



Drywall Recycling: Creative Answers to a Growing Need

Charlotte, N.C., companies identify cost-effective, efficient ways to access region's gypsum reclamation center

BY TODD BROUD

Charlotte-area landfills received more than 75,000 tons of drywall in 2007. Mecklenburg County's Foxhole Landfill was a member of the region's first Drywall Consortium that sought to identify a solution to the area's growing need to recycle clean drywall construction scrap.

Despite the down economy, more than eight in 10 commercial real estate executives involved in green construction say they're "very" or "extremely" likely to seek LEED certification for facilities they plan to build within the next three years, according to a 2008 Turner Construction Co. survey.

As the number of jobs pursuing LEED certification grows, so too will the need for cost-effective alternatives for recycling clean drywall construction scrap.

It's estimated that construction and demolition materials account for nearly 25% of all solid waste. That total is comprised of a number of major contributors, including wood, masonry, roofing materials and gypsum drywall—up to 64% of which is virgin scrap from new construction that could

be recycled but most commonly is not.

As a naturally occurring, fire-resistant mineral, gypsum is 100% recyclable. That means clean drywall construction waste can be put back into the manufacturing process or used in a handful of ways in the agricultural industry.

Despite that fact, more than 75,000 tons of drywall were sent to landfills in and around Charlotte, N.C., in 2007. That's why in 2008, gypsum drywall manufacturer National Gypsum partnered with general contractor RT Dooley to create the area's first Drywall Consortium.

As local leaders in the sustainability movement and innovators in their respective fields, the teams at National Gypsum and RT Dooley were eager to

work with area colleagues to find a solution.

"Charlotte continues to be among the fastest growing regions in the country," said John Mixson, LEED AP, director of marketing at National Gypsum, and head of the company's sustainability efforts. "Right now there are 128 registered projects pursuing some level of LEED certification in our area in addition to the 28 that have already achieved it. That number will rise as our city continues to grow and develop, which is why we needed to identify a better means for recycling clean drywall construction waste."

"We were ready to find a more logistically efficient way to recycle virgin drywall scrap," said Emily Scofield, MS, LEED AP, safety and environmental director at RT Dooley.

“But beyond that, we wanted to establish a forum where people from different sectors of the local commercial construction community could come together to discuss sustainable environmental solutions.”

Negating Sustainability Efforts

When the Drywall Consortium first convened in October 2008, National Gypsum and RT Dooley invited four Charlotte-area businesses to join them, including Lee Construction Co., Linda Construction Co., Rodgers Builders, and Allied Waste Industries. Together, these six founding organizations represented every major aspect of the drywall industry, from manufacturing and subcontracting to construction management and solid waste management.

At the time, the majority of the group knew of only one gypsum reclamation center in all of North Carolina, South Carolina, Virginia, and Tennessee. The site, located approximately 35 miles southeast of Charlotte in Marshville, N.C., had been recycling drywall since 1999 and selling it in bulk to local farmers at a fraction of the price of the virgin agricultural gypsum they traditionally used as a soil amendment.

To get to Marshville, the region’s haulers had to drive nearly three hours and 80 to 100-plus miles roundtrip. In doing so, they’d been able to earn LEED credits for recycling materials, but in effect negated their sustainability efforts by increasing fuel consumption and air pollution, and losing valuable man hours while haulers made repeated half-day trips out of town.

The Drywall Consortium met two more times before the end of 2008, and as its discussion evolved, so too did its membership. In November, the Mecklenburg County Solid Waste Department joined the conversation, and a month later, so did Griffin Brothers, a family-owned operator of six construction and demolition reclamation centers located throughout the greater Charlotte region.



Foxhole Landfill separates clean drywall scrap from other construction and demolition waste and holds it until the next pickup is arranged.



Once Foxhole accumulates 80 to 100 cubic yards of drywall scrap, Griffin Brothers transports it in one large, efficient load to the reclamation center more than an hour away.

A Winning Combination

It was with these late additions that the Consortium made its biggest short-term breakthrough. As a result of its open dialogue, the group discovered four local sites that serve as drop-off locations for

clean drywall waste, therefore eliminating the expense of hauling scrap to Marshville in individual loads.

The first, Mecklenburg County’s Foxhole Landfill, began separating clean drywall scrap last summer.

