On Site in Japan:

OBSERVATIONS OF A U.S. FRAMER

by Neil Momb

I tried to be nonchalant, but I doubt my performance would have earned an Oscar. The voice on the other end of the phone line was telling me my framing company had been selected to go to Japan to build a "Supermarket of Homes" center using American-made glulam lumber and fasteners. The purpose of the trip, according to Frank Michiels, president of Michiels International, the Seattle-based export firm that sponsored our visit, was to promote American building techniques and thereby increase the demand for our products.

I had learned several months earlier that my firm was one of more than a thousand that were being considered for the job. We were finally chosen for a number of reasons. For one, my crew is experienced in post-and-beam construction, the building technique that predominates in Japan. But more importantly, I was 53 years old at the time and still active in my business. The Japanese revere age. In fact, most of the carpenters we worked with were in their mid-40s, an age when most of us in the states would be looking for ways to get out of the field and into a nice, comfortable office. My age gave me the credibility I needed to teach new construction techniques that bucked centuries of building tradition.

That first trip, in 1987, was to Osaka, a large, crowded city about 300 miles south of Tokyo. I returned to Japan two more times on a second project in Fukuoka, a smaller city on one of the tropical islands adjacent to the main island. There we framed the gourmet food center buildings for the Asian-Pacific Exposition of 1989. I plan to return this spring to begin a third project.

We were successful in our efforts to encourage Japanese builders to use more American products. Thanks in part to the work we did in that country, tariffs have been reduced, making the prices of American lumber products more competitive.

American and Japanese carpenters worked together to build the doughnut-shaped "Supermarket of Homes" in Osaka. The structure was built with American-made glulam posts and beams.

I've kept in close touch with most of the tradesmen I met during my trips. They tell me they are still using some of the many techniques we taught them. In turn, I tell them how my trips made me a better and more conscientious craftsman. I found a new respect for wood and for the importance of patience on the job site — two things that are common in Japan and uncommon in America.

Managing the Site

As you might expect, there are plenty of differences in the ways our two countries manage the job site. The first thing that hit me was the number of laborers it took to complete a simple job, like bolting the sill to the foundation or cutting the floor joists. I got the impression that work was being created instead of saved, something that doesn't make sense given the nation's shortage of qualified carpenters.

In Osaka, I watched a construction crew lay ceramic tile on the exterior of a five-story commercial building. The whole building was scaffolded with bamboo poles lashed together with rope. Workers were stationed at platforms all the way up the side of the building and were moving mortar to the top with shovels. The one at the bottom would take a shovelful of mortar and dump it onto the shovel of the guy up at the next platform. The mortar worked its way up until it got to the guy at the top who had

a tub to store it in. In all the time I watched, they barely spilled a drop.

I'm sure the Japanese are familiar with lifts, just as they know all about steel scaffolding. But in some cases, it seems they just like to stick with what's traditional. The Japanese are very good at what they do, they just don't always do it the fastest way.

Three or four levels of command are in place on the job site at all times. If there are questions or problems, the people in charge call a meeting to discuss a course of action. As one who is used to making decisions on the spot, I found this pretty frustrating. Add to that the fact that I barely understand a word of Japanese and you get the picture.

It also seemed that everything was planned to death. The day's schedules were detailed to the last minute, although they were rarely followed because of all the time-outs to discuss problems. We figured that the average Japanese framing crew, after all those meetings, gets about one-third as much work completed in a day as we do.

Work starts at 8 a.m. and concludes about 6 p.m. But there's a long lunch break when everyone scouts out a comfortable spot for a nap. With the unbearable heat (most days it was 100°F and 100% humidity), that nap is essential.

The Typical House

Besides introducing the Japanese to glulam lumber, we worked to promote 2x4 construction. For centuries, homes have been built with 90mm x 90mm (approximately 3 1/2 inches) square posts and beams. The small-dimension materials are not very strong, so the posts are usually only about 6 feet apart. The same material is used for diagonal bracing.

Once the roof (usually tile) is on, the structure is reinforced with 2x3 studs toenailed vertically between the posts and the bracing, and flush with the exterior. That leaves the areas between the posts crowded with studs, making it more complicated to get in there with insulation, plumbing, and wiring.The 2x3s are covered on the interior with a thin plywood or grass-cloth skin, leaving the posts and bracing exposed. Sound travels through the walls as if they weren't there.

