



Automated Shops Are Rx for Kaiser Permanente

This health care giant relies on in-house know-how to produce casework and architectural woodworking for its California region facilities.

BY HARRY URBAN

Woodworking does not immediately come to mind when somebody mentions Kaiser Permanente. The \$22.5 billion non-profit health organization is the country's largest HMO, with 8.2 million members and more than 136,000 employees. But the giant health care organization's California region relies on two progressive shops for its casework and architectural woodworking. The shops are

Projects manufactured by Kaiser Permanente's California woodworking shops are for the company's health-care related facilities.

www.iswonline.com

Kaiser Permanente

Oakland, CA

With 8.2 million members and 136,000 employees, the \$22.5 billion Kaiser Permanente is the largest health maintenance organization in the United States.

Three Keys

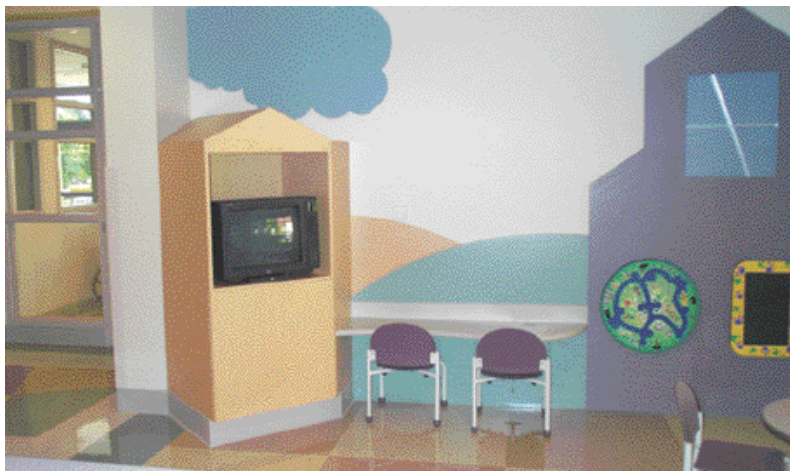
1. A vertically-integrated company, the casework and architectural woodworking for Kaiser Permanente's California region facilities are manufactured in-house by plants in Los Angeles and Berkeley.
2. The 76,000-square-foot Los Angeles plant has reduced its inventory by switching to just-in-time manufacturing and using CNC machining processes, including nested-based manufacturing. Just recently, the 26,000-square-foot Berkeley shop purchased a CNC machining center and also implemented nested-based manufacturing.
3. An early pioneer in nested-based manufacturing, Toyohiko Hiram, manufacturing manager, discovered the process by accident while searching for ways to improve the production of modular casework components without spoil boards.

www.kaiserpermanente.org

Kaiser Permanente

wholly owned by Kaiser Permanente.

In 2003 Kaiser Permanente's Los Angeles and Berkeley plants shipped more than \$1.3 million per month of product to the company's health care facilities in California. Roughly \$1.1 million is shipped monthly out of Los Angeles, with the remainder coming



Case goods for waiting rooms, optometry offices and pharmacies are among the items manufactured by Kaiser Permanente's woodworking shops.

About Kaiser Permanente

Founded in 1945, Kaiser Permanente is the largest health maintenance organization in the United States. Headquartered in Oakland, CA, the \$22.5 billion non-profit organization is comprised of:

- Kaiser Foundation Health Plan Inc.,
- Kaiser Foundation Hospitals and their subsidiaries,
- The Permanente Medical Groups and
- An affiliation with Group Health Cooperative based in Seattle

In addition to California, Kaiser Permanente facilities can be found in Colorado, Georgia, Hawaii, Maryland, Ohio, Oregon, Virginia, Washington and Washington, DC. In total, the HMO has 30 hospitals, 431 medical office buildings, and employs some 11,000 doctors.



CompX Timberline locks complement Kaiser Permanente's institutional case work.

A Koch boring and dowel insertion machine is used at the Los Angeles facility in the production of case goods for Kaiser Permanente's California health care facilities.



