------------------|---------------|----------------|--------------|---------------|
| Stick Built Wood¹ | 994 | 255 | 1,249 | 78% |
| Concrete² | 124 | 45 | 169 | 11% |
| Panelized Wood³ | 100 | 18 | 118 | 7% |
| Modular⁴ | 20 | 2 | 22 | 1% |
| Steel frame⁵ | 6 | 9 | 15 | <1% |
| SIP⁶ | 11 | 1 | 12 | <1% |
| Logs | 5 | - | 5 | <1% |
| Post & Beam | 3 | - | 3 | <1% |
| Other | 1 | - | 1 | <1% |
| Total U.S. Starts | 1,264 | 330 | 1,594 | 100% |

¹ stick built walls and floor with pre fab roof trusses, ² block or poured concrete walls, ³ panelized wood walls built in factory,

⁴ Factory built modules (not HUD), ⁵ steel framing used for at least exterior walls, ⁶ structural insulated panels (foam core with structural panels)

Housing Starts by Building Method

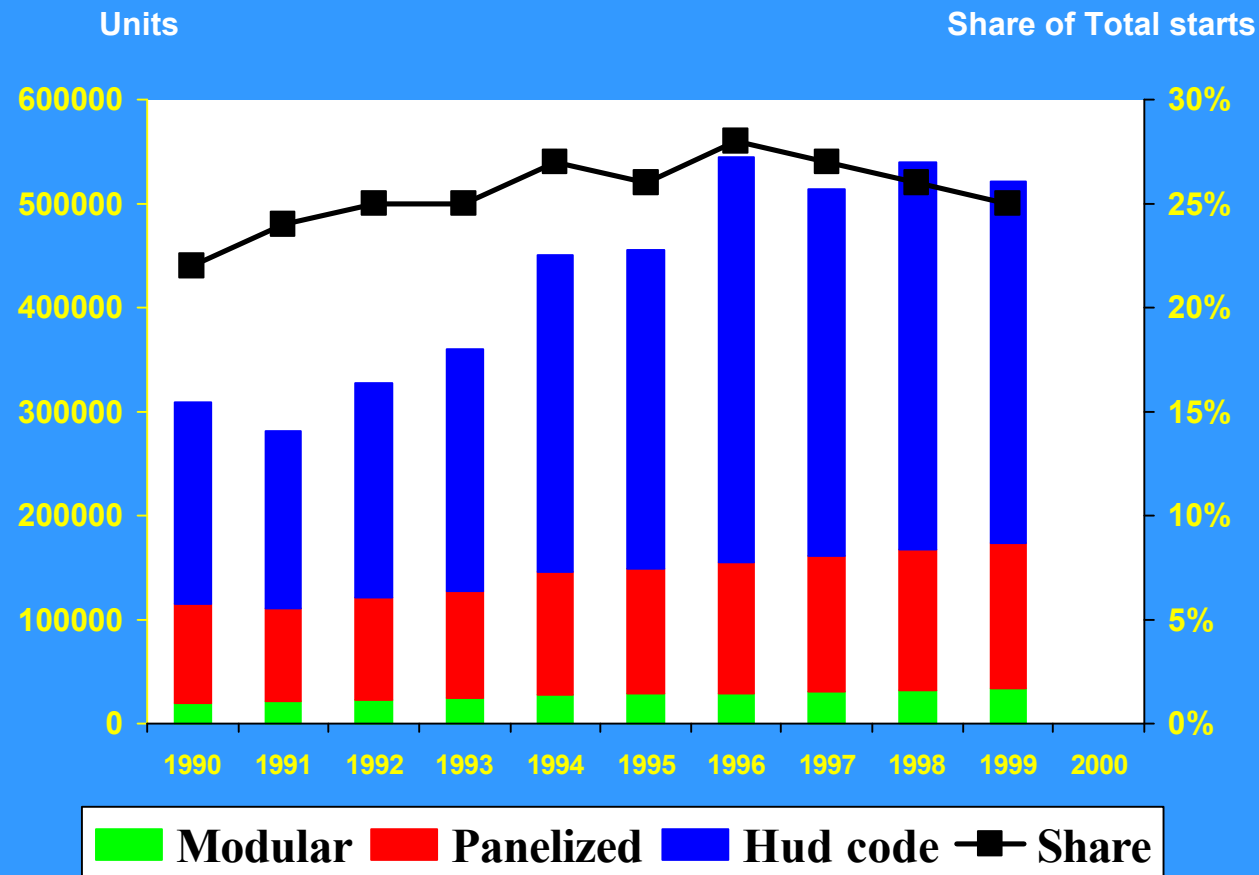
Conventional Starts Market Share



Source: Russ Taylor's Wood Market Monthly(WMM), August 2001

Manufactured Housing Trends

**Factory Built Housing will not Overtake Stick Built
Real Story is Material Substitution Including Engineered
Systems**



Source: Hallahan Associates, Nov. 2000

Housing Trends

- **Consolidation**
- **Dissatisfaction of builders with price, volatility, and lumber quality**
- **Labor shortages**
- **Productivity gains, cost reductions, speeding up assembly, higher quality**
