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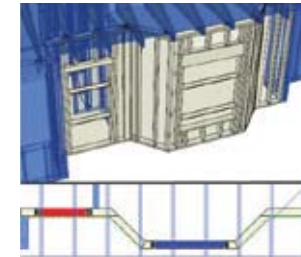
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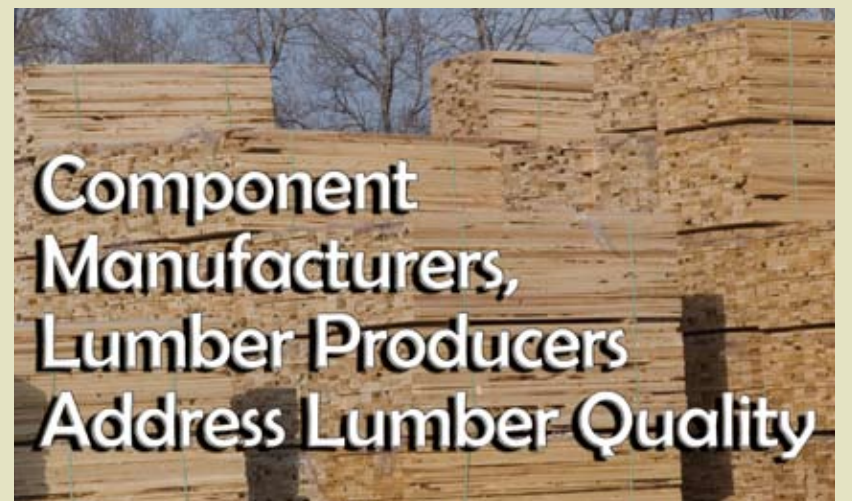
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### Sacramento Habitat Home Earns LEED Platinum, Contains No Certified Wood



by Libby Maurer

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by Libby Maurer & the MSR Lumber Producers Council

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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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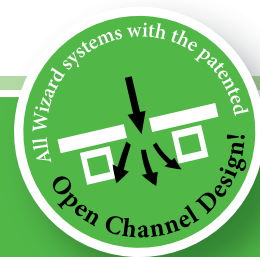
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## Editor's Message

### Reap the Benefits of Design Phase Involvement

by Steven Spradlin

Why you should get out and talk to architects and engineers.

Over the past several years SBCA has developed quite a few programs and publications that are very beneficial for promoting building component design and specification. I've found that the best way for these programs and services to be used is for individual manufacturers to meet with their local design professionals. There is no better place to get involved in projects than in the design phase.

The article on page 12 demonstrates this. Thanks to a lot of planning and organization in the design phase, a Habitat home in the Sacramento area qualified for the highest level of LEED certification—Platinum! The best part? There was no need to use FSC certified lumber in the trusses or components! Check out some of the advanced framing techniques that were used.

I encourage component manufacturers to stretch themselves and get out into the architect and engineering communities to use the resources available to help market their companies and product lines. Being involved or specified in the design process will reap more rewards than you might imagine. Take this example. Lately in our market we're seeing between seven and ten general contractors bidding on large commercial projects. Just one visit to an architect or engineer for a specific project can give you the opportunity to get in the door of those seven to ten prospects. It can be a monumental achievement from one simple visit to a local professional design entity.

For the specifiers you already have a solid relationship with, maybe a set of reference materials would interest them. SBCA packaged its best resources for design professionals into a nifty kit. For under \$200, architects and engineers get more than \$450 worth of SBC tools including access to SBCA's Online Resource Library, Component Technology Workshops for CEUs/PDHs, industry publications and all the benefits of SBCA membership! Learn more about the Design Professional Subscription here: [www.sbcindustry.com/dps](http://www.sbcindustry.com/dps). This is an excellent product for marketing our industry.

On page 9, you'll find a letter submitted by Ben Hershey, who held my position as SBCA President last year. I agree that he has a valid concern about the cost of certified wood and Chain of Custody. Simple economics will ultimately determine the choices our customers make; rest assured especially in the current business environment they will choose the least expensive building material. There comes a point when the "greenness" of a product doesn't matter. It's the cost that will prevail. I hope we will see the day when wood and steel are treated equitably in green building programs.

Finally, I encourage you to read the article on page 18, "Component Manufacturers, Lumber Producers Address Lumber Quality." Despite beginning to emerge from this highly challenging business cycle, our industry is faced with another challenge—securing quality raw materials at an affordable price. Our products are only as good as the materials we build them with. I think any time we can hear the buyer and seller sides of an issue, we're a step closer to finding solutions. I commend the lumber producers and component manufacturers for sharing their feedback with **SBC** staff. I am encouraged that we are making and will continue to make forward progress on the issue of lumber quality. **SBC**

*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](mailto:editor@sbcmag.info).*

#### at a glance

- ❑ A Sacramento Habitat home achieved LEED certification without FSC certified lumber. See how on page 12.
- ❑ Check out Ben Hershey's point of view on the cost of certified wood on page 9.
- ❑ Get out into the architect and engineering communities and use resources from SBCA to help market yourself.

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## COMPONENT MANUFACTURER OPINION:

# Cost of Certified Wood Raises Concern

Dear Lumber Producers:

I think we can all agree that lumber is one of the greenest products on the market today. Today we have well-managed forests and by most estimates we have more trees growing on the Earth today than we did 25 or more years ago.

Now, let me get to my point; where did lumber producers get off the proverbial bus when it comes to USGBC (United States Green Building Council) and its LEED rating system? Many forest certification systems exist, including FSC, SFI, CSA, ATFS, and PEFC and it appears that a majority of the mills producing lumber in Canada and the United States are, in fact, certified to one of these systems. But what is often overlooked is the cumbersome and costly process of Chain of Custody. You can stamp all you want that your product is FSC or SFI certified, but without that piece of paper, the Chain of Custody is broken and my customer, the building owner, will not get the appropriate credit.

