STRUCTURAL BUILDING COMPONENTS MAGAZINE

September/October 2004

The Next Generation of Structural Building Components Design (Part 2 of 2) by by Kirk Grundahl, P.E. and Libby Walters

Part 2 picks up the discussion from August on the implications of emerging whole house design capabilities. Here we look more closely at how this evolution might affect component manufacturers.

The structural building components industry could be on the cusp of a big change, and it will be up to component manufacturers (CMs) to determine what path they will choose as changes inevitably requires all industries to evolve. The change we are referring to involves the role of design software in the whole building design concept we covered in Part 1 of this series in the August 2004 issue of SBC Magazine.

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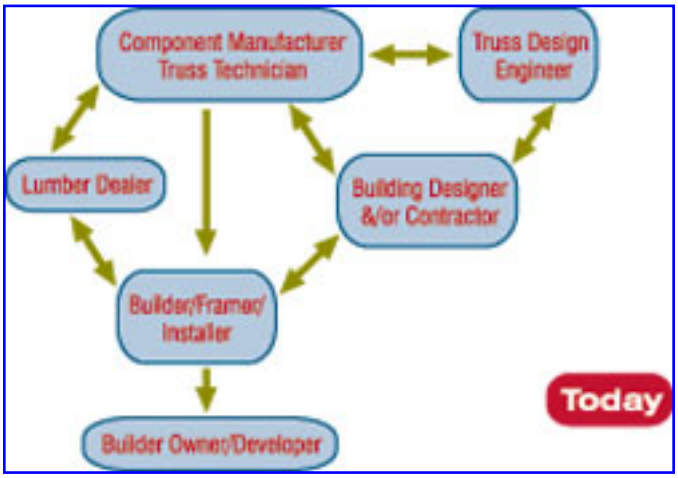
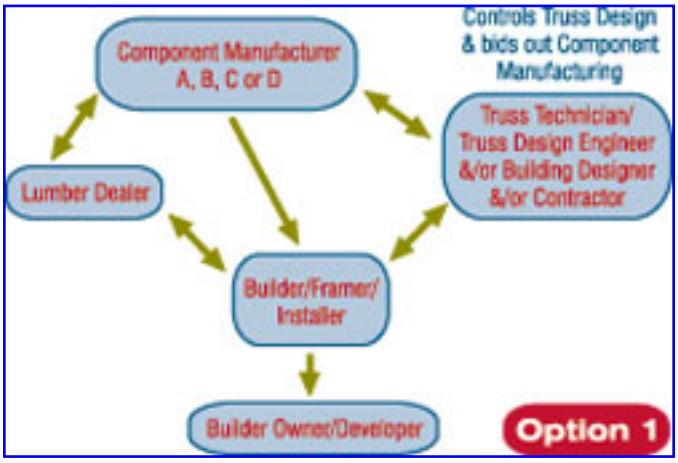


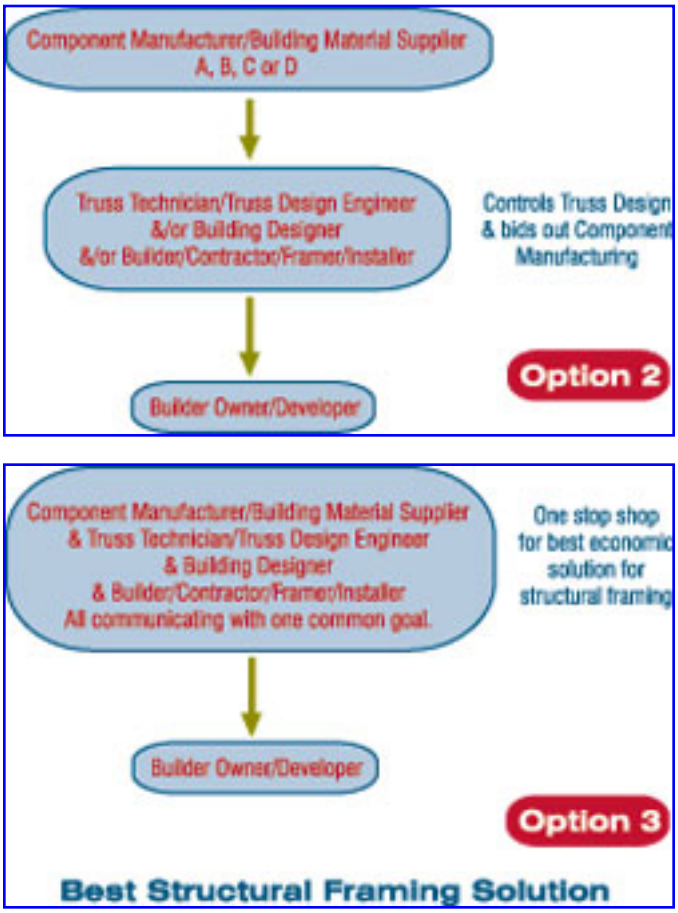


Advancements in design software have typically been to the benefit of CMs, giving them advantages like increased efficiency and extra design options. However, CMs have begun to wonder if whole house design software, operated by other than CMs, will negatively affect their businesses. Understand that SBC's goal in presenting this topic is to facilitate discussion about this very critical industry evolution, so that CMs will be better prepared to make informed business decisions at points downstream as the market dictates.