- **Substitution of wood by steel, concrete, and EWP(engineered wood products)**

Consolidation

| HUD Industry | Stick Built |
|--|---|
| 348 671 Homes shipped | 1 680 000 Starts |
| Top 25 : 95% | Top 100 : 18.1% |
| Top 10 : 79.2% | Top 10 : 8.54% |
| Major Players | Major Players |
| <ul style="list-style-type: none">• Champion : 69 250 homes (1.9G\$)• Fleetwood : 62 450 homes (1.5G\$)• Oakwood : 34 650 homes (1.0G\$) | <ul style="list-style-type: none">• Pulte : 26 000 starts• Kaufman & Broad : 26 000 starts |

What Lumber Industry Needs to Do to Support Componentization

- **Understand business strategies and needs of component industry – e.g. talk with WTCA!!**
 - . Where they are headed and why
 - . Helping housing industry to automate
- **Commodity mentality has to give way to new business paradigm** that recognizes the implications of:
 - . Globalization trends
 - . Automation in construction industry
- **Problem – lack of concentration in the lumber industry**
E.g. each province has a at least one lumber association; in U.S., we have WWMA, SFPA, NELMA, AF&PA, etc. and then there is CWC in Canada
Who speaks for the lumber industry????

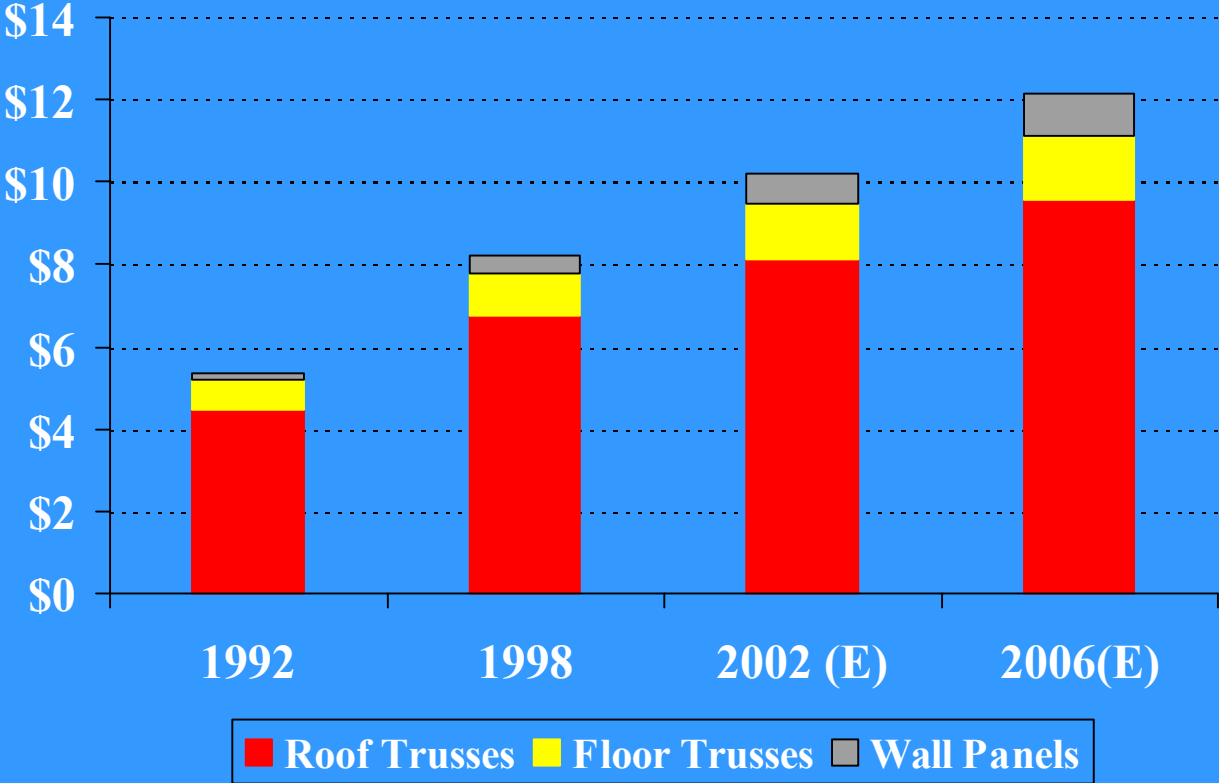
How Lumber Industry can Better Support Component Industry

