

Waste: It's not just trash anymore

"Waste miser" Mark Lennon of the Institution Recycling Network discusses the value of construction and demolition waste. by John Oberlin, Online Editor



Don't throw away that construction and demolition waste. Along with the changing worldview that there is no "away" in "throwaway," routing waste to the landfill is also expensive. Treating waste as an asset, the Institution Recycling Network (IRN) helps projects divert waste to end markets that pay for the material. With its "waste miser" paradigm, the company provides a single point of contact to manage recyclable materials on construction and demolition projects. Mark Lennon, a principal at IRN, discusses the process, challenges, and benefits of construction and demolition recycling with John Oberlin, *HEALTHCARE DESIGN* online editor.

Oberlin: What is your organization all about?

Lennon: We try to be two things. One is a one-stop shop for recycling. So no matter what an organization needs to recycle, we find a way to do it, whether it is electronics, florescent lamps, paper, cardboard, or construction waste. Two, we know where the markets are for the materials and how to optimize value. We pool the market power of all the people who work with us, so that when we go into the markets we can get them the best prices possible. And the same thing for service: If a company with 50 people calls waste management, waste management won't care because they are a tiny account. But when somebody like us calls representing 150 organizations, we get people's attention. We also qualify the markets by making sure they're permitted; if they claim to recycle, they are actually recycling; if they tell you it's going to cost \$40 a ton to process your wood, that's the best price their giving to anybody who is their customer.

Oberlin: So how does the construction and demolition waste management process work?



Lennon: The basic idea is to come up with a plan that gets as much material as possible out of the waste stream and make it go away for as little money as possible. So we find ways to separate materials and get them to markets that specialize in those materials. For example, if you are doing a project that has brick, cinderblock, or concrete waste, and you put that in a landfill in the Northeast, it will cost, say, \$100 a ton to do that. If you send it to somebody who will recycle asphalt and brick as mix construction waste you might spend \$80 a ton. But if you can separate that material and send it to somebody who specializes in asphalt, you'll pay \$10 a ton. There are huge savings, and that kind of saving is true for just about every kind of material that comes off a construction project. You might be able to recycle wood for \$30 a ton; if you send it to a landfill, you're looking at \$80 to \$100 a ton. There's a serious economic motive to separate materials and get them to markets that specialize in those materials. In a lot of cases, the environmentally and financially best end use for the recycled material is if it is separated and hasn't

gone through a mixed-waste process. But there's no comparison at all to a landfill.

Oberlin: What are the usual waste streams?

Lennon: It depends on the type of construction, whether its new construction, renovation, or demolition. But by weight, the two biggest are aggregates—concrete, concrete block, brick, and asphalt—and metal. And then, depending on the project, others can be big. A wood-frame building would obviously create a lot of wood. If you're taking off an old roof, there is tons of roofing material. Gypsum wallboard is another big one for new construction, because about 15% of what you buy is cut off as waste material.

Oberlin: And so, for example, what kind of end market would you sell aggregate to?

Lennon: That goes to somebody who is producing aggregates for new construction. So it would be ground up and used as road base—for fill, for constructing the parking lots—or grading for landscaping and things like that.

Oberlin: Are there any special considerations, challenges, or opportunities for healthcare projects?

Lennon: Really, the biggest opportunity for healthcare projects is not a direct one. The opportunity lies in the whole social stance of healthcare, which is to make people well and to improve their living environment. Recycling has so many environmental advantages in terms of energy consumption, carbon emissions, and emissions of other pollutants, that not recycling is absolutely contrary to a hospital's core mission. But other than that, hospitals are like other construction projects. Also, hospitals have been among the most aggressive sectors in adopting sustainable building practices overall. Recycling is, for one, an integral part of that, but it's also one of the most visible parts of that. Your patients and visitors are not going to see something like advanced air handlers, but they can see the sign on your construction site that says we recycle 95% of the waste here. It's one of the clear statements that can be made about a hospital's stance toward sustainability.

Oberlin: The 95% recycle rate on the MaineGeneral Medical Center is impressive (see table). Is that one of your best rates, or is this average?

Lennon: We would consider that a benchmark. But we're different than most companies who would consider 75% really aggressive. We past that bar years ago.



By dividing waste streams such as aggregate, steel, wood, and gypsum wallboard, IRN achieved a 95.9% recycling rate in the construction of MaineGeneral Medical Center, a three-floor, 30,000-square-foot outpatient cancer treatment facility (shown in rendering above).

Size: \$20 million
Duration: 18 months
Location: Augusta, Maine
Contractor: H.P. Cummings
Architect: SMRT

Material	Tons
Concrete	111.7
Brick	17.8
Cardboard/Paper	0.7
Gypsum Wallboard	57.4
Metal	7.7
Wood	28.8
Mixed Debris (net)	35.6
Total Project Reuse and Recycling	259.7
Total Waste Disposal	11.0
Project Recycling Rate	95.9%

Oberlin: What are you doing differently to hit these high rates?

Lennon: A lot of waste haulers will simply tell you to throw your stuff in a can of mixed debris like you always have, and they'll take it to somebody who will separate and recycle it. In New England at least, we have some really good haulers, so we'll get about an 80% recycling rate. Around the rest of the country it's from 30% to 70%, and in odd cases 80%, but that's business as usual for most. We try to get as much material separated on the construction site as possible because that's where the biggest economic and environmental advantages are.

Oberlin: How does this fit into contractors' day-to-day operations? Does IRN set up different dumpsters and make sure the contractors use them correctly?

Lennon: It actually turns out to be easier than that because in most construction projects a single group of workers are producing one kind of waste. So if you have workers putting up steel framing, plumbers, or electricians, they are producing metal. If you have workers doing wood framing, their producing wood as waste. It's rare that we have to have five dumpsters lined up on the site because usually only one or two kinds of waste are being generated at once. So you're asking the workers to do nothing more than what they've always done, which is, "Take your waste and put it somewhere." That's the hardest part to explain: It's just not that difficult of a process. The hardest work is in the planning, knowing what's coming up, and knowing what size containers to provide. But as the contractors are concerned, it's the same rule as always: You create a waste, you put it here.

Oberlin: Can a healthcare system actually make money from its construction and demolition waste?

Lennon: It would be rare that they would make money, but in terms of dropping money to the bottom line or the total impact on a budget, it's the same thing to save \$50,000 as it is to make \$50,000. It all goes to the bottom line.

Oberlin: What kind of savings have projects realized from this?

Lennon: It really depends on the project. If it's a project heavy on sheetrock and roofing materials, the savings are much less than a project heavy on metal and concrete, so it's hard to give a generic answer to that. There's never been a case where the all-in costs to recycle has been a penny more than the cost to call in dumpsters and just throw stuff away.

Oberlin: I remember that Nick Nichols, environmental coordinator at Gunderson Lutheran Hospital in Wisconsin, who presented with you at CleanMed 2008, stressed that hospitals should look at their construction waste as their property, not just insignificant trash. What's your view on that?

Lennon: The more hospitals control their waste, the more money they can save. Except for the few but growing number of contractors that consider waste management as something that can differentiate them in the market, typically the contractor's estimator looks at the type of building and the square footage and creates an estimate of the waste volume based on that. He just writes down a waste number on his estimate. And that's all they want to think about it. So if a hospital wants something other than that to happen, then the hospital should think of its waste as an asset and money-saving material.

For more information, visit www.ir-network.com.



<< Carts filled with ductwork removed during a renovation at Boston Scientific in Marlborough, Massachusetts.