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THE FUTURE OF FRAMING

January/February 2014

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The Great Value Proposition

One Manufacturer's Efforts
to Provide Value to the Market

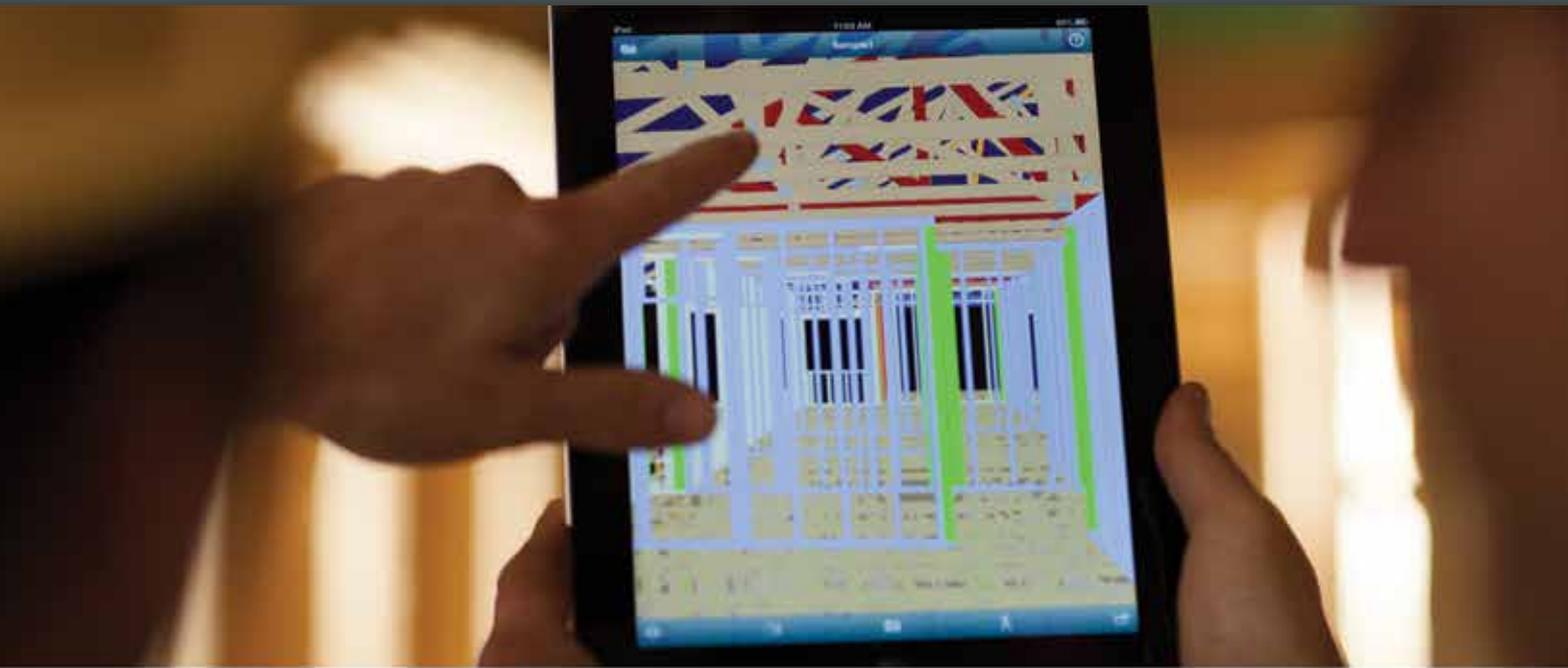
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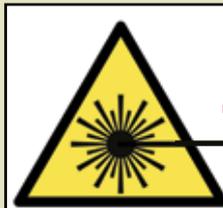
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The Great Value Proposition



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by Sean D. Shields

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Keeping Our Customers Safe Is Good Business

The more we have an open dialogue between framers and CMs, the more we will be able to identify “unbuildable” buildings and find solutions where both industries win.

It makes good business sense to protect the health and well-being of each of our employees, not only because it reduces our liability in case of an accident, but because we need to be responsible stewards of the most important part of our company: our people. That’s why SBCA has developed so many best practice training programs (think: Operation Safety) and publications (think: safety posters) geared toward helping component manufacturers (CMs) establish a strong safety culture in our production facilities. It only makes sense, then, to extend that thinking to our customers, and do everything we can to help them keep their employees healthy.

It was with that thought in mind that my buddy Don Groom, while he was in the framing business (now General Manager at Panel Truss Texas), began exploring how we could leverage SBCA best practice programs and, as manufacturers, help framers address safety concerns on the jobsite. When he reflected back on his past experience in the framing industry, he acknowledged there is a disconnect between our two industries. CMs produce a superior framing product, but we aren’t necessarily as engaged as we should be in how those products can be handled and installed in a safe manner.



In talking to Groom about it, he told me, “after spending over 25 years in the truss industry, and being involved in SBCA both on the national and local levels, I had an opportunity to be involved in a framing company for a few years. It enlightened me, in a major way, on how important it is for CMs to be involved in what is happening in the field. The success of all CMs, really of all suppliers of construction products, is ultimately tied to the success of the companies that install our products.”

Groom approached one of his employer’s longtime customers, George Hull of Hull & Associates Framing Company, and they discussed a wide variety of opportunities for collaboration. They quickly realized that the best way to put into action many of those ideas was through a national organization that could act as the collective voice for the framing industry. The formation of the National Framers Council (NFC) as a council of SBCA was suggested as a way to give framers such a group that would also bring manufacturers alongside them to address framing issues. An initial meeting was held in July 2013 at the SBCA offices to discuss the synergies and collaboration potential between SBCA and NFC. Everyone at the initial meeting saw many positives and wanted to move forward with more concrete planning.

“NFC is a natural progression to meet the demands of the complexity in our industry with regard to safety, building technologies and the utilization of those technologies. The council objectives are to reinforce and educate its members of common practices nationally by creating a high standard in operations,” said Hull, adding, “NFC also hopes to bring more professionalism to the industry, promote its growth, and attract labor to meet the demands of today’s market.”

From there, a broader planning meeting was held at the conclusion of BCMC. An even mix of about 50 framers, CMs and industry suppliers discussed the mission and goals of NFC. They agreed the primary mission of the organization should be

Continued on page 6

at a glance

- The National Framers Council (NFC) was formed as a council of SBCA to give framers a national organization that will focus on best practices in jobsite safety and building material installation.
- NFC’s goal is for each framer to leave the jobsite every day in the same health as when they arrived.
- The more framers and CMs interact, the more we will be able to identify framing and component implementation issues in the field and find solutions where both industries win.

Editor's Message

Continued from page 5

to focus on preserving the safety of framers to make sure they return home each day as healthy as they were when they arrived at the job-site. It's an important goal, and one with which we CMs can definitely identify.

I agreed with Groom when he told me, "having SBCA working hand in hand with NFC will enable us to be involved, and I believe together these two organizations can achieve great things for the construction industry."

As a first step, NFC is collecting framer safety manuals from various regions of the country, in an attempt to formulate a national safety manual stating the "best of" best practices. This safety manual will cover everything from fall protection and proper jobsite equipment use to installation practices and proper body mechanics.

Once the safety manual is completed, the content will be used to develop a series of best practice lunch-and-learn programs and broader training programs for framing companies to use to train new employees and also to certify veteran framers. The goal is to engrain best practices into a professional framing culture. It's pretty similar to how we train our own employees. Typically, we sit them down right after they start and make sure they know all the risks they face and ways to avoid getting hurt. In most cases, there's not only a "right" way to do something, there's a "best" way to do something, and that's what we try to show them before any bad habits develop.

I think the installation piece will be the part where CMs can help and learn the most. From Groom and Hull's perspective, the disconnect between us manufacturers and the framers contributes to bad design decisions that frustrate framers, and ultimately our customer, the builder. The more we have an open dialogue between our two industries, the more we will be able to identify "unbuildable" buildings and find solutions where both the CM and framer win.

