



COMPETITIVE ADVANTAGE

TAKING THE DECONSTRUCTION ROAD TO C&D MANAGEMENT

THE REBUILDING Center in Portland, Oregon was founded in 1998 through a grant that covered a forklift and a 20-foot flatbed truck. Located 15 minutes from the metro transfer station, the 70,000-square-foot facility sells used building materials, which initially were all donated by the general public and other contractors. It was established by Our United Villages, a nonprofit organization that provides educational, financial and human resources to Portland neighborhoods that want to address social, economic and related issues. The following year, Our United Villages formed an operation called DeConstruction Services to increase the volume of materials coming to the Rebuilding Center. Largely due to this enterprise, the store has diverted 300,000 to 350,000 tons from Portland's waste stream since it opened.

In the ten-month period that concluded in February, retail sales totaled \$350,000 and contracts from deconstruction amounted to about \$650,000 — a total of \$1 million, which

A Portland, Oregon company recycles 85 percent of the materials from its projects and demonstrates that manually dismantling homes is often more economical than demolition.

Materials recovered for resale from deconstruction include clean lumber, flooring, doors, unbroken windows, kitchen and bath cabinetry and fixtures, etc.

far exceeds expectations. The monthly payroll for a work force of about 40 for the deconstruction crews and store amounts to \$65,000 to \$70,000/month. "By the end of the summer, given the fact that I've got about 40 houses under contract over the course of the next four to five months, we will be increasing our deconstruction crews to around 45 or possibly even 50," says Jim Primdahl, director of DeConstruction Services.

DeConstruction Services was launched without any grants. The operation has a \$30,000 line of credit that has never been tapped. When services are requested, Primdahl or his associate, Chris Cross, visit the site to ensure that the labor requirements would be financially feasible.

"We never go onto a job site in exchange for the materials, which has allowed us to have one of the only economically self-sustaining deconstruction programs in the United States," says Primdahl, a 25-year veteran of the construction industry. Even though the operation recently was awarded a \$30,000 grant from the state Department of Environmental Quality to purchase a half dozen trailers that can be pulled behind pickup trucks, Primdahl believes that "deconstruction has moved along enough as an industry that it simply is not necessary to start a program based on grants."

The lack of dependence on recycling revenue (35 percent of total revenues) has enabled DeConstruction Services to be more efficient at recovery. "It frees up the crew in the field from picking up a board and thinking 'this has too many nails in it — if I take the time to pull the nails, what is it going to fetch at the yard?' The resale value of the materials is of no consequence to the crews whatsoever," notes Primdahl.

DeConstruction Services has a crew highly motivated by the job opportunity and environmental mission. About a third of the workers attended an Oregon State University Master Recycler program on their own time. "When I first started the program, I was actually quite concerned about whether I would be able to find people who would do this type of really hard, filthy work day in and day out; however I continue to maintain a short list of six to eight people who are ready to work for us just as soon as we can make room for them on the crew," adds Primdahl. "I have been delightfully surprised at the very few problems that I have had out there in the field."

DECONSTRUCTION HARVEST

About 85 percent of the material from deconstructed houses can be reused or recycled, according to Primdahl. "We're able to achieve that level primarily because recycling markets are fairly mature here," he notes. Items recovered for resale include: kitchen and bath cabinetry and fixtures;

new or nearly new carpeting; clean lumber that is at least four feet long; flooring, siding, trim and moldings; unbroken windows; plywood, chipwood and oriented strand board; masonite kitchen and bath sinks with no chips or cracks; interior, exterior, security and screen doors; reusable tiles, bricks, paving, etc.; faucets and plumbing; hot water heaters made in 1994 or later; electrical and HVAC supplies; bathtubs and toilets without chips or cracks; and other building/remodeling materials. Special products often available at the Rebuilding Center include wavy glass windows, weathered five-panel doors, antique cabinet doors and four-by-eight or larger laminate sheets.

Standard drop boxes are placed at job sites to separate clean lumber and wood scrap from painted or finished wood. Undersized or damaged wood pieces from a home generally fill up one 30-cubic yard container, which is trucked to mulch producers for a tipping fee of \$40/ton, compared to \$63/ton at the landfill. "Deconstruction businesses represent major opportunities for wood recyclers to increase their mulch volumes," says Primdahl.

Roofing often is sent to be ground for use in asphalt products. Glass, metal and other materials are recycled when they are too damaged or small for reuse. Painted and treated wood is landfilled to avoid health and environmental risks.

