

New study followed up an initial survey on lightweight panel use and perceptions in 2008.

Lightweight panels (panels made of two thin panels on the outside and a lightweight material in the core) can offer enhanced performance, reduced material use, and new design opportunities over traditional types of panels. Opportunities exist for the adoption of lightweight panels by the secondary wood industry in North America, as 62 percent of respondents to a recent survey described here indicated that they would seriously consider using such panels in their products.

Products such as RTA furniture, store fixtures, and office/hospitality/contract furniture seem to hold the most promise for lightweight panels according to survey respondents. Overall, respondents remained somewhat neutral in their perceptions of lightweight panels, although there was somewhat strong agreement with the notion that companies could experiment to work with lightweight panels using current machinery and with current personnel.

Compared to the results of a similar survey in 2008, some of the greatest challenges for wider adoption of lightweight panels continued to be negative attitudes associated with the strength of hardware and component attachments. However, lightweight panels performed relatively well on the important attributes of machineability, consistent dimensions, and ability to take surface materials.

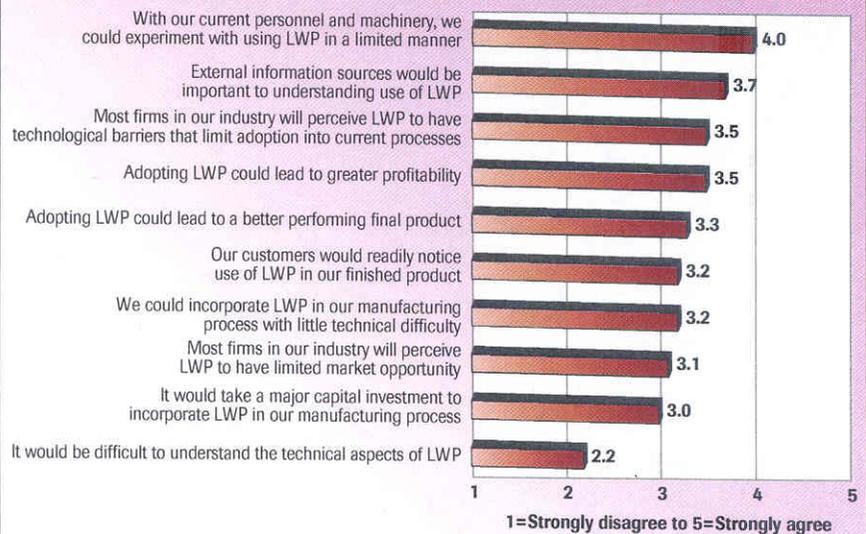
### About the study

This Internet-based survey was conducted in February and March of 2012

# Lightweight panel usage,

## Lightweight Panel Study 2012: Perceptions and usage by North

**Figure 1. Perceptions of lightweight panels (LWP).**



Respondents were asked to indicate their level of agreement with several statements assessing their perceptions of lightweight panels.

with **CabinetMaker+FDM** subscribers, including an initial invitation and two follow-up reminder emails. A total of 81 responses were received, although the number of responses for some individual questions was lower (the lowest number was 50). Responses were received from companies in 31 states (California, Indiana and Virginia had five or more responses each) and four provinces. The questionnaire was nearly identical to one administered in a similar study with **FDM** subscribers in 2008.

Most respondents held positions in corporate or operating management within their respective firms (34 percent), or were company owners (22 percent). Responses came primarily from the kitchen/bath cabinets industry (21 percent), the furniture (household, office, hospitality, and contract) industry (27 percent), and the architectural fixtures industry (14 percent).