In the end, the framer can be our industry's greatest advocate. If framers have a positive experience installing components, they're going to want to continue installing them. That preference, over time, can convince a builder to switch from conventional to componentized framing. I've seen it happen many times, and it's far more effective than a bunch of sales calls. Once this happens, improving component use through the eyes of framers strengthens each of our businesses and our industry overall.

I'm excited to see NFC get off the ground and look forward to being part of the collaborative discussions planned throughout 2014. I encourage all of you to consider participating in the process. If there's one thing I've learned from being involved in SBCA and BCMC, it's that the value of the relationships you build through these organizations and face-to-face meetings is immeasurable. **SBC**

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



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Transparent Understanding of the Rules Clarifies the Path to Innovative & Value-added Engineering

Within the SBC industry, the only true way to create new value inside the engineering business is to differentiate based on engineering and component manufacturing acumen.

at a glance

- Everyone buying raw materials for structural components or conventional framing applications is purchasing design values and related properties for use in engineering equations to resist loads for a given load path.
- It is not well known that lumber design values are global in nature and not specific to the piece of lumber being used.
- Design values written into the building code become the law, whether they are scientifically correct or not.
- If the law is treated forthrightly as written, professional engineers have great value in the market.

It has become clear to me, through attendance at the American Lumber Standards Committee (ALSC) meetings, the Southern Forest Products Association (SFPA) meetings and several individual and group discussions, that there may be some misunderstanding of my intentions when I tenaciously ask for clarifications of the “rules for the development of the raw material design values” and the “rules with respect to professional engineers transacting proprietary engineering as a value-added business.”

The structural building component (SBC) industry is a significant “engineered solutions providing” business. The only true way to create new value inside this engineering business is to differentiate based on engineering and component manufacturing acumen. Engineering differentiation means undertaking innovative and creative engineering through sound science (testing and calibrating math to testing) and wisdom-based art (using knowledge and experience to make engineering judgments that are unique in some manner).

Design Value Precision Is a Value Proposition

As I have consistently said everywhere I have spoken on this topic, everyone buying raw materials for structural components or conventional framing applications is purchasing design values and related properties for use in engineering equations to resist loads for a given load path. In order to undertake this work to create greater value through an engineered structural building component solution, it is important to understand how raw material design properties are derived.

There is a typical engineering community and market expectation that the *National Design Specification*[®] (*NDS*[®]) for *Wood Construction* equations provide precise resistance to applied loads, as long as the numbers generated by the *NDS* equations “work” (i.e., the math says that the resistance to load is greater than the applied load).

It is not well known that lumber design values are global in nature and not specific to the piece of lumber being used. Some lumber mills are selling 16,000 psi bending strength lumber at a 2,300 psi bending strength value because design values are based on this global design value creation model. In other words, the global visual grading process yields lumber with a wide range of strength properties. A given mill may have trees that generate a high percentage of 16,000 psi lumber, yet the visual strength value for this 16,000 psi lumber is assigned 2,300 psi. Therefore, in simple terms, 16,000 psi = 2,000 psi.

Clearly, this example has a value opportunity cost and loss of 14,000 psi. This economic value loss is due to the way the visual grading procedures have been established by PS 20 and the commodity sales concepts used to sell lumber. A key issue is, given commodity lumber selling, we do not know what the true opportunity cost is.

This would seem to provide an obvious value addition opportunity for the use of an alternative set of lumber design value groupings (i.e., refined visual or MSR grade sorts) or more creative lumber design value creation methods.

This same type of design value variability also exists for OSB and plywood. Again, there is value creation opportunity for manufacturers who have a detailed understanding of wood structural panel performance strengths and weaknesses for their

specific product lines and market segments. The same concepts apply to steel studs, truss plates, steel webs and chords, I-joists, LVL, glulam, fasteners, hangers and any newly developed products. A detailed knowledge of design value strengths, weaknesses, precision, knowledge of boundary conditions and key engineering judgments that can and need to be made will create engineering value-addition opportunities. The best way to define strengths and weaknesses is through benchmarking or comparative performance testing.

Much of the imprecision and lack of understanding of the judgments that have gone into design values goes away when one has test data. Testing unmask actual performance characteristics and provides great insight into comparative performance and the path to adding engineering value. Great learning is always done through testing.

An increase in engineering sophistication will bring about more economical and innovative structural component use and building designs. This will provide even greater value creation opportunities for raw material manufacturers and software providers who choose to invest in and take advantage of testing, calibration and the hard work that goes hand in hand with this.

The Code, Professional Engineering & Code Compliance

The building code is the law. Design values written into the building code then become the law, whether they are scientifically correct or not. As I have said repeatedly, the code development process today is more of a political process than a purely technical consensus process.

It has been clear to me for quite some time that the International Residential Code (IRC) has defined a typical IRC-compliant isolated OSB braced wall panel **without** interior ½ regular gypsum wallboard applied as having a lateral resistance design value of 600 plf, and the same wall panel **with** interior ½ regular gypsum wallboard as having a lateral resistance design value of 840 plf (see online version for the SBCA IRC code change proposal that transparently defines these design values). Simpson, APA and Washington State University testing through Professor Dan Dolan, as reported to the Building Seismic Safety Committee (BSSC) in a 2007 APA report (see online version), suggests that the real lateral resistance design value for these wall configurations could be 351 plf and 383 plf respectively.

In contrast to the lumber example above where 16,000 psi = 2,300 psi, in the case of OSB, the code legalizes a competitive advantage per the APA reported test values for OSB of 351 plf = 600 plf and 383 plf = 840 plf. For those who do not know the details of the development of the IRC braced wall panel design values, a detailed review of the background minutes and test data will lead you to conclude that the development of this section of the code was based on judgments of a small group, not pure fact-based testing or sound scientific methods. While using engineering judgment is generally fine, it is important when doing so to be conservative and think about unintended

downstream consequences of the judgments being made. This is hard to do, so if that is not possible when new data is brought forward, it seems prudent to advocate for any corrections needed so a natural competitive landscape is not artificially altered.

A similar set of facts exist with respect to the development of wood structural panel seismic design coefficients within ASCE 7 Chapter 12 Table 12.2-2. More on this in a 2014 article, as this is just the tip of the iceberg.

It is challenging for the engineered design of wall panels to compete with legally defined conventional framing design values that lead to a competitive advantage of nearly a factor of two, unless one has detailed test data about OSB performance and can use that data to make engineering judgments. There are a wide variety of reasons for this inequity that will be detailed in future articles, taking one issue at a time, because the details can get overwhelming rapidly.

Another fact that is often misrepresented is, if the law is treated forthrightly as written, professional engineers have great value in the market because they can assess test data (like that in the lumber and OSB examples already listed), do comparative analysis and make engineering value judgments based on their unique expertise. To make the best value judgments, innovative engineers will define the benchmarks, undertake scientific method comparisons, make good engineering judgments, and provide reasonable and competitive design values for new products through the knowledge of all facts related to testing and design value development.

The building code¹ defines an “approved source” as follows:

APPROVED SOURCE. An independent person, firm or corporation, approved by the building official, who is competent and experienced in the application of engineering principles to materials, methods or systems analyses.

A professional engineer² is defined in professional engineering law as:

An **engineer** is a professional practitioner of engineering, concerned with applying scientific knowledge, mathematics, and ingenuity to develop solutions for technical problems. Engineers design materials, structures, and systems while considering the limitations imposed by practicality, regulation, safety, and cost. The word *engineer* is derived from the Latin roots *ingeniare* (“to contrive, devise”) and *ingenium* (“cleverness”).

The work of engineers forms the link between scientific discoveries and their subsequent applications to human needs and quality of life.

Therefore, based on these definitions, it is logical that a Professional Engineer would be considered an Approved Source.

