

CINTRAFOR NEWS

The Center for International Trade in Forest Products

Usage and Awareness of Certified Wood by Residential Homebuilders

CINTRAFOR News is also available on the web. <http://www.cintrafor.org>

by Indroneil Ganguly, Ivan Eastin and Sergey Rabotyagov

The United States residential construction industry, traditionally the largest end-use market for softwood lumber, has been undergoing a period of change for more than a decade. Builders' acceptance of substitute materials and new innovations has increased, providing a unique challenge to softwood lumber producers. The fourth, and most recent survey of material substitution, undertaken in 2005, included a set of questions aimed at exploring builders' awareness, usage and perceptions of certified softwood lumber and establishing a baseline for tracking certified lumber usage in residential construction in the future.

In the survey, a total of 210 builders were asked a series of exploratory questions regarding their awareness and use of environmentally certified wood. The survey results show that overall approximately 40% of the builders (84 respondents) reported that they were aware of certified wood. The results show interesting differences in builders' awareness of certified wood products based on their geographic location, Figure 1. Approximately 43% of the respondents in the eastern US indicated that they were aware of certified wood, whereas only 36% of respondents in the west reported being aware

of certified wood, which suggests that builders in the east were more likely to be aware of certified wood than builders in the west.

Those survey respondents who indicated that they had heard of certified wood were then asked additional questions regarding their usage of certified wood. Overall, approximately a third (34.5%) of those respondents who indicated that they were aware of certified wood reported that they had used certified wood (a total of 29 respondents). In other words, only 14% of the total respondents reported that they have used certified wood. The proportion of builders who have used certified wood was found to vary greatly across the different regions of the country, Figure 1. From the survey results, it appears that while builders' awareness of certified wood was higher in the eastern US, awareness does not necessarily translate into usage. For example, in the northwestern US, 50% of the builders who were aware of certified wood had used it. In contrast, while the highest awareness of certified wood occurred in the northeastern US, just 25% of those builders who were aware of certified wood had actually used it (the lowest usage percentage within the four regions).

Further, in considering builders' awareness and use of certified wood within individual states, the survey data suggest that awareness of certified wood was higher among builders located in the eastern US (42.7%) and along the west coast (45.2%) than in the central US (32.2%). However, among those builders who were aware of certified wood, the percentage of builders who reported using it was much higher on the west coast (50%) than in either the eastern US (29.2%) or the central US (38.1%).

Respondents who indicated that they have used certified wood were asked to estimate the percentage of their homes that were framed using certified lumber. The results

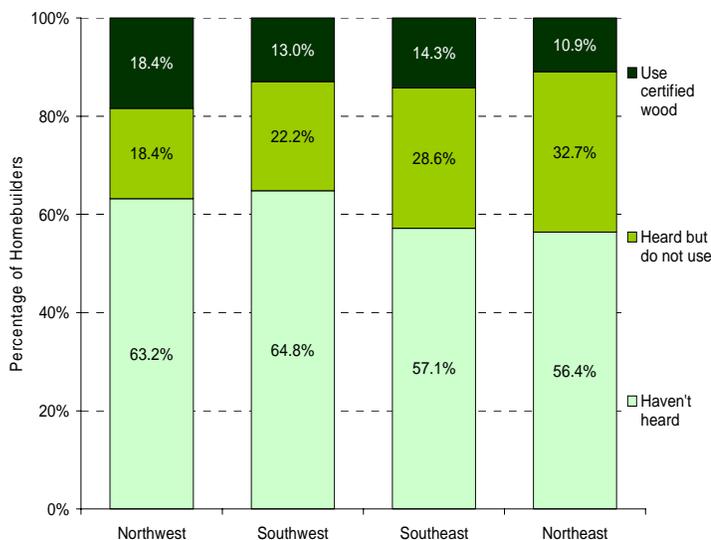


Figure 1: Builders' awareness and use of certified wood, by geographic location.

