



Recycling Works

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2014 RBAC Grant Awards Spur Growth of Recycling Economy

by Wendy Worley, Recycling Business Development Specialist

The N.C. Recycling Business Assistance Center announced that state recycling business grants awarded this spring should generate more than 84 jobs, \$1.6 million in new business investments and a reduction in the state's dependence on landfill disposal.

DENR's Recycling Business Assistance Center awards small grants to North Carolina recycling businesses to reduce solid waste disposal and to encourage the growth of the state recycling economy.

RBAC staff issue a request for proposals once a year and seek well-planned and effective proposals from recycling businesses wanting to start up or expand recovery efforts. Recipients are required to provide a minimum cash match of 50 percent of the grant award. Among other information, respondents are asked to estimate how many jobs their project will create.

RBAC announced that 32 companies will receive approximately \$800,000 in funds this fiscal year. The recycling business grantees represent a wide range of companies, large and small, collecting and processing a variety of

(GRANTS continued on page 2)



Brooks Contractor will expand its food waste collection services (shown above) and purchase equipment to mix and bag the company's finished compost products.

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materials into commodities to feed back to the economy. Grantees also include manufacturers who use recycled materials to make new products. Examples of projects include:

- Grant awards will support additional food waste collection projects with companies such as Agromatters (Concord), Brooks Contractor (Goldston), Earth Farms (Stanley), Food FWD (Durham), Full Circle Recycle (Zebulon), and Tilthy Rich Compost (Durham).
- Compost processing capacity will be expanded through projects with Danny's Dumpsters (Asheville), Gallins Family Farm (Mocksville), and Wallace Farm (Huntersville).
- DC Foam (Morrisville) and Green Options II (Kernersville) will make equipment purchases that will expand carpet collection and processing.
- Sonoco Recycling Charlotte will purchase compactors and conveyors at its Salisbury and Gastonia locations to more efficiently transport single-stream recyclable materials to the company's single-stream material recovery facility in Charlotte.
- Small recycling companies such as Coastal Ladies Carting (Wilmington), Consolidated Waste Services (Weaverville), God Bless USA (Indian Trail), Sanitary Disposal & Recycling (Washington), and Simply Green Recycling Service (Morganton) will improve their household, commercial, and restaurant collection operations.
- Plastic recycling capacity will also get a boost with projects to expand manufacture of plastic recycled-content products, processing of contaminated plastic scrap, and collection and processing of agricultural plastics from companies such as Blow Molded Solutions (Mayodan), Plastic Materials (Lowell), and Verity Recycling (Asheboro), respectively.
- Grants will spur additional construction and demolition waste recycling through companies such as Abbey Green (Winston-Salem), DSR Investors (Gatesville), Earth Stone Products (Reidsville), Elite Waste (Raleigh), FFD II DBA Recycle Carolina (Waxhaw), New East Recycling & Container Service (Greenville), and Waste Knot (Charlotte).

Additional information about the Recycling Business Development grant program and the 2014 awards can be found at: <http://portal.ncdenr.org/web/deao/2014-rbac-grant-winners>.



William and Jim Lanier of Earth Farms (left) stand in front of their finished compost; Abbey Green C&D recycling processing facility (above middle) will expand its processing capacity; Dan Roundtree of DSR Investors (right) will expand deconstruction services and capacity; Agromatters (bottom middle) will expand food waste processing capacity.