At a house that contained years of debris from transient occupants, workers took the initiative to start the recycling process before Primdahl arrived. "The crew was sorting all the debris that was left behind in piles out there and I was just shocked," he recalls. "They did that under their own volition because they knew there was a right place for the materials to go. We focus as much of our attention on recycling what isn't reusable as we possibly can."

FRUITFUL PROJECTS

In addition to the more than 70 houses that DeConstruction Services has disassembled, the crew has handled many garages, pole barns and kitchens. When it is not feasible to harvest recyclables from a structure, the group refers the owner to a demolition contractor.

At the Rosemount Commons housing project in Portland, the developer stated that he would reuse on-site as many materials recovered from deconstruction as possible, including joists and flooring. All of the concrete was ground and used for fill. "We went into the buildings first and pulled out everything we could get with our hand crews," Primdahl explains. "Then we worked with the backhoe operator. He would open up a section and pull wood boards down for us. We would go in and take them out, and denail and bundle them. The backhoe operator, who had been used to 'crunching' things his whole life, was amazed at the end of the project because there were these big piles of nicely bundled wood. He was getting into the project so much that he was pulling out

SAFETY FIRST

SINCE DeConstruction Services began, the only injuries have been two workers stepping on nails, one getting a cut on the nose that required two stitches, and another twisting a knee. Since the nail incidents, steel boot inserts were purchased at about \$9/pair for all employees. Safety glasses, gloves, hard hats and dust masks are other standard safety equipment, which costs the company about \$2,000/month.

New employees take in a two-hour safety presentation, and every work day begins with a 15-minute safety meeting and time for stretching out. A safety committee meets twice/month and workers attend an additional safety meeting twice/month. Vacuums remove any traces of lead from workers before they go home; the DeConstruction Services

lead safe program exceeds the compliance standards of OSHA, EPA and the state Department of Environmental Quality. All asbestos is removed by abatement companies.

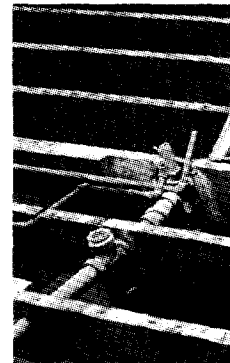
Primdahl is working with OSHA to develop standard safety protocols for deconstruction. Beyond the obvious benefits for the industry, the goal is to convince his insurance company to lower his worker's compensation rate from more than 15 percent — a total of \$8,000/month — to nine or ten percent. "The rate we are paying is based on the demolition industry," Primdahl explains. "But when the demolition industry has an accident, it is fairly substantial. They sit in cabs of big equipment and move a lot of material around. They are not walking around on boards with nails in them on the small scale that we are doing."

"Deconstruction can be done cost competitively without having to be a subsidized industry."

one-by-fours with his backhoe for our crew to denail. It completely altered his perspective on the value of materials as he worked on that project." About 60 percent of the clean wood was recovered as lumber; the rest was not recoverable and processed into mulch. About 80 percent of the six-by-eight-inch terra cotta blocks loosened by the backhoe also were recycled.

Another project involved a private Portland hospital building purchased by a major shoe company. Demolition contractors initially were very interested in removing the abundance of reusable items. "When they walked into it, they were totally overwhelmed by what to do with it all — how to get it out, how to process it and how to find a market," explains Primdahl. "I think we were about the last ones called in." DeConstruction Services removed 25 40-foot container loads consisting of hundreds of stainless steel and porcelain sinks, toilets, cabinetry, millwork, doors and other items. Most were taken to the Rebuilding Center. Other items were donated for reuse at clinics in Bosnia, Montenegro, Azerbaijan, Honduras and El Salvador in partnership with Mercy Corps International.

Not all reusable items are appropriate for the Rebuilding Center. Aluminum windows, for example, cannot be used in the Portland area because they do not meet the energy code. While preparing to send them to El Salvador, DeConstruction Services learned that the windows are not part of the culture there. They could however go to residents in Chechnya.



INDUSTRY GROWTH

Donations to other countries are coordinated through Mercy Corps International in Portland, which creates economic opportunities in areas torn by internal strife. DeConstruction Services' first project with the fellow nonprofit was the donation of containers of new and used building materials to Nicaragua and Honduras after Hurricane Mitch. Mercy Corps handles all shipping through supporter donations and government funding.

