

Packing a Protective Punch

Fabricating Disaster Glass Proves Successful for One Northeastern Company

by Megan Headley

After nearly 50 year in the glass industry, Dlubak Corp. president Frank Dlubak continues to lead the company in producing innovative new products.

The layman may view glass as a delicate object easily subject to breakage, but those in the know are well aware of the strength that this incredibly versatile material holds. Employees of Dlubak Corp. in Blairsville, Pa., may know better than most just what kind of impact and abuse glass can take.

Although the company was founded in 1947 as Dlubak Studios to produce stained glass, pure aesthetics are no longer the focus (in fact, the stained glass division was phased out in 1982). While the company still does have occasion to incorporate silkscreened patterns, roller-coated designs and decorative laminates into architectural glass projects, today's focus comes down to protection.

"We do what I call 'disaster glass' products," says president Frank Dlubak.

Dlubak explains that this focus "really started about ten years ago in Florida with the hurricane [market]." Now you can just about name a disaster and the fabricator is producing a glass product that can withstand it: hurricane-, tornado-, earthquake-, bomb- and bullet-resistant glass all come pouring off of the three laminated lines and out of the five autoclaves at the company's Blairsville, Pa., headquarters.



The company is also doing some work on another new age protective glass product, notes Mark Kearns, vice president of sales. The company showcases its radio frequency (RF) shielding, or anti-eavesdropping product, at the AIA Conference (see the November 2007 USGlass, page 34, for more on RF shielding).

In addition to these safety and security capabilities, the company has eight bending furnaces, four water jets, a high-speed tempering line and a high-speed insulating line. It is renowned for its innovation in curved glass, as well as for aluminum bending.

"We're starting to focus more on our laminated products," says Kearns of that reputation for complex bending. "These products are still going to be there, but we're going to focus more on the security—and there's a lot more stuff coming."

A walk through the 125,000-square-foot facility in Blairsville will show stacks of glass up to 9 ½ inches thick, some in custom shapes and all providing the highest visibility.

"Laminating glass is relatively simple," says Damon Dlubak, vice president of operations, "[if] it's just

two pieces of glass. But as that thickness increases and when you're also laminating with polycarbonate to glass, it becomes a lot more challenging."

Luckily, the company seems to thrive on challenges and stepping first into new arenas.

"You can never let your guard down, when you're producing the parts. The first part has to have as much attention given to it as the 50th part or the 1,000th part," says David Bazzano, chief executive officer. "They're not just two pieces of glass with a piece of PVB between them, they're very delicate pieces—and the tiniest misstep can be cause for that piece to be thrown in the dumpster."

With a strong team behind them, and some unique machinery in place, the company is able to

provide its protective packages to meet just about any requirement. That's not as easy as it sounds when it comes to working with these massive laminated lites—as shapes alone can throw a curve.

"[Customers] come up with unusual shapes," says Frank Dlubak, "which may take weeks to figure out how to do." He adds, "Picture things going in a ... trapezoid shape, which are laminated and you have to go through all of the technology of lamination and make sure nothing slides, and how to hold it together and maintaining optics and all of that. So a shape is a big issue ..."

"For example, military vehicle windshields are a radius cut," explains Damon Dlubak, adding, "it's difficult to cut that way."

And military vehicles are just one of the end uses for this company's protective glaz-



"It's a team effort," says Frank Dlubak (right) of the company's day-to-day operations. Pictured here with son—and vice president of operations—Damon Dlubak, Frank Dlubak adds, "That's one of the strongest things we have here, a good strong team."



Creature Comforts

While solar modules (and the glass that protects them) are much the rage today, the panels are still a number of years away from reaching an efficiency that will allow them to significantly grow their market share. And while solar energy may someday be the primary way of generating light and heat, Frank Dlubak, president of Dlubak Corp. and the new company Green Heat, has another solution in mind for right now.

"You hear everybody saying you want to get solar energy because that's going to reduce electricity [usage]," Dlubak says. But Green Heat has begun fabrication of a product intended to heat buildings for a minimal amount of money. With heated glass, Dlubak says, "It's going to help you right now ... you plug it in and you have instant heat."

As he explains, "Heated glass is nothing new. It works, it's proven, it's just the fact that we are making what we're calling a warm glass system."

Dlubak Corp. has been producing heated glass for its glass showcase doors for more than 30 years; the heated glass keeps the doors on grocery cases from frosting once opened. Dlubak says that what sets his latest company apart from others that manufacture heated glass is the way in which it is applying the product to an end use.