- **Provide more and better product support**
E.g. – we need product code for finger jointed lumber in roof truss applications
- **Manufacture better quality lumber**
Work with component industry (WTCA) to define requirements re: moisture content, dimensional stability, acceptable dimensional tolerances, etc.
- **Put in place quality control methods to insure required quality is achieved** – e.g. more consistent seasoning/drying techniques.
- **Support work with engineering suppliers/component mfg. in developing new products and design tools (e.g. CAD systems)**

Component Industry Growth

100% increase between '92 and '02

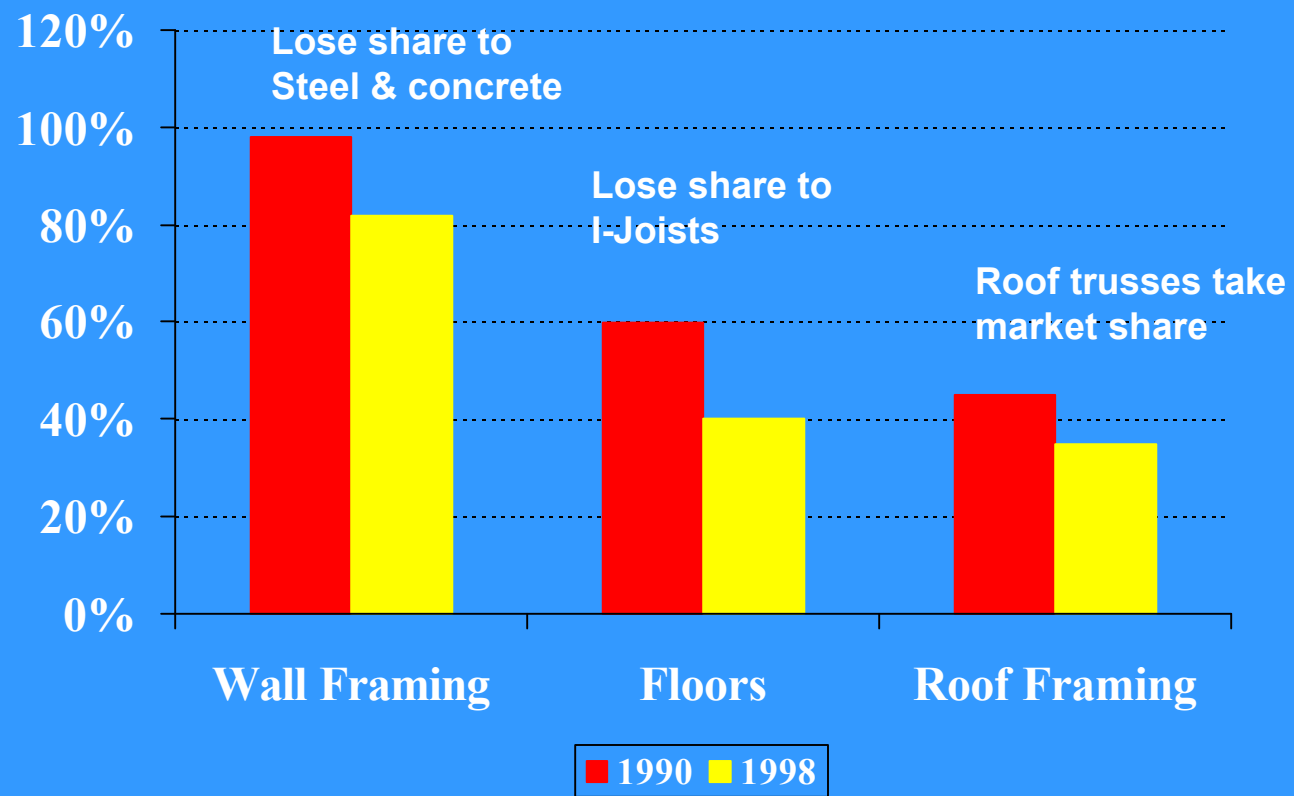
Gross sales, US\$ Billions



Source: WTCA – Woodwards Aug 2001

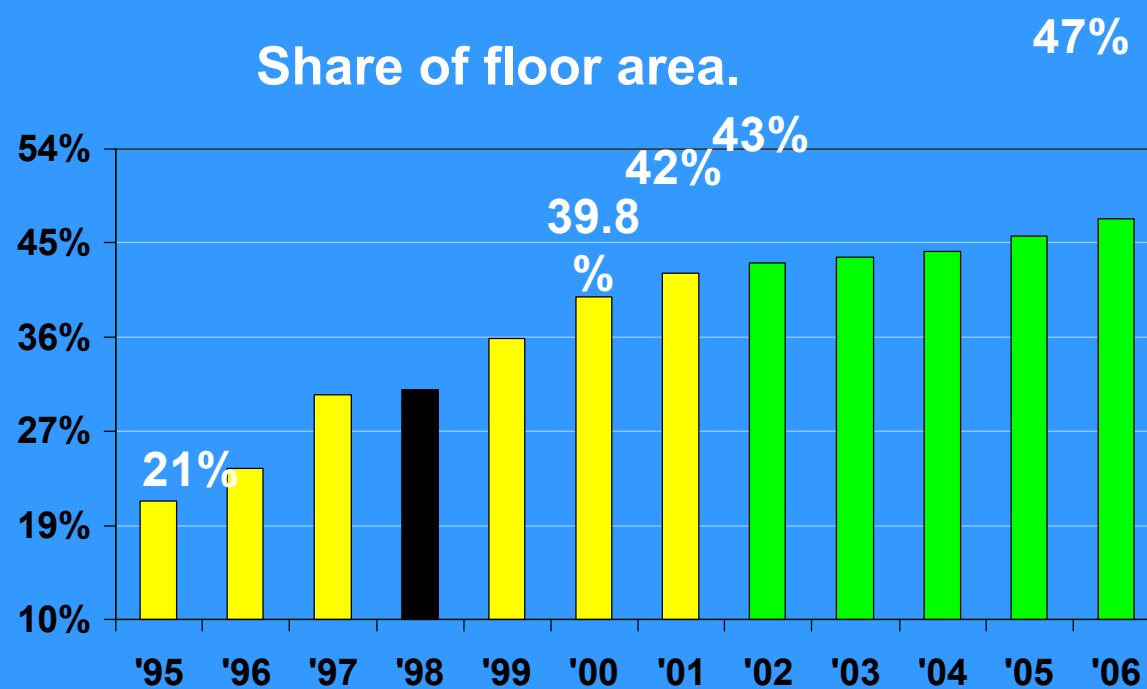
Product Substitution – how lumber lost market share to other wood and non-wood products