COMPETITIVE ADVANTAGE

Each client gets a project plan, a notebook with pictures before, during and after the deconstruction process, and an inventory of recovered materials. DeConstruction Services spends about \$100/house on photos and documentation. "It originally started as a way to document the tax deductions that customers get for the fair market value of the materials that are resold or recycled," says Primdahl. "In the process, I discovered they are excellent sales tools. It's hard for people to visualize taking a house apart by hand. They see a pile of nails and boards, and maybe being left with a huge mess and an unfinished job. The photo notebook shows the neatness of the process, how clean

"Prior to the development of our program, it was an industry absolute that there is no way a deconstruction crew could take a house down cost competitively with a bulldozer. We have proven that simply not to be the case."

Workers are paid \$10/hour to start, with the average pay \$13.75 to \$14/hour. Supervisors earn \$15 to \$18/hour. Despite this pay scale, DeConstruction Services receives 75 to 80 percent of the jobs on which it bids. Sometimes it has an edge over demolition because of site logistics. "We do a lot of houses on steep hills where you can't get a backhoe in very easily," he points out. The bids also cut out the several thousand dollars that general contractors have to include as contingency money in case the foundation is damaged. In one of many examples, Primdahl's winning bid of \$99,000 to take down eight houses for an athletic club was significantly below the demolition price.

OVERCOMING OBSTACLES

The typical barrier against deconstruction at job sites is the limited time available. That is not a factor for DeConstruction Services. "If the time line is a big issue to the contractor, then we will get in there with a big enough crew to get it done," notes Primdahl. At Lewis & Clark College, for example, the crew recently had ten days to deconstruct three of six houses and finished the project in nine days with about 25 workers.

To demonstrate how quickly a significant structure can be disassembled, DeConstruction Services held a deconstruction "blitz" in August at A Piece of Cake, a house built at the turn of the 20th century and renovated into a bakery about seven years ago. Despite no site preparation work, the crew completed the job in one day. "Every board had been derailed and loaded up on the truck and the site was broom clean," Primdahl recalls. "I was standing there with my mouth wide open and the owner was shocked as well. We got it done in 12-and-a-half hours."

DeConstruction Services signed its first contract outside Portland a few months ago for a job in Vancouver, Washington. After it

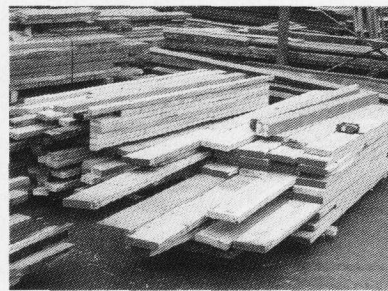
partnered with the local resource conservation and development agency for publicity, nine calls were received about 12 different buildings. DeConstruction Services picked up most of those jobs. "This is a concept whose time has come," says Primdahl, "and with the proper market for materials methodologies, systems thinking and models for bidding and estimating, it can be done cost competitively without having to be a subsidized industry." — D. B. ■

This article was based on a presentation made by Jim Primdahl at the 2001 BioCycle West Coast Conference in Portland, Oregon.

JIM Primdahl, director of DeConstruction Services, is helping organize the Used Building Materials Association (UBMA) conference scheduled for September 6-8, 2001 in Portland, Oregon. Many attendees will see Primdahl's crew in action the day before the conference. The UBMA represents for-profit and nonprofit companies and organizations in Canada and the United States that acquire and sell used building materials such as windows, doors and plumbing fixtures. The UBMA also includes companies that reprocess and recycle building materials such as concrete and asphalt.

"I've been amazed at the amount of interest in deconstruction over just the last year on a national level," says Primdahl. "I get a lot of phone calls. It seems that about twice a month I get people from out of town who want to see what our deconstruction operation is all about." He can be contacted via e-mail at primdahl@rebuildcenter.com.

"It's hard for people to visualize taking a house apart by hand. They see a pile of nails and boards, and maybe being left with a huge mess," explains Jim Primdahl of DeConstruction Services, who provides clients with a photo notebook showing the neatness of the process and what the products look like at the end.



and orderly it is, and what the products look like at the end."

The tax deduction is a determining selection factor for about a third of DeConstruction Services' clients. The owner of one large house was charged \$18,000 for the deconstruction and earned a tax deduction of about \$53,000 for the value of the donated materials. A 1,200-square-foot house typically can claim from \$5,000 to \$8,000.

On a dollar to dollar basis, deconstruction appears to be a winner over standard demolition. "What we have discovered is that our crews are cost competitive straight up with the bulldozers," says Primdahl.