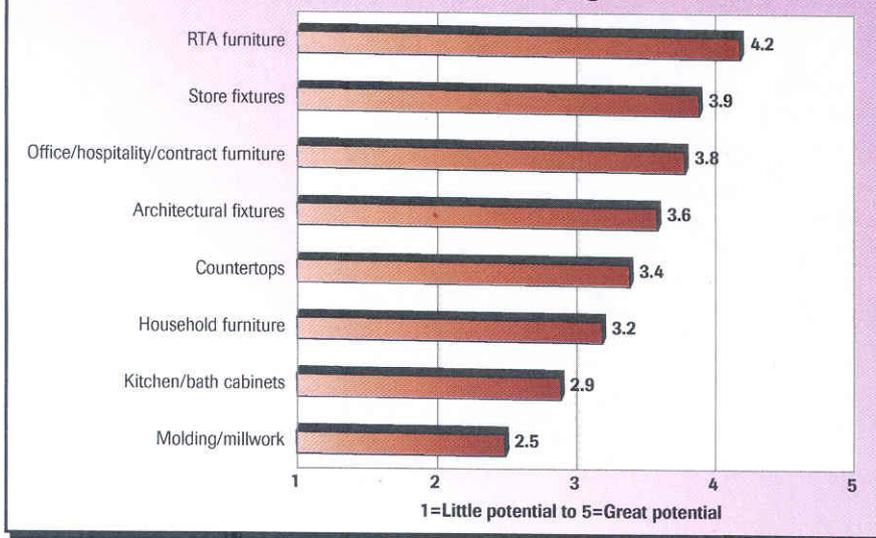
For the 2012 study, another segment with significant representation was store fixtures (11 percent). Compared to the 2008 study, companies producing store fixtures were relatively more numerous, and cabinet companies were less numerous. About 59 percent produced products at a medium-to-high to high price point, while another 33 percent produced at a medium price point. Almost half of respondents (47 percent) used a combination of solid wood and wood composite materials to manufacture their products, while another 39 percent used mostly wood composites or engineered materials in their manufacturing processes. Nearly 23 percent produced RTA (ready-to-assemble) products.

Over 40 percent of the respondents had 1-19 employees, and another 17 percent had 20-49 employees. However, 31 percent had 100 employees or more (this represented a difference from the

# acceptance grow: Survey

American wood products manufacturers.

**Figure 2. Potential applications for lightweight panels in different industry sectors.**



RTA furniture, store fixtures and office/contract furniture topped the potential applications for lightweight panels, according to the survey.

2008 study, where just 22 percent of respondents had 100 employees or more). Most respondents (54 percent) had sales between \$1 and \$10 million in 2011, and 8 percent had sales of less than \$1 million. This is somewhat different from the 2008 study, when 44 percent of respondents had sales of less than \$1 million and 34 percent had sales of \$1 million-\$10 million.

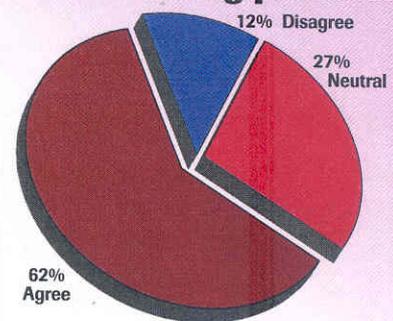
Lastly, 39 percent of respondents reported that their companies currently use lightweight panels in at least some of their products, which was an increase over the 22 percent indicating lightweight panel use in the 2008 study; this is perhaps a function, in part, of the greater number of larger-sized companies participating in the 2012 study, as well as the higher proportion of store fixture companies represented. It also might indicate increased interest in lightweight panel technology.

## Perceptions and usage of lightweight panels

Respondents were asked to indicate their level of agreement with several statements assessing their perceptions of lightweight panels, and the results are shown in Figure 1. For many of the statements listed, respondents were somewhat neutral as indicated by mean responses at or slightly above the scale mid-point of 3.0. The strongest agreement came for the statements that companies could use lightweight panels in a limited capacity with current personnel and machinery, and that external information sources (for example, suppliers, other firms, universities, and consultants) would be important to understanding the use of lightweight panels. These two statements also were the highest rated statements in the 2008 study.

The only statement for which there

**Figure 3. Overall, our company would seriously consider using lightweight panels in our manufacturing process.**



Most respondents would consider using lightweight panels while only 12 percent did not see an application.