Lumber market share



I-joist Market Share U.S. Single Family

Raised Wood Floors

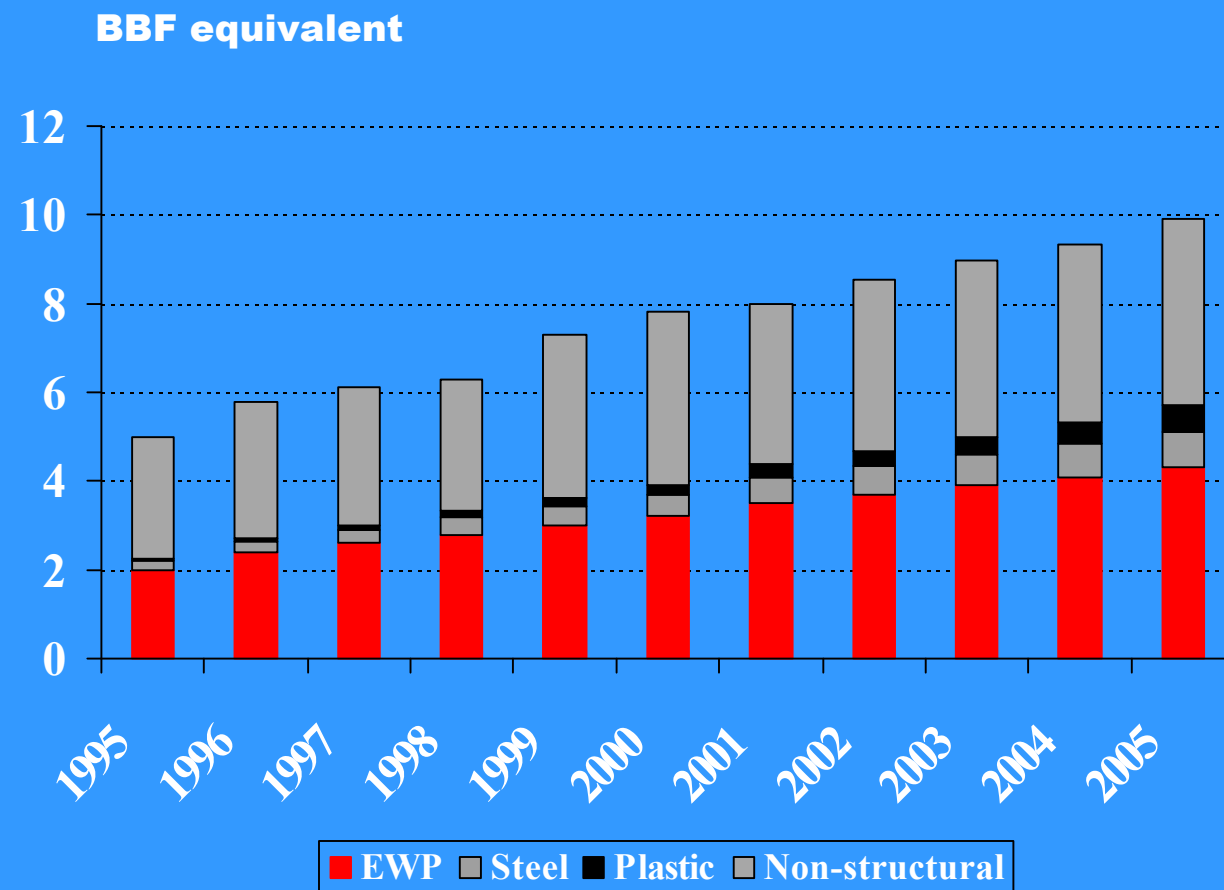


Share gains:

Studies show that market share went up in '00 even though production declined. Concrete slab floors increased and I-joists captured more of the raised wood floor area.

The outlook is for continued share increases; but, not at the rapid rate of the past since it may be more difficult to convince medium-small builders to switch.

