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SBC Advertisers invest in the growth of the structural building components industry!



Editor's Message

Technology & Old-fashioned Design Skills:
The Perfect Combination for Success

by Don Groom

Component design technology has advanced by leaps and bounds over the last few decades!

During the more than 20 years that I've been in the industry, I've certainly seen many design and engineering advancements. Looking back on two decades of innovations in truss design, you can mark numerous milestones in the structural building components industry. But in order to make the most of every advancement, we still need to rely on good old-fashioned component design skills. Coupled with design expertise, technology will take the industry to the next level.

After coming out of the shop, one of my first jobs as a truss technician in the mid-'80s was working on the Sun computer, some of the leading technology at the time from Gang-Nail. Back then if the design called for something other than a standard truss, technicians had to input—line by line—the lengths, bearing locations and any concentrated loads on a truss. In fact, they also had to have the knowledge to manually load any girders in the truss system. It may sound like a tedious process today, but that technology was a breakthrough then, considering we still had to draw the original layouts by hand before entering the data into the computer.

Computer design technology has certainly advanced by leaps and bounds since then. While the technician's job will always be one of the most difficult and stressful in the industry, software advancements have helped minimize some of those challenges. The advent of the two-dimensional layout function in design software revolutionized the design process. Gone are the days of inputting jobs line by line. Today's software automatically figures the application and the flow of loads, allows the technician to put in wall planes and specify hangers, and offers many other streamlining techniques. Technology has given designers the tremendous advantage of being able to optimize webs on a job, creating an efficient, cost-effective design, not to mention fewer lines to type in manually.

Such technological and engineering advancements have added a greater level of speed, efficiency and accuracy to the design process, along with the ability to better meet customers' needs for design flexibility. With this progress, jobs have become more and more complex, and "standard" truss designs have nearly fallen by the wayside. Along with the ability to design more complex roof systems, technology gives us the capability to take designs to the next level and spec in a wide range of products from wall panels to steel trusses. Plus, with the emergence of whole house design, we are on the verge of being able to design the entire structure—from the peak of the roof down to the footers.

In the midst of so many advancements, it's important for component manufacturers not to lose the expertise that came with the hands-on designing of years past. When we designed components by hand, technicians had to understand everything about how the loads were distributed onto a truss. Technicians not only had to understand load application, they had to know how to calculate the distribution of loads by hand. Today's software automatically applies the loads. Likewise, technology has made truss optimization much easier for technicians. In the past, it worked to a technician's advantage to truly understand how to optimize a truss because it meant not having to input so many lines of computer design code. Now,

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at a glance

- ❑ Back in the '80s, truss technicians had to input the lengths, bearing locations and any concentrated loads on a truss other than a standard truss.
- ❑ Today's truss design software helps streamline truss technicians' work, but fundamental design, engineering and building code concepts are still important.
- ❑ Design technology gives us the capability to take designs to the next level and spec in a wide range of products from wall panels to steel trusses.
- ❑ The time has come to embrace all structural building component materials.

Editor's Message

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the process is so automated that the software webs a truss in the desired fashion, and adding webs can be accomplished with the click of a button. This process is so user-friendly that it's often easy to create a truss that is over-designed and more costly than it needs to be.

As component manufacturers, we have to ensure that our technicians understand and can perform good old-fashioned number crunching. That's one reason why I'm so passionate and supportive of WTCA's Truss Technician Training (TTT). TTT provides a solid foundation of the design, engineering and building code fundamentals that virtually anyone working in a technical job in our industry can benefit from. While today's technicians don't have to sit down and draw layouts by hand, they need to understand what they're inputting in design software. They may not have to write out and solve every calculation on paper, but they need the training to understand and recognize if a calculation or specification is off or if there's a glitch in the system. Technicians also need to understand how to optimize a truss to create the best and most efficient design for the customer. As an industry, our challenge is to train technicians so they know the ins and outs of truss design and can identify if a job is over-designed or under-designed, whether certain webs are needed, or if it's loaded correctly. Today's software is amazing and surely will continue to make our jobs easier, but it's important that we take responsibility and truly understand how the truss design process works.

These design and engineering advancements have done much more than help individual component manufacturers' technical departments become more efficient; these advancements have transformed the entire industry on a global scale and taken it into the next level of sophistication. Looking at all the design and engineering advancements that have helped bring this industry to where it is today illustrates how much the structural building components industry has changed over the years. The capabilities that software gives us to input a wide range of products—from wall panels to I-Joists to steel trusses—affects more than the designs we create for our customers. This expanded offering of products changes the very face of the industry itself as our customers demand us to design with all types of components.

The time has come to embrace all structural building component materials because the most economic structural framing solution will prevail in the marketplace. We have asked our association to be a leader in providing support to all component manufacturers as the market evolves and more and varied structural building component solutions become commonplace. Our association's recent name change to "WTCA – Representing the Structural Building Components Industry" reflects the industry's marketplace evolution. The name change doesn't simply include the components available today but also the products and design and engineering advancements that are sure to develop down the road 20 and even 30 years from now. **SBC**

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

STRUCTURAL BUILDING COMPONENTS™

THE FUTURE OF FRAMING

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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 WTCA – Representing the Structural Building Components Industry. The opinions expressed in *SBC* are those of the authors and those quoted, and are not necessarily the opinions of Truss Publications or WTCA.

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