Further, the building code often says that implementation of the code is to be in accordance with generally accepted

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¹ http://publicecodes.cyberregs.com/icod/ibc/2012/icod_ibc_2012_2_sec002.htm

² http://en.wikipedia.org/wiki/Engineer#cite_note-bls-1



Safety? Seguridad? It's the Same in Any Language

Providing proper training in Spanish doesn't have to be a daunting task.

There's nothing muddy about the water when it comes to ensuring your Spanish-speaking employees have thorough and appropriate safety training. OSHA's position on providing a safe work environment for everyone is clear: employers are required to instruct their employees, "using both a language and vocabulary that the employees can understand."¹

The first thing to do is evaluate if you need to provide your training in Spanish. OSHA's rule of thumb is, if you frequently, or generally, need to provide other instruction/training or everyday communication in Spanish, you also must provide your safety training in Spanish.



Thankfully, providing proper training in Spanish doesn't need to be a daunting task. To aid in the compliance process, OSHA offers its *Compliance Assistance Quick Start: Hispanic Outreach*,² which includes a variety of tools to help employers understand the workplace rights and responsibilities that surround their Spanish-speaking employees. This includes both English-Spanish and Spanish-English dictionaries that contain more than 400 OSHA safety terms.

Several of SBCA's component manufacturing, industry specific programs are available in English and Spanish, including the employee training modules for the Operation Safety Program, Forklift Certification Program and, most recently, Housekeeping Combustible Dust Program. You may also want to consider providing "live" training in Spanish, best case by designating one or more employees who speak both English and Spanish to translate and present the necessary information for your facility. Outside training resources are another option, but it is important that the person you hire to convey the information to your employees understands the necessary intricacies of your individual component plant's safety program.

As another alternative to providing instruction in Spanish, you may want to consider providing your Spanish-speaking employees with the opportunity to learn, or more thoroughly learn, the English language. Although this would likely be a larger time and financial investment initially, the benefits your bilingual employee(s) could bring to the company would be apparent over time.

at a glance

- If you frequently or generally need to provide other instruction/training or everyday communication in Spanish, OSHA says you also need to provide your safety training in Spanish.
- Several of SBCA's component manufacturing, industry-specific programs are available in English and Spanish.

No matter how you choose to approach it, by law, your employees have the right to a safe and healthy work environment. For more information on OSHA's Spanish resources, visit www.osha.gov/dccsp/compliance_assistance/quickstarts/hispanic/index_hispanic.html. To order any of the SBCA Spanish programs, visit sbcindustry.com. ¡La seguridad primero! (Safety first!) **SBC**

¹ <https://www.osha.gov/dep/standards-policy-statement-memo-04-28-10.html>

² https://www.osha.gov/dccsp/compliance_assistance/quickstarts/hispanic/index_hispanic.html

Exec's Message

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engineering practice in a manner similar to the intent of the following code provision:

104.11 Alternative materials, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety.

Generally, this is accomplished through the following code-based concepts through approved sources:

Confirm that other structural design criteria and design assumptions conform to this code and are in accordance with generally accepted engineering practice.³

All of this is the rule of law, so professional engineers ought to be passionate about innovative ideas that form the link between scientific discoveries and their subsequent appli-

cation to human needs and quality of life. Therefore, one of a professional engineer's opportunities is to assess and take responsibility for that assessment by standing behind it through the application of their engineering seal.

This process can also differentiate innovative engineers from status quo engineers. Value differentiation by engineering companies and their engineers is an important strategic engineering business decision. The law embraces this concept and provides a straightforward pathway for engineering ingenuity, intellectual property development, proprietary applications and value addition.

Conclusion

This article is intended to set the stage for a series of articles focused on defining rules that many may not be aware of. However, when one spends some time looking at them, it is possible to develop a different understanding than what some in the market would have you believe. The concepts that will be considered in this context include codified design values and "approval" decisions that create arbitrary winners and losers, as well as state laws and state actions, which may not always be the same.

Change is difficult, but only inside advocacy for change do most believe that true value creation opportunities exist. **SBC**

³ http://publicecodes.cyberregs.com/st/ny/ci-nyc/b200v08/st_ny_ci-nyc_b200v08_16_par266.htm



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The Hidden Costs of Optimization, Part II

Review a layout and associated diagrams that show an example of structural fascia, its load path, and how to properly analyze the structural fascia, jacks and sub girder.

Optimizing truss jobs is intended to lead to a reduction in lineal feet of lumber used in a project, but that reduction in lumber may make the trusses' ability to distribute forces through connections more critical. It's important to understand how the computer software automatically loads a truss. Without that knowledge, there can be unintended consequences to optimizing trusses for the loading that is automatically applied, which can result in hidden costs on a project.

Question

How can a Truss Designer avoid system design errors such as when structural fascia loads are missing?

Answer

Example: Loads Missing from Structural Fascia

Structural fascia is a beam supporting the end and side jacks of a structure. According to *ASCE-07: Minimum Design Loads for Buildings and Other Structures*, structural fascia must be designed to support loading, such as snow, wind, dead and live loads, that occurs on the overhang of a roof.

The load supported by fascia travels through the structure by the following load path:

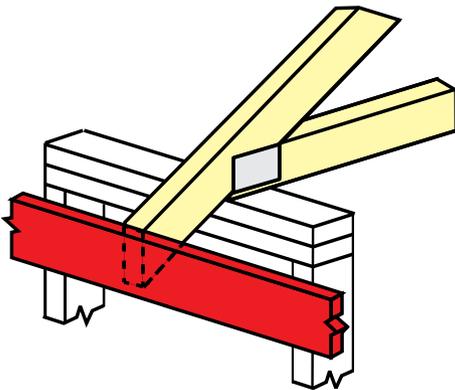


Figure 1: Structural Fascia Highlighted in Red

at a glance

- Understanding how the computer software automatically loads a truss can help designers avoid unintended consequences when optimizing trusses.
- When fascia loads are missing from a project, there is incorrect loading on the jack trusses, sub girders and the corner girder/hip jack.
- Missing loads can lead to extensive repairs and may even require that the trusses be revised.

