

Taking Demolition by the Hand

Deconstruction Industry Poised for Growth as Green Movement Gains Momentum with Net Gains for Clients

By Deanna Glick

Turns out, doing something right for the environment can turn a profit for those in the deconstruction business, as well as their clients.

Growing revenue streams, including labor contracts, reduced landfill fees, resale of materials and tax deductions from donated materials appears to be driving the growing business of building deconstruction, said Paul Hughes, owner of the only company that provides the service in the greater Washington, D.C. region. The concept involves carefully disassembling residential and commercial buildings that might otherwise be destined for complete demise and disposal so that the materials can be reused or recycled.

Hughes said the pleasant surprise comes when clients come to DeConstruction Services, LLC, in Fairfax, Va., and realize the value of stuff gleaned from a deconstruction project – from kitchen cabinets to trim molding – can add up to gains that big machines with wrecking balls attached simply can't provide.

"A donation can mean \$40,000 in tax savings and we're not charging anywhere near that to tear the house apart," Hughes said. "They can net a profit. The clients lean green, I guess, and then the financial thing is a cap stone."

In fact, the average cost to deconstruct a house is around \$20,000, he said. The contents are appraised and then recycled, donated or sold. Hughes has established partnerships with local nonprofits Habitat for Humanity and Community Forklift, which resell donated items and use the revenue to provide services. Hughes' clients have so far donated \$3 million worth of materials.

Deconstruction has been known mainly as an environmentally friendly alternative to traditional demolition. It diverts an estimated 136 million ton chunk of building-related construction and demolition waste from U.S. landfills each year; 92 percent of that from renovation and demolition. As a result, demolition of buildings in the United States produces 124,670,000 tons of debris each year; enough to build a wall about 30 feet high and 30 feet thick around the entire coast of the continental United States (4,993 miles), according to the Web-based Deconstruction Institute.

Hughes' service has freed up 705,000 cubic feet of landfill space and avoided \$213,000 in demolition disposal costs during its four years of taking buildings apart. Doing that involves paying attention to every detail of a house in the name of potentially giving it a second life: lighting fixtures, hardwood flooring, countertops, sinks, bathtubs, toilets, shower doors, exterior shutters, cement pavers, porch lights, garage doors and automatic garage door openers. What's more, broken wood beams can be turned into wood chips for landscaping, asphalt shingles into road patch, metal recycled for remanufacturing and masonry turned into newly sized aggregate for road bed. Pressure-treated wood and vinyl siding can be reused rather than leeching chemicals into the water supply from landfills over time.

Plus, there's the economic vitality gained through training for green collar jobs, the market for used materials and the market for blue collar workers, Hughes said.

"This is not picking up a sledge hammer and banging on walls," Hughes said. "You have to take down chandeliers





Kitchen cabinetry is carefully disassembled and functioning appliances removed to be resold.



Window blinds are often standard-sized so they can be relocated to another home.

and clip off the mercury in a thermostat. The construction industry sub-contracts everything to avoid having employees and all the benefits you have to pay. We're trying to do the opposite in a field that's growing. Men cost more than machines and take longer. It takes us two weeks and two days to take down one house versus demolition, which would at most take three days. They load the dump trucks and it's gone. We reverse engineer it. And that takes longer to do."

That's just one of several details the demolition industry, the chief competitor for companies such as Hughes', has taken aim at when it comes to deconstruction. The National Demolition Association points to projects with deadlines that can't be met by such contractors and appears to have been on the offensive over the past several years.

The association issued a report nearly a decade ago suggesting deconstruction is simply part of what demolition contractors have always done, referring to high-profile projects, such as the Sears Catalogue Warehouse in Chicago, from which massive amounts of materials were salvaged. While claiming up to 90 percent of materials are reused or recycled through traditional demolition, the association also suggests deconstruction could be an incomplete service with questionable safety and employment standards. And, according to the association, the process takes more time and, therefore, more money.

Not necessarily, said Tristan Korthals Altes, managing editor of Environmental Building News, a monthly magazine published by Building Green. The rising market price of scrap metal and credits earned through the Leadership in Energy and Environmental Design rating system are among the reasons deconstruction makes financial sense. The LEED system, overseen by the U.S. Green Building Council, is a voluntary, consensus-based standard to support and certify successful green building design, construction and operations in exchange for tax credits.