GETTING OUR HANDS AROUND THE ISSUE

The concept of whole house design is admittedly complex, so it is little wonder that there exists some degree of confusion in the marketplace as to what it entails. As was done in Part 1, we will boil it down to the basics and then explore some perspectives and predictions from a few WTCA members.

Trends toward whole building design and its accompanying software have inspired new hype and speculation as to where CMs will land in the midst of this new technology as it is being developed and deployed. Will this lead to CMs no longer doing even component designs because others (like engineers, architects and builders) will undertake this work as part of the building design process, rendering the focus of CMs solely on manufacturing? Or, will all, many or few CMs decide to expand upon the truss design services they already provide and offer the whole package and more: whole building design, component design, material take-offs and component installation? Or, will hybrids of these business alternatives come about? Many in the industry believe that CMs will eventually have to face these fundamental questions in order to make crucial decisions about which direction the future will take them.



HOW WE GOT TO THIS POINT

In the last few years, several software companies have created and introduced proprietary software programs to the market that accommodate completing a single building design in one convenient package. To the pragmatist, this sounds like a great idea. The building design process has historically involved multiple descriptions of the same building for different purposes: architecture, engineering and component specification among other things. Pressure to consolidate these functions into one program has led software developers to come up with whole building design programs. The goal is to make building design with the use of components an efficient, economical and accurate process. What's more, they just make plain old common sense.

Why not create a one-stop shop for building design? Carl Schoening of Truswal Systems Corporation talked about what whole house design might mean to builders in terms of increased efficiency: "If CMs can provide design for all structural elements, accurate take-offs for trusses, I-joists, solid sawn joists and rafter, headers and beams, and hardware, why not sell it? It is more efficient for builders to have a one-stop shop where they can get information and buy the specified products."

If you haven't already read between the lines, the existence of whole building design software could present a challenge for CMs to remain competitive. If software companies created whole building design programs with the intention of marketing and selling them to builders, architects and engineers, it may cause CMs to lose one very important value-added segment of their businesses: optimal component design. Would that put those CMs in jeopardy of losing the value-added element of their businesses to others in the building design chain who can now feasibly and easily do the same work with whole building design software? We believe this is the heart of

the issue that will ultimately face CMs in the future.

This is exactly what Keith Dietzen of Keymark Enterprises cautioned CMs of in the March 2003 issue of SBC Magazine: "The challenge to the CM is about to be magnified because of huge economic pressure for the development of whole building design software. Will EORs run this new software, design complete buildings and include truss designs or is there a way CMs can take the lead and turn these developments to their advantage?"

Schoening answered Dietzen's question in the March 2004 issue of SBC, explaining that, yes, CMs can derive revenue through the use of whole building design software: "Whole house design is simply that—a CM will be able to provide the flow of loads from the roof to the foundation and design all the structural component elements to carry those loads, as well as provide the load transfer connections for the entire structure. This provides an opportunity to create information that has value to the customer."

THE CHOICE IS YOURS

As Dietzen and Schoening suggested, the building industry's trend toward whole building design and the accompanying software may soon put CMs in a position to rethink their role with respect to the grand scheme of building design. What would you do if whole building design software hit your market and began to impact the design of components—roof and floor trusses and wall panels—that typically add value to your product beyond manufacturing? In this case, there are two likely options for the component manufacturer; one is more progressive and the other is more traditional or conservative. Would you consider progressively venturing into the realm of engineering design to remain competitive? Or would you choose to opt out of design altogether and focus your efforts exclusively on manufacturing?

COWS, MILK & COMMODITY

CMs in some markets noted that the notion of whole building design software turning their product into a commodity is a non starter. Jim Finkenhoefer of Truss Systems, Inc. explained that in his market, trusses already are viewed as commodities; therefore he isn't concerned about his company losing any competitive advantage to an engineer who may get into whole house design. "Our biggest customers are tract builders around Atlanta, who make the same house hundreds of times over in a year. They just order the same trusses time and time again. There is no value-added element to that. For those builders, trusses are a commodity," he said.