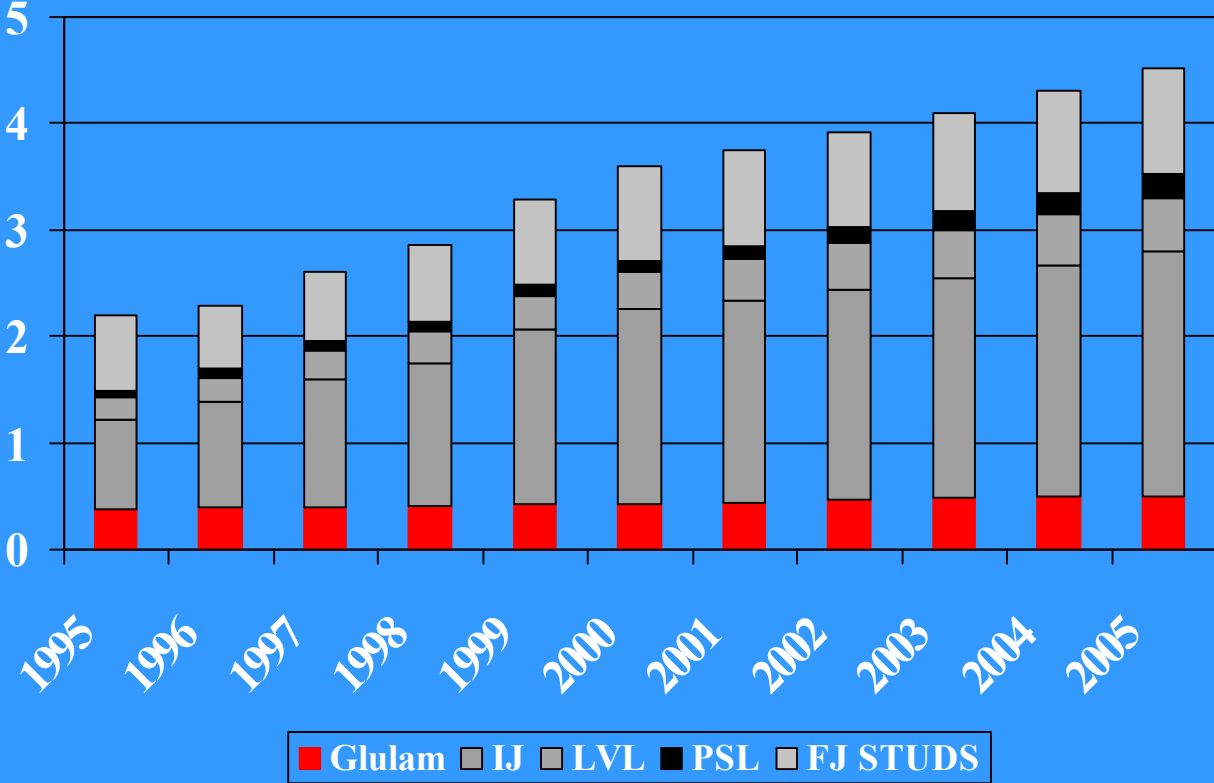
Sawnwood Lumber Substitutes



Source: Russ Taylor's Wood Market Monthly, August 2001

Engineered Wood Substitutes

BBF Equivaalent



Source: R. Taylor's WMM, August 2001

Steel Substitution

Interior walls – steel studs market share grown From 1% ten years ago, to 8% today

New Thrust from Steel Industry

- **Background : early 90's, AISI declared that by 1998, 25% of residential framing market would be steel**
- **In 1998, AISI extended its goal to 2002 because they had less than 2% of market**
- **Goal now stretched to 2007, but new game plan initiated!!!**

New Steel Thrust - continued

- **Standardization of products**
- **Prescriptive measures in building code**
(eliminate need for engineering by
developing tables for floor joists, headers, etc.)
- **Endorsement and support of NAHB**
- **Development of builder training tools**
- **Major public relations campaign**
- **Strategy now focuses on components and**
hybrid combinations of steel and wood
(ex. OSB panels over steel studs) – old
strategy focused on entire house!!

Steel - continued

- **Steel now has 50% of Hawaiian residential market thanks in part to the Formosan termite**
- **Termite exists in 12 mainland states too**
- **Best guess of timing for steel to gain market share – NAHB scientists say steel to capture 15% share in next 10 – 15 years!!**

Industrializing the Residential Construction Site

- **How: Adopt broad organizational strategies to reduce production costs and improve productivity and product quality**
 - **JIT manufacturing**
 - **supply chain management**
 - **material resource planning**
 - **design for manufacture and assembly**
 - **I.e. same thing done by auto industry, food processing, electronics, etc.**
- **Key to make it work**
 - **link marketing, product design, production, inventory and shipping**

Industrialization – cont.

- **Implementation problems in construction industry**
 - fragmentation in material suppliers(1000's of sawmills)
 - fragmentation in home building industry (75,000 plus builders)
 - litigious society/potential liabilities
 - general resistance to change
- **Lack of/poor linkages between material supplier, product design, marketing, etc.**

Industrialization, cont.