Let me share a real scenario that is beginning to happen in the marketplace today.

I had a recent meeting with one of my customers discussing LEED certification on their building. Our company is both FSC and SFI Chain of Custody certified. He wants his building to achieve LEED certification. I prepared my quote and showed him my base price for components made with regular lumber, and then I showed him the price for FSC lumber (an additional 25%). Note that the additional 25% would apply to engineered wood products as well. Needless to say, he was not happy with the price increase and talked about switching the project to steel which was about 18% more than my regular lumber pricing to him.

How did that happen? Well, those of us who are FSC certified had to spend money with the folks at FSC to have Chain of Custody certification. Couple that with the cost of certifying the forest the mill produced the lumber from and surprise, you get higher cost lumber. All of this added cost for lumber already produced from a managed forest. And what would be the difference be if my customer did decide to use steel? There would be no additional charge for LEED certification because steel is a recycled content material that LEED automatically awards credits for and there is no cumbersome Chain of Custody requirements with steel. Excuse me? I am not here to debate the environmental aspects of wood vs. steel. I merely am questioning where the lumber producers have been throughout this entire process and how they allowed the USGBC body through FSC and other agencies to price certified wood out of the marketplace.

Why have lumber producers and various organizations spent so much money educating architects and engineers on the benefits of using wood? The industry has spent millions of dollars already on the WoodWorks program using money from the softwood lumber agreement and contributions from producers and associations. It appears to me that this money has been completely wasted if USGBC is not going to make it cost competitive to use wood in the commercial structures they are trying to promote. Yet I understand the importance of marketing wood and wood products to architects and engineers. In the scenario above, the lumber industry is causing our customers to think about moving toward steel given the higher cost of wood. It's more like EconomicsWorks! It does not take a rocket science degree to know that developers and owners are not going to pay an additional 7% just to earn LEED points.

Where is the visible and vocal fight from lumber producers trying to get USGBC to accept wood as stamped and stop this money making charade of Chain of Custody? I have often wondered why the lumber producers have never done more to tell their story to the American public about how we grow trees today and put down this Gore-type myth that we are robbing the forests of trees. I had

the opportunity to visit the Weyerhaeuser Mount St. Helens Forest Learning Center and was amazed at the quick response to replanting 18 million trees that were lost during the volcanic eruption. Surprised? You should be. Where is the education of this? Somehow the lumber industry, even with all the money it has spent on its association marketing programs, lost its voice trumpeting the good things its industry does starting with the use of the whole tree and managing the forests that are harvested from. You, the lumber producers, need to stand up and start fighting for what is right and promoting wood as the green product it is. Otherwise, while we like working with steel components as well, our customers will be increasingly pushed in that direction.

So where do you start; my thought is you need to be at the table now with LEED and change the requirements to allow wood that is stamped with the various forest certification programs and credit awarded accordingly without the added costs of Chain of Custody. If you cannot do this, then why should component manufacturers continue to fight to use FSC, SFI or other certified wood? The industry should also be working to get more seats at the table. Look at the makeup of the USGBC and FSC governing boards; I do not see any of you at that table helping to guide or set policy. SBCA has taken the position that we should not need Chain of Custody certification for our products given the major value of building system engineering. We believe that wood is an inherently green product. We further believe that a greater number of points should be awarded for optimum value engineering in the LEED-NC rating system for new commercial structures as has been done in LEED for Homes. We applaud LEED for awarding substantial points for advanced framing techniques.

Our company has taken the time and money to be FSC and SFI Chain of Custody certified and to have individuals trained in the LEED program. We believe we need to be involved in these activities if we are going to stay current with our customers' needs. But keeping current on green programs does not take away the difficulty of trying to sell customers wood that is significantly more expensive than it should be. You hear our voice, but where is yours? If you want to see continued use of wood in commercial applications like WoodWorks promotes and not see these structures move increasingly to steel or other applications, then the lumber industry needs to start being heard. Ours cannot be the lone voice in the lumber construction wilderness questioning why social policy is suddenly a money-making proposition for FSC.

I hope you hear the frustration in my voice; I am an advocate for supplying our customers with the lumber necessary to meet the growing green standards being advocated for in building construction. But the current producer-to-market distribution of green certified lumber is not working. I am committed to working, and want to work, with the lumber producers to help affect policy, but you need to reach "across the aisle" and work with me/us/our association to help your lumber buyers' voice be heard with USGBC and other creators of green rating systems. This is not a time to worry about which association is controlling the talking points or the turf. It is more important to understand that the component manufacturing industry needs lumber producers' voices to be heard on this issue.

Sincerely,

Ben Hershey  
President, Alliance TruTrus • SBCA 2010 Immediate Past President

## Floor Live Load Deflection Limits for Room-In-Attic Trusses

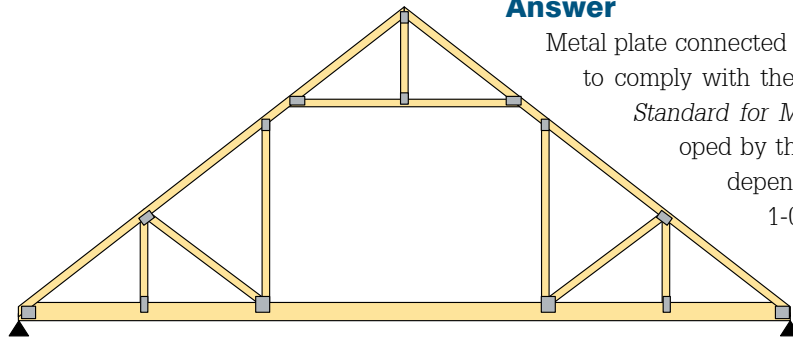
by Ryan J. Dexter, P.E. & Larry Wainright

Live load deflection limits in trusses with habitable spaces.