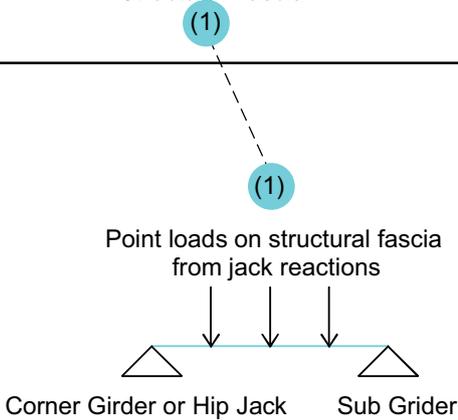
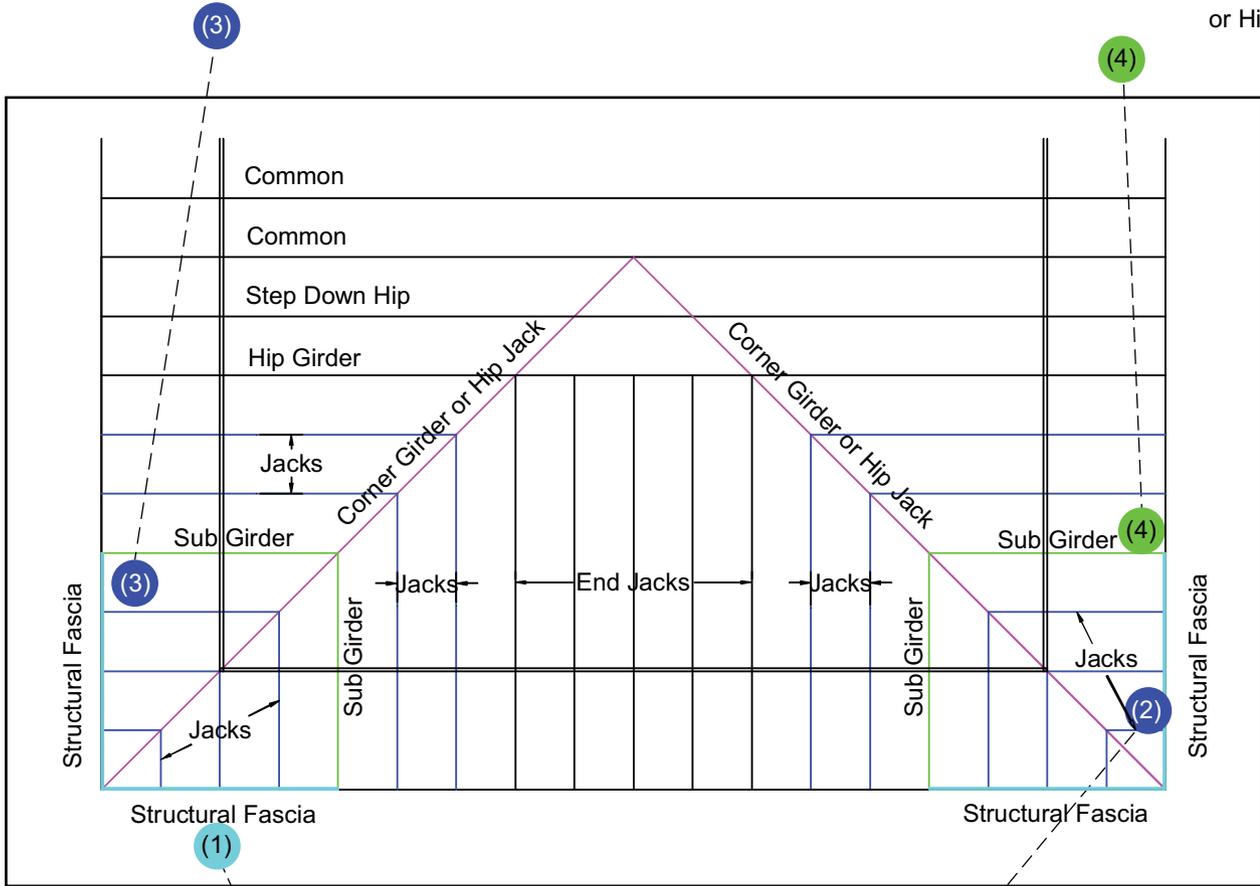
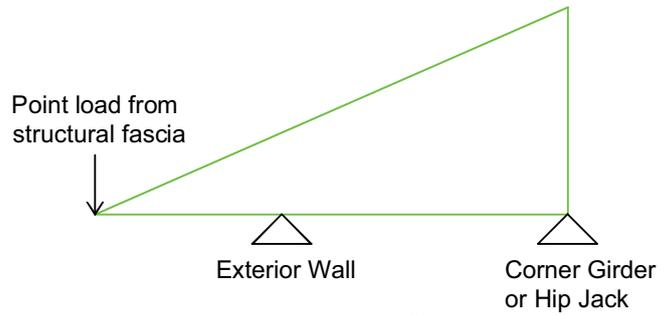
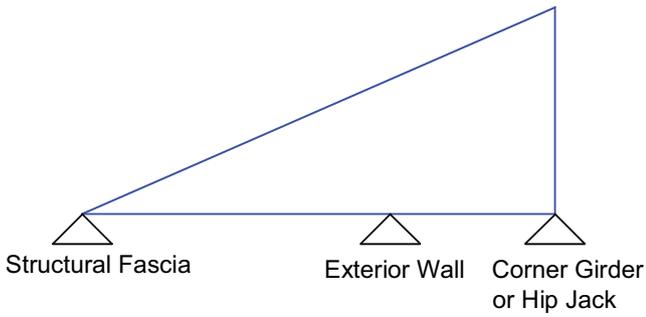
It is the responsibility of the Truss Designer to understand *ASCE-07*, the computer's automated loading, and a specific structure's layout, in order to determine if trusses have been loaded correctly. (Note: specifying the applied loads for the roof system are the responsibility of the Owner, the Owner's Agent or the Building Designer, per the building code. The loading conditions should be found on the construction documents.) When fascia loads are missing from a project, there is incorrect loading on the jack trusses, which results in incorrect loading of the sub girders, and subsequently, the corner girder/hip jack. This is also significant because the method of analysis for the jack and girder trusses are dependent on the structural fascia. Therefore, missing structural fascia loads on a project can lead to both missing loads occurring on the overhang of a roof, and also incorrect analysis of the structure supporting that overhang.

The layout and associated diagrams on the facing page show an example of structural fascia, its load path, and how to properly analyze the structural fascia, jacks (with and without exterior wall bearing), and sub girder. It is critical to understand how the structural components bear on each other to transfer load.

Designing structural fascia is an iterative process that requires changing where the structural fascia ties back to the structure. As shown in the sub girder diagram, not extending the structural fascia far enough into the structure can cause too much uplift. If the structural fascia doesn't extend far enough into the structure, the connection between the sub girder and corner girder can be unattainable.

Continued on page 16

If structural fascia does not extend far enough into the structure, the uplift might be too great for this bearing condition. If structural fascia extends too far into the structure, the connection of the fascia to the sub girder and corner girder might be too large.