Bob Becht of Chambers Truss agreed with Finkenhoefer: "Do I see whole building design as a huge threat that will cause trusses to become a commodity product? Not at all; they already are a commodity in my market."

Becht and Finkenhoefer also have urged: "If CMs embark upon whole house design, who will pay them for this design work?"

"We have a big problem selling engineering in our market. [Our customers] don't care about details added through design. All they seem to care about are prices. They look at several

different bids and choose the smallest bid every time," said Finkenhoefer. Similarly, Becht seemed skeptical that his customers would "buy into" design (pun undeniably intended). "Why would builders start to pay for milk when they can get the cow for free? As a CM, I'm essentially giving the truss design work away. I can't see that any of my customers would be willing to start paying for something that they've typically gotten free," he stated matter-of-factly.

THE MARKET WILL DICTATE

Another point CMs have made is that the market will ultimately dictate what it wants and how much it is willing to pay for what it wants. "I think that whole building design is the end result of the premise of capitalism—that products get delivered to the market in the cheapest fashion possible," explained Kendall Hoyd of Idaho Truss & Components. Hoyd noted that he is 100 percent convinced that the market will dictate this result. "Component manufacturers can either stand by or watch as the market decides how to get what they want cheaper, or jump in and be a part of the market's decision," he said.

CMs have vastly different ways of adding value to their products, a factor that once again comes down to what their different markets have dictated, Hoyd explained. "There are some companies that deliver different value propositions, which I think is ultimately a function of the market's demands. Some deliver a product with virtually no engineering behind it; instead they have mastered production and made that process as efficient and cost-effective as possible. Others provide added value through design and engineering." Therefore, it is reasonable to predict that the CMs who are already offering heavily-engineered products are the ones who will eventually sell whole building design. "Companies that sell products with a more bundled package of truss design and manufacturing value may also come to benefit more from engaging in whole building design than those who turn their focus to manufacturing," he added.

CONCLUSION

These graphics may help define how the market may evolve in the future. In the market today, there is a continual push to eliminate steps in the distribution process or to consolidate to improve profitability. This suggests that our industry is in an increasingly mature market. The key question to address is: Which marketplace structure will provide the best structural framing economic solution for the builder/owner? It is easy to see that the component industry is on the brink of change with two distinctly different directions in which it could go. The future of the industry is in the hands of component manufacturers everywhere. Few would argue that the choices are difficult and the stakes are high. However, the real question to ask is: How will CMs be viewed in the history books?

CRYSTAL BALL

Unfortunately, predicting where whole building design will take the industry in the future is not as simple as peering into a crystal ball. As long as we are aware that it has the potential to change anything, everything or nothing at all, we will be

prepared for as many of the outcomes that could come our way as possible, and have a good idea of the best plan of attack.

Kendall Hoyd, whose Idaho Truss has been engaged in building design work since 2001 noted it is very hard to predict which way the industry will sway, because the issue depends largely on differences within each market. "But if I had to make a prediction about how prevalent whole building design will become in the future, I'd say that a good percentage of houses will eventually have component design integrated with building design," he said. Ultimately, it all comes down to economics. The question is what approach will create the best structural framing solution economics. Is it the way the industry is structured today or does the best economic framing solution derive from having the building designer, the framer and the component manufacturer all under one roof and talking to one another?

WHAT IF THE ANSWER IS...?

A few hypothetical questions and potential answers to consider.

Question: "What is the value to the component manufacturing in-dustry of the truss design software and truss design?" What if the answer from a building designer is...? I do not see the CM getting any significant value from having truss design software and doing truss design. The software should be sold to, leased to or given to those who are designing the building. The CMs save money, time and reduce their liability when the components are designed by the engineer of record.

Question: "Should the truss design software contain any restrictions on its use and be used with only a specific CM?" What if the answer from a building designer is...? No. Let the engineer of record use the software for all projects he is responsible for. If some manufacturers are not part of a particular pool of manufactures determined by me, the design would not be able to be used because of compatibility issues.

Question: "Does the sale or licensing of the truss design tools to the building design community provide one with the ability to use the same design without regard to any particular CM?" What if the answer from a building designer is...? Ultimately, that would be the case.

Question: "Does the sale or licensing of the truss design tools to the building design community cause the CM to lose any of its opportunity for competitive advantage over any of its competitors in the market(s) it serves?" What if the answer from a building designer is...? I don't think so. If it happens to be the case, we can work out incentives for those who are part of the manufacturing pool to have a marketing advantage by different methods such as letting them know about an upcoming project, or providing an introduction to a client that they do not now work for, etc. The fact that the model and design are already done saves the component manufacturer money that can be transferred to the client as a marketing incentive to use them.

SBC HOME PAGE

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