In This Issue:

Director's Notes2

Forest Product Sector's Use of Roadways & Transload Facilities in Washington.....4

Director's Notes

University of Washington
College of Forest
Resources
Box 352100
Seattle, Washington
98195-2100
Phone: 206-543-8684
Fax: 206-685-0790
www.cintrafor.org

The Center for International Trade in Forest Products addresses opportunities and problems related to the international trade of wood and fiber products. Emphasizing forest economics and policy impacts, international marketing, technology developments, and value-added forest products, CINTRAFOR's work results in a variety of publications, professional gatherings, and consultations with public policymakers, industry representatives, and community members.

Located in the Pacific Northwest, CINTRAFOR is administered through the College of Forest Resources at the University of Washington under the guidance of an Executive Board representing both large and small companies, agencies, and academics. It is supported by state, federal, and private grants. The Center's interdisciplinary research is carried out by university faculty and graduate students, internal staff, and through cooperative arrangements with professional groups and individuals.

Green or sustainable buildings incorporate the environment, the economy, and human aspects into the design and construction of a building. Green buildings are created from an integrated process where the site, the design, the construction, the materials, the operation, the maintenance, and the deconstruction and disposal of a building are all seen as having an effect on one another and the environment. As a result of this integrated process, it is thought that green buildings can be made more environmentally friendly, more cost-effective, more resource efficient, while providing a healthier work and living environment.

Green building programs are slowly but surely emerging across the US and internationally. These programs have been adopted to varying degrees across all levels of government, from the local level up through the federal level. Industry, trade and environmental organizations are also looking at promoting green building initiatives at a variety of levels. In general, there are two types of green building programs, voluntary and mandatory. At the national and local level, government agencies are requiring these programs for publicly funded buildings for two reasons; both as a strategy for demonstrating and encouraging green building practices within the private sector and simply because they believe these types of buildings are more efficient from both a resource and economic perspective. Overall, a majority of the residential green building programs in the US are implemented on a voluntary basis. However, a recent news article reported that the Home Builders

Association of Northern California has announced its support for mandatory sustainable green building standards in all Bay Area cities and counties.

Concern about the environmental footprint of residential homes has resulted in conflicting claims regarding the environmental performance of building materials. For example, aggressive advertising campaigns by both the steel and concrete industries have claimed the environmental superiority of these materials over wood. Generally these advertising claims ignore the full life cycle costs associated with using each material and focus instead on the simplistic (yet effective) message that using steel or concrete to build a home will save a tree. More importantly, they create confusion in the minds of construction professionals and the general public regarding the real environmental merits of wood relative to non-wood alternative building materials. Decisions that discourage the use of wood are made each day at all levels of industry and government. While decisions may be motivated by a desire to protect the environment, the negative consequences associated with using less environmentally friendly non-wood substitutes are often not considered. It is critically important that the forest products industry continue to advocate that the material specification guidelines contained within green building codes reflect the total life cycle costs associated with each material. Considering the total life cycle impacts of building materials will ensure home buyers that the environmental footprint of their new home has been reduced and will help keep wood, including certified wood, as the dominant building material in the US. ▲

CFR and CINTRAFOR Welcome a New Environmental Economist to the Faculty

Sergey Rabotyagov joined the College of Forest Resources in the fall of 2007. Sergey grew up in Belgorod, Russia, and holds a Bachelor of Arts degree in International Business and German from William Jewell College in Liberty, Missouri, and an M.S. and Ph.D. in Economics from Iowa State University in Ames, Iowa. Sergey's graduate research focused on uncertainty in agricultural soil carbon sequestration, on issues of pollution permit trading design, and on optimal placement of agricultural conservation practices for reducing nutrient runoff into waterways. In addition, his current interests include adoption and diffusion of environmentally friendly construction materials, including certified wood, environmental impacts of energy crop production, and policies on procuring ecosystem services from working forests and agricultural lands. Sergey has already made a big contribution to CINTRAFOR by joining current researchers in the development and submission of three research proposals. We are pleased to welcome Sergey as an important member of CFR and the CINTRAFOR team.