"We're making a low budget unit that's going to be held together with magnets," he says. "It's retrofit, you put it on the inside of your house, you ... pop it in the wall and you plug it in. It's a no-brainer."

Dlubak says that using this radiant heating system can greatly reduce energy costs for home or building owners in a variety of applications.

"Let's say your kitchen is always cold. So what you do is you go turn the heat up to warm your kitchen up. What you've done is you've warmed the whole house up so now to [improve] your creature comfort in that room you're already spending more money," he says. "If you had in that kitchen an electric window, when you turn it on it would be the price of one or two light bulbs to heat that window. So now what you're doing is you're using energy but you're reducing energy because you're not turning the gas up and heating the whole house."

The cost of heating the glass would be about the same as burning two light bulbs, he says.

"It's 40 percent cheaper to run this heated glass in your home than the normal energy costs," Dlubak says. "What's important about that is that the utility companies are mandated by the government to reduce energy in some way. They could give you a break but they aren't going to do that. But if they can get you as a homeowner to reduce your energy intake by having heated windows, well they're going to say 'Hey, that's great.'"

The latest endeavor has been in the works for approximately 2 ½ years, Dlubak says. Although independent of Dlubak Corp., Dlubak says that Green Heat likely will be selling its products to the security glazing-focused sister company to incorporate heated glass products within its product lines as well.

"A big thing in the military is soldier comfort," he explains. "Right now if they're in Afghanistan, it's cold, and in their vehicles they really don't get a lot of heat. Well, we're going to have the windows heat up and warm them. Not only take the frost off the glass but warm the soldiers."

Dlubak says that the company is up and running and the industry can expect to see a product on the marketplace soon. "It's set up where we can actually make 500 insulating heated windows a day," he says.

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ing products. A great deal of Dlubak's glass is the direct result of the company's relatively recent focus, within the last six years, on providing protective glass for military clients.

Military Might

"We deal with the all types of federal government applications," Frank Dlubak says. The company also focuses on providing thick laminated lites for up-armorizing military vehicles overseas and it also deals with the Army's Picatinny Research Facility in New Jersey.

"They listen to the boys in Iraq ... they call us up and say 'hey we've got a problem, we need a certain type of glass,'" Frank Dlubak explains.

Dlubak Corp. also provides ballistic or bomb glass for federal buildings. Most of its work comes through contractors with connections in the various branches and necessary security clearances.

"We actually started to make glass for the military in 2003," Bazzano recalls. "We were dealing with a contractor that called us and placed an order. At that time he was asking us for 100 parts a week and ... 100 parts a week was like, we're never going to make it. After a couple of months of doing that and figuring a way out to make these parts for them, this customer calls me and says, 'Look, I have an order for 1,800 parts.' And I said, 'Well, that's great, that's wonderful.' And he said, 'I need them next Friday.'"

With a week and a half in which to produce more than ten times more parts than was the norm, the outcome should have seemed doubtful.

Bazzano continues, "I got our supervisors together and I said, 'we have an opportunity. We have a challenge. Can we do this? We can get this 1,800-piece order. If we can't we're going to have to turn him away?'"

"Everyone said no, we couldn't do it, thumbs down. Well, we stepped out on a limb and said we're doing it anyway?"

A week and a half and some new "techniques and processes" later, "we got the 1,800 done—and now it's not a

problem to do that on any given day. Now 1,800 pieces is a small order for us.”

In one month, Bazzano says, the company ships more than 25,000 pieces of glass for its military clients.

Meeting a challenge like this would cement a relationship with an architectural client and it turns out that a government contractor is no different.

“The government looks at suppliers and they give them a degrees of value, like 1-10. So far I think we’ve been at the 10 [end]—we’re always ahead of the order,” says Frank Dlubak.

“Not just on time, but ahead,” points out project manager Sunghoon Kim. “It’s very rare to find that.”

In addition, Bazzano explains, when working for these large government contracts, “You have to be standing by ready to produce on a moment’s notice. There will be potential for contracts that you could be waiting on for a matter of weeks or months—but whenever they’re released you are shipping product within two days.”

Although the plant is running around the clock, things can move from 0 to 60 in a snap, since there’s no well of “custom inventory” from which to draw once that contract comes through. There’s just those stock low-iron and float glass lites—from PPG, primarily, as well as Pilkington—as well as polycarbonate from Sheffield and Sabic to laminate into the latest project.