## Potential applications for lightweight panels (Scale of 1 to 5)

Molding/millwork	2.5
Kitchen/bath cabinets	2.9
Household furniture	3.2
Countertops	3.4
Architectural fixtures	3.6
Office/hospitality/contract furniture	3.8
Store fixtures	3.9
RTA furniture	4.2

was broad disagreement was that it would be difficult to understand the technical aspects of lightweight panels, which also was the lowest

**+** LIGHTWEIGHT PANEL USAGE

rated statement in 2008.

Analysis of specific attributes associated with lightweight panels revealed several perceived strengths and weaknesses for the product. As shown in Table 1, respondents were first asked to rate the importance of several attributes to their purchasing decisions for composite panel products generally, such as particleboard and MDF. This way, a baseline was established as to the importance of the attributes for more traditional panel products. Then, respondents were asked to rate the extent to which they perceived lightweight panels to possess those same attributes.

Respondents rated the attributes: light in weight – lighter finished product for consumers/installers; light in weight – easier handling for production workers; ability to take veneer/other surface materials; and consistent dimensions as the four attributes most highly associated with lightweight panels. Competitive price was rated the lowest, suggesting that lightweight panels are perceived to be relatively expensive.

When ranked to show relative importance (Table 2), the results show how lightweight panels are perceived to perform on the most important attributes. Lightweight panels were perceived to perform well on the important attributes of: ability to take veneer/other surfaces; consistent dimensions; machineability; availability of full-sized panel sheets; and consistent quality between orders. Several of these attributes also scored favorably in the 2008 study.

Conversely, lightweight panels exhibit less favorable perceptions by secondary wood products manufacturers in terms of the important attributes of strength of connection to other components, strength of hardware connection to panel, ease of attaching hardware, and to a lesser extent ease of connecting panels to other components. Relative rankings on these attributes emerged as similar con-

**Respondents reported what they perceived as positive and negative characteristics of lightweight panels.**

**Table 1. Importance of attributes to purchasing decisions for composite panel products (particleboard, MDF, etc.) and extent to which lightweight panels are perceived to possess those same attributes.**

Attribute	Importance to composite panel purchases (average) <sup>1</sup>	(rank)	Lightweight panels possess (average) <sup>2</sup>	(rank)
<b>Important attributes</b>				
Strength of connection to other components	4.51	1	3.15	12
Consistent quality between orders	4.46	2	3.58	7.5
Machineability	4.45	3	3.67	6
Strength of hardware connection to panel	4.41	4	2.96	16
Availability of full-sized panel sheets	4.34	5	3.58	7.5
Consistent dimensions	4.30	6	3.92	4
Ability to take veneer/other surface materials	4.29	7	4.02	3
Ease of connecting panels to other components	4.26	8.5	3.19	11
Ease of attaching hardware	4.26	8.5	3.02	15
<b>Less important attributes</b>				
Strength of panel	4.21	10	3.48	9
Competitive price	4.19	11	2.82	17
Ease of edgbanding	4.13	12	3.12	13
Consistent density	4.04	13	3.69	5
Light in weight – easier handling for production workers	3.36	14.5	4.27	2
Light in weight – lighter finished product for consumers/installers	3.36	14.5	4.29	1
“Greenness” or environmental friendliness	3.35	16	3.37	10
Availability of pre-cut panel sizes according to cut lists	2.21	17	3.06	14

<sup>1</sup> Scale anchored by 1=Not at all important to 5=Critically important.

<sup>2</sup> Scale anchored by 1=Possess to a small extent to 5=Possess to a great extent.

Survey respondents indicated criteria for purchasing lightweight panels and if they were perceived to have those traits.