**Question** What is the standard deflection design limit for truss bottom chords supporting a ceiling? I am an architect and my particular residential project uses a "Room-In-Attic" truss. I believe that a live load deflection limit of  $L/360$  is needed to prevent cracking of the drywall. Will this be standard construction or will it require special details?

**Answer**

Metal plate connected wood trusses (MPCWT) are designed and manufactured to comply with the code-referenced standard ANSI/TPI 1 *National Design Standard for Metal Plate Connected Wood Truss Construction* developed by the Truss Plate Institute (TPI). The deflection limits differ depending upon which building code is being referenced. TPI 1-07 is the MPCWT design standard referenced by the 2009 IRC. Table 7.6-1 specifically requires "habitable spaces in Trusses" to be designed for a live load deflection limit of  $L/360$ .



**Table 7.6-1 Deflection Limits for Non-Cantilevered Portions of Trusses.<sup>4</sup>**

Values given in the table are divisors that are applied to the clear span length,  $L_c$ , to establish a deflection limit (limit =  $L_c$  / specified value).

Member	Deflection due to LL only	Deflection due to Total Load (LL + DL)
Roof Truss supporting plaster <sup>1</sup>	360	240
Roof Truss supporting drywall <sup>1</sup>	240	180
Roof Truss not supporting ceilings <sup>1</sup>	180	120
Floor Trusses <sup>2,4</sup> (see footnotes for Trusses supporting ceramic tile)	360 or 480 <sup>3</sup>	240
Top Chord panel <sup>5</sup>	180	120 (600 <sup>6</sup> )
Habitable spaces in Trusses <sup>7</sup>	360	

<sup>1</sup> Roofs not having sufficient slope or camber to assure adequate drainage shall be investigated for ponding.  
<sup>2</sup> Certain floor coverings require more restrictive deflection criteria. For ceramic tile, Truss spacing and appropriate dead load for the installation method, and other aspects of design per ANSI A108/A118/A136 shall be such that the system passes the requirements of the Building Designer per Chapter 2 of this Standard.  
<sup>3</sup> Floor Trusses with ceilings attached that meet L/480 criteria shall not require strongbacks to meet deflection criteria.  
<sup>4</sup> Cantilevered and overhang portions of Trusses are subject to deflection limits using the values shown above applied to twice the length of the cantilever,  $L_c$ .  
<sup>5</sup> Span length for Top Chord panel limits shall be the panel length.  
<sup>6</sup> Where required by ACI 308/ASCE 5/TMS 402 for Trusses used as a beam or lintel providing support of vertical masonry veneer.  
<sup>7</sup> Limit is for panel deflection of the loaded panel when loaded with 30 psf (14.4 KPa) or greater of live load.

ANSI/TPI 1-2007 Table 7.6-1 (Courtesy of TPI)

Per the TPI 1-2007 Commentary, the term "Habitable spaces in Trusses" was used because the deflection limits should cover more than just attic "trusses" since other truss types may have spaces in them that are habitable as defined by the governing building code. Notice that total load deflection is not listed for members with habitable spaces as it is not a requirement in IRC 2009 Table R301.7.

While the provision for habitable spaces is given in TPI 1-2007, the previous version, TPI 1-2002 (referenced by the 2006 IRC), did not contain this provision. You'll see habitable spaces are not listed in Table 7.5-1 on facing page.

**Table 7.5-1 Deflection limits for non-cantilevered portions of trusses.<sup>5</sup>**

Values given in the table are divisors that are applied to the clear span length,  $L_c$ , to establish a deflection limit (limit =  $L_c$  / specified value).

MEMBER	Deflection due to LL only	Deflection due to total load (LL+DL)
Roof truss supporting plaster <sup>1</sup>	360	240
Roof truss supporting drywall <sup>1</sup>	240	180
Roof truss not supporting ceilings <sup>1</sup>	180	120
Floor trusses <sup>2</sup>	360 or 480 <sup>3</sup>	
Floor trusses supporting ceramic tile <sup>4</sup>		360
Top chord panel <sup>6</sup>	180	120

<sup>1</sup> Roofs not having sufficient slope or camber to assure adequate drainage shall be investigated for ponding.  
<sup>2</sup> Certain floor coverings require more restrictive deflection criteria.  
<sup>3</sup> Floor trusses with ceilings attached that meet L/480 criteria shall not require strongbacks.  
<sup>4</sup> Maximum truss spacing shall be 16" o.c. per ANSI A108/ANSI A118/136. Perpendicular blocking installed at 16" o.c. maximum shall be permitted in lieu of the 16" o.c. truss spacing.  
<sup>5</sup> Cantilevered portions of trusses are subject to deflection limits using 1/2 the values shown above applied to the length of the cantilever,  $L_c$ .  
<sup>6</sup> Span length for top chord panel limits shall be the panel length.

ANSI/TPI 1-2002 Table 7.5-1 (Courtesy of TPI)

While not required to do so, many manufacturers still provide the increased deflection limit as a matter of serviceability. Depending on the version of the code you are referencing, you may want to specify a  $L/360$  or  $L/480$  deflection limit for the habitable room to minimize the potential for callbacks. **SBC**

Do you have questions pertaining to building codes? Contact Larry Wainright at [lwainright@qultim.com](mailto:lwainright@qultim.com).

**at a glance**

- ❑ Deflection limits for trusses with habitable spaces differ depending upon the building code.
- ❑ The 2009 IRC references TPI 1-2007; it defines a live load deflection limit of  $L/360$  for these trusses.
- ❑ TPI 1-2002, which the 2006 IRC references, does not contain a live load deflection limit.