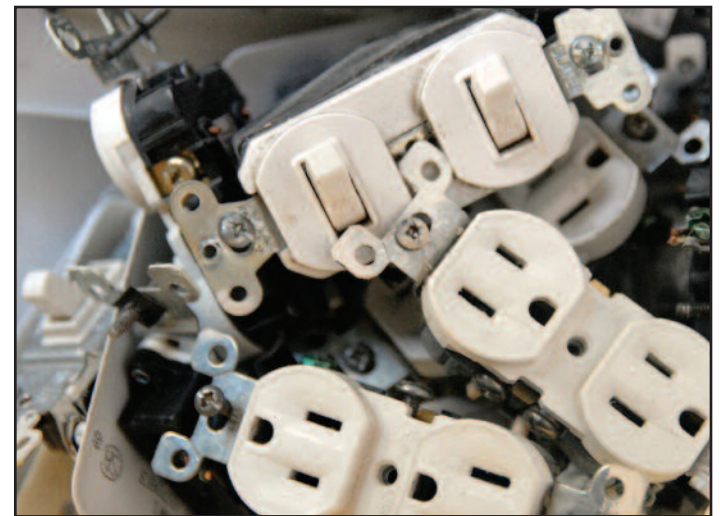
Modular cabinets can be taken apart step-by-step and reassembled elsewhere rather than going to a landfill.



A Deconstruction Services worker carefully removes wallboard and insulation from the home they are deconstructing.



Insulation is recovered and bagged up. Much of it can be recycled and used elsewhere.




Doorknobs, light switches and electrical outlets are all smaller items that can easily be recycled.



Rather than loading directly into dump trucks, workers carefully pile wood, wallboard and other debris so it can be sorted and evaluated for reuse.

“In the best cases, you can make money and at the very least recover costs. There’s a market for everything. There are very few things you have to throw away,” he said, adding that demolition and deconstruction should join the same team. “It’s a false dichotomy. Of course they should be working together. The demolition people need to become more aggressive about reducing waste and recycling and many of them have been doing that, but as an industry they really need to improve. And the deconstruction people need to realize there are costs associated with their business. Everyone should have the same goals of reducing construction costs and reducing environmental costs and you can do both at the same time.”

Hughes said spreading the word about incentives among entities that issue labor contracts remains his industry’s biggest challenge. Private builders and municipalities are often missing out on valuable incentives to deconstruction due to ironclad contracts or traditional bidding processes that give up salvage rights to demolition subcontractors, he said.

“Any builder could benefit from this if they add a simple line in the contract that says they retain salvage rights,” said Hughes, a former public administrator. “Cities have an obligation to lead by example and to build a market for recyclable materials much like they create a market for natural gas vehicles.” 



U.S. Green Building Council Statistics

The built environment has a profound impact on our natural environment, economy, health and productivity.

In the United States alone, buildings account for:

- 70 percent of electricity consumption
- 39 percent of energy use
- 39 percent of all carbon dioxide (CO₂) emissions
- 40 percent of raw materials use
- 30 percent of waste output (136 million tons annually)
- 12 percent of potable water consumption

DeConstruction Services company statistics

While industry wide statistics on deconstruction have not been compiled, DeConstruction Services, LLC, in Fairfax, Va., has compiled the following information about its own practices from August 2004 to February 2008 based on the Deconstruction Institute’s online “Benefit Calculator” at www.deconstructioninstitute.com.

- Number of deconstruction projects completed: 111
- Value of property owner donations of reclaimed used building material: \$3 million
- Square feet deconstructed: 167,000
- Number of harvestable trees saved: 2,762
- Equivalent number of football-sized field size plots of plantation pine trees needed to produce the number of harvestable trees saved: 586
- Square feet of deconstructed lumber provided for affordable housing: 55,240
- Number of extra worker man-years resulting from deconstruction instead of demolition: 14.6
- Total BTUs (in millions) of embodied energy preserved: 75,000
- BTUs (in millions) of embodied energy preserved by:
 - Recycling steel and plastics: 4,900
 - Reuse of recovered lumber: 2,000
- Equivalent gallons of gasoline saved: 17,456
- Equivalent number of greenhouse gas-emitting cars taken off the road as a result of recycling & reusing lumber & panel products: 239
- Equivalent tons of greenhouse gases not produced if wood is reused: 20.9
- Tons of copper and brass recycled: 1.6
- Tons of aluminum recycled: 4.8
- Tons of ferrous metal recycled: 29.0
- Tons of misc./mixed metals recycled: 2.0
- Tons of clean wood recycled: 490
- Tons of asphalt roof shingles recycled: 178.5
- Ounces of toxic mercury recovered: 7.3
- Pounds of Freon recycled: 118.7