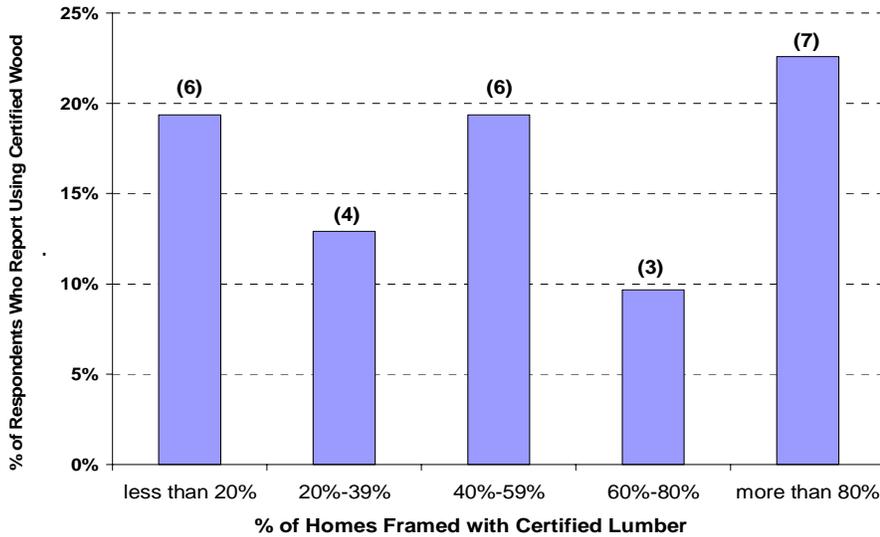


Figure 2: Ratio of builders' homes built using certified wood.
 Note: The bars in Figure 2 indicate the number of firms included in each category.

obtained from this question were interesting and demonstrate that a substantial number of builders have already integrated certified lumber into their building material list, Figure 2. Considering all the users of certified lumber, the average percentage of homes framed with certified lumber was approximately 50%. Almost 15% of the builders who reported using certified wood reported that they framed all of their houses with certified lumber.

Previous research has shown that the willingness of customers to pay a price premium for certified wood plays a major role in the usage of certified wood. This research found that only 17% of the builders in the eastern states and 29% of the respondents in the central states believe that their customers would be willing to pay higher prices for homes built using certified wood. In contrast, half of the respondents in the west coast states felt that their customers would pay a price premium for a home built using certified wood. Overall, the survey results suggest that both usage and a favorable expectation of the business impact of using certified wood among builders is higher along the west coast relative to the rest of the country.

Relationship between firm size and certified wood awareness and use

The survey data was analyzed to determine if firm size was related to builders' awareness and use of certified wood, Figure 3. The results of this analysis show that large builders have the lowest level of awareness (33%) whereas almost 40% of small builders and half of the medium-size builders

reported that they were aware of certified wood, Figure 3. However, this difference was found to be statistically insignificant, suggesting that builder's awareness of certified lumber may be independent of firm size. Further analysis of the data shows that there are large but not significant differences in the use of certified lumber based on firm size, Figure 3. The survey found that 56% of the medium-sized firms who were aware of certified wood reported that they had used it, while for small homebuilders and large homebuilders the ratios

were just 28% and 43%, respectively. A statistical analysis of the data showed that while small homebuilders appear to be less likely to use