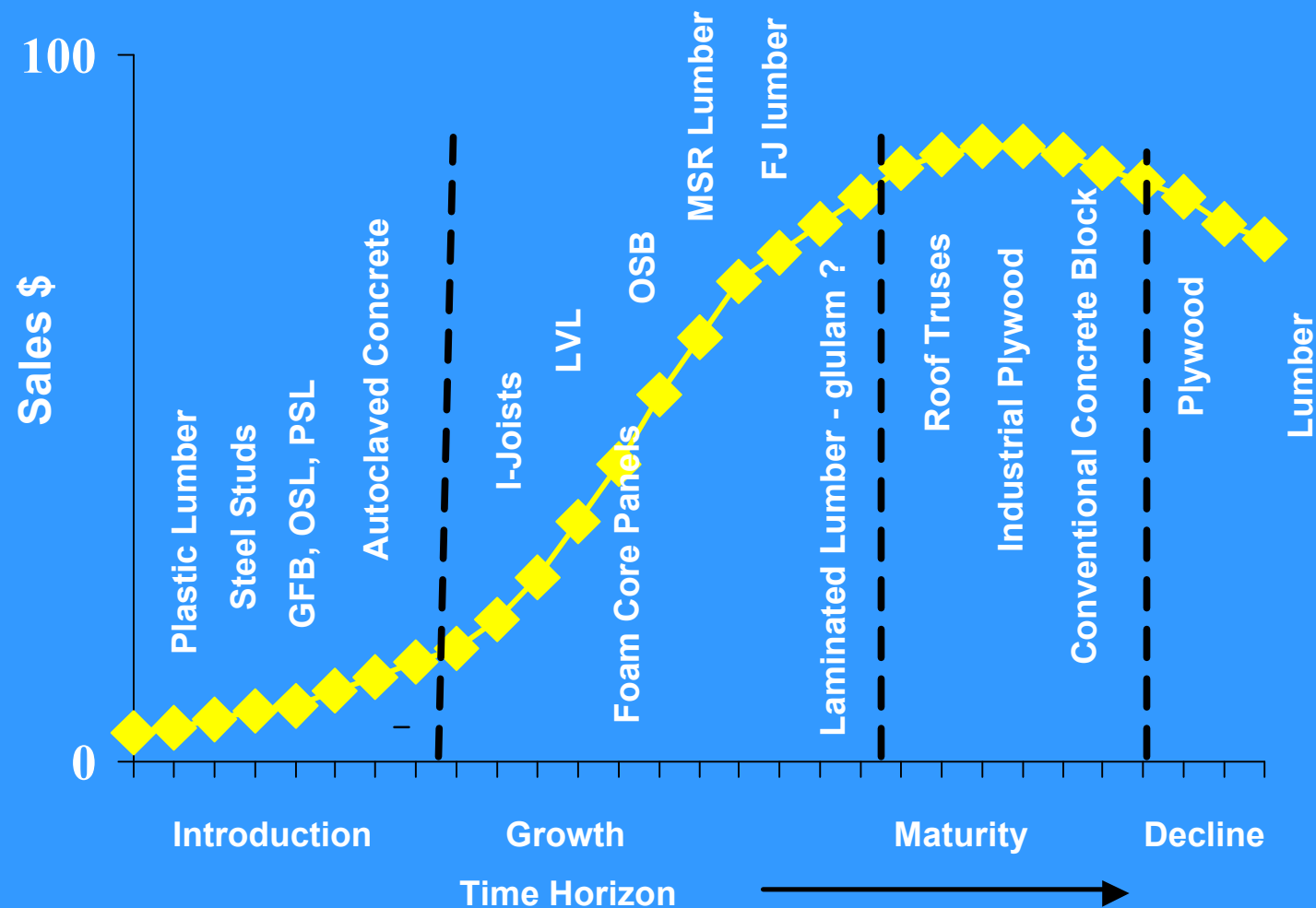
- **What needs to be done (near term) to make it happen??**
 - **basic material suppliers (lumber, steel, concrete) must supply highest quality product**
 - **need stronger partnerships between material suppliers, components industry, and the home building industry**
- **Material suppliers must work with their customers to better define “quality”, and figure out how to implement JIT manufacturing, supply chain management, material resource planning, and design for assembly techniques**

**Source: Industrializing the Res. Const. Site
O'Brian, et. al. VPI&SU/HUD July 2000**

Solid Wood "Product Life Cycle"