"When a contractor arrives at the Foxhole's weigh station with a load of clean drywall scrap, we immediately radio a heads-up to the face of the landfill," said Michael Talbert, senior environmental specialist for the Mecklenburg County Solid Waste Department. "There, we divert it into a pile separate from the rest of the construction and demolition waste. We accumulate about 80 to 100 cubic yards, and then arrange for Griffin Brothers to pick it up and haul it to Marshville in one efficient load."

In addition to managing the Marshville facility, which it purchased from Union Gypsum late last year, Griffin Brothers owns and operates five reclamation centers, three of which are located in the Charlotte region. The State of North Carolina permits these centers as construction and demolition landfills, which gives local jobsites three more drop-off loca-

tions just north, northeast and south-east of Charlotte.

"We accept all clean drywall scrap, regardless of whether the pieces are cut-outs, broken, damaged or unusable for some other reason," said Mike Griffin, owner, Griffin Brothers Companies. "That includes any wall-paper-free, unpainted gypsum board, regardless of its type or manufacturer."

Griffin Brothers separates the clean drywall scrap collected at its reclamation centers before transferring it with front-end loaders into 38-ft Peterbilt dump trailers. The contents of the trailers are then covered with tarps to control dust during transport to Marshville, which operates as a treatment and process facility.

Since February 1 of this year, Marshville has received nearly 3,095 tons of recyclable drywall scrap, including 2,132 tons from Griffin

Brothers reclamation sites, and a combined 962 tons from Mecklenburg County's Foxhole Landfill, deliveries direct from jobsites, and other sources. That equates to nearly 155 tons of drywall scrap diverted from Charlotte area landfills each week.

When it arrives in Marshville, the scrap is hand- and machine-fed into a 1999 Morbark 950 tub grinder. The majority of this process takes place inside, where dust is controlled by a vacuum-like ventilator system. After the material exits the tub grinder, it is further processed and separated. The recycled materials are then fed directly into a truck or stored inside for future pickup.

"We recycle scrap material into paper and powder byproducts," said Griffin. "The paper is sold as an absorbent material in poultry houses, while the powder can be used in land application as a source of calcium for crops and also as soil amendment."

It's a win-win situation, according to Matt Ewanger, manager of the Recycling Business Assistance Center for the North Carolina Department of Environment and Natural Resources' Division of Pollution Prevention and Environmental Assistance. "This is probably one of the best combinations of economic development and environmental stewardship you can have," he said. "On one hand, you're doing something that's creating jobs, and on the other, you're conserving the region's resources. What could be better than that?"

Since late last year, the Drywall Consortium's members and others have used the immediate short-term solutions the local transfer stations offer in a way that will have a long-term impact on the Charlotte region's air and natural resources. By hauling to the local drop-off sites identified by the Consortium, Allied Waste Industries anticipates it will save nearly 4,000 gallons of fuel and cut 18,000 miles and 45 tons of carbon dioxide emissions in 2009. Similarly, Linda Construction estimates it will save



