



Recycling Works

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RBAC Moves to Green Square – An Innovative and Sustainable N.C. Government Complex

by Jill Pafford, Green Square Project Manager and Matt Todd, Recycling Business Development Specialist

The N.C. Recycling Business Assistance Center made a big move since the Fall 2011 issue of *Recycling Works*. RBAC, along with many other Department of Environment and Natural Resources offices, moved into a new office building in downtown Raleigh. Next time you need to meet RBAC staff, or find yourself in Raleigh for the day, please stop in and see us. Visitor parking is available in the parking deck across the street, as well as on-street parking on the surrounding blocks.

The Green Square project is a two building complex adjacent to the N.C. Museum of Natural Sciences in downtown Raleigh. It includes a 172,000 square foot office building for the DENR and an 80,000 square foot ex-

pansion to the N.C. Museum of Natural Sciences. Sustainable design and management strategies were implemented from the demolition of the existing buildings, throughout the new building design phase, and in the construction of the two new state-owned buildings. While both buildings are pursuing a Leadership in Energy and Environmental Design (LEED®) Gold Certification, sustainable features beyond the LEED® requirements were incorporated into the buildings. The reuse and recycling of materials was a key goal throughout the design, construction and in the occupancy of both buildings.

The demolition contract for the three existing buildings included a DENR-generated materials management plan and a requirement to recycle at least 75 percent of the demolition debris. In the end, the contractor recycled more than 98 percent of the waste material, including wood, concrete, brick, drywall, steel, copper, doors, windows and marble. Both new buildings showcase wood, bricks and marble recovered and reused from the previous

(Green Square continued on page 4)



Last fall, RBAC offices moved to the new N.C. Department of Environment and Natural Resources headquarters, shown above, part of the *Green Square* sustainable building project.

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Mattress Go Round Open for Business and Looking to Expand

by Sherry Yarkosky, Recycling Business Development Specialist

Started by entrepreneur Robert Savino, *Mattress Go Round*TM opened for business in Greensboro in 2011. *Mattress Go Round*TM is an institutional mattress recovery, reuse and remanufacturing facility. Its motto asks the question: Why would you ever buy a new mattress again? In the first summer of operation, the company recycled and refurbished 5,000 mattresses. They have a goal to increase recovery and remanufacturing of mattresses to 100,000 per year.

Mattresses are problematic for landfills. Big and cumbersome, they take up an average of 23 cubic feet per mattress. Mattresses do not decompose well and are not compactable. They also create operational problems as the metal innersprings get caught in the axles of landfill equipment. Increasingly, landfill operators are charging higher tipping fees for mattress disposal or banning them outright.

President and CEO, Robert Savino describes *Mattress Go Round*TM as an environmentally sustainable mattress-exchange program. "Through a unique combination of manufacturing and recycling, we recycle old mattresses and transform them into factory-fresh mattresses and sell them back for a lot less than what other companies charge."

The *Mattress Go Round*TM recycling and remanufacturing process involves the onsite removal and collection of old mattresses from colleges and other institutions. The mat-



*Mattress Go Round*TM employee (above) removes old cotton padding from the metal innerspring frame.



Cotton padding from old mattresses is baled and ready to be sold to scrap dealers.

tresses are transported to an indoor recycling/remanufacturing facility (also recycled from its former life as an abandoned textile mill). At the factory, workers deconstruct the mattresses by removing the cover, cotton or felt padding and polyurethane foam from the metal frame. All of the components of the old mattresses are segregated by type and prepared for either reuse or sale to recycling markets. All foam and fabrics are sold to scrap dealers, while the metal innersprings are reused. Nothing goes to the landfill.

Before being reused, the innersprings are inspected, repaired if needed, and strength-tested before being treated in a state-of-the-art sanitizing system. *Mattress Go Round's*TM refurbished mattresses are built with all new fillers and covers, with the sanitized metal innersprings serving as the "skeleton" for the new unit. The mattresses are sold back to the institution for 25 to 60 percent less than the cost of a brand-new mattress. With institutional mattresses replaced every five years, refurbished mattresses can help reduce operational costs at a time when university budgets are under more pressure than ever.