Structural fascia needed to provide bearing to jack so that it can be supported

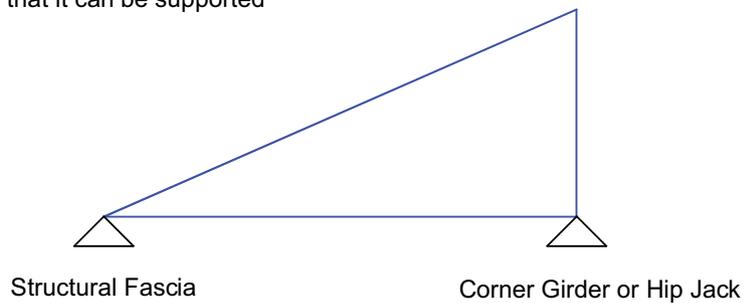


Figure 2: Layout Showing Structural Fascia



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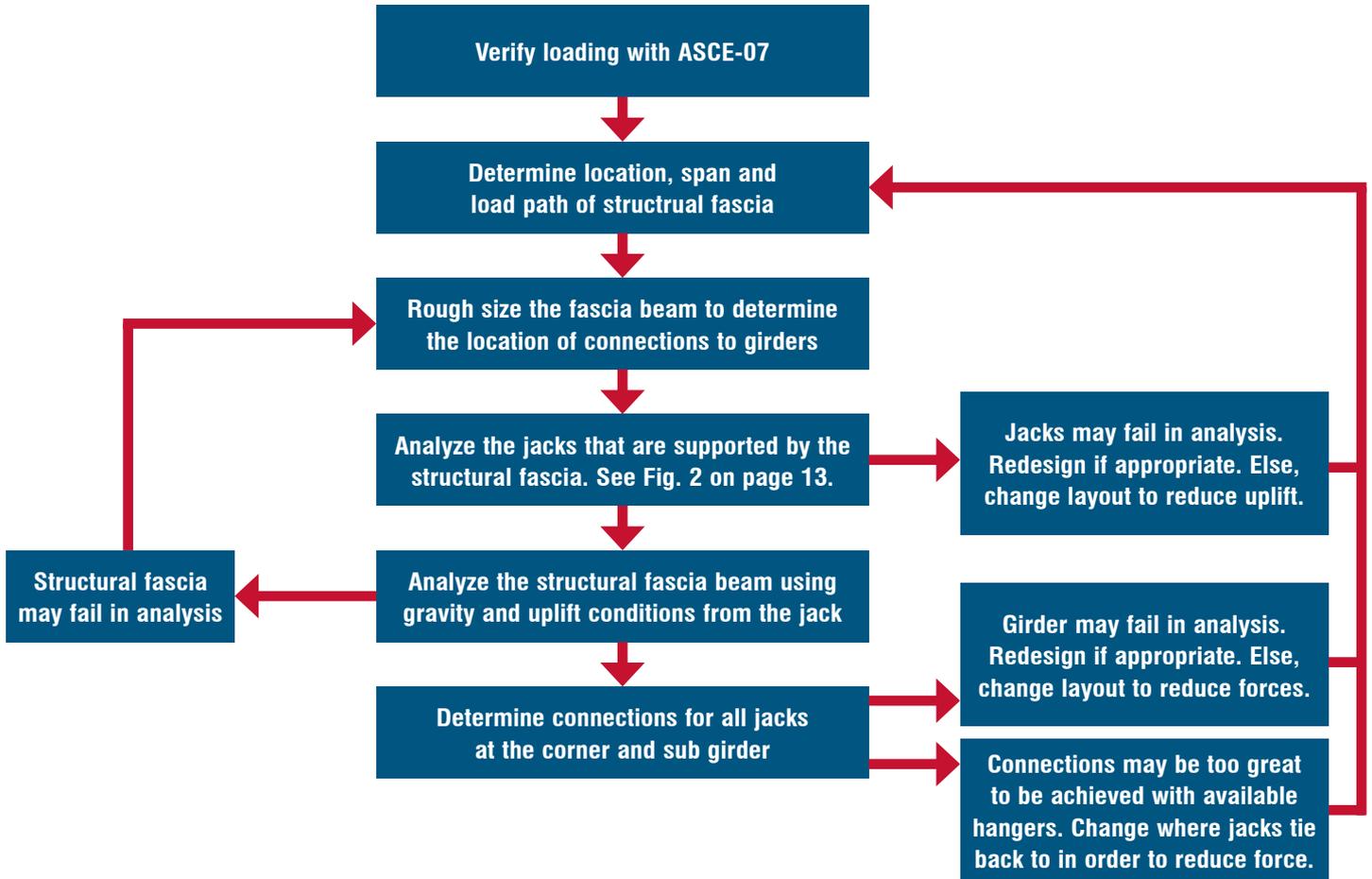
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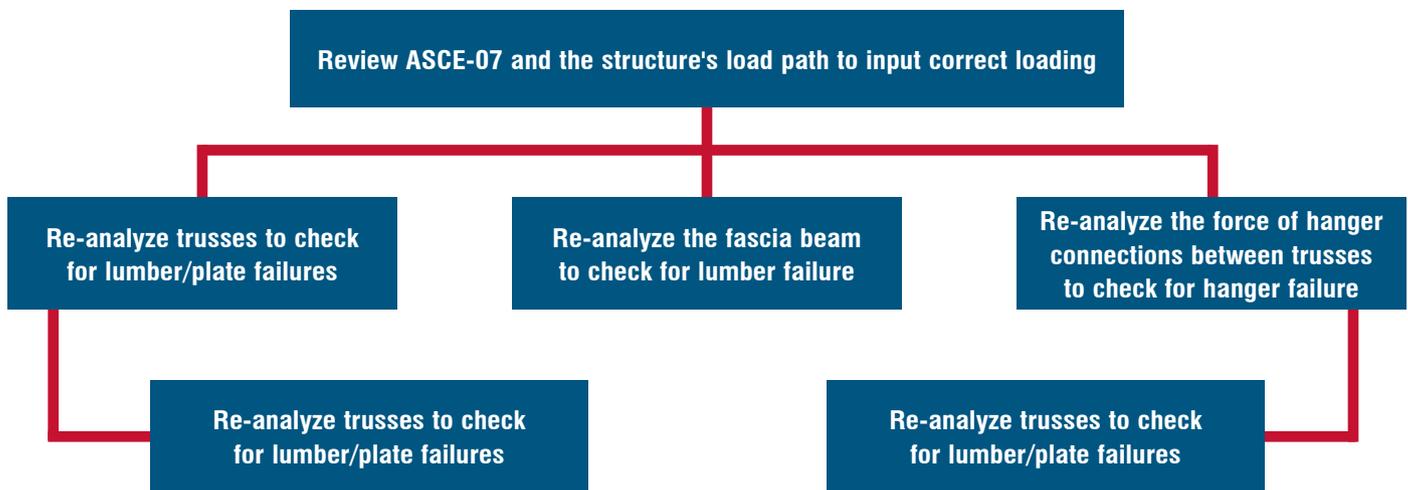
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In order to efficiently design structural fascia, perform the following:



If a structure is designed without structural fascia loads in the software, the following analysis needs to be completed for the project:



As you can see, missing loads can lead to extensive repairs and may even require a revised layout. To prevent this from occurring, Truss Designers need to know the automated loading assumptions the computer program is using and whether or not it is correct per ASCE-07 and the specific layout of the structure. Furthermore, understanding the bearing conditions of the jacks and girders, bearing capacities of top plates, and hanger connections are also essential to ensure that the

overall structure is analyzed correctly. By developing a greater understanding of loading requirements, and how to verify that they are applied and analyzed correctly in the software, the Truss Designer can more accurately optimize trusses and remove any unintended downstream repairs and potential back-charges. **SBC**

To pose a question for this column, email technicalqa@sbcmag.info.



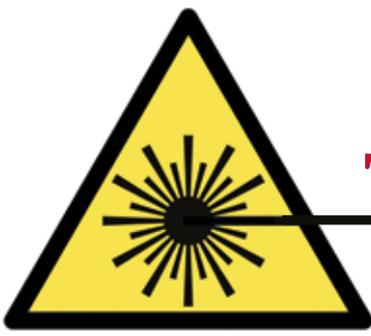
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by Kent J. Pagel

THE PROFESSIONAL SERVICES ENDORSEMENT—BEWARE!

**Understanding your CGL policy—
and its limitations—is an
important component of every
truss manufacturer’s risk
management and liability
avoidance strategy.**

Keeping it simple, a Commercial General Liability (CGL) policy provides a CM with two independent yet important obligations from the insurance carrier. First, the policy provides the manufacturer with a legal defense of a claim or lawsuit funded entirely by the insurance carrier. Second, the policy grants limits or dollars up front to defined amounts that can be used for either a settlement or payment of an adverse claim/lawsuit. These limits, of course, are subject to any policy deductible or self-insured retention amount.

The CGL policy is intended to cover losses that result in “bodily injury” and/or “property damage.” Economic damages, such as delay damages and costs of repair for defectively designed or manufactured trusses, are not covered. While the terms “bodily injury” and “property damage” are defined in the policy itself, their application to CMs is more easily illustrated with the following examples.

Example #1

During erection, as a bundle of roof trusses is lifted to the top plate, some of the trusses come apart and cause injuries to a passerby and damage to erected walls. The injury and all the property that is damaged is covered by the manufacturer’s CGL policy falling within the definition of both “bodily injury” and “property damage.” There is no coverage, however, for damage to or replacement of the roof trusses because this is damage to the products of the insured and, therefore, not considered “property damage” due to exclusions contained in the policy.

Example #2

A homeowner sues a manufacturer of floor trusses for sagging floors, alleging improper design loading was utilized. To restore the floors, furniture is moved out of the house, sheetrock and some flooring is removed, and the trusses are strengthened, restoring the floors. All the property that is damaged and the repair costs are covered as falling within the definition of property damage; but, for the reasons explained in the previous example, there is no coverage for the money spent to actually repair the floor trusses themselves.