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## Sacramento Habitat Home Earns LEED Platinum, Contains No Certified Wood



How one Habitat home racked up 80+ LEED points without FSC...

by Libby Maurer

**D**on April 24, Francisca Flores and her kids got the keys to their brand new 1100 sq. ft. home in Sacramento. Make that a LEED certified home. A LEED certified Platinum home, the highest of four levels, to be exact.

When the design team—or “charrette” in LEED lingo—met early on to discuss the project, they selected Gold certification as their target. That day, they fleshed out the project timeline, exceeding the minimum California energy requirements, and various advanced framing options. But there was one thing they never even considered: FSC certified wood. If you guessed the Flores’ new home doesn’t contain any certified wood, you guessed right. Their home overshot the initial target rating and achieved LEED Platinum status without it.

Why would a not-for-profit, budget-minded outfit like Habitat pursue green certification? “We build green homes for one reason,” said Dan Wilson, Project Director for Sacramento Habitat for Humanity, “energy efficiency.” Wilson said their goal is to build homes that are affordable to build and maintain. That means lowering the families’ utility costs as much as possible. The thrust of the LEED program, he said, is energy efficiency. By aligning itself with the program, Wilson can guarantee each home will meet certain energy efficiency thresholds and reduce homeowners’ monthly living expenses. As a single mom to six children, Flores will no doubt appreciate the measures Habitat’s commitment to low energy bills.

*The minimum point thresholds for Gold and Platinum certification are 65 and 80 respectively.*



Norm Scheel Structural Engineering was brought on as the building designer and engineer of record. In addition, Scheel served as the project’s “energy consultant” and LEED Accredited Professional (AP). He said early collaboration on design and energy objectives were key in achieving the Platinum rating. In particular, the advanced framing techniques used in the walls and roof system allowed the team to add valuable energy efficient features. Roughly 25 percent of the total LEED points earned come from design and energy efficiency measures that tighten the energy envelope and reduce utility costs.

But builders need not choose LEED certification to achieve an energy efficient home. “Most of these elements are things that, if really involved, homeowners would automatically want because they simply make sense,” said Scheel. “It’s important for people to know you *can* green build without adding a lot of cost,” Wilson said. “Our homes will always meet the basic LEED certification level, even if they don’t have [USGBC’s] official stamp of approval. Following the guidelines of a certain program doesn’t have to add more cost.”

**LEED Platinum without certified wood? Here’s how they did it.**

### Assemble Project Team & Design Charrette

The project team must meet once a month to review project goals. In this case, the LEED Accredited Professional, structural engineer, mechanical engineer, landscape architect,

solar energy consultant and project manager comprised the project team. The design charrette is typically made up of these same people, but the charrette is required to meet just once (in the design development phase of the project).

Wilson and Scheel insist a well-connected design team is critical to achieving the level of integrated framing and energy efficiency in a home like this. “You don’t get a well-designed, efficient house until you get the experts all together. One person can’t think of everything,” said Wilson.

### The Bottom Line:

**2 points awarded in ID1 for an integrated project team and a design charrette.**

### Use Raised Heel Trusses

Raised heel trusses provide for an array of points. The most obvious is additional space for continuous insulation. Now, higher R-value alone won’t earn you any LEED points. But it pays off in spades when it comes to a category called “exceptional energy performance.” Here’s how.

A LEED prerequisite for California homes is Energy Star compliance. Then the home is rated per the minimum energy requirements set forth in the California Building Code’s Title 24. LEED energy performance points are awarded for

Continued on page 14

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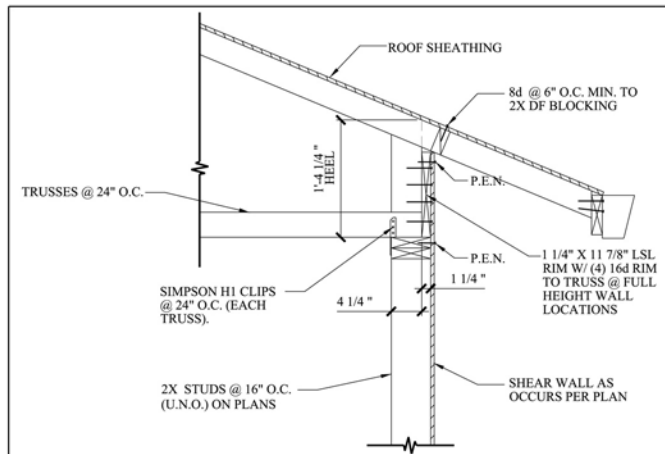
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Raised heel trusses (also known as "energy heels") allow for more insulation.



A tankless water heater is mounted to truss verticals. Utilizing this extra space in the attic meant the hot water lines could be limited to 20 feet or less.



Raised heel trusses provide additional space for fresh air ducting. Outside air passes through a filter, circulates through this mechanical system and into the house.

**Sacramento Habitat Home...**

Continued from page 13

any percentage beyond this minimum. The energy consultant conducts a software-based assessment and a rating score is issued. The score is based on building envelope tightness and heating, cooling and plumbing elements. The green rater then verifies that the Energy Star prerequisite has been met, affirms the percent above Title 24 reached, and determines the number of LEED points to be awarded. Wilson aims for 25% over the baseline energy rating. "Our goal is to make sure the home will not only be efficient today, but in another 30 or 40 years as well," he said.

Wilson's team blew past the Energy Star prerequisite and his own 25 percent goal, reaching 32 percent above Title 24 benchmarks. Incorporating raised heel trusses allowed the team to meet R-19 and R-38 insulation factors in the walls and roof. Wilson said other features like an on-demand water heater (discussed below) and solar photo voltaic cells also contributed to the high energy rating. Thanks to the raised heel trusses supplied by Homewood Truss Company, the project team earned an impressive 11 energy performance points.

**The Bottom Line:**

11 points awarded in EA1 for exceptional energy performance.