“They are specialty products and something could change, so we have to jump in and get ready to work whenever the works hits us,” Bazzano says.

While the work has been steady, Frank Dlubak is well aware that this focus may change during the next four years of a new administration.

“You listen to the news and we listen to some of our customers that there’s a reduction in military applications,” he says. “But who knows . . .”

For a company that has produced products ranging from stained glass to showcase glass, there’s nothing intimi-



Chief executive officer David Bazzano has led Dlubak Corp. through a number of the production challenges on which the company seems to thrive.

dating about branching out (*see Creature Comforts on previous page*).

“We’re trying to see how can we diversify with our technology,” Frank Dlubak acknowledges.

And while the custom machinery in the Dlubak facilities isn’t something you’re likely to test out unless you’re on the payroll, it’s an example of how the company is able to branch out due to constant, across-the-board innovation.

Machinery Manufacturing

To produce a unique product, you need unique equipment. Frank Dlubak has that locked up by designing much of the machinery the company uses through his Dlubak Technologies company.

“It comes out of necessity,” says Damon Dlubak. “If we need something to meet a customer’s needs, we’ll go ahead and take whatever step is necessary.”

“If [for example] we put a new laminated line in,” Frank Dlubak says, “we look at what the problems are, talk to our employees and everybody gives input on what we should do and how we should do it. We take the general consensus and we go and buy machines or we manufacture our own machines to fit the void.”

The company keeps its proprietary equipment its own; generally pieces are created to assist in the material han-

dling aspect of the fabrication process.

When it comes to those standard pieces of equipment, Frank Dlubak says he comes to the table knowing exactly what he wants, and buying a machine is simply a matter of finding the manufacturer able to meet his requirements.

“We buy a lot of used machines right now because of availability. If you look around at all these companies going out of business, you can go in and get a machine pretty economically,” he adds.

Taking Control of Quality

According to Bazzano, one of the big differences Dlubak Corp. faces in dealing with military clients versus its architectural glass customers is that the “quality is a lot more stringent.” That demand for quality went up a notch recently.

“We had a mandate from one of our contractors on the U.S. Army . . . that we follow through with ISO compliance,” Kim explains.

“They’re looking for more formal quality control requirements,” Bazzano adds. “One of the government contracts that we’ve been working on for the last three years said that beginning in mid-2009 they need all of their vendors to be ISO-compliant. So we decided that it’s time to go ahead and do that.”

Employee Safety and Training

One of the side effects of the Blairsville, Pa.-based Dlubak Corp.'s rapid growth over the past few years, notes project manager Sunghoon Kim, was an "imbalance" in its hiring practices, by hiring rapidly and looking for quality workers rather than shaping them.

"We recognized that and we implemented a training program," Kim says. "We spent about three to six months developing the program. We hired various consultants and we modeled our training program after the best training programs of Fortune 500 companies."

Now new hires spend a week in a classroom environment, and then an additional 85 days undergoing production training.

"A lot of it's 'Glass Working 101,' in terms of being able to identify regular glass versus glass with coatings on it or different kinds of laminate," elaborates Damon Dlubak, vice president of operations. "Some of it's 101 and some of the aspects include safety ... and then also in general how the different departments relate to each other."

"Ultimately, the goal is that everyone's got each other's back," Kim adds. "In case one person becomes absent we can pull upon others and say, 'Hey, you were trained in this, remember that?'"

Once implemented, the training program became a real "eye-opener" for the company.

"I think the training program was eye-opening for us because a lot of the employees that had been out there for a year or two years, three years, even longer, were talking to graduates of the training program who were just recently hired and out of the classroom—and they were shocked by how much they didn't know," Kim says. "They were asking ... 'When can we sign up,' or 'I didn't know that we did that in the plant.'"

The numbers have further brought home the importance of a successful training program, Kim adds.

"Over the 14 months that this training program has been in existence, it's been a very successful program. Our turnaround rate has decreased by approximately 45 percent and the retention rate has been a lot better as well," he says.

Knowing the ins-and-outs of each step of the production process also has helped improve the quality of both the workforce and the product.

"It's quality of the workforce, but it's also a spoke on the wheel of the quality of the product," says Dlubak. "The biggest obstacle on quality is that you can tell someone what to do but when they understand it, they're going to do a better job."

The company makes sure it recognizes the hard work its employees put in with rewards ranging from free lunches and pizza parties to the profit sharing and other company-wide benefits. The company recently received its own reward of sorts for its work in local hires.