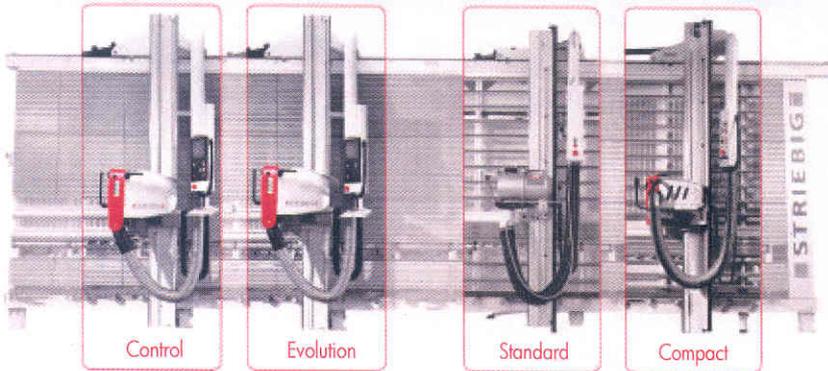
**Table 2. Perceived performance of lightweight panels on attributes important to purchasing decisions for composite panels.**

		Possession by lightweight panels	
		High	Low
Importance	High	Ability to take veneer/other surfaces	
		Consistent dimensions	
		Machineability	
		Availability of full-sized panel sheets	
		Consistent quality between orders	Strength of hardware connection to panel
	Low	Strength of connection to other components	
		Ease of attaching hardware	
		Ease of connecting panels to other components	
		Light in weight for consumers/installers	
		Light in weight for production workers	
		Competitive price	

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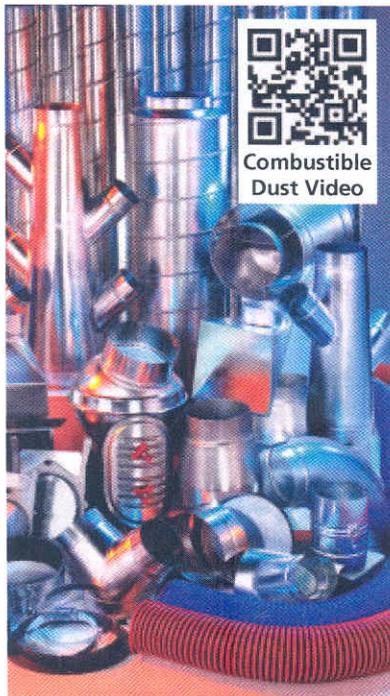


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cerns in the previous study and suggest perceptual hurdles remain for lightweight panels in these areas, particularly in terms of connection strength.

Lightweight panels were perceived favorably in terms of weight (not surprisingly) and consistent density, even though these were not rated as important for composite panels generally. However, as noted below, lightness can be an important advantage in many applications, and this attribute might not be directly comparable to traditional composite panels generally.

Respondents were asked to indicate the potential for use of lightweight panels in several specific industry sectors, and results are shown in Figure 2. RTA furniture showed the greatest potential, followed closely by store fixtures and office/hospitality/contract furniture. The lowest potential was indicated for moulding/millwork, which scored well below the scale mid-point. Kitchen/bath cabinets scoring just slightly below the scale mid-point.

In a write-in follow-up question asking for other potential applications for lightweight panels, some respondents mentioned ceiling panels and transportation-related uses such as aircraft, marine and RV. Others indicated trade show fixtures due to the advantages associated with lighter weight when transporting such products frequently and over long distances. Such advantages also likely help explain the high rating for RTA furniture, while design considerations (e.g., thick dimensions) likely play an important role in the high rating for store fixtures.

Lastly, respondents were asked to indicate their level of agreement with the following question: "Overall, our company would seriously consider using lightweight panels in our manufacturing process." As shown in Figure 3, a sizable majority was in agreement (62 percent) which was higher than indicated in the 2008 study (54 percent). Only about 1 out of 10 respondents disagreed with the statement.

