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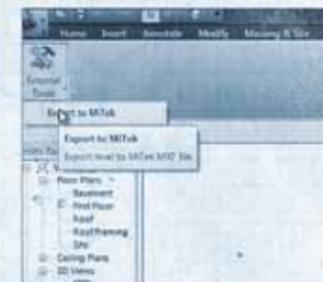
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THE FUTURE OF FRAMING

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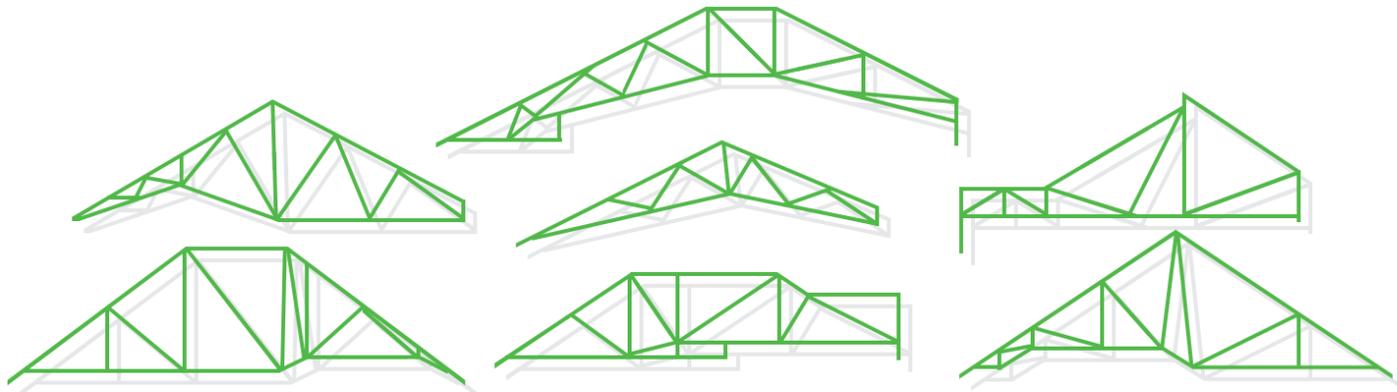
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The mission of *Structural Building Components Magazine (SBC)* is to increase the knowledge of and to promote the common interests of those engaged in manufacturing and distributing structural building components. Further, *SBC* strives to ensure growth, continuity and increased professionalism in our industry, and to be the information conduit by staying abreast of leading-edge issues. *SBC's* editorial focus is geared toward the entire structural building component industry, which includes the membership of the Structural Building Components Association (SBCA). The opinions expressed in *SBC* are those of the authors and those quoted, and are not necessarily the opinions of Truss Publications or SBCA.

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Editor's Message

Cycle Time for Success

by Joe Hikel

Build the entire design/production process around meeting the customer's top priority.

In our business, it's important to focus on what we actually do. Some think that we take field operations and move them to the more controlled environment of a plant. But we know it's much more than that. I contend that component manufacturers (CMs) have to approach the entire process of making components as true manufacturers, with the customer's top priority driving every step along the way.

Component manufacturing has improved incrementally with the advancement of automated equipment over the years. These advancements transformed businesses from long-run production shops to one-off custom job shops. This evolution requires CMs to concentrate on different priorities in the plant.

In the past, long production runs focused on reducing setup through batching, mainly because cutting and assembly setups took so long. Times certainly have changed. Equipment manufacturers decreased setup time with the adoption of computer numeric controlling (CNC) of component saws, linear saws, laser projection systems and automated jiggling. These are great tools, but CMs only see the benefits if the plant's focus shifts to match customers' demands.

In my opinion, the new driver is cycle time, the amount of time required to process a production order from start to finish. Think about it, how many times does a field measurement or last-minute design change impact the ability to get components to customers when they need them? The key to compressing cycle time is changing the way work flows through the plant. The entire process is built around meeting the customer's top priority. Since that need is ever changing, effective communication is essential. We have dedicated full-time customer service staff that communicates with customers every day to get an accurate read as to when they will need their product. Once you know the real need, you can look at the plant and find out how long it takes to get an order through and think about ways to compress that schedule. It's a time to examine paradigms such as batch size and, in particular, how material flows through the plant.

Work-in-process inventory is the enemy of reduced cycle time. This adversary includes pulled lumber before cutting, cut lumber before assembly, and manufactured inventory before delivery. For example, a customer orders two of the same houses with a delivery of five days apart. The old paradigm would suggest that the CM manufacture both houses at the same time to save on setup cost. The new paradigm proposes that the houses be built separately right before they are delivered, meeting customer needs with a "just in time" mentality as efficiently as possible.

Another important factor in compressing cycle time lies in plant layout. In some plants, chords are cut on one saw and webs are cut on another, sometimes in separate buildings and far away from where the trusses are assembled. The distance the material travels along with the varying speeds at which the two saws cut can lengthen the entire process. Sorting parts to different locations consumes time as well.

In our plant, we chose to use the concept of rapid material movement to attack cycle time. Each production line has its own saw that cuts both chords and webs. When the order completes cutting, all the parts are together and ready for assembly

at a glance

- Determining production cycle time, the amount of time required to process an order from start to finish, is key to meeting customer needs.
- The old paradigm suggested that similar jobs be manufactured at the same time; the new paradigm focuses on meeting customer needs with a "just in time" mentality as efficiently as possible.
- Is an urgent request viewed as a pain-in-the-neck rush job or an opportunity to exceed expectations and have a customer for life?