"We were also recognized officially as one of the few employers in the county who are going to hire 60 new employees in the next three years," Kim says. "We were awarded a grant of approximately \$270,000 from the state of Pennsylvania through their customized job training program. We're looking to take advantage of that relatively soon, in the next month, since we've already exceeded that number by five more employees in the last year alone."

The company has drawn on a variety of resources to accomplish the task, spearheaded by Kim.

"We have consultants working with us, we also have students from the University of Pittsburgh School of Business," Bazzano says.

In addition, a government agent visits the facility on a weekly basis to review the products.

"He inspects the glass for the government here before it goes out the door," says Frank Dlubak. "It's good for us because once he inspects it they take ownership, and then we have an accepted product right here."

Beyond the client's inspections, the company follows the adage that everyone must do their part when it comes to quality control.

"Every area, every single step throughout the plant there's someone that's looking at the glass," Bazzano says. "When it's cut, it's inspected; when it's seamed and washed it's inspected again; when it's laid up, it's inspected. The final inspection is in the factory plant where we have the zebra board set up and the fluorescent lights ..."

Should customers find some problem during their tests or once the finished product is provided, careful records can show the process—and inspections—that occurred each step of the way.

"We keep good records of what we do," Bazzano says. "We try to maintain traceability of parts so we can actually trace back to a specific autoclave load and see when something was made, and go back and make sure that all the right parameters were followed during the processing of that part."

Family Matters

There's something else about the employees at Dlubak that clearly stands out—and that comes with the Dlubak name itself.

Charles Dlubak founded the company in 1947, and Frank Dlubak began working in the family business at the age of 12. Today the family ties

run throughout various levels of the company, and the family members say the benefits far outweigh any challenges that may come in working with family.

“It’s nice having everybody work together with us,” Bazzano says. Bazzano shares the Dlubak family ties through his sister, Ave Bazzano Dlubak, Frank Dlubak’s wife of 40 years. “It feels good. Frank’s always there with a phone call; you can reach him 24 hours a day. The family thing makes it that much easier.”

Daughter Alyssa Dlubak Bodiford has handled marketing for the past 10 years, having worked in estimating and customer service for five years prior to that. Three years ago Damon Dlubak joined the company, and two years ago Kim, who is married to Amy Dlubak Kim, came onboard.

“They’ve made things so much easier on all of us,” Bazzano says. “Damon, on the manufacturing end of it,

he’s helped out quite a bit coordinating what goes on there and making us feel a lot more comfortable that our interests are being represented. And then Hoon came in on the other side and helps us out with a lot of the personnel factors. We managed to get a drug free workplace policy and Hoon brought that through for us and right now he is the guy that’s spearheading ISO for us.”

“But the real future is Cole,” Bazzano says to laughter from the Dlubaks, smiling at the mention of Bodiford’s infant son, the first of Frank Dlubak’s grandchildren (the Kims are expecting their first son in July).

Not that there’s any pressure to join the family business, Frank Dlubak says. Still, he talks of his children’s roles with pride. “I’m very proud of them,” he says simply.

Part of the ease of having the family

work together, he explains, is that the younger generation communicates with each other regularly. Communication clearly is a key concept for Frank Dlubak. He says that he frequently “broadcasts” what’s going on in the business to keep everyone at the various locations on the same page. “It’s important because a business is really just an operation of everybody’s ideas,” he says. “And it’s nice to have someone say, ‘Hey, I think that’s a good idea,’ or ‘I think you’re on the wrong track.’”

Having employees you can trust to offer such advice is a feat; having trusted family members whose opinions you value has helped shaped the company’s success today.

“Dave’s relationship with Dad here over the last 30 years—they worked side-by-side as the business was being established and you just can’t take away this kind of history and tradition. That bond is extremely strong,” Kim says. He adds, “I see that pervasive throughout everybody here. The average length of employment for the salaried employees is around 17 years. And then out there in the plant ... it’s around 7 years. So you’re looking at a tremendously loyal family base—not just this immediate family but all of us.”

“We even have 30+ year employees,” Bazzano adds.

Again, quite a feat, although as Frank Dlubak boasts he’s just three years shy of marking his 50th anniversary in the glass industry.

Fifty years has brought a considerable number of changes to the company—but innovation has been a constant. ■

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Sunghoon Kim, project manager, has helped implement an employee training program that has further improved the retention rates for a company that boasts 30-plus-year employees.