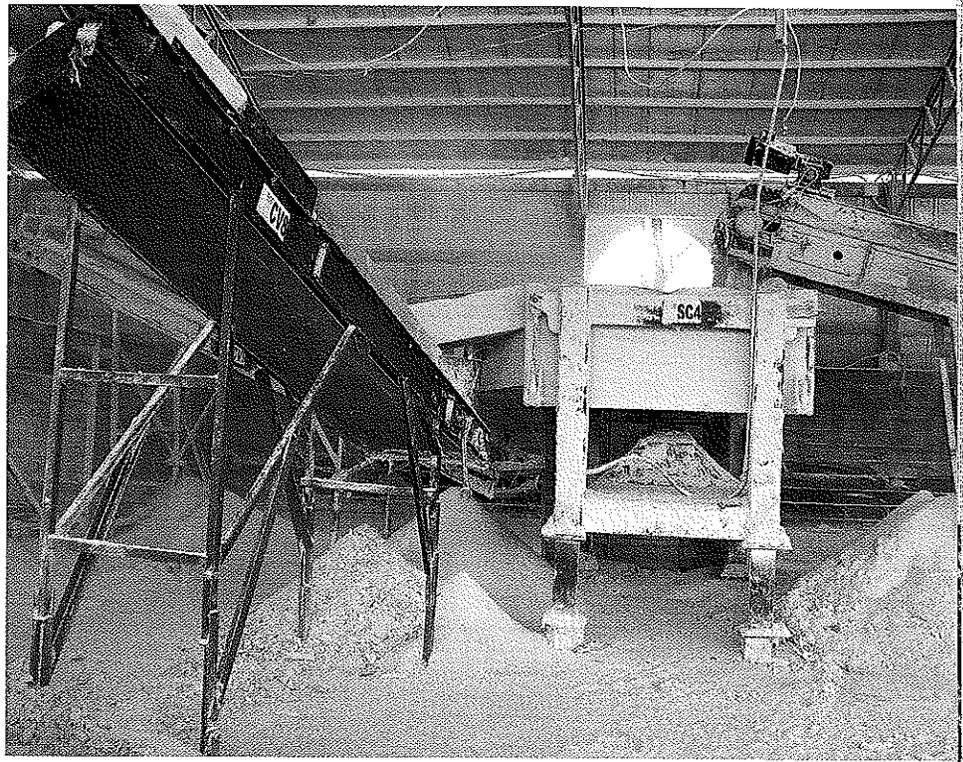
When clean drywall scrap arrives at the Marshville reclamation center, it is loaded into a Morbark 950 tub grinder.

nearly 3,500 gallons of fuel and cut 1,000 miles and 39 tons of carbon dioxide emissions. The region's other haulers are expected to experience equally significant cost savings and efficiencies as a result of the Drywall Consortium's findings.

A Dialogue That Can Lead to Fresh Alternatives

The Consortium's members don't intend to stop here. They continue to search individually and as a group for longer-term solutions for recycling clean drywall that, once established, also could be applied to other building materials. The Foxhole, for example, already accepts concrete and untreated, unpainted lumber and is currently pursuing permits to also accept asphalt singles.

"Mecklenburg County and its municipalities have set a goal to recycle at least 50% of all construction waste within the next 10 years," said



After grinding, the drywall is loaded onto conveyors and prepared for processing.

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Talbert. "To achieve that goal, we're actively pursuing all possible opportunities to recycle a wide variety of materials."

Griffin Brothers is equally ambitious. Within the next year, the compa-

ny plans to open a larger, more environmentally friendly recycling facility at its reclamation center just northeast of Charlotte.

"With the new facility, we'll be able to reduce fuel consumption, car-

bon dioxide emissions and the amount of time it takes for haulers to transport clean scrap to the recycling site," said Griffin. "And because 100% of the process will take place indoors, we'll be able to control dust, eliminate stormwater runoff and improve indoor and outdoor air quality."

In addition to being a significantly closer final destination for clean drywall scrap, Griffin Brothers plans for the new location also to recycle cardboard, concrete and metal. The Marshville operation will shut down once the new facility opens.

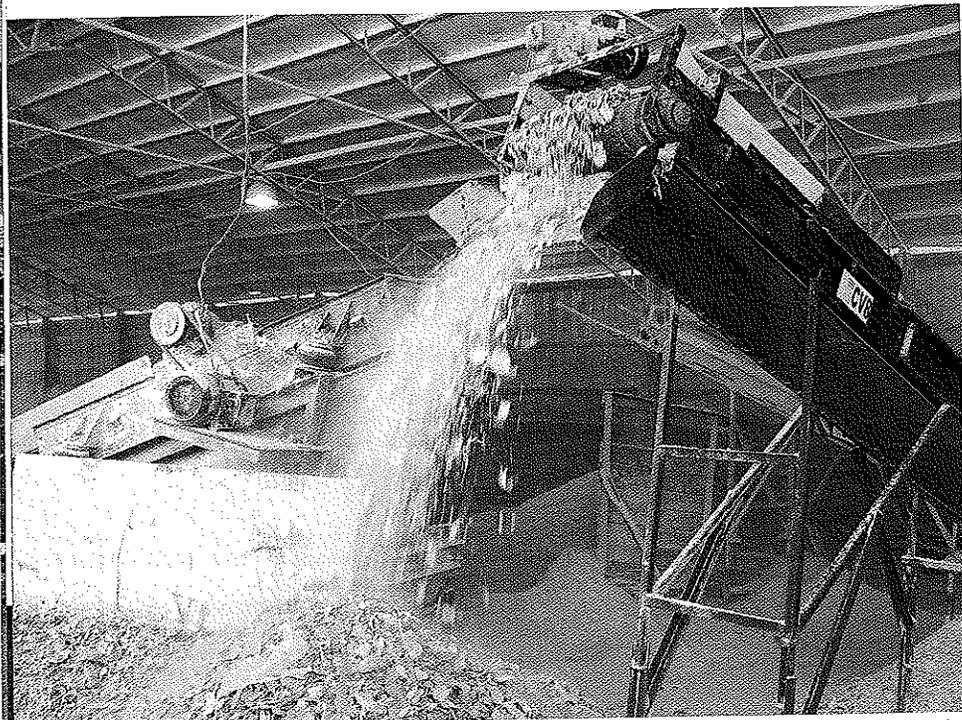
"There are different advantages to recycling different materials, which ultimately can result in a combination of benefits," said Ewadinger. "In some cases, the focus is on conserving resources, while in others the priority is conserving energy or minimizing the impact on the land. But regardless of that end goal, I think there are a lot of synergies between what the Charlotte community has already done with drywall recycling and what could be done with other clean construction materials."

