# Commitment to Efficiency Propels Grassroots Innovation at Clearspan Components



by Libby Maurer & Melinda Caldwell

*One component manufacturing company sets itself apart through a commitment to developing the best efficiency solutions from within.*

For most component manufacturers, efficiency comes in all shapes and sizes—sometimes with a hefty price tag. But Clearspan Components, one of the oldest wall panel manufacturers in the country, has redefined efficiency by creating a brand of its own. Nestled in modest Meridian, MS, from the outside Clearspan appears to be a traditional component manufacturing facility. Step inside, however, and you'll quickly find that this operation is anything but typical.

Company president Dan Holland is proud of the Clearspan team and the uniquely innovative approach to operating a component manufacturing business that has developed over time. Primarily servicing the multi-family building construction market, Clearspan has not deviated much from its roots. Holland's father-in-law started the company in 1962 as a counterpart for an already successful homebuilding company that he owned with his brother. "They bought the property Clearspan now sits on intending to build a subdivision," Holland explained. "Instead of completing the homebuilding goal, the brothers embarked on building a component company instead."

Clearspan initially began as a roof truss plant and started building wall panels shortly thereafter. Holland's father-in-law sold his share of the business in 1972 and bought it back 15 years later. It was around that time, in 1987, that Holland himself became involved in the family business.

## Manufacturing Magic

Grassroots innovation is the best way to describe the philosophy of technology and efficiency at Clearspan. Quite literally, most of their ultra-efficient equipment, processes and material handling solutions are ideas that originated from within the company. Not only have the ideas for production improvements been conceived at Clearspan; the design and engineering behind these new machines originated from the talent within company as well.

Holland and his management team believe it only makes sense for the Clearspan staff to design material flow improvements that can be built specifically to accommodate the facility's available space, production capacity and the constraints of a largely unskilled workforce. "Because we intimately know our own facility, we can be assured that we will gain a distinct competitive advantage by incorporat-

### at a glance

- ❏ Clearspan Components in Meridian, MS is one of the oldest wall panel manufacturers in the country, servicing the multi-family housing industry.
- ❏ The company embraces a culture of grassroots efficiency in its wall panel and roof and floor truss shops.
- ❏ A custom-built internal database organizes the company's processes from sales to design to production to delivery to invoicing.
- ❏ The "finished goods identification and control system" addresses the issue of skilled labor on the jobsite.
- ❏ The multi-family housing market is projected to be strong in 2006 because of a weakened single family market and other factors.

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ing custom-built solutions to remedy our own unique set of challenges," he said.

It's all about teamwork when it comes to carrying out Clearspan's unique philosophy of grassroots innovation. In addition to a visionary management team, committed sales force and loyal production crew, the company employs a trio of gifted programmers and a talented on-site machinist to make the custom equipment designs come to life, incorporate new pieces into the shop and fine-tune them once installed.

When Hurricane Katrina and all her wrath rolled through the Gulf in late August, loss of power only hampered Clearspan's operations for a week. Holland reported the only damage sustained was to a lumber shed in the yard. It's no surprise that the other shed, designed with Clearspan's own customized CAD software and built with Clearspan hands, is still standing like a rock. One of Clearspan's grassroots innovations, the customized CAD program, makes it very easy for customers to use 3-D truss layouts instead of the more traditional layouts.

### A Way with Walls

Wall panels comprise 50 percent of Clearspan's total annual sales, and their wall panel shop reflects their commitment to grassroots innovation. From tables, to an innovative wall panel flipping machine, to a custom-built header form/mold, there's a Clearspan-branded efficiency enhancer around every corner. The company's newest innovation, a wall panel laser machine, marks wall dimension details. This laser is driven by a custom wall panel program that was written by Clearspan's programmers. The real boon of the program is that it has made the task of designing walls much easier and more efficient by dividing the task between two technicians. According to Holland, one technician does the drafting tasks associated with the location of walls, dimensions and openings. Then, another technician comes back to do the design of each wall and the stacking sequence of the panels for the project.

"Determining the most efficient stacking sequence for each wall panel job is a significant part of wall panel design that newcomers don't necessarily understand. It's much more of a consideration with wall panel manufacturing than it is with roof trusses," Holland commented. "Our custom program

allows the technician to design the stack so that it fits on the truck in the most efficient way possible."

### All for One & One for All

Not surprisingly, Clearspan's roof and floor truss shops are marked with the same philosophy of efficiency as its wall panel facility. For instance, there are sawing enhancements and concepts that have been implemented to most efficiently cut every stick of lumber that goes through the plant. In a systematic procedure, the precise number of webs and chords for a particular truss is taken directly from the saw department and stacked on small wheeled carts. Several methods have been implemented to assure that it is quick

## Commitment to Efficiency...

New wall panel laser machine marks wall panel dimension details in the wood.