Each month Kaiser Permanente's Berkeley and Los Angeles woodworking operations ship on average \$1.3 million per month of product to the company's health care facilities in California.



Kaiser Permanente

A Holzma HPP 82 panel saw performs the majority of the Los Angeles operation's panel sizing.

from the Berkeley facility.

Both shops are vertically integrated, handling everything from estimates through installation. In keeping with its in-house strategy, Kaiser Permanente employs its own architects, designers and detailers. All projects are strictly health care related, including waiting rooms, laboratories, pharmacies and optometry offices. Typical jobs include work stations, cabinets, furniture, and architectural interiors — basically everything but seating. All work is manufactured to Woodwork Institute (WI) specifications.

Tale of Two Plants

Established in the 1960s, the Los Angeles facility has 83 employees and currently occupies 76,000 square feet of space. The equipment used there includes a Holzma HPP 82 panel saw, two IMA edgebanders, two Shoda CNC routers and a pair of Koch boring and dowel insertion machines.

Toyohiko Hiram, manufacturing manager, said the L.A. plant runs on a just-in-time process, enabling it to minimize its inventory, which used to be as high as \$1.1 million.

Kaiser Permanente's Los Angeles woodworking plant runs on a just-in-time process, enabling it to minimize its inventory, which used to be as high as \$1.1 million.

Machining programs for the routers are extracted from AutoCAD via Router CIM. The routers perform a wide range of operations, including nested-based panel sizing.

Raw materials such as particleboard, MDF and melamine panels are supplied by Tri-State Laminating. Local distributor US TEK supplies the hardware, which includes: Blum

Spoil Board Pioneer:

The Father of Nested-Based Panel Processing?

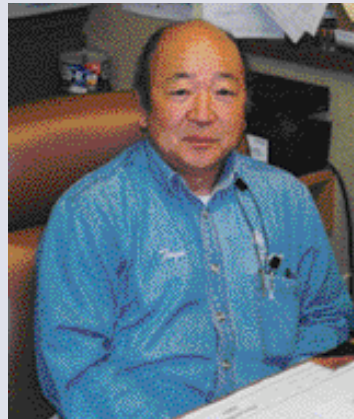
It was September 1990 and Toyohiko Hiram was geared up with a brand new router and a mission to improve the productivity of his manufacturing facility. As the manufacturing manager, for Kaiser Permanente's California region in Los Angeles, he needed to figure out how to optimize the manufacturing of the myriad of parts that he made for the company's work stations, cabinets, furniture and architectural interiors.

Hiram knew modular case work was a natural for part standardization and optimization. But to manufacture the parts necessary for a typical job they would have needed dozens of spoil boards.

"They (the machinery dealer) showed us how to use a spoil board, but not how to work with MDF," he says. "We did not want to make hundreds of spoil boards for all of the different custom parts. After trying to work around the problem for four or five weeks, we figured out that we just couldn't deal with too many spoil boards.

"Then one night as we were getting ready to go home we discovered something that changed everything. We figured it out by accident:

"A piece of 3/4-inch particleboard was left on the top of an MDF spoil board on a vacuum table, while the suction was still on. We discovered that we couldn't move the particle-



Toyohiko Hiram says they discovered how to work without spoil boards "by accident," which led them to full blown nested-based panel sizing with a CNC router in the early 90s.

board because the material had just the right amount of porosity and was therefore holding tight. Then we put a piece of 1/4-inch MDF on top of the spoil board and a piece of particleboard on top that. We realized that we could get enough suction for the particleboard. So we tried to cut it with the router and it worked very well.

"We use the 1/4-inch MDF for cabinet backs once we're finished with it," Hiram says. "We also don't need to resurface the spoil board."