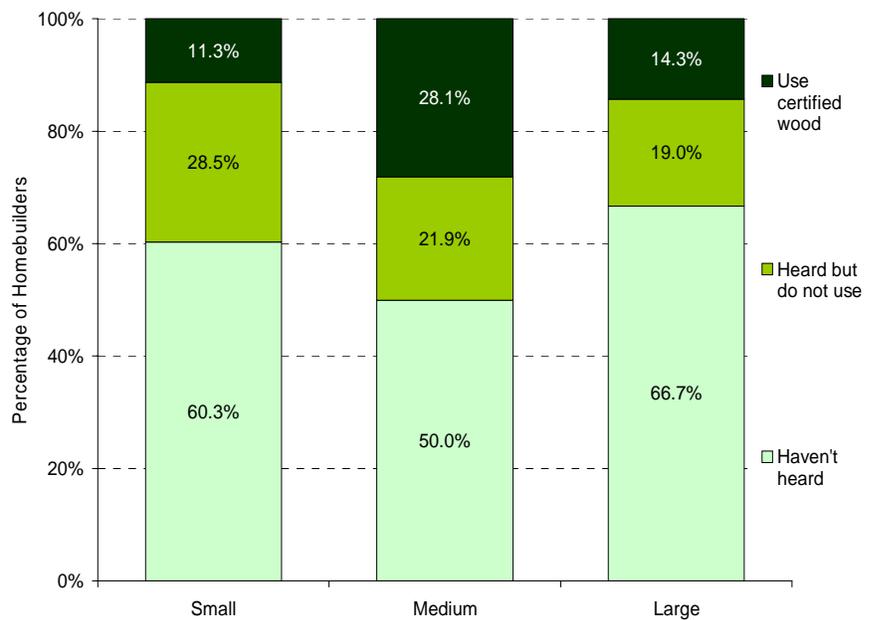


Figure 3: Builder's awareness and use of certified wood, by firm size.

certified lumber, the difference was not significant.

The price of certified wood is often higher than uncertified wood, reflecting the additional costs of forest certification as well as establishing and maintaining a verifiable chain of custody for certified wood. To develop a better understanding of the interaction between the perceived willingness of homebuyers to pay a premium for



The Forest Products Sector's Use Of Roadways and Transload Facilities in Washington

by John Perez-Garcia

Washington's forest products sector has changed dramatically over the past several decades and with it the transportation of timber and forest products. The major input of wood manufacturing is logs, usually transported from forest sites by log trucks to mills or export facilities. The predominant product transported is lumber, with some plywood and secondary wood products that are shipped locally, regionally, and to a lesser extent, internationally. As an example, lumber produced in Washington is primarily shipped to California and other west and mid-west states using trucks and rail. Lumber mills, the major source of woodchips for pulp manufacturers, use trucks, barges, and rail to transport their chips to pulp manufacturers. Integrated pulp and paper manufacturers produce market pulp that is transported by rail, and paper products that are shipped by truck and in containers overseas. Given the dynamic nature of Washington's timber base, it is likely that the movement of raw material resources and products will continue to adjust as timber resources change, and sawmilling and wood processing facilities respond to these changes.

projected lumber manufacturing demand, future timber harvest levels and log flows across western Washington.

The findings of these studies have implications for the transportation sector, although none of the studies adequately addressed the use of the transportation system by the forest sector. Using the information from the Future of Washington Forests Report, the state's biennial mill survey, data on roadways and transload facilities and consultations with transportation and forest sector representatives, this study projected current and future use of roadways and transload facilities by Washington's forest products sector.

The study estimates the number of log truck loads and expects the number of log loads to increase over time due to a projected increase in harvest levels in southwestern Washington and the changing diameter and volume measure of log trucks. The concentration of log truck traffic is largely in Thurston, Grays Harbor, Lewis and Cowlitz counties. In 2004, approximately 800,000 truck loads moved logs from harvest sites to log users.

This number is projected to exceed 1 million by 2020. Logs traveling by rail are not common in Washington.

Statewide there were over 124,000 trucks in 2004 carrying products from lumber mills, veneer and plywood plants, chippers and shake and shingle operations. The Lower Columbia counties had the highest concentration of truck traffic. Lumber producers employed over 52,000 trailers to deliver products to Washington markets in 2004. An additional 27,000 trailers shipped lumber products out

of state. Nearly 34,000 rail cars transported lumber shipments to western markets. There are several sawmills that use a transload facility in Washington. An estimated 31,000 truck loads distributed plywood and veneers products statewide in 2004.