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Editor's Message

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in one spot. The saws are very close to where assembly occurs, minimizing the distance the material travels. The material moves in a straight line through the process.

Automated equipment focused on reducing setup won't show the expected return on investment if the lumber doesn't get to the right place at the right time. What good does it do to have a saw that will set up in seconds or a jig that will change quickly with automation if the proper parts are not there at the right time? Go out and watch your production and see how many times the saws are not cutting because the proper material hasn't arrived yet or assembly stations are not producing because the cut parts and plates are not there.

Last but not least, in order to be more responsive to customers, we have to develop a culture that embraces the opportunity to perform:

- If a CM is used to telling customers that the lead time is two weeks, how does that team respond to an opportunity that requires a quicker turnaround?
- When an urgent request comes in, is it viewed as a pain-in-the-neck rush job?
- Is the salesperson looked down upon because he or she created an uncomfortable situation in design or in the plant?
- Can any CM afford to let the sale go somewhere else?

We will talk about this subject in further detail at the lean manufacturing panel discussion at BCMC. I hope to see you there and hear your ideas on responding to customers, and I will be glad to share mine. **SBC**

SBC Magazine encourages the participation of its readers in developing content for future issues. Do you have an article idea for a future issue or a topic that you would like to see covered? Email your thoughts and ideas to editor@sbcmag.info.

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• • • Readers Respond

Predictions of a Trusser Gone Green

Dear SBC,

This recession has lasted so long, we may have forgotten how we used to build houses, and that may be a good thing. Experience could be our worst enemy.

Three years ago, I decided to become involved in the "green building" arena. Business had turned down and it seemed at the time like something that may give me an edge over other structural engineers. Fast forward three years, add about six more titles to my résumé and four Platinum and seven Gold Certified LEED homes (all 11 built without FSC certified wood)—this is where I'm coming from now.

Here are my predictions:

1. Homes will get smaller with convertible and less traditional floor plans and elevations.
2. Successful fabricators will be involved in the design development stage.
3. Roof systems will be used as rainwater and daylight harvesting collectors as well as renewable energy system supports.
4. Truss systems will be "open" to accommodate high-tech mechanical, plumbing, and lighting equipment (raised heels, 2x6 chords and very few webs, long runs of FAU platforms, etc.).
5. Energy ratings on homes will become the norm, much like the mileage sticker on a car.
6. The "Conventional Construction" code compliance path will become obsolete (it's lousy anyway).
7. Financing will consider the value of sophisticated front-loaded design work, which can significantly reduce construction costs, rather than just appraise homes at a dollar-per-square-foot number.
8. Operating costs, such as energy and water costs that can be greatly reduced through proper design, will be part of the loan qualification process, along with taxes and insurance.
9. Buyers will purchase homes to "live in" rather than to sell later for profit.
10. Owners will be provided a Building Information Modeling (BIM) style set of meticulously detailed drawings to accommodate forward planning and remodeling. Components will allow for flexible partition modifications and interior remodeling as needs change with time. Plans will no longer be "TOP SECRET" for legal protection.

This list could ramble on for much longer, and each item could have a separate article written about it. I am sure many component manufacturers are, like me, trying to plan how to do things when the market turns. Perhaps the "green" movement will be a lofty and unattainable flash and we will continue to do things as we have in the past. Who knows? I do believe that experience could be our worst enemy. The industry needs to be captained by a bunch of enthusiastic young fire-eaters who want to take a chance and do things differently.

—Norman Scheel, S.E., F SEAOC, F ASCE, LEED AP BD + C,
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by Jim Vogt, P.E.

The terms “plywood” and “OSB” are often used interchangeably, but it’s important to know the difference when making a truss repair.

The building codes prohibit the cutting, notching drilling, or otherwise altering of truss members or components without written approval from a registered design professional. When specifying the material in a repair detail, the Building Designer or Truss Designer has a number of options including plywood or oriented strand board (OSB) gussets, metal nail-on plates, lumber scabs or repair frames. The following question examines two commonly-used products.

Question

Which is better to use for truss repairs, plywood or OSB?

Answer

Plywood and OSB are two types of wood structural panel products commonly specified and used to repair damaged joints in metal plate connected wood trusses. There are several factors to consider before deciding which product to use.

First, everyone involved in the repair process needs to understand the difference between the two products. The 2009 International Building Code® (IBC®) defines plywood as:

Plywood. A wood structural panel comprised of plies of wood veneer arranged in cross-aligned layers. The plies are bonded with waterproof adhesive that cures on application of heat and pressure.

Similarly, the IBC defines OSB as:

Oriented strand board (OSB). A mat-formed wood structural panel comprised of thin rectangular wood strands arranged in cross-aligned layers with surface layers normally arranged in the long panel direction and bonded with waterproof adhesive.

It’s not uncommon to hear people refer to a wood structural panel as “plywood,” but after further discussion it’s clear they’re actually talking about OSB. Make sure there is a clear understanding of the differences between the two, especially if the repair requires a specific product.

Second, Section 2303.1.4 of the 2009 IBC requires that wood structural panels used in structural applications, such as truss repairs, must conform to the requirements provided in the U.S. Department of Commerce/National Institute of Standards and Technology standards (DOC), PS 1 or PS 2. More specifically, Section 2303.1.4 states:

2303.1.4 Wood structural panels. Wood structural panels, when used structurally (including those used for siding, roof and wall sheathing, subflooring, diaphragms and built-up members), shall conform to the requirements for their type in DOC PS 1 or PS 2. Each panel or member shall be identified for grade and glue-type by the trademarks and approved testing and grading agency...