The Drywall Consortium's members agree and believe that, as sustainable building practices become more common nationwide, so too will the dialogue among groups like theirs, which in turn will lead to innovations and new alternatives to today's limited options.

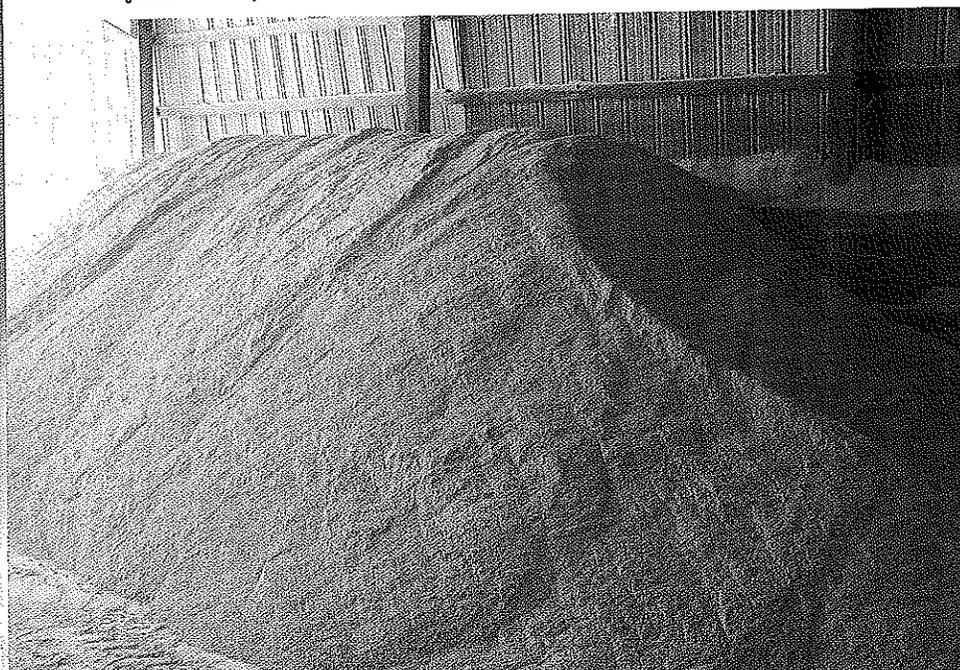
"It's going to become even more important for us to find responsible ways to deal with clean construction waste as interest in sustainable building practices continues to grow," said Mixson. "And while different markets will likely arrive at different answers, the first step is to get the right people together so they can address the challenge from various perspectives and work collectively to identify fresh, creative solutions."

Author Information

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Marshville recycles scrap material into fine powder and paper byproducts that can be used in a variety of ways in the agricultural industry.



As a result of the Consortium's efforts, Charlotte-area haulers say they will drastically reduce fuel consumption, mileage, and carbon dioxide emissions. Here, powder byproduct is stored for pickup from Marshville.