**On-Demand Water Heater**

Another benefit of raised heel trusses is their roomy open spaces double as places for mounting mechanicals and energy-saving appliances.



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In this case, Scheel designed the trusses with extra load and space to accommodate this tankless or "on-demand" water heater. This is a perfect example of how high-performance energy systems and framing design can be coordinated to make the most out of space. "This is why truss manufacturers have a lot to offer in these high performance houses. The points for high energy wouldn't be possible without trusses."

The location of this on-demand was also critical. To get the points, each branch line from the water heater to appliances had to be 20 feet or less. Wilson said designing the specification for the heater mount, the truss engineering and layout was one of the things the design team coordinated early on. "You talk about centralizing the location of the on-demand water heater. We were actually able to save money on the hot water runs because we planned so much in advance."

Another benefit of these spaces is the ability to route fresh air ducts through the trusses. This is critical for high performance homes like this to eliminate moisture and mold growth.

**The Bottom Line:**

2 points awarded in EA7 for compact hot water distribution system.

Continued on page 16

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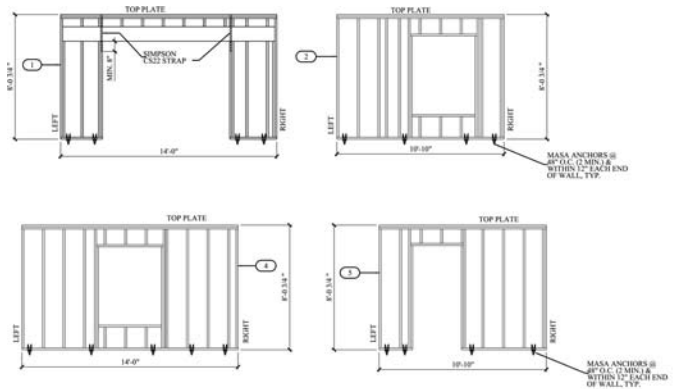
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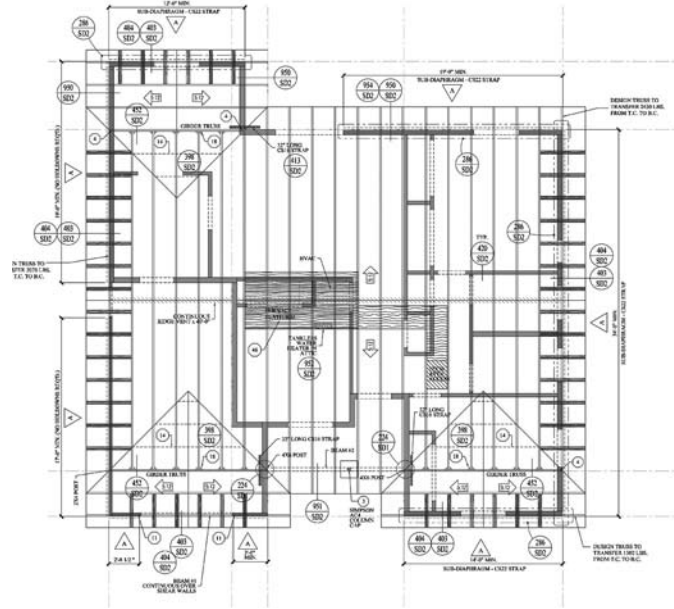
Eliminating headers above window and door openings makes the energy envelope more efficient by replacing the wood with insulation, which has four times the resistance to heat flow. LEED awards credits for framing efficiencies like this. Sealant further reduces air leaks and helps seal the energy envelope.



EXTERIOR WALL FRAMING PANELS  
SCALE: 1/4"=1'-0"

Above: Exterior wall panels were built by site supervisors and selected volunteers at the Habitat facility. Panel numbers correspond to numbered wall sections on floor plan. 1 point awarded for detailed material cut lists/lumber orders.

Right: Roof framing plan. 1 point given for detailed framing documents such as a truss placement diagram.



Another area to skim extra points from: A detailed framing document and cut lists or lumber order will get you two easy points.

## The Bottom Line:

4 points awarded in MR1 for advanced framing practices.

### Affording the Cost of LEED Certification

With the average monthly utility bill for Sacramento Habitat homeowners landing between \$25 and \$35, Wilson said it's clear that building these homes to maximize energy efficiency pays off. "It's usually not until new homeowners get the first couple bills that they realize how much they're saving," he said. "They are so grateful when that time comes."

He explained that the fees of attaining LEED certification are paid for with grants from various organizations. But he acknowledges that without these grants, LEED certification may be cost prohibitive. "It wouldn't be possible. But right now there are enough grants out there," he said.

It's also clear that using FSC certified wood in this home would not have made much of a difference. It certainly wouldn't have contributed in any way to low energy bills, a more streamlined framing schedule, or a higher level of



LEED certification. Aside from an extra LEED point or two, using FSC wood accomplishes one thing: higher material cost and ultimately higher cost to the end user. When the goal is affordable housing for people like Francisca Flores, certified wood doesn't make the cut. **SBC**