The CGL policy is an important component of every truss manufacturer’s risk management and liability avoidance strategy or plan. The coverage can be diminished, however, when the insurance carriers begin to layer in exclusion upon exclusion through endorsements that are added to the policy. These endorsements that contain exclusionary language are intended by the carriers to eliminate coverage under the conditions described in the endorsements. For example, when mold claims (assert-

COMMERCIAL GENERAL LIABILITY

CG 22 43 07 98

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

EXCLUSION – ENGINEERS, ARCHITECTS OR SURVEYORS
PROFESSIONAL LIABILITY

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

The following exclusion is added to Paragraph 2., Exclusions of Section I – Coverage A – Bodily Injury And Property Damage Liability and Paragraph 2., Exclusions of Section I – Coverage B –Personal And Advertising Injury Liability:

This insurance does not apply to “bodily injury”, “property damage” or “personal and advertising injury” arising out of the rendering of or failure to render any professional services by you or any engineer, architect or surveyor who is either employed by you or performing work on your behalf in such capacity.

Professional services include:

1. The preparing, approving, or failing to prepare or approve, maps, shop drawings, opinions, reports, surveys, field orders, change orders or drawings and specifications; and
2. Supervisory, inspection, architectural or engineering activities.

ing either or both injury and property damage loss) became prevalent a few years ago, underwriters for insurance carriers crafted a mold endorsement exclusion that is now contained in every CM's CGL policy. That means any claim of mold resulting in either bodily injury or property damage asserted against a CM is no longer covered by a manufacturer's CGL policy.

We are beginning to see another very significant exclusionary endorsement added to CM CGL policies. This endorsement is commonly referred to as the Professional Services Endorsement. This endorsement, which goes by ISO number CG 22 43, is formally entitled "Exclusion – Engineers, Architects or Surveyors Professional Liability" endorsement. (See sample endorsement on facing page.) Neither the title nor the language of this endorsement seems to impact a CM on the surface because most manufacturers do not engage in engineering per se and do not provide "professional services." I will tell you, however, that, if this endorsement were in play in either of the two examples and the defect in trusses was related to design, the ability of the CM to rely on its CGL policy for a defense and payment would be very much in doubt.

Let's take a closer look at the endorsement language. First, the endorsement states there is NO insurance for bodily injury or property damage arising out of the rendering or failure to render "professional services" by either the insured or any engineer hired by the insured. While most of us would seem to think that we are not providing "professional services," the unfortunate thing is how this endorsement defines that term. "Professional Services" is defined to include the preparation of shop drawings and/or specifications. That would seem to include truss design drawings, whether sealed or not, and truss or other engineered product placement diagrams. In fact, an engineered truss drawing would probably also be viewed as a truss engineering "specification." While I am not aware of any formal legal precedent established by any of the courts on whether the Professional Services Endorsement would exclude coverage for any defect, error or omission relating to truss design, a fair reading of this language would suggest that would be the case.

Insurance industry experts I have talked to suggest that underwriters include this endorsement into CM's policies because they view the exposure from truss design and placement claims should not be covered by the CGL policy, but instead by a professional liability or errors and omissions policy. These types of policies are purchased by a variety of professionals and professional firms, including architects and engineers. While some truss manufacturers may own a professional liability policy, most do not.

Is professional liability insurance an alternative? Professional liability insurance generally will contain a standard exclusion for claims arising out of the design or manufacture of products by the insured. If that exclusion is not dealt with, the

professional liability policy will have little value to a CM. In order for a claim to be covered, it must arise out of a "Breach of Professional Duty" in the performance of "Professional Services," both of which are defined terms in the policy.

"Professional Services" is then defined as those services the insured is, "legally qualified to perform for others in their capacity as an architect, engineer...." Since truss manufacturers generally do not sell services, but instead sell products, you have to ask yourself whether you would have any coverage if you purchased a professional liability policy.

Will a professional liability policy effectively provide coverage to truss design and placement work done by truss technicians? Will this policy protect an engineer sealing truss designs, if the company for whom he or she works sells products and not services? Assuming even a truss design engineer would have coverage, which I think is doubtful, unless that engineer works for an engineering firm that performs services, it is the work of truss designers and not the truss design engineers that would more likely give rise to a claim against a truss manufacturer. A truss design loading claim, for example, would not seem to constitute a "Breach of Professional Duty" in the performance of "Professional Services," which is the requirement for a Professional Services policy. The funny thing is that builders and contractors who customarily ask their truss manufacturers to have professional liability insurance, especially if the manufacturer has the Professional Services Endorsement in its CGL policy, do not understand the limitations of the Professional Liability policy, yet they continue to request this type of coverage!

Recommendations

1. Review your current CGL policy to see if the Professional Services Endorsement is included in the policy. If it isn't included, consider yourself lucky and make sure that endorsement does not find its way into future CGL policies you purchase.
2. If the Professional Services Endorsement does exist in your CGL policy, consult your broker to see if the endorsement can be removed easily or even upon payment of an increased premium.
3. If you determine it is a good idea to purchase a professional liability policy in addition to your CGL policy, carefully read the policy definitions, coverages and exclusions. Consider asking that any exclusionary product design claim exclusions be deleted and submit alternative drafts of language defining "Professional Services" to include those design activities your company actually undertakes. **SBC**

Kent Pagel is a Senior Shareholder for Pagel, Davis & Hill, a Professional Corporation. He and his firm have served as national counsel for SBCA since 1994. He can be reached via email at kpagel@pdhlaw.com.



by Sean D. Shields

The Great Value Proposition



California TrusFrame's Efforts to Provide Value to the Market

“Think more about the problems customers face and figure out a way you can solve it by improving upon what you already produce.”

It was unbelievable.” That’s how Ken Cloyd, one of the owners of California TrusFrame (CTF), described the most recent Component Manufacturer (CM) Roundtable discussion in San Antonio as part of BCMC last October. The question was raised on how CMs could provide greater value to their customers, and, in turn, receive greater value for their products and services. “The discussion went around the room for 15 minutes in terms of how CMs could recoup greater value by charging for services that were otherwise not being charged for,” said Cloyd. “The concept that was missing was that providing greater value is about meeting a customer’s needs in a new way, not simply charging more for doing the same thing everyone else is doing.”

Cloyd takes a hard line on the notion of what adding value means, but he’s quick to point out that the truss industry was born out of that very approach. “Homebuilders were building houses with nails, a fastener invented by the Egyptians more than 5,400 years ago,” he says. “The early pioneers of this industry proved that houses could be built better and faster using a metal plate instead of plywood and nails.”

How does a CM provide that same added value, now that a majority of homebuilders use metal plate connected wood trusses?

Cloyd asked himself that same question a few years ago, and the answer he arrived at was Smart Components, a Trussed, Inc. licensed product (see photos above). To understand the value proposition CTF is offering, let’s look at the origins of Smart Components, early attempts to go to market, most recent successes, and what that means for the future.



Photo 1. The builder completed this 5,000 square foot commercial mall project 30 days earlier than planned and saved \$80,000.

California's Plummet into the Ocean

Okay, the Golden State didn't pull an Atlantis and disappear into the Pacific, but if one looks at the drop off in California single-family housing starts between 2005 and 2008 (155,332 down to 33,050), it isn't an overstatement to say that most CMs in the state drowned during that period. In that timeframe, CTF went from supplying components for 30 homes per month (per housing tract) down to four. "It was brutal," said Cloyd. To survive, he started looking into supplying components for multi-family and commercial jobs because the company could get a larger quantity of work out of each successful sales call.

Then, two years ago, those larger types of construction projects in Southern California began to take off (in 2010, there were 19,236 multi-family starts; in 2012, there were 32,080; and by October 2013, there were already 35,788 starts for the year). "It wasn't necessarily a huge boom, but by that point, there were a lot fewer CMs," said Cloyd, who looked at how the company could capitalize on that growth.

"We started by asking ourselves what our customer really needed, and the obvious answer was enabling them to build faster," said Cloyd. "Roof trusses were a mature market, so we started looking at walls as a possibility." The big challenge was that lateral load resisting design values needed to comply with code requirements. Historically, the answer was to sheath everything with OSB or use steel and concrete for these types of multi-family and commercial structures.

