If you remember the go-go years of the late 1980s, then you have a feel for Salt Lake City today. On a recent trip out west, Ron Reavely, that city’s preeminent structural engineer, took me on a 30-mile drive through the city and selected surrounding communities. Roads, bridges, high-rises, schools, offices and retail—construction is going like gangbusters.

I have to admit, however, that I was pleasantly surprised with how much of the work involved steel frames. After Northridge, it was rumored that many designers were going to give a closer look to alternate materials for construction in high seismic zones. Fortunately, research proceeded quickly enough that most designers and owners were convinced that the revised connections for steel design still made steel the best way to go. Immediately after Northridge, most of the construction (and these are the projects which either have recently been completed or are just now finishing up) used the cover plate system, which consists of reinforcing the connection by adding plates to the beam flanges.

The next wave of projects typically opted for one of the proprietary systems, typically either the Side Plate Connection (see MSC, January 1996) or the slotted beam connection from Seismic Structural Design Associates (see MSC, March 1997). Also gaining in popularity is the dogbone connection (see MSC, April & August 1996), which involves selectively trimming a portion of a beam to allow connection strength to exceed beam strength without the need to develop a stronger connection.

Of course, there are other solutions. One Salt Lake City engineer designed a good-sized five-story building using an ordinary moment connection. A firm in San Francisco determined that their pre-Northridge SMRF design had enough redundancy built in that they proceeded with the project. Other designers are looking at dual systems. And there are several other proprietary solutions, including one from ICF Kaiser, that look promising.

After Northridge, there was a lot of talk about steel's problems. But if anything, the problems revealed in SMRFs only served to strengthen the steel design community. Rather than resting on their laurels, steel designers and researchers are once more developing innovative solutions and products to better design in seismic areas.

Just as the computer industry benefits when Microsoft and Apple compete, the construction industry benefits when there are multiple solutions for designing in seismic areas.

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