Structural plywood may be qualified using the requirements of PS 1, Structural Plywood, or PS 2, Performance Standard for Wood-based Structural-use Panels, whereas structural OSB is qualified under PS 2. The standard used to qualify a product is included as part of the trademark on the panel (see Figure 1). Only panels conforming to PS 1 or PS 2 should be used.

The building codes provide allowable span and load information for wood structural panels used in typical floor, roof and wall sheathing applications. For truss repairs, specific design capacities, such as allowable tensile strength and shear through-the-thickness, are required. Design capacities for various panel grades and span ratings are available from qualified panel testing and grading agencies (e.g., APA-The Engineered Wood Association, TECO, etc.) and are also provided in Chapter M9 of the *ASD/LRFD Manual for Engineered Wood Construction* (2005), published by the American Wood Council (AWC) and the American Wood Council of the American Forest & Paper Association (AF&PA). The design capacities in these documents are based on tests of panels manufactured in accordance with PS 1 and PS 2, which bear the trademark of a qualified inspection and testing agency (see Table 1 and 2 for examples).

These tables show there are generally only slight differences between the design capacities for structural plywood and OSB for a given span rating. An exception, however, occurs with shear through-the-thickness capacities, where OSB provides considerably higher values. Based on this difference, if a truss repair specifies only OSB, plywood should not be substituted without written permission from the registered design professional who prepared the truss design repair drawing.

Another design capacity to consider is dowel bearing strength, which determines the allowable lateral resistance provided by the nails, screws or bolts that attach the wood structural panel to the truss. Table 11.3.2B of the *National Design Specification® for Wood Construction* (NDS®) lists the dowel bearing strengths for various wood structural panels (see Table 3). All grades of OSB, Structural 1 and Marine plywood are assigned the same dowel bearing strength, whereas all “other grades” of plywood have a lower dowel bearing strength. Since the majority of plywood used for construction applications in the U.S. is NOT Structural 1 or Marine, lower lateral resistance values (i.e., more fasteners) typically must be used for a repair using plywood than for one using OSB. **SBC**

To pose a question for this column, call the SBCA technical department at 608/274-4849 or email technicalqa@sbcmag.info.

Span Rating	Strength						Planar Shear		Stiffness and Rigidity						
	Bending F _b (lb/ft ² of width)	Axial Tension F _t (lb/ft of width)	Axial Compression F _c (lb/ft ² of width)		Shear through the thickness F _v (lb/ft of shearing panel length)	Planar Shear F _v (lb/ft ² of width)	Bending EI (lb-ft ² of width)	Axial EA (lb-ft ² of width x 12')	Rigidity through the thickness G _s (lb-ft ² of panel depth)		Rigidity through the thickness G _s (lb-ft ² of panel depth)				
			F _c (lb/ft ² of width)	F _c (lb/ft ² of width)					0'	90'	0'	90'			
Capacities relative to strength axis ^(b)															
	0'	90'	0'	90'	0'	90'	0'	90'	0'	90'	0'	90'			
Sheathing Span ^(c)															
240	349	203	34	2,332	603	2,430	2,500	53	155	273	16,000	3,800	3.33	2.99	25,000
3219	349	373	32	2,422	1,252	2,420	2,700	62	158	247	126,500	4,100	4.13	3.63	27,000
	149	407	110	2,482	1,252	2,525	4,550	87	188	479	126,500	17,800	4.13	3.63	26,700
	544	444	188	2,042	1,625	2,075	4,614	103	273	413	126,500	25,700	4.13	3.63	42,000
	349	625	182	2,322	1,632	2,430	4,000	88	245	413	147,500	18,000	5.00	4.50	28,000
	149	149	182	2,322	1,632	2,430	3,000	88	245	250	147,500	18,000	5.00	4.50	37,400
	549	739	272	2,772	2,082	2,360	3,000	112	257	203	147,500	33,800	5.00	4.50	42,900
	149	543	272	4,422	1,952	1,480	7,200	88	303	750	148,000	14,100	5.00	4.50	42,300
	549	1,014	428	6,222	2,022	1,900	7,200	173	325	250	148,000	31,400	5.63	5.00	43,000
Floor Span ^(c)															
24	449	629	138	2,422	1,632	2,300	3,000	87	245	250	201,000	23,000	5.00	4.50	35,400
	549	573	252	2,772	2,082	2,300	3,000	121	257	265	201,000	42,300	5.00	4.50	42,000
	24	449	704	2,302	1,952	1,900	7,200	82	300	750	200,000	37,200	5.63	5.00	35,000
	549	789	387	4,382	2,022	1,900	7,200	171	325	250	200,000	32,600	5.63	5.00	45,000
	24	449	1,044	6,222	2,022	1,430	3,300	120	280	350	170,000	24,200	7.00	7.00	34,000
	48	549	1,922	7,282	4,742	12,100	10,800	156	307	350	1,260,000	490,000	8.20	7.50	75,000

Table 1. Design capacities for structural plywood, provided by TECO.

