



"We are dedicated to giving people the information they need to look at the house as a whole."

—Steve Linton, Deltec's In-house Green Building Coordinator

by Emmy Thorson-Hanson & Libby Maurer

Find out the unique elements in one component manufacturer's equation for success.

A component manufacturer focusing on material handling efficiency is old news these days. Automation's your thing? No surprise there either. But imagine a company that differentiates itself by...observing green building practices? Deltec Homes, Inc. based in Asheville, NC has been doing it for over 40 years.

### A Green Beginning

In operation since 1968, Deltec's signature circular-style homes are known for their hurricane resistant qualities. One was recently built on an episode of *Extreme Makeover: Home Edition* for a New Orleans family who lost theirs to Hurricane Katrina. But what makes this home particularly unique is not its wind-resistant strength; it was the 25<sup>th</sup> Platinum LEED-certified home in the country.

"Deltec has been a green company from the start," said President David Hall. But when Hall joined the company in 2002, he was determined to take Deltec to a new green level. "We were really able to green up our company," he said. Hall said a heart and soul commitment from employees, management and stockholders helped Deltec reach its goal. It might surprise you to hear this: "And our customers wanted it." The result is a company that has sworn off paper cups and posts lists in the breakroom of employees' addresses so they can carpool to work.

Continuing to develop green building solutions meant creating a full time position one year ago, when they hired Steve Linton as the in-house green building coordinator. Linton says the company has listened carefully to what their customers need. "The biggest driving force was seeing our customers asking questions about green building and being interested in it," Linton explained. "We saw lots of potential to help our customers with this aspect and offer them more."

Linton spends much of his time educating customers about their options for building

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## Deltec Homes Builds Green

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sustainable homes. "I answer their green building questions," shared Linton. He said the company approaches new products from a whole house perspective. "My department is focused on making customers aware of the other areas of green building and how we can help them make their house green as an entire system, not just through materials and energy efficiency," said Linton. "We are dedicated to giving people the information they need to look at the house as a whole."

### Shades of Green

Hall noted that Deltec caters to many levels of "green." "We will make our components and home packages green to whatever extent our customers want," said Hall. This means complying with the principles defined in residential green building standards like LEED for Homes or NAHB's National Green Building Standard. He clarified that employing these green concepts doesn't necessarily mean Deltec Homes are certified under one of the standards. Hall said the green certification marketplace can be confusing: "It's easy to get distracted and confused about all the different green building initiatives in the market."

The company uses certified lumber whenever possible. Linton says finding a source that can provide a specific grade and species of certified lumber can be a challenge, especially a when the goal is to find a local source. "We avoid shipping certified lumber across the country due to the environmental impact it has," explained Linton. Instead, he said, they try to purchase locally and encourage their lumber dealers to become certified.

"We try to align ourselves with business partners who already share our vision." Linton continued, "For example, one of the tree farms we use in Georgia already had some green practices in place, but they never had gotten certified. And so we talked about the importance of that certification to us, and now they are in the process of becoming certified."

Linton encourages his suppliers to consider it a way to differentiate themselves. "I ask, 'what products do you have that distinguish you from your competitors?'" And then I tell them that offering green products is a great way to stand out in the market." In order for green lumber to be more accessible and affordable, Linton believes more lumber suppliers need to become certified.



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"As more home builders ask their suppliers to go green, the more readily available [certified lumber] will be. Even over the last year I've seen a difference in what they are carrying because they are realizing the demand for it," observed Linton. "In another five years we hope to be able to get all certified lumber locally." Hall believes that home builders will drive the demand for certified lumber. "Right now [certified lumber] is perceived as such a new and costly material, which means that the purchasing and distribution channels for this type of lumber have not been defined yet," he said.

### Waste Not, Want Not

Not only does it strive to make the process of building an eco-friendly home affordable for their customers, Deltec also takes great measures to ensure that its operation has as little impact on the environment as possible. For starters, the company is determined to produce as little waste as possible.

"We currently recycle aluminum, cardboard and plastic," stated Linton. "Soon we will be able to recycle foam and plastic wrap. Our end goal would be to produce zero waste, and we are making great strides to get there."

They have computer-based material optimization saws, advanced production techniques and extensive material recycling and reuse to help reduce wood waste. "Our saws limit the amount of saw waste," Linton explained. "One of the biggest challenges we face is what to do with the leftover wood we produce. When we cut, anything bigger than nine inches can be reused as blocking for floor trusses. And the smaller leftover doesn't go to a landfill; it is either ground up and used as fuel, or used in some other way." And with what little plywood waste they have, they ship it to a charity in Nicaragua to help supply building projects. Hall said it costs no more than sending it to a landfill.

### "Zero Energy" Manufacturing

Deltec practices what it calls "zero energy" component manufacturing/home construction. This means using 100 percent renewable energy in their operations.