The study also concludes that the use of rail cars is not likely to increase in the future. The forest

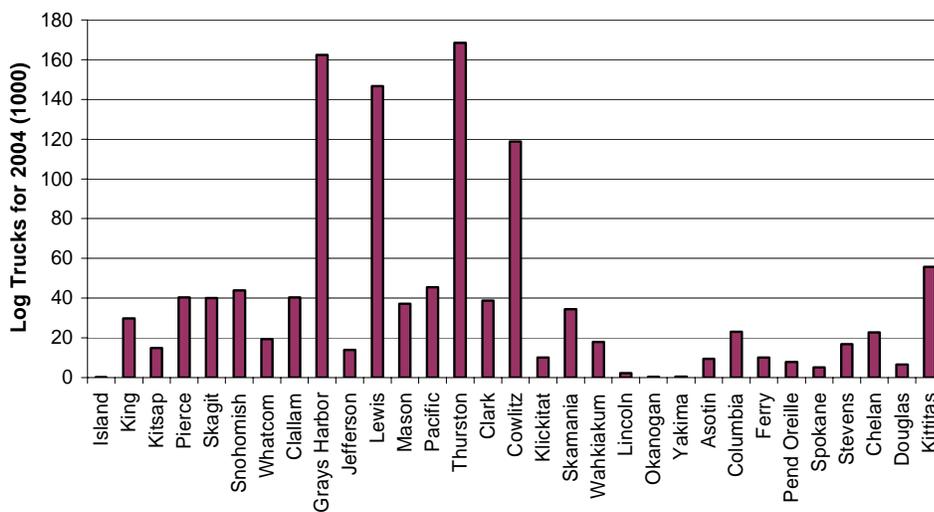


Figure 1. Estimated 2004 log trucks loads servicing mill clusters in Washington State (in thousands).

Several studies recently completed by researchers at the College of Forest Resources suggest that the forest sector that will continue to evolve as



demands on forestlands respond to changes in various end-use markets, regulations increasingly control land uses, and environmental factors impact raw material availability. Other CINTRAFOR studies have

products industry faces logistical problems that raise their cost in using rail. Most Washington lumber going to California is moved by trucks in order to ensure on-time deliveries. Many rail cars move through Washington carrying lumber that originates in Canada. There is a significant amount of lumber shipped to other markets in the US mainly by rail. In 2004, this amounted to 47% of Washington’s lumber production.

The study projects an increase in harvest levels and with it an increase in road use by log trucks. The smaller diameter of logs also has implications on how the number of truck loads was calculated. Smaller average diameters suggest an increase in the number of truck loads required to move the same board foot volume. The combined effect of smaller logs and a projected increase in harvest levels will increase the number of log truck loads by 643,000 in western Washington by 2020.

Capacity in lumber production is also projected to increase. The increase implies an additional 7,600 trailer loads and 2,800 rail cars annually. The transportation estimates presented in the study were a first attempt to document rail, road and transload facility use by the forest sector in Washington. The study provided the Washington State Department of Transportation (WSDOT) with an estimate of the current and projected future use of roadways and transload facilities in Washington by Washington’s forest products sector, allowing the WSDOT to better plan its infrastructural needs to move products across the state efficiently. ▲

Certified Wood continued from page 3

a home built using certified wood and firm size, homebuilders were asked if they thought that their customers would be willing to pay a higher price for a home built using certified lumber, Table 1.

Table 1. Builder’s perceptions of customer willingness to pay a price premium and future use of certified wood.

	Our customers are willing to pay a premium for certified lumber (%)		Our use of certified lumber will increase in the future (%)	
	No	Yes	No	Yes
Northwest	60.0	40.0	42.9	57.1
Southwest	55.6	44.4	29.4	70.6
Southeast	74.1	25.9	40.7	59.3
Northeast	88.0	12.0	45.8	54.2
Small	74.1	25.9	41.7	58.3
Medium	73.3	26.7	46.7	53.3
Large	42.9	57.1	14.3	85.7
Urban/Suburban	73.5	26.5	36.0	64.0
Small Town	61.5	38.5	50.0	50.0
Rural	87.5	12.5	62.5	37.5

Approximately 75% of the small and medium-sized homebuilders reported that they did not think that their customers would be willing to pay a premium for a house built using certified wood. However, 57% of the large homebuilders reported that their customers would be willing to pay a premium for a house built using certified wood (respondents were not asked to estimate the magnitude of this price premium).