Span Rating	Strength						Planar Shear		Stiffness and Rigidity					
	Bending F _b (lb/ft ² of width)	Axial Tension F _t (lb/ft of width)	Axial Compression F _c (lb/ft ² of width)		Shear through the thickness F _v (lb/ft of shearing panel length)	Planar Shear F _v (lb/ft ² of width)	Bending EI (lb-ft ² of width)	Axial ^(b) EA (lb-ft ² of width x 10')	Rigidity through the thickness G _s (lb-ft ² of panel depth)		Rigidity through the thickness G _s (lb-ft ² of panel depth)			
			F _c (lb/ft ² of width)	F _c (lb/ft ² of width)					0'	90'	0'	90'		
Capacities relative to strength axis ^(b)														
	0'	90'	0'	90'	0'	90'	0'	90'	0'	90'	0'	90'		
Sheathing Span ^(c)														
240	302	87	2,300	780	2,500	2,500	161	130	60,000	11,000	3.33	2.99	77,000	
2416	335	115	2,500	1,300	2,250	2,500	165	150	78,000	16,000	3.80	2.70	83,000	
3216	445	185	2,500	1,850	2,500	3,000	160	195	115,000	25,000	4.15	2.70	83,000	
4209	750	270	2,500	2,100	4,200	4,000	165	275	225,000	38,000	5.00	2.30	88,000	
4824	1,030	405	4,000	2,650	3,000	4,300	220	250	400,000	91,000	5.85	3.30	96,000	
Floor Span ^(c)														
18	600	180	2,500	1,800	4,000	3,500	170	220	100,000	34,000	4.80	2.70	85,000	
20	670	250	2,500	2,100	4,200	4,000	170	220	130,000	40,000	5.00	2.70	87,000	
24	770	385	3,350	2,550	3,000	4,300	215	250	300,000	80,000	5.65	3.30	93,000	
32	1,050	685	4,000	3,250	3,300	5,200	230	320	650,000	230,000	7.90	4.70	100,000	
48	1,900	1,200	5,000	4,750	4,100	8,200	380	385	1,600,000	490,000	9.20	4.80	115,000	

Table 2. Design capacities for OSB, provided by TECO.

Table 11.3.2B Dowel Bearing Strengths for Wood Structural Panels

Wood Structural Panel	Specific Gravity G	Dowel Bearing Strength, F _c , in pounds per square inch (psi)	
		Structural 1, Marine	Other Grades ¹
Plywood			
		0.50	4650
		0.42	3350
Oriented Strand Board			
		0.50	4650

1. Use G = 0.42 when species of the plies is not known. When species of the plies is known, specific gravity listed for the actual species and the corresponding dowel bearing strength may be used, or the weighted average may be used for mixed species.

Table 3. NDS® Table 11.3.2B lists the dowel bearing strengths for various wood structural panels.



Xoom. Galaxy. Slate. Iconia. iPad. Unless you're a technology enthusiast, it's likely you wouldn't recognize the products these names refer to (except for perhaps the last one). They are all the latest and greatest tablet computers produced by the computing industry, and they offer a very simple, yet seductive advantage to the business community: mobility. For you, mobility translates into easier sales, quicker response times, more effective repairs, better marketing, streamlined manufacturing processes and, most importantly, more efficient communication and collaboration.

This emerging technology holds a great deal of promise, and while the tablets can't beam you from one place to another (yet), their capabilities would make Captain Kirk and his Enterprise crew hang their heads in shame. Let's take a look at how these lightweight devices are helping your peers do business easier, faster and with style.

Making the Sale

With the housing market the way it is, everyone is in sales. With a tablet computer in hand, you and your sales team can take them on the road to show photos of recent or relevant projects accomplished in the past, showcase how you approach their building design and framing plans, and even review truss design drawings.

"With my tablet in hand, I never feel unprepared during a sales call," explained Josh Fitzgerald, a Midwestern sales representative for Simpson Strong-Tie. "I always have everything I need with me at my fingertips." At a sales meeting, it's hard to predict exactly what information you will need with you, but with a tablet computer, you can access your office computer remotely and pull up any document, photo or file as easily as if you were sitting at your desk and not theirs.

"You never know what topics will come up and what literature is going to be helpful during a sales call," said Fitzgerald. "I used to carry around a huge binder of brochures that quickly could get outdated, now I just carry around my little tablet and I can even check immediately on price and see if it's in stock."

The tablet computer can also be indispensable to your sales force in between meetings. The calendar function on the tablet makes it easy to keep track of contacts and appointments, and instantly map travel

THE FUTURE IS HERE

[and you can hold it in your hand]

by Sean D. Shields

routes in between meetings. As you expand the geography of your sales market, your sales personnel are likely going to be traveling to new and strange locations. Having access to the cellular 3G network ensures they can locate where they are and where they need to go.

Finally, the tablet allows the whole sales process to be paperless. No more scraps of paper with notes, names and figures jotted down only to be lost on the truck bed floor on the way back to the office. Most tablet computers have powerful note taking software that allows you to write directly on the screen with a stylus, which you can then immediately email to yourself and the home office. Orders can begin to be processed within minutes after a meeting concludes!

"Connectivity is the key," shared Barry Dixon, CEO of TrueHouse. "Now your office can go anywhere. Your truck is your office. Your home is your office."

Improving the Jobsite Visit

The tablet computer can be a very powerful tool at the jobsite as well. Need to look at a bracing detail? You can pull up the BCSI reference you need. Wondering about the placement of a fastener? You can pull up the building documents, and zoom in on the area you are working on. You can even pull up the CAD drawings, render them in 3D and rotate around a complicated connection to see it from all angles. You can't do that with paper blueprints!