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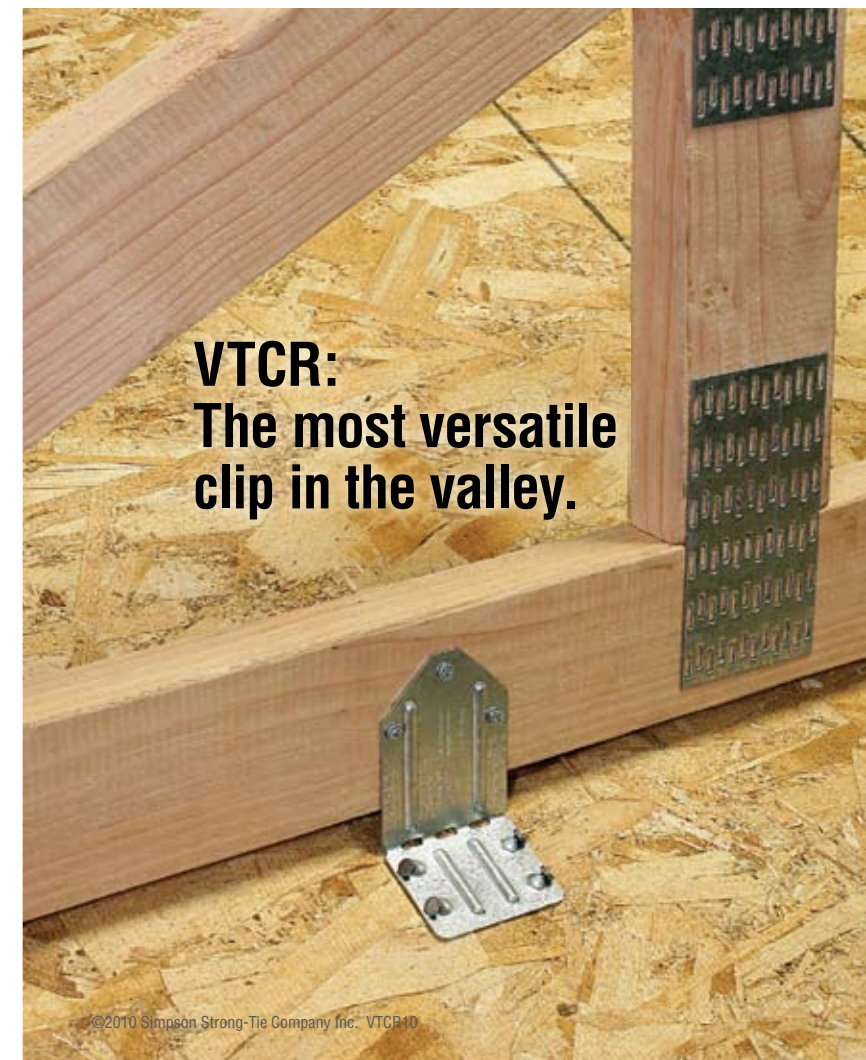
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### Sacramento Habitat Home...

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#### Eliminate Headers Above Openings, Add Other Framing Efficiencies

While the raised heel trusses shown above didn't earn any direct LEED points, other framing efficiencies do. For instance, getting rid of all headers above openings. "There's no need to have a header over windows, especially when the trusses are running the same direction as the window," Scheel said. He explained that extra materials like this contribute significantly to increased energy consumption. The project also earned points for: wall panel and roof truss packages, roof truss more than 16" on center (in this case truss spacing is 24" on center) and 2-stud corners.



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**D**o you find yourself talking about lumber quality more now than you did a couple years ago? You aren't alone. Concern over the quality of softwood lumber is an emerging topic for the industry, regardless of whether it's MSR or visually graded.

We were asked to speak with companies to get their perspectives on the issue and share it with **SBC** readers to help the industry gain greater insight. Note that their views represent a small sample of people that have many years of industry experience, yet are not intended to be representative of the entire industry. Here are their five top concerns of component manufacturers on one hand and lumber producers/suppliers on the other hand.

## Top 5 Component Manufacturer Lumber Quality Issues

**1 Cull rates have risen significantly and steadily.** Component manufacturers said there's been a noticeable decline in the quality of the type of lumber readily usable for manufacturing trusses in the last five to seven years. They estimate culling anywhere from 15 to 40 percent of lumber they purchase, whether

it's MSR grades or visually graded. This is compared to an estimated 5 to 10 percent maximum cull rate, which had been typical in the past.

The reason for the increased cull rate stems from the need to reduce certain characteristics which have become more prevalent in the lumber supply, even though they remain within the existing parameters defined for each grade regarding maximum allowable defects. The existence of wane and knots in the plate area often results in increases in connector plate size and therefore cost. Too much wane means the plate size will need to be increased so that enough teeth are embedded into the plate area. Too many knots can yield the same result, but is more challenging due to the random nature of loose knots and knot holes. Some of the poor quality wood can be diverted for secondary uses like gable ends, wall studs etc. The amount of sorting makes for a very inefficient, labor-intense process.

With current cull rates this high, some manufacturers stated it makes more sense for them to buy a grade up. But even then, there are no guarantees. The higher cull rates seem to occur in these grades: No. 2 & BTR, No.2, No. 3, 1650 and 2100.

**2 Poor appearance.** Component manufacturers said lumber just doesn't look as good as it used to. Specifically they've noticed more wane, knots, cracks and splits. Manufacturers noted MSR grades in the past have been known to be generally wane-free with few knots, but are now showing a larger amount of wane than expected.

Manufacturers said much of their lumber appears dryer than in the past and is more prone to split. They link this dryness to beetle-killed wood that is being processed and may be cut after standing dead for a period of time before being processed at the mill.

**3 Certain grades can't be relied on for quality anymore.** Component manufacturers said it has become harder and harder to rely on certain grades like they have in the past. One example is that the quality of No.2 lumber appears more like a No.3 grade now compared to a stick of No.2 five years ago.

Manufacturers reported lately they've been "up-grading" to higher MSR grades to avoid the occurrence of wane and knots. Some manufacturers have completely eliminated grades like No.2 & BTR and 1650 from their inventory until the quality issues can be resolved.

**4 Higher quality wood is being exported.** There is a strong perception that lumber with superior visual quality is being sold in other markets—namely China, Japan and U.S. and Canadian "big box" stores where appearance is critical to generating high volume.

Component manufacturers therefore believe lesser quality lumber is being supplied to U.S. and Canadian construction markets, because there is really no other place to sell this lumber to.