The results show that medium-sized homebuilders had the highest usage of certified wood (56% of those aware of certified wood use it), despite the fact that they reported that they thought that only 27% of their customers might be willing to pay a premium for a house built using certified wood. In contrast with the geographic distribution of builders’ opinion on the existence of home price premium and certified wood usage, these results are not as intuitive. While this may suggest that medium-sized builders’ reasons for adopting certified wood may not necessarily be profit driven, one cannot reach such a conclusion from survey results alone. For example, medium-sized firms may also advertise the fact that they use certified wood in their homes as a selling point that provides them with a competitive advantage and an opportunity to differentiate their homes from competitors within specific market segments. It may also suggest that they are competing in markets that are more environmentally aware. While further study is necessary to fully understand the factors that influence the use of certified wood, it does appear that medium-sized firms currently lead the industry in the adoption and use of certified wood adoption.

Respondents were also asked if they thought that they would increase their use of certified wood over the next three years, Table 1. A majority of the respondents reported that they expected their use of certified wood to increase over the next three years,

with three-quarters of large homebuilders indicating that their use will likely increase. Overall, the results of these questions suggest while medium-sized homebuilders currently lead the use of certified wood, large builders may lead the effort to increase the use of certified wood



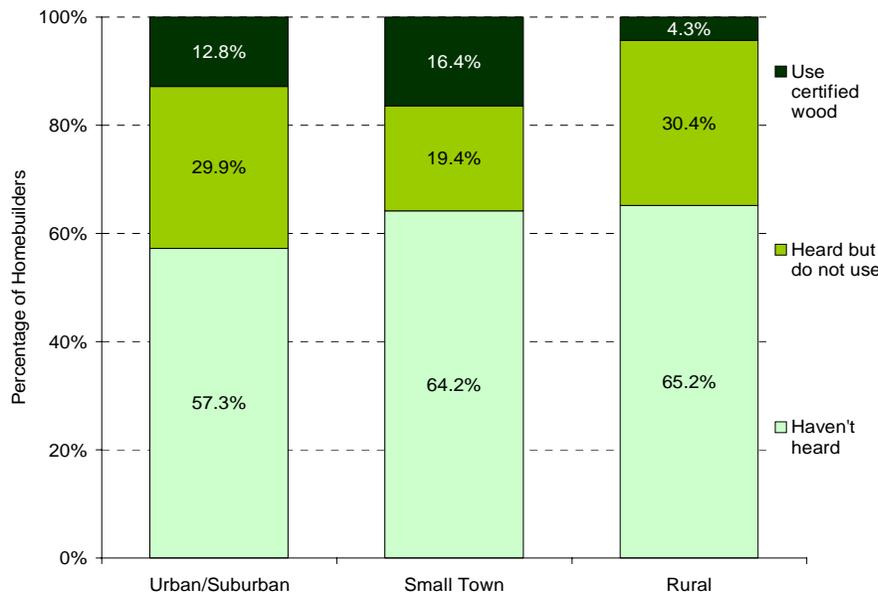


Figure 4: Builder’s awareness and use of certified wood, by area of operation.

in building homes in the future. This observation is supported by the fact that 67% of large builders have heard of certified wood (this represents the largest segment for this question), 57% think that their customers would be willing to pay a premium for a home built from certified wood (this represents the largest segment for this question) and 85% expect that their use of certified wood will increase in the future (this represents the largest segment for this question). However, we should caution readers that the small sample sizes for these questions make it difficult to generalize these findings to the entire population of homebuilders in the US and that further research is required in this area.