"It's also very helpful for us with our building information modeling process," explained Mike Kozlowski, President of Apex Technology. "We can walk through the jobsite with a complete set of construction documents on the tablet and note the type and location of every piece of hardware and note it immediately in the software. It has significantly increased the efficiency of our audits and helps ensure the optimizations in the plans are being followed."

Again, the note- and photo-taking features of the tablet allow anyone to walk around the jobsite, take notes and pictures, and immediately email them to those who need it, whether it's the truss technicians, the sales team, or management. With that kind of connectivity to the home office, complicated framing issues can be answered in a matter of minutes, possibly saving crucial hours or days of delay.

Take truss repairs, for example. "The ideal scenario is one where the damage is noted before the building inspector shows up," said Dixon. "You can take a picture of the break, email it to the truss designer, he can consult the drawings, devise a fix and email it back to you." The framers can then do the repair right then and there, avoiding costly delays associated with a failed inspection. Having this electronic record also allows management to track trends in truss repairs for quality control purposes.

Your drivers can also use a tablet computer with great effect. They can photograph and immediately catalog damage to components during transport and delivery, register deliveries and make notes on everything from construction to jobsite conditions. This information can then be reported immediately to management, and allow for real-time tracking of shipments and related issues.

Maximizing Your Meetings

The handwriting recognition software on the tablet computers today is one reason why many office users are taking their tablet computers to meetings instead of a traditional notebook. The ability to immediately email those notes, and keep electronic to-do lists that can be constantly updated, is a good reason to move beyond pen and paper.

The tablet computer can also increase the productivity of meetings in taking collaboration to the next level. "iPad has a white board application," said Kozlowski. "We can have designers in our office drawing ideas out, and our designer in Ecuador can

Continued on page 14

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“I’m hooked. About 75 percent of my computer time is now spent on my tablet.” –Barry Dixon

Tablets

Continued from pg 13

follow right along with them, adding his own changes to the drawings in real time.” Adobe’s Acrobat software has powerful mark-up capabilities while sharing pdf files, too.

Having a tablet can also make file sharing a breeze, and can even facilitate an impromptu PowerPoint presentation. Granted, the screen size limits the number of people who can crowd around to view it, but most tablets can connect easily to a projector in case the audience is large.

Having the tablet on hand can also make the time in between meetings more productive. On a plane, space is at a premium, so the smaller size of the tablet computer is ideal for cramped spaces. The extended battery life of most tablets (they average around 10 hours), their ability to immediately turn on and off without long boot times, and, again, their Internet connectivity through 3G cellular service, make them ideal for travel.

“I take it everywhere I go,” shared Jerry Vulgaris, President of Smart Components. “If I have a little downtime between meetings or while waiting for a plane, it’s much easier to keep up with email because you can see the whole picture and view attachments, as opposed to being limited to text on your smart phone.”

Monitoring Manufacturing

While tablet computers are not new technology in the realm of manufacturing, the touch-screen user interfaces of tablet computers open the door for various business analytic software solutions to help manufacturers capture and address quality control issues at the point of failure.

Some manufacturing companies have a tablet computer with every forklift. The cameras on the tablets allow for scanning bar codes to do real-time tracking of material throughput and inventory levels. Knowing what your company’s machines and labor are doing at all times, combined with emails or text alerts that are sent when problems arise, means less downtime, more accountability and the ability to be proactive instead of reactive, making for more efficient management of resources.

Not only that, having a tablet computer allows managers to leave the confines of their office and still track these things, whether they are on the road, at a sales meeting (or an SBCA function).

Marketing 2.0

One inventive way to use the tablet computer is in the area of marketing. “We are working with our builder clients and encouraging them to put all their collateral advertising materials online,” explained Dixon. Traditionally, builders have relied on third-party marketing firms to create their brochures and print them, but every time they made a change to the plans because it wasn’t selling well, they’d have to throw all the old brochures out. What a waste.

If they stick with electronic brochures, any change they make to the building plans can quickly be reflected in their marketing. Imagine all their potential homebuyer clients walking around with the blueprints of their new home on their iPhones.

Dixon added, “At this point, everyone becomes a tool of sale for a house. The framer can use a software application on a tablet computer to render the building plans in 3D, so they can walk someone through the house long before construction is completed.”

It certainly gives you a glimpse of the future.

Capitalizing on Communication

Again, mobility is the key advantage with tablet computers.

Continued on page 16

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Tablets • Continued from page 14

"The 3G cellular connection allows you to have access to email and files on your server virtually everywhere," said Vulgaris. "The funny thing is I use my Android phone as a WiFi device to provide the Internet connection for my Apple iPad, all while pulling up Microsoft files from my HP servers back at the office. It's amazing how all the technology works together."

While tablet computers are not currently designed to replace phones, Kozlowski and his team have found a useful work-around. "We have a design lead in another state who makes calls through the Internet using Skype. The tablet computers are setup to do the same. Actually, with the camera built into the latest tablets, video-conferencing can be achieved, and it's all free. The only cost incurred, which is still minimal and on the order of \$25 per year, is if you wish to have a dedicated phone number."

With increased use of "cloud-based" servers (the act of storing your files on a server based at an offsite location) and using remote desktop capabilities, the tablet computer doesn't need to store a single file. Any document can be accessed from anyplace you can get cell phone coverage, which is virtually everywhere in this country.

"My tablet computer is the epitome of connectivity," said Kozlowski. "Smart phones have similar features, but are such a distant second due to size and operability."

Conclusion

Depending on your feelings about technology, the new tablet computers are either sleek and sexy, or downright frightening. But it's hard to argue against their versatility and potential to transform the way in which business is done in this industry.

