creativity set in stone

Frank Leard, president of SPIE’s New England Chapter, has designed and built everything from intricate optoelectronic packaging to stone walls in a style that is centuries old.

By Rich Donnelly

The term “stonewalling” is often associated with negative energy, as someone refuses to acknowledge or admit to a fact that is obvious to most everyone else. But in Frank Leard’s case, to stonewall has a much more positive meaning. Leard has built enduring products, a professional group, and even walls made of stone.

He didn’t have much choice in the matter. As one of 11 children, he spent his childhood sharing a small bedroom with his five brothers in a modest house with just one bathroom in Columbus, OH. The crowded conditions led to an independent resourcefulness that may have influenced his career choice.

“When I was a kid, I took things apart to see how they worked. They never went back together correctly,” says Leard. He also watched his oldest brother, Tom, assembling remote-controlled model airplanes and testing them. His father Paul, a carpenter and builder, instilled a great work ethic in his children, and particularly inspired Frank with his talents in structural design.

Leard’s career has focused on the practicalities of optomechanics and optoelectronic packaging, and the art of moving a project from the design stage into production. He recommends a diverse approach for companies who are gearing up for manufacturing.

“Acquiring a mix of people with different backgrounds and experiences can allow a company to solve the multitude of problems that will come up as the idea becomes real,” he says. “Diversity in the workplace—all aspects of this word—can lead to very innovative solutions in very short timeframes.”

Optoelectronic packaging is one of Leard’s primary interests because it crosses so many disciplines. “Packaging requires knowledge of materials, mechanics, electrical interfaces, and optics,” he says, adding that it also requires awareness of manufacturing, testing, reliability and failure analysis practices for a better fit to these systems, thus lowering the overall cost of the product.

Over the last few years, Leard has worked at Corning Lasertron (Bedford, MA) and Clarendon Photonics (Newton, MA). At Clarendon, he “became a fan” of Highly Accelerated Life Testing, in which a product is subjected to rapidly changing levels of vibration, temperature, and other stresses. He credits SPIE Fellow Gordon Brown with introducing him to this technique of “shaking out the design before it gets anywhere near a manufacturing floor.”

For much of the past decade, Leard has used his talents as a steering committee member and then president of the New England Chapter of SPIE, one of the Society’s most active chapters. The group’s monthly meetings are now resuming after a hiatus when, coincidentally, Leard was less involved. A chapter event is planned at Photonics East in October (see box). He places a high value on the chapter meetings and what SPIE has to offer its members.

“The chapter’s most important function now is as a networking event because of the large hit our industry has taken during this recession,” he says. “Being involved in SPIE affords a tremendous opportunity that can work for you (or me) in finding the next opportunity.”

But Frank Leard is not all about technology. He is well known among his friends and colleagues for his cookie-baking talents, something he took up to remember his mother after she died in 1983. And he has designed and built a six-meter-long stone wall in his garden, using more than 7000 kg of New England field stones that he positioned by hand after hauling them to the site in his SUV (says Leard, it’s “the only reason anyone should own an SUV!”). He’s now working on a second wall, larger than the first.

Leard credits his wife, Karen (a software engineer) with inspiring his educational switch from physics to engineering as an undergraduate at Ohio State University (Columbus, OH). Together they enjoy traveling (“but we don’t like crowds”), and they escape the New England winters whenever they can for sun and snorkeling in Bonaire, Netherlands Antilles. They stay where there are no televisions or phones, and they relish the chance to just unwind with some good reading material. Says Leard, “I always take at least one technical book.”

The New England Chapter will meet at 6 P.M. Monday, 27 October at Photonics East. Kishore Boyalakuntia of Structural Research and Analysis Corp. and Georges Negm of Optis Works will talk about the use of a 3-D CAD tool to analyze an optomechanical design and optimize the design given environmental stresses. For more information, see www.spie.org/info/pe/.