Relationship between area of operation and certified wood awareness and use

The survey data was also analyzed to determine if respondents’ area of operation influenced their use of certified wood, Figure 4. For this analysis, respondents were categorized into three groups based on their self-reported area of operation (urban/suburban, small town and rural). The results of this analysis suggest that the awareness of certified wood products is highest in the urban/suburban areas followed by small towns and rural areas, although the differences between these areas were not significant, suggesting that builder’s awareness of certified wood is likely not influenced by area of operation.

While there were no significant differences in respondent’s awareness of certified wood based on their area of operation, the survey results show that a significantly higher proportion of builders in small towns and urban locations have used certified wood to build homes than have builders located in rural



areas, Figure 4. Interestingly, small town home builders who have used certified wood indicated that 58% of their homes were built using certified wood.

The relationship between area of operation and belief that their customers would be willing to pay a premium for a house built using certified wood is presented in Table 1. Only 13% of the rural homebuilders thought that their customers would be willing to pay a premium for a house built from certified wood while almost 39% of the homebuilders operating in small towns and 28% of homebuilders in urban areas thought that their customers would be willing to pay a premium for a home made with certified wood. This appears to be consistent with the pattern of

certified wood use. Finally, while 38% of homebuilders in rural areas indicated that they thought their use of certified wood would increase over the next three years, 50% of homebuilders in small towns and 64% of homebuilders in urban areas reported that they thought their use would increase. These results suggest that rural homebuilders are less likely to use certified wood both now and in the future, although the results were not statistically significant.

Summary

These survey results clearly show that a substantial number of home builders are aware of certified wood and many are already using it to build houses. To a large degree this trend in material usage is being driven by several factors, including the introduction of green building codes at the national and local levels, builders’ response to environmental concerns within specific communities, and a proactive response on the part of builders to project a more environmentally conscious image. This latter factor reflects a genuine concern for the environment on the part of some builders but it also suggests a proactive effort by other builders to prevent unwanted protests by environmental groups against builders who are perceived to be using environmentally destructive construction materials and/or practices. As a result, we should expect to see the continued and expanding use of certified wood in residential home construction in the future. Further research is needed to better understand home builders’ motivation for using certified wood and to explore the relationship between the use of certified wood and price premiums as well as regulatory factors (such as green building codes and efforts to improve the energy efficiency of residential homes). ▲

Selected CINTRAFOR Publications

WP = Working Papers / SP = Special Papers* / RE = Reprints / AV = Available from Others / FS=Fact Sheet

*Papers on policy, surveys, proceedings, and other items. Please call or see our website for a complete list of publications and their abstracts.