The Smart Component concept was a way to use traditional wood truss materials to meet the lateral and gravity load resisting requirements, while also allowing builders to utilize other sheathing materials with improved energy efficiency, water-resistive barrier, etc. performance, and have larger openings. "We started out with the goal of trying to meet one need of our customer, but what we ended up with was something that met several needs at the same time," said Cloyd.

Being Smart About Market Entry

Once the concept was developed and tested, the biggest challenge was bringing the product to market. "We knew we had a great value proposition. Smart Components could deliver

several benefits to the builder, but we had to prove it," said Cloyd. "Everyone wants to be the first to be second. Finding the person willing to actually be first can be difficult."

Fortunately, CTF found one such builder. They approached the builder and proposed converting a 5,000 square foot commercial mall building from conventional materials to Smart Components and componentized framing throughout (see Photo 1 above). The builder had already constructed four or five of these buildings and was familiar with the plans. "We took out all the steel and concrete, and we blew them away from a cost and installation time perspective," explained Cloyd.

In the end, the builder was able to finish the structure 30 days sooner than originally planned, for the exact same building layout. "Thirty days is significant. They were able to convert their construction loan into a permanent loan, which has a much more favorable interest rate, a full month earlier," said Cloyd. "Plus, that's 30 days earlier they can start charging rent." As if that wasn't enough, they saved the builder \$45,000 in framing material and labor costs and \$35,000 in steel. "We were able to exceed their expectations and deliver even more value than what we had promised," said Cloyd.

That builder was the perfect company to build a strong relationship with as they construct mall projects all over the country. CTF was "Exclusively Specified" for the very next job—a 100,000 sq. ft. project in excess of \$1 million—and has four more large projects with them in the works.

The First to Be Second

It makes sense that, once something is proven to be better, everyone wants to be an early adopter because it gives them an edge in the market. Enter a 545-unit project just a block off the famed Hollywood and Vine intersection (see Photos 2-4 on top of pages 22-23). The owner was initially resistant to using Smart Components. However, Cloyd explained, "We had a good relationship and record with the builder, and he acted as an advocate for us." Based on previous experience, the builder believed using Smart Components in the project might not only make his life easier, it would give him an opportunity to exceed the owner's expectations.

Continued on page 22



Photos 2-4. In this 500-unit project at the intersection of Hollywood and Vine, the builder saved \$300,000-400,000 in construction

The Great Value Proposition

Continued from page 21

It also helped that the Engineer of Record for the building had worked on four previous projects using Smart Components. “He wasn’t going to go against the owner’s wishes,” said Cloyd, “but he had a good impression of the product, based on the feedback he had been given by the framers and building inspectors on those previous jobs.” It served as proof that simply having a good product or idea isn’t necessarily enough; you also need to deliver on your promises, even surpass them, in order to ensure success.

With the project nearly complete, the owner couldn’t be happier with the results. “This guy has built large commercial buildings all over the U.S., but he recently told me this was the most exciting project he’s built,” said Cloyd.

What’s not to be excited about? The builder saved \$300,000-400,000 in construction materials and framing labor. The amount of jobsite waste was dramatically reduced (something that is a huge headache and additional cost in the California market), and the building will be completed far ahead of schedule. That time translates directly to 545 units going up for lease that much faster, which is cash back into the owner’s

pocket. “The owner is now a good friend, because the Smart Components concept and CTF came through for him. He trusts CTF’s advice and is willing to see what else we can offer him,” said Cloyd.

“The Smart Components were just the tip of the iceberg for this project; they were what could have helped CTF sell wall panels, floor and roof trusses for the entire project,” said Cloyd. Now, the owner is planning to build an even larger 600-unit project across the street, and he wants to componentize the entire project: walls, floors and roof components. By CTF estimates, that’s taking a \$2 million Smart Components job and turning it into a \$9 million component framing job overnight.

Success Through Economies of Scale

Componentizing a project of this scale has several tangible benefits that CTF can use in its selling efforts. Beyond the time, framing material and labor savings already mentioned, there are also the architectural opportunities Smart Components give the building designer. The engineered lateral and gravity load resisting walls not only take out the steel and concrete, but they also allow for larger openings than traditional methods.

Photos 5-6. “Podium” style buildings are becoming increasingly popular across the country as land prices rise.





materials and framing labor. The amount of jobsite waste was dramatically reduced, and the buildings will be completed far ahead of schedule.

“Once they find out they can use wood truss-like components, something they are familiar with, and have large windows, they never want to go back to using anything else,” said Cloyd. In some cases, customers even double up the Smart Components to preserve large openings. “It costs them more, but it’s still cheaper and easier to install than steel, and, more importantly, it gives them what the end user wants. They can sell or lease the units faster than the competing building down the street,” he added. That is what CTF means by providing value to the customer—it addresses their needs in ways they don’t even envision on the front end.

“Podium” style buildings like the one near Hollywood and Vine, where the first and sometimes second floor are built of steel and concrete and then three to five stories are built on top of that podium using wood framing, are becoming increasingly popular across the country as land prices rise (see Photos 5-6).

In a recent *WoodWorks* publication, Case Study—Stella, Tony Ditteaux, a southern California developer, said, “Everyone now is doing ‘4 over 2’ or ‘5 over 2’ podiums, pushing the densities and going taller. As developers, we’re trying to maximize our height and the number of units we can get on a site. Wood allows us to do that quickly and affordably.” In that same article, *WoodWorks* estimates a commercial project of this scale can require between 2.0-2.5 million board feet of lumber.

That represents a lot of components.

“We used to do tract home projects where you do two designs and put out 10 houses a month,” said Cloyd. “Now we design one of these projects, and it can take several months to get it all out the door.” He estimates that the amount of design work is similar between a large commercial project and running multiple tract projects at the same time. The difference is in the shear (pun intended) amount of product going out the door with the commercial project. “If you’re running more than one commercial project at a time, well then you’re just blistering compared to the tract home approach.”

Conclusion

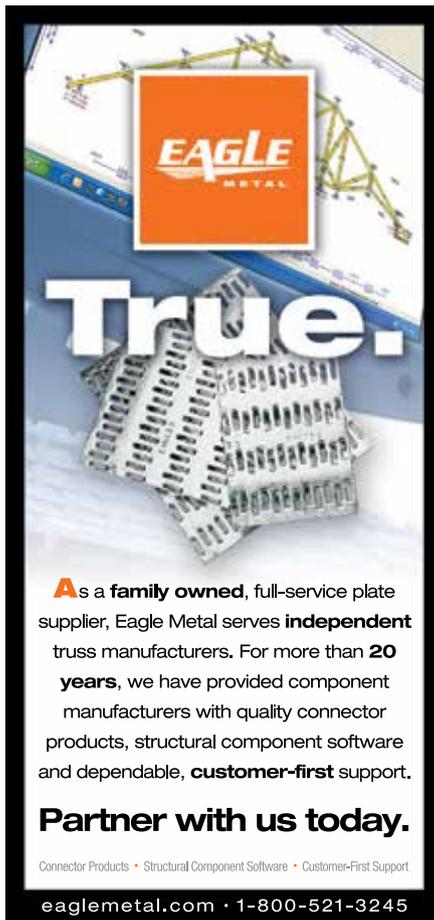
Back in the 1960s, the truss industry took conventional lumber framing and turned that into more-efficient-to-install engineered trusses. In the process, CMs eliminated concrete footers and internal bearings, providing real value to the builder and the owner. “The challenge for this next generation of CMs is to figure out how to take this industry to the next level of value, like our forefathers did in the ‘60s. Engineered solutions like Smart Components are a step toward adding more value like that to the construction industry,” said Cloyd.

CTF sees this as one way in which CMs can provide real value to builders, but knows there are additional ways. “If you’re

Continued on page 24



To view a Time-Lapse Movie of the project at the intersection of Hollywood and Vine, go to earthcam.com/clients/BLVD6200.



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“If we truss manufacturers don’t find ways to provide a better way to do things and create value, if we are content to continue to do what everyone else is doing, our product will simply become another commodity.”