We tried to convince the carpenters that a heavy plywood could handle the shear movement, thus eliminating all that diagonal bracing. But traditions die hard in Japan and although our suggestions were greeted with bows and smiles, nothing changed.

Trenches for the concrete footings are dug by the smallest crawler-backhoes I've ever seen. No description fits them better than "cute." But their work is precise since forms are rarely used, although a batterboard is usually set for grade. Once the footings are in, form panels are set 6 to 8 inches above grade, and the foundation is poured 1 inch lower than its final height.

That last inch is composed of a rich, hand-mixed topping cement. Instead of using a screed, a series of 1x8s are shot in level with a transit and nailed to the green foundation walls to serve as a guide for the 1-inch final pour. After this has hardened, holes are drilled and anchor bolts set.

All this struck me as an incredible waste of time. In fact we had meetings about it for two days. But in the end, I was told that although our way is probably better, they intended to use their own methods. I bit my tongue.

Tools

While some of the finest power tools available are made in Japan, a lot of the work is still done by hand. Since most of the country uses only 100 volts, we didn't bother to take our own power tools. But we were up the creek once we got there and realized standard tools, like routers, weren't available at the site.

If we asked for a power tool it usually appeared. But at times, when they didn't understand our need for it, our hosts would tell us the tool wasn't available. We would counter with, "You make it over here and you tell us you can't get it. Let me see the catalog." After pointing out what we wanted, the unavailable tool would materialize. Once we demonstrated how we used that tool, they were quick to adopt and even improve upon our methods.

To the Japanese, a 16-oz. hammer is considered big. They were shocked by our 22-oz. scored-head framers. A few tried them but quickly went back to their smaller ones.

Getting an adequate air supply for our nail guns was another problem. They had either small compressors that forced us to wait every few shots for the pressure to catch up, or huge ones normally used to run jackhammers. We ended up using our guns to start the nails while a man following behind finished the job by hand. Next trip, my 1 1/2 hp Emglo goes with me.

A Tradition of Craftsmanship

There are two classes of carpenters in Japan: those who learn traditional building techniques through apprenticeships and those who are trained largely as they work. For the latter, production is key. Used to working with manufactured housing, their skills are more like those of assemblyline workers.

Apprentice carpenters, on the other hand, go through a rigid apprenticeship lasting about nine years. During their training, apprentices learn to fit materials together so skillfully that it looks as if the wood grew that way. To watch them work is to learn a whole new respect for craftsmanship.

During my trip to Fukuoka, the carpenters used about 400 4x4s for girders. These were crossed with 2x6 floor joists about 16 inches on-center. All of these were fit together with a joining method similar to dovetailing. It was hard to believe the number of cuts involved — each with its own peculiar angle.

The safety nets were a popular spot during early afternoon nap-times. Temperatures of 100°F and 100% humidity made it necessary to take a rest during the heat of the day.

Two American carpenters wait for the placement of the final beam at the traditional topping-out ceremony, in Osaka.

The top Japanese carpenter and his apprentice spent most of a day using a pencil and a square to mark the cuts. The next day he simply picked up a saw and, without even bothering to set the blade angle, cut the notches as fast as his assistant could turn the beams. Though he never changed the setting, his mastery of the saw bordered on the artistic. Most of my crew gathered around to watch for a while. Before returning to work, we honored his skill with a spontaneous round of applause.

Topping Out

Our framing work at each site ended with a traditional "muneage," or topping-out ceremony, to thank the gods for letting us raise the structure. The building was draped in American and Japanese flags and a band played while many toasts were drunk with Japanese rice wine. True to their ways, our hosts planned every second of the ceremony, from the number of drum beats to accompany the lifting of the last beam to the time it took for us to attach the beam in place with gold-plated brackets and bolts. Then a cannon was fired, nearly blowing us off the building.

In both Osaka and Fukuoka, the ceremony also symbolized the cooperation required to get the structures framed. In spite of different languages, tools, and traditions, we were successful in completing our work. We also learned a lot from one another and had a lot of fun. ■

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