*Mattress Go Round*TM is a partner of the Welfare Reform Liaison Project, a Greensboro-based welfare-to-work agency providing employment and life-skills training to economically disadvantaged individuals. "Our core mission is to recycle mattresses, but we also recycle lives," comments Robert Savino. *Mattress Go Round* supportsTM

(Mattress Go Round continued on page 3)

CRA Conference – A Great Time to Network and Learn

by Scott Mouw, Chief, CBAS

The 22nd annual Carolina Recycling Association conference is an event recyclers will not want to miss. Scheduled for March 20–23, 2012, at the Grove Park Inn in Asheville, the conference will feature many opportunities for recyclers to build market relationships, talk with leading equipment and supply vendors, and learn about the latest trends in recycling in the Carolinas.

Conference sessions will address a wide array of hot topics, including single stream recycling and the use of carts, rural recycling, new materials in the residential collection mix, food waste collection and processing, material processing facilities, away-from-home recycling and material markets. Specific commodities such as electronics, shingles, carpet and glass will also receive attention, as will new developments in the drive to ‘zero waste’ and corporate initiatives on packaging materials.



In addition to a full slate of sessions, the conference offers exhibit and sponsorship opportunities designed to increase exposure of recycling companies and vendors to the greater Carolina recycling community. Past attendees can testify to the tremendous amount of business that gets done at the CRA conference.

For more information on the 2012 CRA conference, please visit: <http://www.cra-recycle.org/2012/>

***Mattress Go Round** continued from page 2*



Mattress Go Round™ employees (above) inspect and repair mattress innersprings prior to entering the patent-pending sanitizing process.

strengthening the local community by employing individuals who are traditionally viewed as unemployable, such as ex-offenders.

“Through the skills obtained through Welfare Reform Liaison Project and the dignity of having a good job, our employees take tremendous pride in their work and are very loyal and hard-working,” states Savino. *Mattress Go Round™* employs 29 people working three shifts during

the peak season from May-August and seven permanent employees during the remainder of the year. The company expects to grow and hire more employees as they partner with more N.C.-based colleges, universities and institutions.

For more information about *Mattress Go Round™*, visit <http://www.mattressgoround.com/> or contact Savino at rsavino@mattressgoround.com or Andrew Brod, vice president, at acbrod@mattressgoround.com or 336-676-4646.



Refurbished mattresses are built with all new fillers and covers — only the sanitized metal innersprings are reused. The finished product, seen above, is ready to be shipped to a state university.

Green Square continued from page 1



More than 4,500 tons, or 98 percent, of material from the demolition of existing buildings on the Green Square site (seen above) was recycled.

buildings. In addition, the contractor netted a significant cost savings of almost \$360,000 by recycling the majority of the demolition material, using a wide variety of markets from steel recyclers to Habitat for Humanity.

Design of the new buildings began in October 2007 and incorporated high standards for recycled content and recyclability of the materials in the building structure, furnishings and millwork. The materials in the DENR office building have an average of 37 percent recycled content.

Similar to the demolition contract, the construction contract set a goal to recycle at least 75 percent of construction debris. The DENR building contractor recycled more than 93 percent of construction waste, saving more than 2,100 tons of waste from the landfill. The contractor for the NRC building is also on track to recycle more than 90 percent of construction waste.



Contractors took special care to reuse items from the demolition process in the Green Square complex. For example, they removed bricks from the previous buildings (see above) into separate piles, then palletized them for reuse in the new construction. Signage on the new building helps educate the public about its green features.