The 273 power producing photovoltaic solar panels on the roof of Deltec's manufacturing facility are probably the most noticeable. "The solar panel installation that we have here is one of the biggest in the state," stated Linton. "We generate approximately 66,000 kW-hr annually at our facility." To put this into perspective, that's the equivalent amount of power needed to run five conventional houses or ten energy efficient

houses for a year.

Hall said his company is striving to become 100 percent carbon neutral. This means that the amount of carbon dioxide (CO<sub>2</sub>) released from the company's business and manufacturing operations is balanced or "offset" by engaging in practices that create a similar amount of non-CO<sub>2</sub> producing energy. "CO<sub>2</sub> is recognized as one of the main greenhouse gases, so what we're doing is limiting the amount of CO<sub>2</sub> that we put into atmosphere," explained Linton. One-third of all power consumed by Deltec comes from its solar roof panels, while they purchase the remaining two-thirds (about 130,000 kW hours) from other renewable energy producers. Deltec estimates that its renewable energy commitment offsets approximately 208 tons of CO<sub>2</sub> each year.

As for the renewable energy it purchases, Linton explained that it is produced in a variety of forms: solar, wind, geothermal and others. It is sold to utility companies or environmental agencies, who in turn sell it to businesses. Deltec, for example, buys its renewable energy from NC Green Power, a brokerage for green energy producers. "Most likely this is what will happen: you pay them a premium, and then they go purchase renewable energy to meet that demand." It's true that renewable energy comes with a price tag. "Renewable energy is anywhere from 20-40 percent more than what you would pay for regular power," Linton estimated.

Although purchasing renewable energy is an option, the company's long-term goal is to install additional energy generating capacity to eventually achieve 100 percent on-site generation. Deltec recognizes it will be a long, expensive process. "When we were looking at the solar panel system, we understood that it would be a nine-year financial cycle," shared Linton. "After nine years, it will be paid off; we will be using a lot less energy and earning revenue by selling the excess energy."

The company is also focused on reducing its electric bill. "Lighting is our single biggest electric source, so we are currently replacing all of the light fixtures with energy efficient fluorescent lighting." Their new lighting is projected to reduce their electric consumption by 12 percent annually.

### Green Is Golden

Linton is proud of the progress Deltec has made. "Now that we have made some strides in how we manufacture the house, it adds another level to our services, since the whole cycle of where materials come from to how they are produced is all green."

The company's hard work has paid off in spades. "Our corporate philosophy is to reduce the mark that our business and our homes leaves on the environment," Hall said, "and it's also proven pretty darn good for our bottom line." **SBC**

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## How Solar Panels Work

The photovoltaic (PV) cells shown at left, or solar cells, convert the sun's energy directly into electricity. PV cells are made of special semiconductors that absorb

a certain amount of sunlight when it strikes the cell. Through a process of electron activation and flow, an electric current is formed within the cell. This current is then drawn off the PV cells and used for power in both homes and businesses.

Lasting more than 30 years in some cases, PV cells are best mounted on unshaded south-facing roofs. PV cells come in many different sized "systems," depending on the amount of electricity a facility requires. (Factors like average monthly sunlight levels for different geographical areas, rainfall, number of cloudy days, and altitude will determine this average monthly sunlight level.) You'll also want to know the facility's average annual energy demand (reference last year's utility bills or talk to your utility company). For instance, Deltec's annual manufacturing demand is roughly 200,000 kW hours.

Of course, even if you live in the sunniest place on earth solar cells can't convert sunlight to energy 24 hours a day. An energy storage system involving batteries can be added to the system in order to supply 100%

of your own energy. Although generating all of its energy is Deltec's goal within the next nine years, the company is currently connected to NC Progress Energy's utility grid, which allows them to buy power when they need it (say, at night). Connecting to this grid will also allow them to sell back the excess energy they produce when the time comes. Deltec's Steve Linton points out that the company has not chosen the battery route because being grid-tied offers the most favorable economic solution.

As far as the installation of a PV system, CEO David Hall believes it's best to be done by a licensed electrician who has experience with them.

As for the cost of its PV system, Deltec says it spent approximately half a million dollars to install this first phase of their solar energy initiative. The installation took more than eight weeks from beginning to completion, but no interruption in business took place. The "cutover" took place on a Saturday morning and was seamless.

As a result of the 2005 Energy Policy Act, your company may be eligible for a tax incentive for installing a PV system. The energy bill specifies the Energy Efficient Commercial Buildings Deduction amounting to 30 percent of the cost of the system for businesses installing photovoltaic cells by December 31, 2008. For instance, Deltec took advantage of the standard federal credit of 30 percent and an additional North Carolina state tax credit of 35 percent. Based on these credits, Linton anticipates a less than nine-year ROI for their PV system.

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