Lumber is placed on a table in preparation for the headers to be nailed.


Wall panel line worker prepares to nail header.

and easy for the truss builders to locate all the parts and pieces of wood required for each truss. In a nearby nook, a truss plate picker assembles a box of the exact number and size of truss plates needed to produce that truss and delivers it to the wheeled cart, which is now lined up in an orderly fashion not far from one of seven truss lines.

The systematic process Clearspan uses for production is part of the most powerful and all-encompassing efficiency strategy that Clearspan deploys. The Clearspan Central Database (CCD) is an internally-built program that controls everything from estimating to design to production to inventory to shipping to invoicing. "It basically controls every function of the business," Holland explained. Paperwork generated before the job goes to the shop is printed and scanned, automatically updating its status from design to production. Completed trusses are each scanned prior to being loaded on the delivery truck, automatically removing them from Clearspan's inventory. Finally, Holland said, "Jobs are scanned prior to leaving the yard, which triggers the customer's invoice to be printed."

The reasons for such rigid organization, according to the Clearspan team, are many. One reason is as a remedy to the ever-increasing shortage of skilled labor. "It's a fact that our industry faces a labor shortage," Holland explained. "[Our system] makes truss production easy to learn and understand."

Clearspan even brainstormed a proprietary delivery trailer to eliminate the need to comply with DOT-imposed wide-load regulations. Banded trusses are stacked vertically (instead of horizontally) and fastened with banding to both ends of the trailer. "The state enforces all sorts of wide-load restrictions and permits can get expensive," Holland stated. "While there are height restrictions as well, our product typically doesn't exceed them." A commercial trailer manufacturer has built a total of seven of the specialized trailers for Clearspan based on the company's specifications. The only trade-off is that Clearspan's trailers are not self-unloading, which wouldn't work well for single-family homes, but isn't a problem for Clearspan's predominately multi-family customers because they have the necessary unloading equipment.

This is a great example of the internally-designed customized solution being a much better fit for an individual manufacturing operation—it might not be the right solution for every manufacturer, but it's the perfect solution for Clearspan because it grew out of their specific need. Members of the Clearspan team feel strongly that the concept of grassroots innovation is something all component manufacturers should consider putting into practice as there is much to be gained from the insight and creativity of the people who know your business best—your employees.

Job identification tags stacked on cart before truss assembly.


Banded trusses are tagged with the job title and number, truss type and number (for placement during framing). The bar code is scanned by a dispatcher as the trusses are loaded for delivery.


Webs are neatly stacked on a cart according to their placement in the truss and labeled with the job title and number.


Roof trusses are stacked vertically on a custom-built trailer.


A box on top of cut webs contains the precise number of connector plates for that specific truss.


Individual trusses are tagged with details of their placement to help framers during installation.

## Commitment to Efficiency…

### Customer Service Meets Grassroots Innovation

And what about the skilled labor problem on the jobsite? Clearspan has a solution for that, too. Thanks to the "finished goods identification and control system" function of CCD, a large sticker is placed around the bottom chord of each finished component. These weather-proof stickers are pre-printed with various job details, including the project name, the length of the component, which building (and in some cases, level of the building) the individual component goes to, and a number that corresponds to the truss placement diagram used for installation on the jobsite. What's more, the sticker is printed in such a way that even if the installer doesn't read English, he can match the character on the sticker to a character on the placement diagram to ensure that each component is in its proper place.

"The sticker allows for us to communicate more information, more clearly to the framer than ever could be with a grease pencil or spray paint," Holland said. "The scanning procedures we have implemented provide the ability to track each component individually, which allows both Clearspan staff and our customers to have the most accurate information possible about the whereabouts of each piece of every job."

### A Look to the Future

The 2006 multi-family housing outlook looks strong, a fact Clearspan hopes will boost the company's sales in the coming year. The Clearspan management team predicts multi-family construction will be on the up-swing in the next few years for two reasons according to Holland. "One, the [Federal Reserve] is poised to continue raising interest rates incrementally. And second, although gas prices have dropped sharply since their post-Katrina peak, the elevated cost of fuel continues to be a factor in consumer decision-making. The 'wait and see factor' is good for the apartment market because new homebuyers are likely to wait and see what interest rates and gas prices will do before they make one of the biggest decisions of their life—to buy a house," Holland explained.

"Wait and see factor" or not, Clearspan is primed to compete. Between a staff committed to developing innovative solutions, a philosophy of highly efficient production and a tradition of southern charm, Clearspan Components is at the top of its game. Although they are growing, Holland says adding another production site isn't in the cards. "Decentralization is too difficult to manage," he noted.

One thing is a sure bet, however, Clearspan will always make room for improvements as they continue to innovate and streamline efficiency from the inside out. SBC

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