Phone: (206) 543-8684 Fax: (206) 685-0790 Web: <http://www.cintrafor.org>

WP 110	Forest Certification & its Influence on the Forest Products Industry in China Yuan Yuan and Ivan Eastin. 2007. (69pp)	\$50.00
WP 109	A Meta Analysis of Willingness to Pay Studies Adam Lewis, David Layton and John Perez-Garcia. 2007. (48pp)	\$50.00
WP 108	Material Substitution Trends in Residential Construction 1995, 1998, 2001 and 2004 Indroneil Ganguly and Ivan Eastin. 2007. (54pp)	\$50.00
WP 107	China Treated Lumber Market Study Jeff Cao, Rose Braden, Ivan Eastin and Jeff Morrell. 2007. (56pp)	\$50.00
WP 106	The Market for Softwood Lumber in Japan: Opportunities for Douglas-fir Structural Lumber for Hiramaku Ivan Eastin and Craig Larsen. 2007. (48pp)	\$50.00
WP 105	Overview of the Indian Market for US Wood Products Indroneil Ganguly and Ivan Eastin. 2007. (82pp)	\$50.00
WP104	The Potential Trade and Competitive Implications of Alternative Approaches for Harvested Wood Products John Perez-Garcia, J. Kent Barr and Hideaki Kubota. 2006. (26pp)	\$50.00
WP 103	An Analysis of Sale Characteristics on the Timber Sale Value 1989-2005 J. Kent Barr and John Perez-Garcia. 2006. (35pp)	\$50.00
WP 102	Distribution Systems for Value-added Wood Products in China Jeff Cao, Rose Braden, Ivan Eastin. 2006. (69pp)	\$50.00
WP 101	Exploratory Assessment of e-Business Impacts on Processing Performance & Technology Changes in the Forest Products Industry Rose Braden, Bruce Lippke. 2005. (24pp)	\$20.00
WP 100	Niche Market Opportunities for Alaskan Forest Products in Japan (2005 Update) Daisuke Sasatani, Joseph Roos, Allen Brackley, Ivan Eastin. 2005. (55pp)	\$50.00
WP 99	Washington's Sawmilling Sector Analysis: Capacity Utilization Rates & Timber Outlook John Perez-Garcia, J. Kent Barr and Jean Daniels. 2005. (39pp)	\$50.00
WP 98	Material Use in the US Deck Market Ivan Eastin, Indroneil Ganguly, Steve Shook and Al Brackley. 2005. (100pp)	\$50.00
WP 97	Resource Inventory, Market Assessment and Analysis for Forest Products in Clallam and Jefferson Counties John Perez-Garcia. 2005. (30pp)	\$20.00
WP 96	Consumer Willingness to Pay for Renewable Building Materials: An Experimental Choice Analysis and Survey Alicia Robbins and John Perez-Garcia. 2004. (65pp)	\$20.00
WP 95	Discrepancies in Forest Products Trade Statistics Ivan Eastin and John Perez-Garcia. 2004. (47pp)	\$20.00
WP 94	China Sourcebook: An Introduction to the Chinese Residential Construction and Building Materials Market Alicia Robbins, Paul Boardman, John Perez-Garcia, and Rose Braden. 2004. (54pp)	\$20.00

A complete list of CINTRAFOR Publications available for sale can be found online at: http://www.cintrafor.org/RESEARCH_TAB/research_pubs.htm

Please attach business card or provide the following information:

PUBLICATIONS ORDER FORM

Quantity		Total
	WP110	\$50.00
	WP109	\$50.00
	WP108	\$50.00
	WP107	\$50.00
	WP106	\$50.00
	WP105	\$50.00
	WP104	\$50.00
	WP103	\$50.00
	WP102	\$50.00
	WP101	\$20.00
	WP100	\$50.00
	WP99	\$50.00
	WP98	\$50.00
	WP97	\$20.00
	WP96	\$20.00
	WP95	\$20.00
	WP94	\$20.00
	WP93	\$20.00
	WP92	\$20.00
	WP91	\$20.00

Name: _____
 Position: _____
 Firm/Agency: _____
 Address: _____
 City: _____ State: _____
 Zip Code: _____ Country: _____
 Phone (Required): _____
 Fax: _____
 Email: _____

All payments in US funds. Payment via check or money order only. Must be drawn on a U.S. bank.

RETURN TO: CINTRAFOR
 University of Washington
 College of Forest Resources
 Box 352100
 Seattle, WA 98195-2100 USA

Total Publications _____
 Handling **\$5.00**
 Postage/ \$1.00 per item for US _____
 \$2.00 per item for International _____
 Subtotal _____
WA Residents Only 8.8% Tax _____
 TOTAL ENCLOSED: _____

CINTRAFOR

University of Washington
College of Forest Resources
Box 352100
Seattle, WA 98195-2100 USA

Nonprofit
Organization
US Postage Paid
Permit No. 62
Seattle, WA

RETURN SERVICE REQUESTED

New Publications

Working Papers and Special Papers

WP110 Forest Certification and its Influence on the Forest Products Industry in China

Yuan Yuan and Ivan Eastin. 2007. 69 pages. \$50.00

WP109 A Meta Analysis of Willingness to Pay Studies

Adam Lewis, David Layton and John Perez-Garcia. 2007. 48 pages. \$50.00

WP108 Material Substitution Trends in Residential Construction 1995, 1998, 2001 and 2004

Indroneil Ganguly and Ivan Eastin. 2007. 54 pages. \$50.00