Employees moved into the newly completed DENR office building in October 2011. Employees received a large individual recycling can and a small individual trash can. The size difference reinforced the expectation that most of the employee's "waste" could and should be recycled. New purchasing guidelines require that any new furnishings or equipment will be considered on its sustainable merits (e.g., recycled content, GreenGuard certification, or Energy Star rating) before the purchase. Even the reuse of rainwater is integral to the design and function of both buildings. All the rainwater falling on the vegetative roof collects in cisterns behind each building. This water is filtered and treated, then used in the toilets, irrigation system and as cooling tower makeup water.

Though recycling is a key goal of the two buildings in the Green Square Complex, both buildings incorporate a number of other sustainable features. Examples include daylighting to get natural light into the core of the building, GreenGuard certified furnishings, photovoltaic panels, energy efficient plumbing fixtures, drought-resistant landscaping, and pervious pavers. The most unique feature to each of the buildings is the 100 percent LED lighting. Despite its higher initial cost, the LED lighting saves on both utility and maintenance costs. High-efficiency LED lighting not only uses less energy, but also has cooler light fixtures thereby reducing HVAC costs. With a long service life, LED lighting reduces maintenance cost due to infrequent bulb replacement.

The Green Square complex is located on the 100 and 200 blocks of West Jones Street in downtown Raleigh. The address for the DENR office building is [217 W. Jones St. Raleigh, NC 27603](http://217.W.Jones.St.Raleigh,NC.27603). For more info on the Green Square complex, please visit the DENR [Green Square](#) website or the website for [O'Brien/Atkins](#), the project architects.



2011 Southeast C&D Debris Recycling Conference Wrap-up

by Matt Todd, Market Development Specialist

The Southeast Construction & Demolition Debris Recycling Conference took place Dec. 6-8, 2011, in Columbia, S.C. This was the second consecutive C&D conference presented by the Carolina Recycling Association, produced in partnership with the S.C. Department of Health and Environmental Control, N.C. Department of Environment and Natural Resources, and U.S. EPA Region IV.

The 2011 C&D conference continued the quality learning and networking opportunities developed at the 2010 C&D recycling conference. The 2011 conference included nine sponsors and 21 exhibitors. More than 170 attendees participated in an active agenda, filled with educational sessions, tours and networking events.

In addition to offering continuing education credits for the U.S. Green Building Council, National Association of Home Builders and Solid Waste Association of North America, the C&D conference provided the opportunity to hear about new C&D resources from industry heavyweights like Waste Management and SAIC. In addition, grassroots companies attending the conference told their recycling success stories. Companies like Ashville Archi-

tectural Salvage and GreenBy3 showcased some of the impressive work they are doing in their communities. Abbey Green, Pitt County and Earth First C&D Recycling processors and local government trailblazers in C&D recycling.



Conference attendees participated in an active agenda working to advance C&D recycling in the southeast.

View the full agenda and session presentations, including those from the companies mentioned above, at the [official conference web site](#).

Natural Capital Investment Fund

NCIF makes loans and investments in the \$35,000 to \$250,000 range, primarily to expanding businesses.

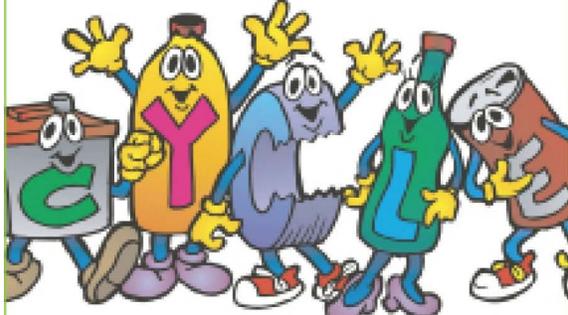
Recycling businesses interested in NCIF funding should contact Rick Larson at rlarson@conservationfund.org or by phone at (919) 967-2223.

NCIF is an affiliate of The Conservation Fund, a national nonprofit with a unique commitment to balanced land and water conservation solutions that emphasize the integration of economic and environmental goals.



TOGETHER

Through shared effort we can provide a foundation of targeted advertising that "brands" recycling with the public in every community.





