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To read more about the
design and construction
of the Millau viaduct,
check out the Landmark
Look section of the
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Is the U.S. bridge industry losing its edge?

Long before I started my career as a bridge engineer, the United States held a leadership role in the design and construction of major bridge projects. Groundbreaking bridges, such as the Golden Gate and the Verrazano Narrows, immediately come to mind.

Even in recent times, American bridge designers and builders have displayed flashes of inventiveness and creativity — the Sunshine Skyway and the Woodrow Wilson Bridge are glowing examples. However, the big picture isn't as impressive for the U.S. bridge building industry. Too often, bridge professionals in this country are taking the safe route, missing the chance to do something great (sometimes even to do something *good*).

Owners often rely on tired approaches when planning their projects and assembling their teams. With an eye on the clock and their wallets, they accept mediocrity. For their part, designers avoid risk at the expense of innovation. Contractors, frequently hamstrung by “vanilla” designs and restrictive terms, do their best to get the project done quickly and efficiently so they can get paid and move on.

What's to blame for this backslide in America's global leadership position? Some say that the terrorist attacks of 9/11 changed the industry's outlook: Security and efficiency now outweigh the desire for a “signature” design. Others pin the problem on our recent economic doldrums. More than ever, people say that cost is the deciding factor in what goes into a bridge project.

While I don't deny that those two factors have influenced our industry somewhat, I believe neither is the major culprit. To quote the cartoon character Pogo, “We have met the enemy and he is us.” Bridge professionals in the United States have shown a recent tendency to think entirely “inside the box.” Instead of learning from successful, noteworthy projects here and abroad, we trudge through the process with the creativity of someone mowing a lawn.

By contrast, bridge professionals in Europe, Asia, and the Middle East are taking chances. The bridges they're building achieve project goals while also making a statement. Bridge professionals overseas are capitalizing on the chance to build significant structures that not only tell their region's story, but that sell it as well.

Take one look at the Millau viaduct in central France, and you'll know what I mean. Rising more than 900 feet above the confluence of the Tarn and Dourbie Rivers, the Millau viaduct is a breathtakingly

elegant, structurally remarkable, cable-stayed bridge. Much of its beauty lies in its simplicity — seven slender pylons connected by six equal spans, with two additional shorter, but equal spans, connecting the bridge to its abutments. As with most great bridges, the Millau fits comfortably into its surroundings, reflecting the shape and form of the plateaus that surround it.

To bridge professionals, the Millau is more than a pretty face, however. For all involved, the process required uncommon creativity and innovation to make the ambitious design a reality. The piers are prestressed concrete with a maximum height of just over 800 feet. The deck is a streamlined, orthotropic box-girder launched from both abutments with temporary piers at mid-spans. The front pylon, also in steel, holds six pairs of the final stay-cables. The 8,070-foot-long viaduct opened in December 2004, just 38 months after construction started. The total project cost was about \$520 million. Beautiful, efficient, and cost-effective; what more could you ask from a bridge project?

But it didn't happen by doing things the way they've always been done. From the outset, the owners encouraged creativity and insisted on teamwork. They started with a design competition to capture the best concepts, and they moved the project through by employing the Master Builder approach. All involved parties, from the architect to the engineer to the contractor to the steel constructor, combined to comprise Compagnie Eiffage du Viaduct de Millau, a joint-venture company created exclusively for the project.

The owners' approach clearly shows that they recognized something I've said for a long time — all of us are a lot smarter than some of us.

In the United States, we need to understand that a contractor cannot efficiently build a design that is created in a vacuum. Additionally, a designer can't create a buildable design without understanding the construction process. Mutual understanding and cooperation are critical to delivering a project's vision.

Designers, engineers, contractors, and owners need to communicate more frequently, work together more effectively, and trust each other more freely. Owners need to insist on it, and the rest of us need to embrace it. Then, maybe the rest of the world will again look to the United States to pave the way in our industry. Until then, we'll stay squarely in the middle of the pack. ■