The Great Value Proposition

Continued from page 23

doing wall panels, drill a hole in each stud to make it easier to run electrical,” suggests Cloyd. “Or, mark where the hangers are supposed to be attached. It doesn’t have to be crazy or hard.” The point is to think more about the problems customers face and figure out a way you can solve it by improving upon what you already produce.

“My biggest concern is that, if we truss manufacturers don’t find ways to provide a better way to do things and create value, if we are content to continue to do what everyone else is doing, our product will simply become another commodity,” said Cloyd. “At that point, it’s all about who can produce it the cheapest, and that’s not what this industry has ever been or should be about.” **SBC**



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NAME:

Seth Stormoen

COMPANY: Blenker Building Systems

POSITION: Project Manager

YEARS IN THE INDUSTRY: 14

• | • **How did you get into the component manufacturing industry?**

Initially, I didn't plan on doing carpentry, but I was looking for a job out of high school. One of my friend's brothers worked at Wausau Homes and got me a position on their wall production line. I lived in Amherst at the time and, when I found out that Blenker did the same thing as Wausau, I switched. After a few years, I got my journeyman's license in carpentry, and began working in the field installing our own products. Eventually, I took over supervising the framing crews.

• | • **What are your current job responsibilities at Blenker? How does it compare to your time as a framer?**

I estimate our commercial projects, as well as supervise all residential and commercial framing projects. On each project, I choose whether we will subcontract out the framing, or if we will use our own crews. Once the projects start, I oversee, schedule and inspect our product as it is being installed. When I used to work on the jobsite, I was constantly trying to streamline how we did things to make us more efficient. Today, my biggest challenge is trying to explain those best practices to framers over the phone so they can continue to improve upon what they do.

• | • **What is your favorite part about framing with structural components?**

Innovation. We are constantly changing and innovating what we do in the shop to deliver the most complete product so we can install a structure as accurate, efficient and safe as possible. As a result, we are constantly engaging everyone involved in the production process to improve and add to what we do and the products we offer.

• | • **Have you applied the guidance for handling, installing and bracing of trusses contained in BCSI?**

BCSI is a good guide, but every jobsite is different. We send out the jobsite packages with every job where we use outside crews. These guys are very experienced, so it can be a challenge to get them to look at and consider those guidelines. The more important thing is to have smart guys on the jobsite who can make good decisions.

• | • **What do you see is the biggest challenge in properly installing trusses?**

I think fall protection is the biggest challenge with regard to installation at the jobsite. Everyone wants a clear-cut answer, but there isn't one. You really need to look at each job separately, take a stand on how you're doing it, and be able to explain why you're doing it that way. **[Editor's Note:** SBCA has put together a step-by-step guide to fall protection and truss installation that can be used as a good starting point: sbcindustry.com/fp.]

• | • **In your opinion, what is the advantage of framing using components versus conventional framing?**

For the builder, framing with components just makes sense. It allows them better control over time and cost. There is greater control over quality, and has the advantage of allowing the builder to physically look at everything going into the building before it's actually installed, from bearing locations to nailing patterns.

• | • **What do you like to do with your free time?**

I have a wife and two young daughters, which keep me pretty busy. We're currently living in the second house we've built together, and I find I'm always working on a project to improve it. **SBC**

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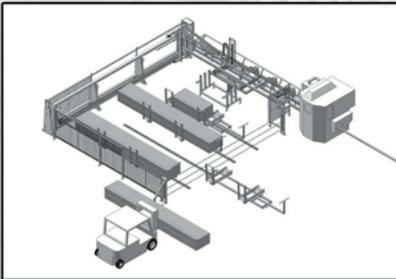
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Time sure has flown by since construction began in October 2013 on the BCMC Build house. The photos above compare the work done during the show with recent progress on the project, and the home is tentatively scheduled for completion in February. BCMC Build brought together a team of individuals, companies and friends to build a home for Cody Nusbaum, a deserving U.S. Army Veteran, through Operation FINALLY HOME.

The BCMC Build Team is already working on the project for 2014 in Charlotte, NC, and is looking forward to working once again with Operation FINALLY HOME, which was showcased on CNN as part of its "CNN Heroes Special Presentation" series. The documentary recounts founder Dan Wallrath's passion for building homes for our nation's wounded veterans. If you are interested in getting involved with the 2014 BCMC Build project, contact jjzimmerman@qaltim.com. **SBC**

Classified Ads

YOUR AD HERE

Do you have a job opening, used equipment for sale or some other business opportunity to communicate? A classified ad in **SBC Magazine** is the perfect medium to reach the industry. To make a space reservation for your ad, contact Mindy at mcaldwell@sbcmag.info or by calling 608-310-6729.



The National Framers Council (NFC) will develop and implement best practices to help ensure framers leave the jobsite each day in the same health as they arrived.



NFC

**JOIN US for an NFC Update Meeting
Wed., Feb. 5 at 2:00p in Las Vegas, NV
(during the week of IBS) visit
sbcindustry.com/nfc for details**

Our Purpose

NFC membership will:

Standardize jobsite safety practices and create common sense based best practice approaches to framing.

Develop training tools to increase understanding of all the details necessary to end each project with a quality framing job.

Groom industry professionals and create an environment where framing is viewed as a valuable career with professional growth opportunities.

NFC Formation Committee

George Hull and Chad Engelhardt
Hull Associates, LLC
Arlington, Texas

Tom English
U.S. Framing
PeWee Valley, KY

Kenny Shifflett
Ace Carpentry
Manassas, VA

Mike Cahoon
Razor Framing, LLC
Hilton Head, SC

For more information, visit: sbcindustry.com/nfc

Thank You to Our Sponsors

NFC sponsors help the council act as the voice of framers to legislative, regulatory and standards-generating agencies, as well as support research, development and testing of quality, efficient and cost-effectiveness framing and safety techniques.

Visit: sbcindustry.com/nfc-sponsors



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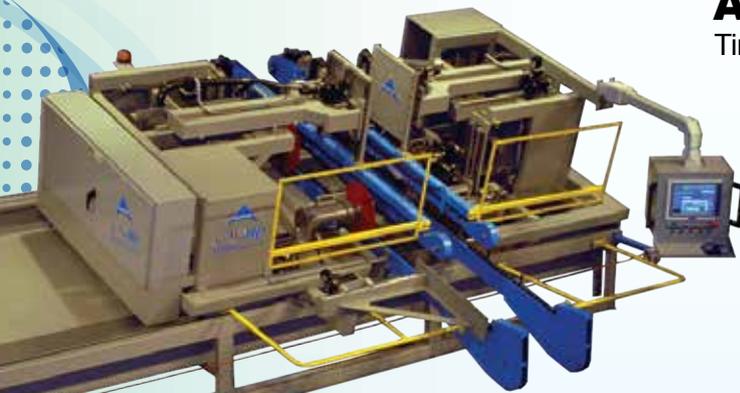


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Our 24" Alpine Roller Press is the perfect finish for your high capacity truss system. Using a "Smart Relay" it protects your staff and equipment with a quick shut down feature. Sealed, self-aligning tapered roller bearing assure it will provide smooth trouble-free performance. The Alpine Roller Press offers speed, strength and safety working in harmony, allowing one roller press to easily handle all trusses produced by a dual line gantry system.



AutoMill HP

Time is money, and the Alpine AutoMill HP is a real time-saver! The HP sets the industry standard for accuracy, productivity and system diagnostics. More powerful servo controls offer precise cutting, self-monitoring diagnostics and greater protection. New "Hard stop" calibration assures consistency and eliminates "limit switch" complications. The latest model reduces setup time even more, making it the fastest component saw in the industry!

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The RAM EasyRider is the most successful truss fabrication system ever introduced. Why? The answer is simple. It's unique distribution of workload keeps the manufacturing process smooth, efficient and highly productive so you can build more trusses with less labor.



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