"At first, I just got my tablet for fun," laughed Vulgaris. "But as I got to use it, I realized how many business applications were being created every day. This is a powerful tool."

"I'm hooked," echoed Dixon. "About 75 percent of my computer time is now spent on my tablet." The tablet computer can go everywhere you go, give you access to every file you need, and allow you to communicate in a variety of ways to address challenges as they arise no matter where you happen to be at the moment. High quality of service, delivered in a timely manner, is a key way to differentiate yourself and thrive in this competitive marketplace. Tablet computing can be a pivotal tool to get you there. **SBC**



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Keeping Members on Their Toes

This year's BCMC Build project will build not one but two single-family homes with help from partners Habitat for Humanity and Eli Lilly. Just one block apart, the two-story Taft home and the one-story Harrison home (see graphics at right) will be framed by BCMC Build volunteers within a two-day timeframe, showcasing the benefits of component construction.

"Signing up to do two houses allows more people to participate. But it will also take a tremendous amount of planning and organization," said Steve Stroder, BCMC Build Co-Chair and Vice President Manufacturing Design for ProBuild. "I think it'll be good for the show and good for the industry."

In addition to expanding the scope to two houses, BCMC Build is also launching new events to help raise money for the project. Members can burn rubber on the race course and have some friendly competition while supporting the industry's efforts to give back to the Indianapolis community.

- **BCMC Build 5k Run/Walk:** After BCMC Build, attendees will put on their running shoes for this run/walk along Indianapolis' historic White River canal.
- **BCMC Tri-tacular:** Teams will compete in a tricycle relay race held on the show floor.
- **BCMC Poker Run:** Participants will visit exhibitor booths to trade in tickets for playing cards and turn in their hand at the BCMC Build booth. The player with the best hand wins!

To learn more about these events, visit bcmcshow.com. Details about the floor plans, recipient families, and in-kind and monetary donation needs are available at bcmcbuild.com/about.php. **SBC**



The 1,400 sq ft Taft home (above) and 1,338 sq ft Harrison home (below) build sites are located one block apart, which will simplify the logistics for BCMC Build volunteers.




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Lumber's Perfect Storm

Remember back, if you can, to the last time this country's housing market's sluggishness resembled what we're experiencing today. From 1988-1992, the U.S. experienced an economic recession. It wasn't nearly as profound or prolonged as our current situation, but nonetheless many of you probably remember (or have been told) how bad the housing market was. Housing starts experienced a 45 percent drop over that timespan. When housing recovered swiftly from 1992 through 1994, lumber prices skyrocketed.

In large part, the imbalance between available supply and the sudden large demand was due to curtailed production during the recession. It took time for many of the mothballed mills to be brought back online. However, there was another factor at play: the spotted owl. In 1990, the U.S. Fish and Wildlife Service placed the Northern Spotted Owl under the protection of the Endangered Species Act, and in 1992 put 6.9 million acres of prime softwood forestlands in the Pacific Northwest on the do-not-cut list, just as the demand for that lumber was being realized.

Most lumber analysts currently predict a similar "perfect storm" imbalance between the global supply of softwood lumber and demand to strike sometime between 2013-2015. To boil down why they predict this, and to understand how tenuous this prediction is, we have to look at three key factors: recent changes in the forestry landscape in North America, rising demand of China and other offshore markets, and U.S. housing starts.

Changes in the Playing Field

The timber harvesting and processing industry in North America has changed dramatically over the past decade, which plays a significant role in setting the stage for the next lumber shortage crisis. In the past, most timberlands were owned by integrated forest products companies (think Weyerhaeuser), which not only owned and grew timberlands, they harvested those lands to feed their own mills, and sometimes even owned manufacturing and building material distribution facilities to drive demand for their product.

Over time, those integrated companies have sold their North American land holdings to a number of new timberland companies, especially timberland investment management organizations (TIMOs). Dennis Neilson, Director of the international forest industry advisory and publishing firm, DANA Limited, says, "These new timberland owners are chasing log exports to China and other Asian countries and, in many cases, ignoring the needs of domestic mills and their ability to pay on the spot market."

In other words, without the need to feed their own production infrastructure, these TIMOs are free to export as much product as they want, if the price is right. Neilson added, "China's mills are able to pay much more for logs currently than U.S. mills due to a number of factors. They are more flexible in the species, grades and sizes of lumber they output, and they are offering just-in-time deliveries with high prices in China."

Drop Off in Supply

According to international lumber forecaster Wood Markets' annual report *Billion Board Foot Club*, for the past three years only 11 companies reported producing over 1 billion board feet (bbf) of lumber. By way of comparison, at the height in 2006, twice as many (22) companies exceeded that amount of production. Of those 11 companies, five are based in Canada; four are in the U.S., one in Europe, and one in South America. There are signs of life, however. Together, they accounted for 23.3 bbf in 2010, a net increase of 2.5 bbf over 2009. Those 11 companies recorded an average increase of 12 percent over the past year.