"From that point," Hiram adds, "we started using the router to do all sorts of panel sizing and even fit it with an 18-spindle head. When we showed the Shoda suppliers what we had come up with, their eyes were wide open. Originally we worked with software companies to optimize parts from a 4-foot by 8-foot sheet. Now, of course, there are a wide variety of options for nested-based machining."

hinges; Accuride and Fulterer slides; CompX Timberline and National locks as well as specialized and custom hardware; Häfele K-D fittings; as and Wilsonart and Formica high pressure laminates. Both shops do some veneering, although most of their work is in laminates, both high and low pressure. The shops also perform a minimal amount of solid surface fabricating.

The facility in Berkeley occupies 26,000 square feet of space and has 24 employees. According to Hiram, the plant was considered very low tech until last year when it installed a Busellato Jet 3006 machining center. “We got together with Delmac Machinery Group to transform the plant into a nested-based manufacturing system,” Hiram says.

“High tech equipment can be challenging and you need to have qualified people. The majority of our key people are from Los Angeles Trade Tech, Cal State Fullerton and Cal State L.A.”

— Toyohiko Hiram, manufacturing manager

The Berkeley plant uses Jetnest, a nesting program from DMG. It is a full-featured rectangular nesting software that will nest properly formatted DXF files from any source. Using AutoLink as the post processor, the entire process for the creation of DXF files to the Busellato Jet router is seamless, Hiram says.

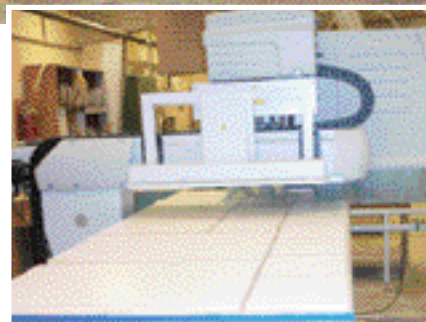
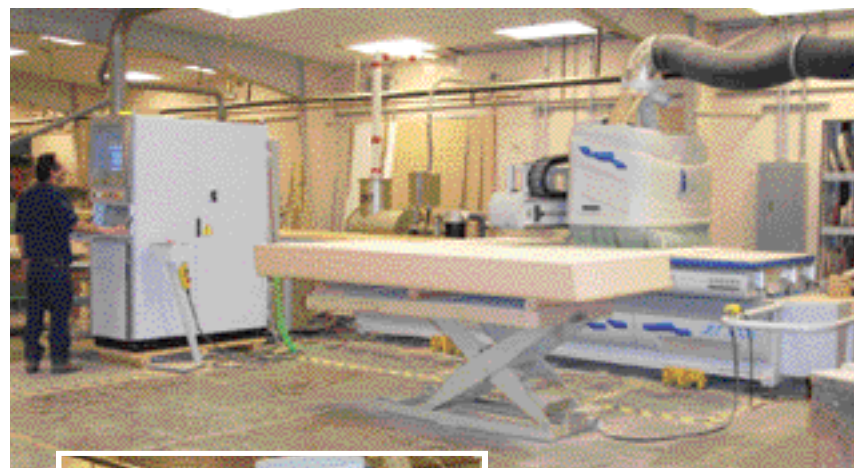
Both shops are union and pay carpenters’ scale wages, which Hiram says amounts to approximately \$40.50 per hour including benefits.

Skilled Workforce

Hiram says the key to his manufacturing strategy is to hire skilled work-



A Kaiser Permanente employee at work on a main lobby fixture.



A Busellato Jet 3006 machining center is the anchor for Kaiser Permanente’s nested-based manufacturing operation in the company’s Berkeley facility.

ers. This, he says, is necessary in order to handle the increasingly sophisticated equipment that he utilizes.

“High tech equipment can be challenging and you need to have qualified people,” Hiram says. “The majority of our key people are from Los Angeles Trade Tech, Cal State Fullerton and Cal State L.A.,” he adds.

A skilled woodworker for more than 30 years, Hiram himself is a 1967 graduate from Los Angeles Trade Tech College. Ten year’s prior, he had emigrated from Japan and settled in East Los Angeles. Hiram’s background also includes a stint in the U.S. Navy, which he entered in 1968, and a tour of duty in Vietnam. ◀