### Survey summary

Based on the results of this study, the use of lightweight panels increased compared to a similar study conducted

## + Perceptions of Lightweight panels

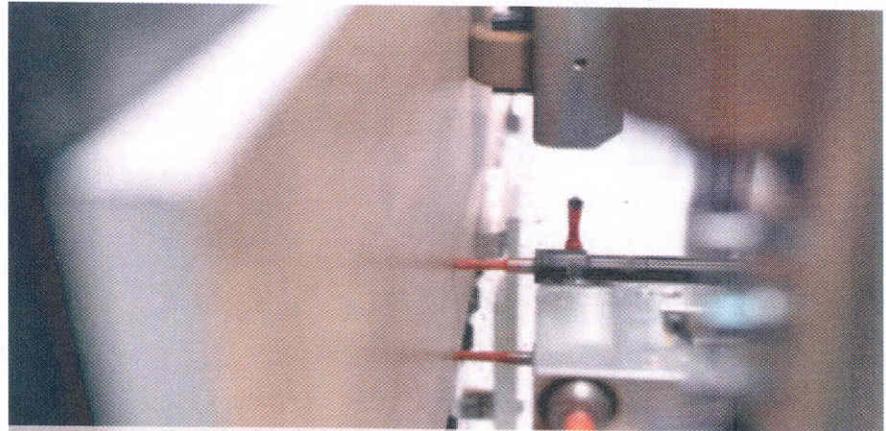
It would be difficult to understand the technical aspects of LWP.....	2.2
It would take a major capital investment to incorporate LWP in our manufacturing process.....	3
Most firms in our industry will perceive LWP to have limited market opportunity.....	3.1
We could incorporate LWP in our manufacturing process with little technical difficulty.....	3.2
Our customers would readily notice use of LWP in our finished product.....	3.2
Adopting LWP could lead to a better performing final product.....	3.3
Adopting LWP could lead to greater profitability.....	3.5
Most firms in our industry will perceive LWP to have technological barriers that limit adoption into current processes.....	3.5
External information sources would be important to understanding use of LWP.....	3.7
With our current personnel and machinery, we could experiment with using LWP in a limited manner.....	4

in 2008. However, it is not clear whether this reflects a real increase in use or if this is a function of different survey samples as compared to the study in 2008. The current study was comprised of larger companies and more companies producing products favorable for use of lightweight panels (e.g., store fixtures). A higher proportion of respondents also indicated that their companies would seriously consider using lightweight panels in their manufacturing processes compared to the previous study. However, some of the concerns expressed in 2008 remained in 2012; in particular, attitudes were not favorable concerning the strength of

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hardware and component connections. There are opportunities for companies to experiment with using lightweight panels, as there was general agreement among respondents that this would be feasible with existing machinery and personnel. While respondents indicated that external information sources are important to

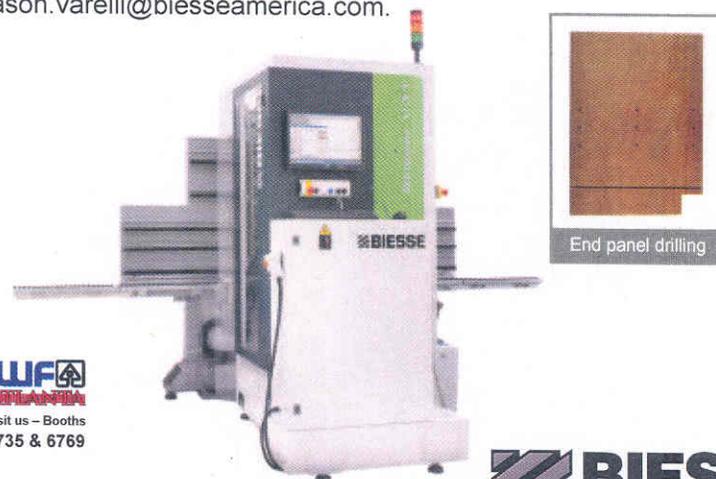
understand the use of lightweight panels, respondents did not think it would be difficult to understand the technical aspects of lightweight panels. Respondents also indicated that the greatest industry potential for lightweight panels was in the RTA furniture, store fixtures, and office/hospitality/contract furniture sectors. ◀



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