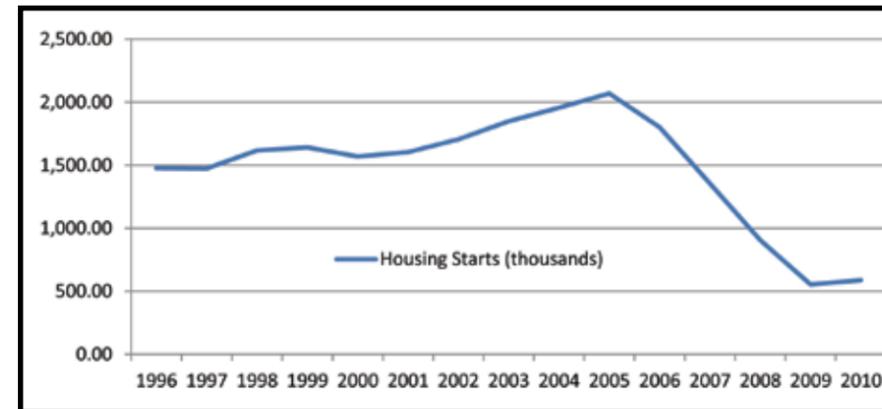
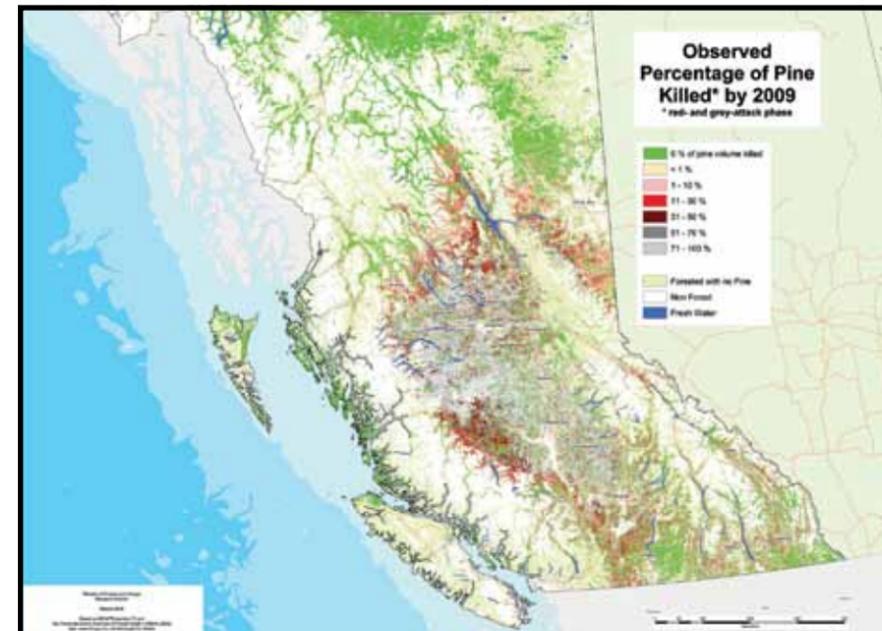


Chart 1. Total Annual Housing Starts (in thousands).



Map 1. Source: http://www.for.gov.bc.ca/hfp/mountain_pine_beetle/maps/BCMPBv72009Kill.jpg

Taking a closer look, Canadian companies increased production at a faster rate than U.S. companies in 2010. The biggest reason for this was that companies in British Columbia took the government's lead in opening strong trade into the booming Chinese lumber market. As proof, four of the five Canadian companies that exceeded 1 bbf of production are headquartered in B.C., and they nearly doubled their export volumes to China in 2010.

Canada's Challenges

The sudden and precipitous drop off of U.S. residential housing starts (see Chart 1), combined with the lagging recovery, threatened to devastate the Canadian softwood forestry industry. According to a report published by the Wood Products Council,¹ in 2006 about 39 percent of all solid wood products consumed in the United States and 28 percent of all solid wood products consumed in Canada were used for new residential construction. It was not surprising, then, to read of a Canadian sawmill shutting its doors every couple of weeks in 2008 and 2009. That's when Canadian producers began a desperate search for markets outside of North America.

The mountain pine beetle infestation in Canada adds an additional wrinkle to the issue of softwood lumber supply going forward. The devastation caused by the beetle in the short term has meant dramatically increased harvest rates in affected areas. According to the Ministry of Forestry in British Columbia, approximately 382 bbf of timber will end up being destroyed by the pine beetle (see Map 1). *Continued on page 20*

¹ Wood Products Council, *2006: Wood Used in New Residential Construction U.S. and Canada, With Comparison to 1995, 1998 and 2003*, Analysis conducted by the NAHB Research Center, Published March 2009.

*If it comes,
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until 2013*

by Sean D. Shields

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Lumber • Continued from page 19

Most timberland in Canada is owned by the government, and they have approved stumpage rates that exceed sustainable levels (i.e., they are cutting down trees faster than they can be replaced through growth patterns) in an attempt to curtail the spread and harvest usable timber. That has meant there is a large supply of logs available to mills, regardless of the existing demand, and to make matters worse, it's damaged goods. Fortunately, China appears willing to use most of the damaged fiber as form material for pour concrete projects.

The bigger problem with the beetle kill is yet to be felt, however. Gerry Van Leeuen, Vice President of Wood Markets, explained, "By 2015-2016, all of the unharvested trees killed by the pine beetle will be unusable. B.C. alone will lose approximately 40 percent of its interior timber supply for lumber production." In the end, they will only be able to harvest approximately 40 percent of the timber killed by the beetle. Van Leeuen added, "that decrease in supply will mirror the effect the spotted owl caused to timber supply in the U.S. Pacific Northwest in 1992."

China's Voracious Appetite

Given Canada's predicament of overharvesting to combat the beetle infestation while North American demand is at an all-time low, coupled with the fact that a portion of that lumber is unusable for many traditional uses, the meteoric rise in China's demand for wood fiber could not have come at a better time. It's also been quite a boon for U.S. timber producers, as you can see in Chart 2.