Contact Heather Cashwell for sponsorship information at heather.cashwell@ncdenr.gov

Self-Help Loans to N.C. Recycling Businesses Approaches \$14 million

by Matt Ewadinger, RBAC Manager

For more than a decade, Self-Help has provided \$13,813,320 in qualified loans to recycling businesses across the state. Recipients of these loans include a mattress recycler, a composter, a curbside collection service provider and processors of plastics and glass. One of Self-Help's most recent loans went to a company to establish a biomass energy facility that will produce steam from chicken litter.

Some of the loan products available from Self-Help include:

General Business Loans:

Made available in North Carolina, general business loans receive support from the Golden LEAF Foundation and the N.C. Rural Center.

- Interest Rates: Prime plus 2 percent to Prime plus 4 percent, depending on risk factors
- Term: up to seven years for working capital, up to 15 for equipment, up to 20 for real estate
- Equity required: minimum of 20 percent

SBA 504 Loans for Financing Fixed Assets:

- Low down-payments (10-15 percent in many cases)

GREEN FINANCING

GREEN SAVINGS

NEED
MONEY?

Self-Help Lends
to Recycling
Companies!

Loans ranging from \$5,000 to funding for multi-million dollar projects.

Call today: 828-687-1066, ext. 3473 or email: jane.hatley@self-help.org

GOT MONEY?

Invest in a Green Certificate of Deposit at
Self-Help Credit Union!

To learn about our competitive interest rates, go to www.self-help.org/rates or call Marty Belin at 919-956-4466.



Funding from Self-Help enabled Habitat for Humanity of Charlotte to open its 37,000 square foot ReStore on Wendover Road.

- Long-term fixed interest rates
- Long payback terms

SBA 7A Loans:

- Interest rates of prime plus 2.25-4.50 percent
- Possible loan vehicle for strong borrowers who lack complete collateral coverage

USDA Business and Industry (B&I) and Renewable Energy (REAP) Loans:

- Terms of up to 30 years on real estate
- Guarantee fee of 2 percent, annual renewal fee of 0.5 percent
- Up to \$10 million
- Equity required: 10-20 percent

New Markets Tax Credits Loans:

- Low-interest loans for qualified commercial real estate and renewable energy projects in eligible census tracts
- Seven year term, at seven-year fixed rate
- 70-80 percent maximum loan to value
- No prepayment

To learn more about Self-Help's financing for green businesses and renewable energy projects, contact Jane Hatley at 828-687-1066, ext. 3473 or jane.hatley@self-help.org, or Melissa Malkin-Weber at 919-956-4406 or melis-saMW@self-help.org. You can also check out its [green loan fund product flier](#).

Barham Farms Expands to Food Waste Recovery with Wal-Mart Deal

by *Brian Rosa, Organics Specialist*

Family-owned and operated, Barham Farms was established in 1979 as a hog farm by Julian and Elaine Barham. Since that time, the business has grown substantially and is now operated on their family farm in Zebulon. With that growth, the Barham's vision for their farm expanded to include more environmentally- and economically-beneficial technology, including composting and methane energy recovery.

Barham Farms now composts all its mortalities in rotating compost drum composters and operates a yard waste and wood debris mulch facility. In addition, a large-scale manure management plan was implemented, requiring two large hog waste lagoons. In 1998, with the aid of the U.S. Department of Agriculture, Department of Energy and the U.S. EPA, Julian Barham developed a methane recovery system to capture the methane being generated from all the hog manure. The result: improved odor control, cleaner wastewater and the production of electricity to help run the farm. As an added benefit, the excess heat from the generator is used to help heat greenhouses where they grow heirloom tomatoes.