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**Editor's Note:** We have heard from many readers on the topic of lumber quality. *SBC Magazine* does not have the ability to provide a solution for any type of quality issues. Yet we believe it is important to define the points of view as they have been relayed to us. The information presented in this article was taken from recent interviews with lumber producers and component manufacturers. In the comments that follow, we have purposely left out specific lumber species; we are referring generally to all lumber being sold to and used in component manufacturing.

# Component Manufacturers, Lumber Producers Address Lumber Quality

by Libby Maurer & the MSR Lumber Producers Council



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**5 Lumber industry isn't correcting the problem quickly enough.** Component manufacturers are frustrated with lumber quality, and some feel that lumber producers are not working fast enough to address it. Many manufacturers have made adjustments in how or where they buy lumber. Some said they avoid wood from the provinces where the beetle kill is most profound, while others have become very choosy about the mills they purchase from. Some manufacturers have abandoned certain species or grades altogether to raise their chances of maintaining quality lumber supply.



## Top 5 Lumber Producer/Supplier Issues

**1 Lumber isn't specifically graded for components.** Lumber producers believe that there is a disconnect between the commercial grading of lumber for general markets and the concept of grading lumber for a specific end use such as truss manufacturing. Producers want component manufacturers to understand that lumber grades were developed for a wide range of markets and sales opportunities. While the end use is important to utilization of the lumber purchased, the mills generally do not know the final market the lumber will be used in and therefore have a very difficult time meeting the specific needs of construction applications—particularly with the focus of solely truss and component uses in mind.

**2 Improved grading technology makes lumber more true to specific grades.** Producers explained that advances in modern grading technology have helped narrowly define lumber grades per grading rules. Grading

machines have laser scanners that collect strength and defect data on each board and compare the results to grade rules. Producers say new technology has made grading extremely accurate.

Prior to the improved scanning technology, graders would make a grade judgment on a stick of lumber based on a visual inspection of maximum knots, wane, checks, splits, etc. Years ago, a visual grader may have downgraded sticks with certain characteristics to "play it safe." For this reason, producers said visual graders may have been unintentionally inflating grades. Producers gave No.2 & BTR as an example; ten or twenty years ago most of the lumber in this grade was probably BTR instead of No.2.

Today's grading machines have removed the subjectivity in the grading process. They are calibrated so specifically that lumber is accurately sorted far closer to actual grading rule limits. Customers who regularly purchase No. 2 & BTR may see more No.2 sticks than BTR these days, which leads them to believe the quality of the lumber has declined. In reality, the marketplace is seeing the result of improved grading technology enabling more accurate identification of strength reducing characteristics.

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**3 Fiber quality today is not the same as it was five or ten years ago.** Producers pointed out that one of the main factors contributing to lumber quality issues today is the pine beetle epidemic. They believe that the logs their companies harvest today are simply not of the same quality as they used to have because the beetle has killed roughly 70 to 80 percent of SPF standing timber stock.

Producers said there is so much fiber damaged by the beetle that the industry can't keep up with the harvest. These trees are left to stand and start drying out before they can be cut. The beetle-killed wood eventually makes its way to the mill, where it is heat treated to comply with Animal and Plant Health Inspection Service (APHIS) regulations.<sup>1</sup> However, it is not kiln-dried because its moisture content is already low enough. Once lumber is overdry there is nothing producers can do to add moisture.

Producers said beetle-killed lumber by and large maintains its strength properties. They indicate that this has been scientifically tested and proven. Beetle-killed wood does affect the appearance of wood, however, characterized by a bluish-colored stain. Due to the fact that so few logs originating from British Columbia aren't affected by the beetle, producers said mills are facing a lot of pressure to use logs that are visually less appealing.

**4 Grading rules have not changed.** Some component manufacturers have questioned whether grading rules or procedures have become more lenient. Producers said this is not at all the case. The U.S. and Canadian lumber industries are governed by grading rules set forth by the National Lumber Grades Authority (NLGA).<sup>2</sup> The NLGA is enforced in Canada by the Canadian Lumber Standards Accreditation Board (CLSAB)<sup>3</sup> and in the U.S. by the American Lumber Standard Board of Review.<sup>4</sup>

NLGA's National Grading Rule applies to all North American dimension lumber 2" to 4" (i.e., 2x3, 2x4, 2x6, 3x4, 4x4, etc.). The National Grading Rule establishes standard lumber grades and grade names, assuring users of uniform design and performance for all commercial species of dimension lumber. The countries' lumber industries work very closely to ensure that

<sup>1</sup> [www.aphis.usda.gov/import\\_export/plants/plant\\_exports/wpm/wpm\\_faqs.shtml](http://www.aphis.usda.gov/import_export/plants/plant_exports/wpm/wpm_faqs.shtml)  
<sup>2</sup> [www.nlga.org/app/dynarea/view\\_article/1.html](http://www.nlga.org/app/dynarea/view_article/1.html)

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the grade rules and protocol are maintained. Producers said it is important for the marketplace to know that nothing had changed with respect to grading rules.

In some cases, producers choose to calibrate grading machines to a level higher than the standards set forth by NLGA. This may explain the quality differences among producers.

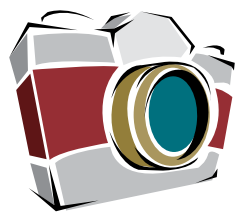
**5 The lumber industry is working on ways to address the issue, but it will take time.** Lumber producers said if component manufacturers notice lumber quality issues on a consistent basis, they should not hesitate to talk with their suppliers to work through the issues being seen. They want to know if customers are unsatisfied, and want the opportunity to address the problem. They believe that communicating on this issue is important.

It is also critical for component manufacturers to track cull rates. With tangible figures, salesmen and brokers have concrete data to present to their mills. Keeping accurate records of cull rates will put component manufacturers in a much better position.