Alternatives to Lumber and Plywood

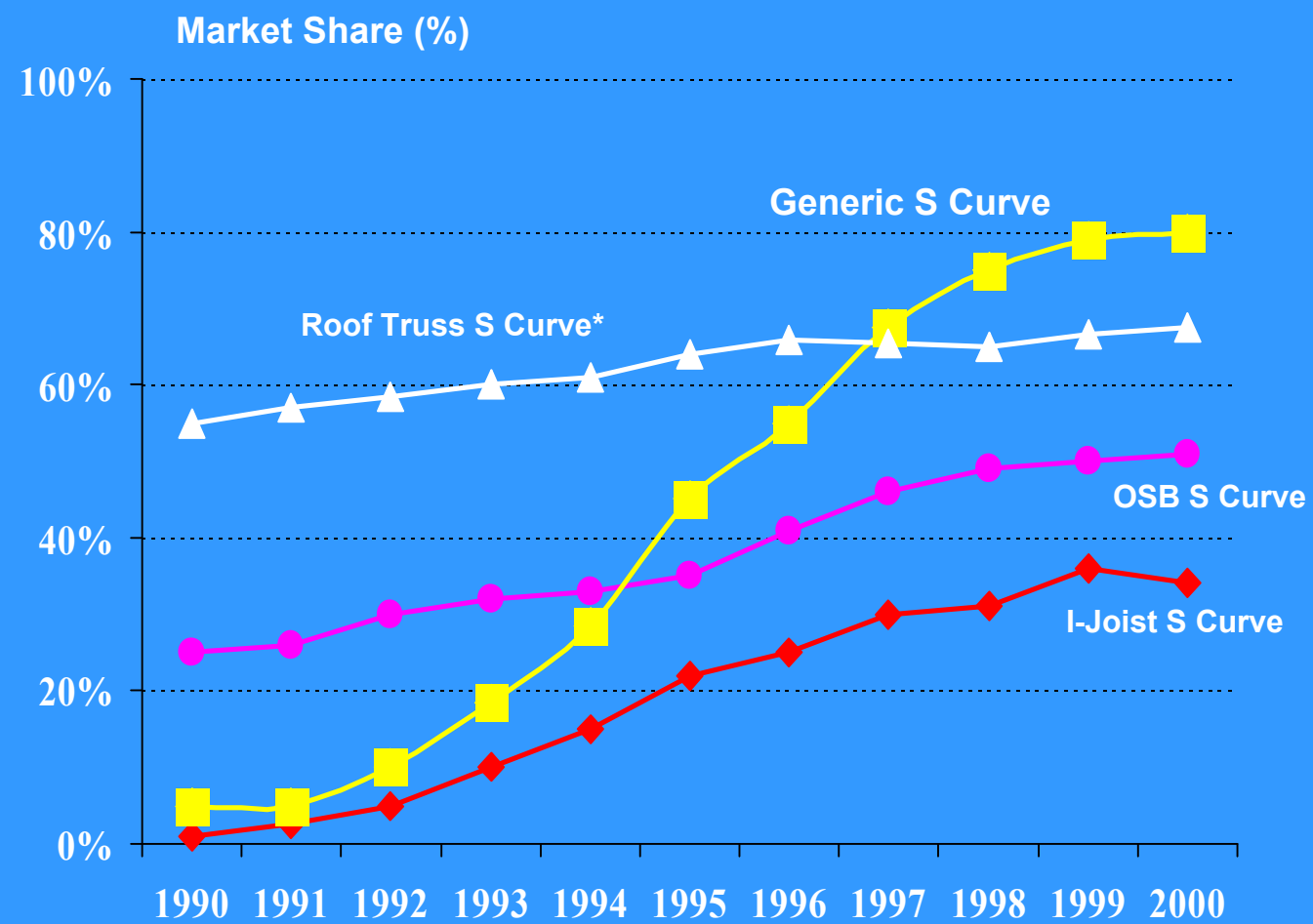
Wood Expected to continue losing market share to materials with less maintenance



Source: USFS

Building Material "S" Curves

"S" curves - product life cycle for one product



Sources: USDA Forest Service, APA, & Wood Products Council

*Sq. Ft. Footprint, single family, trusses & truss/rafter combination

Summary

- **Assume terrorist attacks are contained**
- **U.S. will experience short and mild recession in 2nd half 2001. Growth recovery will be slow approaching 3% GDP by 2nd half 2002.**
- **Housing market should do relatively well, pulling back some in Q3 – Q4, 2001, but bouncing back with the economy in 2002.**
- **Demographics are favorable for strong housing markets(incl. remodeling) over next decade**
- **Lumber markets will be relatively flat in 2002**
- **Componentization should continue in the housing industry with increasing substitution of factory made components**
- **If terrorism is not contained, globalization is big loser and world trade and growth will be slower than 1990's**

Summary - continued

➤ **Componentization trends**

- . Trends will favor components for walls, roof, and floor in lieu of factory built housing – site built will prevail, but more “parts” will be factory made**
- . Construction industry must automate to deal with higher labor costs – will partner with those material suppliers that help them remain profitable**
- . To gain market share, component suppliers must work with builders to understand their needs**
- . The winner (steel, wood, concrete, ?) will be the one that makes the transition for the housing industry as “painless as possible”. - that means, at the least, standardized products; prescriptive methods (e.g. span tables); design software; and cost estimating software**