Currently, Barham Farms is making major expansions. The result of a new cooperative deal with a



Barham Farms' newly-installed methane digester tank (shown above) processes 100 tons per day and generates enough methane to operate a one-megawatt generator.

waste hauler and a national retailer, Barham Farms will begin composting all food waste generated by Wal-Mart stores in North Carolina, South Carolina, and eastern Virginia. Because food residuals generate 10 times more methane than hog manure, Julian decided to build a methane digester that would handle all the hog manure and up to 49 percent additional food residuals.

On Jan. 1, 2012, Barham Farms completed phase I, constructing a 6,000 square foot building as the receiving area and tipping floor. The tipping floor allows truckloads of food residuals to be dumped onto the floor where a loader then pushes the residuals into a sump with grinder pumps. The 40 horsepower grinder pumps macerate the residuals and pump the slurry into a holding tank. The slurry, when needed, is pumped directly into the approximately 700,000 gallon methane digester tank. The system processes 100 tons per day and generates enough methane to operate a one-megawatt generator. The gas is used to fuel the boilers and generate heat.

In phase II, the methane will be used to operate a large electrical generator. Again, the electricity, heat and carbon dioxide will be used throughout the farm and greenhouses. Still containing some organic value, the digestate (residuals from the methane process) will be incorporated as a feedstock for composting. The company recently upgraded its N.C. composting permit from a Type I-permitted yard recycling/composting facility to a Type III-permitted compost facility. This change will allow the company to accept additional food residuals and manures for a tipping fee. Accepted materials will be composted into a marketable material to sell to local landscapers and farmers. Barham Farms is currently looking for more food residuals to help feed its methane digester and composting facility.

For more information, visit the [Barham Farms](#) website or contact Julian Barham at 919-365-4401.



News Bits for Recyclers

Updated Plastics Industry Directories for North Carolina & South Carolina Now Available

The Polymers Center of Excellence recently announced the updated publication of the Polymers Processing Industry Directories for North and South Carolina. These are concise listings of companies by location, processes employed, products or services offered and recycling endeavors.

Hard copies of the directories are priced at \$125 each. The N.C. and S.C. directories may be purchased together for \$230. Both directories are also available on CD-ROM in Excel or .rtf format at a price of \$100 each. Prices include shipping and handling.

To purchase these directories contact the [Polymers Center of Excellence](#) at 1-800-603-4661.



RBAC Grant Study Appears in Journal *Resource Recycling*

N.C. Recycling Business Grant Program Analysis Shows Private Investment and Job Growth in the State

RBAC staff recently conducted an analysis of North Carolina's annual Recycling Business Development Grant program. Results from the study were written by RBAC staff member, Sherry Yarkosky, and appear in the February edition of the national publication, *Resource Recycling*.

Resource Recycling has given RBAC permission to make this article available to our readers.

[Read the article](#) now and look for the reprint under a separate email from us, coming soon.

EPA Chief Ties Jobs to High Recycling Rate*

by Editorial Staff, *Resource Recycling*

During a daytime talk show, the head of the U.S. Environmental Protection Agency gave her advice to the American public on what the biggest thing they could do make the world a cleaner and healthier place. Hint: It involves not throwing things in the trash.



U.S. EPA Administrator, Lisa Jackson

Appearing on *The Doctor Oz Show*, EPA Administrator Lisa Jackson was asked by the show's host, Mehmet Oz, what the biggest thing people could do to protect the environment and health. Her response:

"If we would insist on a recycling rate in our country at 80, 85, 90 percent, we would do a bunch of things. Certainly, we would have a cleaner environment. We would save a tremendous amount of water and energy. We would create millions of jobs because recycling, in and of itself, would become a supply chain in our country — a very domestic one. So, although it sounds simple — when you see those recycling bins, when people start to talk about recycling — think of it as a homegrown jobs program, an environmental program and an energy program and a water program all in one."

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Recycling Works is published by the N.C. Recycling Business Assistance Center, a program of the Division of Environmental Assistance and Outreach of the N.C. Department of Environment and Natural Resources. For more information call (877) 623-6748, or write to DEAO, 1639 Mail Service Center, Raleigh, NC 27699-1639.

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