**Editor's Note: The WTCA QC database has a lumber section that was created specifically for this purpose.**

Now that the lumber industry is aware of the extent of the quality issues, it will continue to take measures to improve the situation. Producers are confident that the marketplace will start seeing a noticeable improvement in lumber quality in the next six months to a year. **SBC**

<sup>3</sup> [www.clsab.ca](http://www.clsab.ca)  
<sup>4</sup> [www.alsc.org](http://www.alsc.org)



## Parting Shots

Share your stories and photos with us! Send submissions to [partingshots@sbcmag.info](mailto:partingshots@sbcmag.info).

## Wall Panel Opportunities Come In Many Sizes.

Whatever your opportunity, we can custom-build the equipment that will help you meet it. Whether it's a 16' sheathing station or a 70' squaring table like the one we recently shipped to a Canadian plant. Custom equipment to fit your circumstance provides manufacturing efficiencies to make your products competitive. In tight markets where you need to look at everything, the answers will be in the small details that add up to controlling your costs.

*These machines were custom built to fit each customer's needs in their plants:*

- Wall Framers**
  - Telescoping arms for variable wall height
  - No "step over" mechanisms to trip workers
  - Pop up skate conveyors for easy wall transfer
- Combination Table - frame, square & sheath in one table**
  - Telescoping arms for variable wall height
  - 2x4 or 2x6 wall capability
  - Manual or optional powered tool bridge drive
- Single or Dual Tool Beam Sheathing Bridges**
  - 2x4 or 2x6 capability
  - Staple or nail options, optional edge stitcher
  - Manual or optional powered tool bridge drive



• Custom built 95 feet of expanded wall panel capability with Dual Tool Beam and Dual Top & Bottom Nailers (builds up to 76' wall)



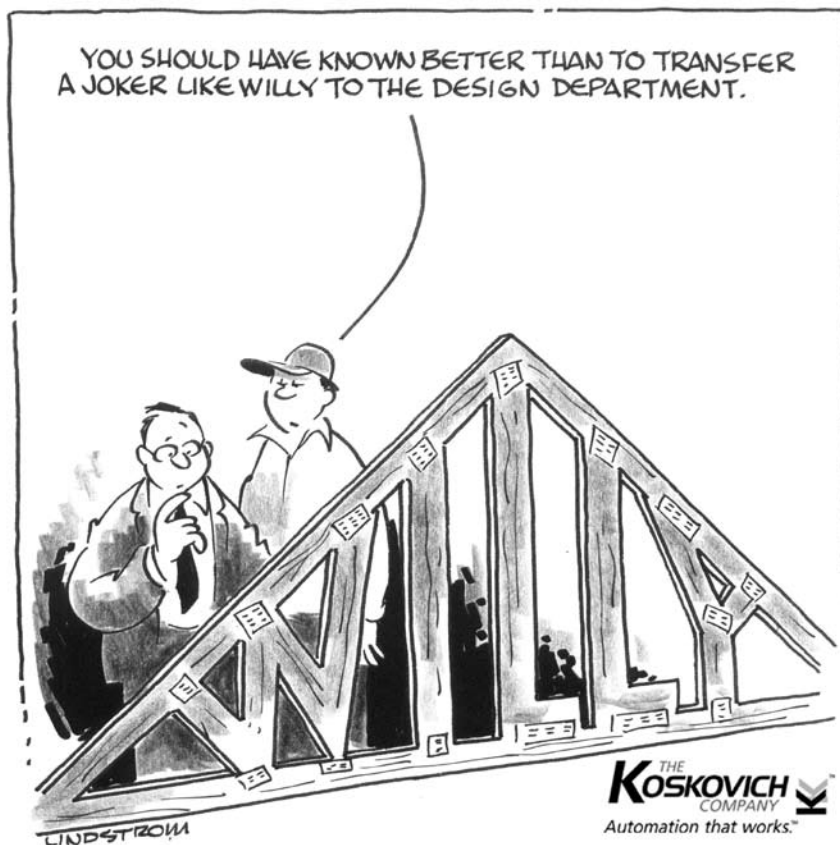
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While traveling through southern Georgia, Glenn Traylor (ITW Building Components Group) ran across this project. The entire building is braced with ripped 1/2" x 2" x 24" OSB. "If the typical 2 x 4 or 1 x 4 braces are 'killer cleats' then this needs a new description," he said.

Killer cleats, of course, refer to the temporary bracing practice of nailing wood spacer pieces to the top chord. When used alone without diagonal bracing, this can be very dangerous. Until sheathing and other permanent bracing is installed, the trusses are unstable without top chord diagonal bracing. They can bow out of plane and are subject to collapse. **SBC**



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- Steve Kennedy, Engineer/Training Manager, Lumber Specialties

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| Phoenix, AZ       | Valley Center, KS | Carrollton, TX    |
| National City, CA | Dry Ridge, KY     | Mercedes, TX      |
| Visalia, CA       | Grand Rapids, MI  | West Point, VA    |
| Dolores, CO       | Wadena, MN        | Auburn, WA        |
| Longmont, CO      | Albemarle, NC     | Walla Walla, WA   |
| Lady Lake, FL     | Albuquerque, NM   | West Richland, WA |
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Designing structural connections is the lifeblood of our business. Building professionals have consistently called on the component industry to supply the critical structural information they need to specify hardware - in fact, we have been calling out loads to specify custom and stock hangers for more than 40 years. So, while this is just the start of our brand of hardware, you can rest easy knowing our experts have experience and expertise to help you get the job done.

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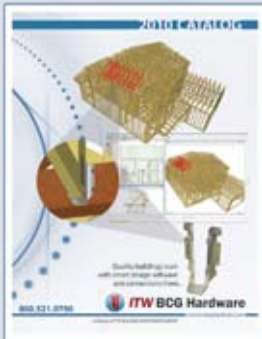
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