"These massive import rates are likely sustainable," said Van Leeuen. "Official China government five-year-plan forecasts call for log and finished wood products consumption to increase at a rate of 8-10 percent per year." Many sources are quick to point out that this will likely mean the gap between China's domestic lumber supply and its need will continue to widen, resulting in 12-15 percent annual increases in their need for offshore supply (see Chart 3).

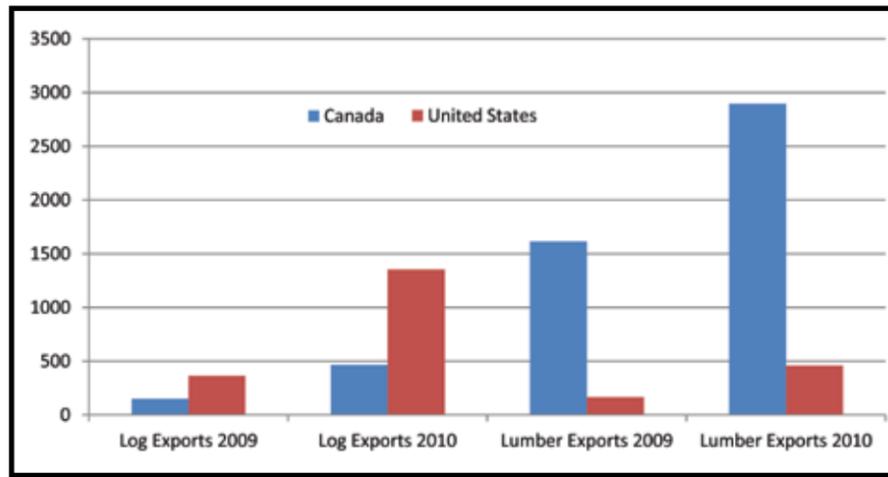


Chart 2. North American Wood Fiber Exports to China (Bbf).

U.S. Resurgence & a Return to 1992

So, the million dollar question is when will U.S. residential housing starts return, and what will they return to? While it's difficult to be overly optimistic at the moment, let's assume the National Association of Homebuilders, Wood Markets and a host of other analysts are correct, and housing starts return to an average of 1.3-1.5 million housing starts by 2013.

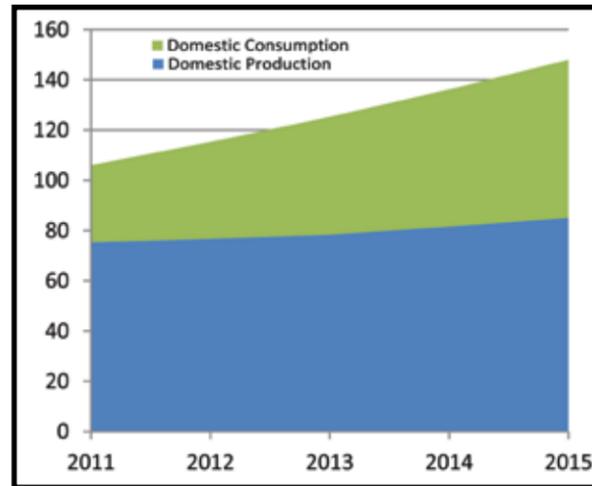


Chart 3. China's Widening Timber Import Demand (Mbf).

If China's economic growth continues on its steady track, and the government remains committed to fulfilling its pledge to build 35 million low-income homes over the next five years, in addition to the 25-35 million regular private residences,² and other global markets show moderate increases in their construction rates as well, demand for softwood lumber will likely outstrip available supply very quickly.

As mentioned previously, supply will be severely constrained in British Columbia due to losses of salvageable timber from the beetle kill, and most of Canada will likely see a decrease in lumber production as provincial governments look to reduce stumpage and return harvest levels to 100-year sustainable levels.

"If all of these events occur, you may see the price of lumber double from today's levels," predicts Van Leeuen.

"That will then prompt many of the TIMOs and private landowners in the U.S. and Europe to harvest and bring their timber to market." Eventually, supply will catch up with demand again, and prices will level out.

As you can see, a lot of conditions need to occur in order for lumber's perfect storm to take place. But if they do, that initial price ramp up period in late 2012 through 2013 will be a challenging time to purchase lumber, and will have another big impact on profit margins.

SBC Magazine will continue to monitor this situation and report on it weekly in **SBC Industry News**, while providing more global information in **SBC Magazine**. If you have any questions regarding lumber supply issues, please contact us and we will address them in one of these two information resources. **SBC**



It's easy to show some restraint.



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² Chinese Government, *Twelfth 5-Year Plan*, Enacted March 14, 2011.

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What kind of energy bill might an owner receive the first year in a LEED Platinum home? Try a \$50 surplus! Originally featured in the May 2010 issue of **SBC**, this Habitat for Humanity home in Sacramento, CA, includes raised heel trusses that accommodate a tankless water heater and fresh air ducting. Notably, the home achieved LEED Platinum status without using any FSC certified wood. Building designer and engineer of record Norm Scheel (Norm Scheel Structural Engineering), who also served as the project "energy consultant" and LEED Accredited Professional, reports that, "the electric bill for the [first] year is a \$50 credit. No cost to the owner for electricity for the year. She could have used \$50 more. Pretty cool, huh?" **SBC**

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References OSHA requirements regarding fall protection equipment

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