2014 Recycling Business Development Grant Awards

GRANTEE	GRANT AMOUNT	COMPANY MATCH	JOBS CREATED	CITY	PROJECT SUMMARY
Abbey Green	\$30,000	\$23,000	1	Winston-Salem	Abbey Green will purchase a loader, trailer, and yard switcher to process mixed construction & demolition (C&D) debris.
Agromatters	\$28,900	\$14,450	2	Concord	Agromatters will purchase a grinder, debagger, and mixer to increase efficiency in the company's compost operation.
Blow Molded Solutions	\$20,262	\$20,263	4	Mayodan	Blow Molded Solutions will purchase and utilize an 80,000 pound silo to hold post-consumer high-density polyethylene (HDPE) to increase recycled content of manufactured goods.
Blue Ridge Biofuels	\$9,500	\$5,370	1	Asheville	Blue Ridge Biofuels will purchase cooking oil recycling collection bins, signs, and a shaker filter unit to increase collection capacity.
Brooks Contractor	\$40,000	\$42,647	2	Goldston	Brooks Contractor will install a compost mixing and bagging operation, and will purchase bins to collect food waste from large quantity generators.
Coastal Ladies Carting - Pink Trash	\$15,000	\$85,000	2	Wilmington	Coastal Ladies Carting (Pink Trash) will purchase a rear load truck for commingled recycling collection.
Consolidated Waste Services (CWS)	\$35,000	\$78,229	1	Weaver-ville	CWS will purchase self-contained compactors to convert drop sites to single stream.
Danny's Dumpsters	\$25,140	\$12,570	1	Leicester	Danny's Dumpsters will purchase a skid steer to increase production and efficiency in the company's compost operations.
DC Foam	\$10,000	\$8,750	2	Morris-ville	DC Foam will purchase a carpet tester that determines carpet resin for recycling separation.
DSR Investors	\$30,000	\$15,000	1	Gatesville	DSR Investors will purchase a backhoe, dump truck, and flatbed trailer to increase capacity in deconstruction operations.
Earth Farms	\$40,000	\$193,294	1	Stanley	Earth Farms will purchase a roll-off truck with an organic hauling body to increase food waste collection efficiency.
Earth Stone Products	\$30,000	\$28,903	1	Reidsville	Earth Stone Products will purchase a truck, trailer and bobcat to enable product pick up, delivery and installation.
Elite Waste	\$17,745	\$11,909	2	Raleigh	Elite Waste will purchase and use five concrete washout containers to capture and increase waste concrete recycling.
ERI - Electronics Recyclers International	\$20,000	\$72,086	3	Badin	ERI will purchase and put into use a box body truck with lift gate to better serve smaller municipalities and businesses in rural North Carolina with electronics recycling collection service.
FFD II DBA Recycle Carolina	\$30,000	\$43,500	10	Waxhaw	FFD II will install and put into operation a concrete pad for the sorting, processing and distribution of C&D recyclable materials.
Food FWD	\$17,000	\$8,500	1	Durham	Food FWD will purchase collection containers and a truck cart lift to enable the company to provide food waste collection service.
Full Circle Recycle	\$20,000	\$119,500	4	Zebulon	Full Circle Recycle will purchase a large commercial shredder to improve and expand food waste processing.

2014 Recycling Business Development Grant Awards *(cont.)*

GRANTEE	GRANT AMOUNT	COMPANY MATCH	JOBS CREATED	CITY	PROJECT SUMMARY
Gallins Family Farm	\$40,000	\$72,840	1	Mocksville	Gallins Family Farm will purchase a tractor and windrow turner to increase composting operation efficiency.
God Bless the USA	\$25,000	\$122,387	1	Indian Trail	God Bless the USA will purchase a recycling truck to service additional routes it has purchased from other area companies.
Greasecycle	\$30,000	\$101,730	2	Raleigh	Greasecycle will purchase a truck and trailer to expand the company's collection and processing of grease trap waste from area restaurants and other generators.
Green Options II	\$10,000	\$8,500	6	Kernersville	Green Options II will purchase and put into use a Thermo Scientific Micro Phazir to analyze and identify the types of fiber polymers present in different carpet.
NC Pallet Recycling LLC	\$17,197	\$8,598	1	Raleigh	NC Pallet Recycling will purchase a box truck with lift gate and pallet jack that will be used to recover and remanufacture used wooden pallets.
New East Recycling & Container Service	\$18,000	\$30,000	2	Greenville	New East Recycling and Container will purchase a roll off truck for C&D recycling.
Plastic Materials Inc.	\$30,000	\$28,613	6	Lowell	Plastic Materials, Inc. will purchase, install and put into use testing and production equipment to expand the company's capacity to process contaminated plastic scrap materials.
Sanitary Disposal & Recycling	\$26,000	\$13,000	1	Washington	Sanitary Disposal will purchase recycling carts, a container with compactor and a roll off truck for its curbside recycling service.
Simply Green Recycling Service	\$18,523	\$9,224	1	Morganton	Simply Green will purchase a box truck and recycling bins for restaurant and commercial recycling.
Sonoco Recycling Charlotte	\$25,000	\$32,035	2	Charlotte	Sonoco Recycling Charlotte will purchase, install and put into use two compactors and conveyors at its Salisbury and Gastonia locations to more efficiently transport single-stream recyclable materials to the company's single-stream MRF in Charlotte.
The Recycling Group	\$25,000	\$55,000	2	Connelly Springs	The Recycling Group will purchase repair parts and repair and upgrade the company's horizontal baler.
Tilthy Rich Compost	\$12,000	\$6,000	2	Durham	Tilthy Rich Compost will purchase a truck with lift gate and collection carts to increase food waste collection.
Verity Recycling	\$40,000	\$70,800	6	Asheboro	Verity Recycling will install and put into operation a granulator and elutriation system to sort and grind mixed rigid recyclable plastics.
Wallace Farm	\$40,000	\$96,750	8	Huntersville	Wallace Farm will purchase a heavy duty truck to increase hauling capabilities at its compost facility.
Waste Knot	\$30,000	\$255,000	5	Charlotte	Waste Knot will install and put into operation a horizontal grinder in order to process a higher volume of wood waste.
TOTAL	\$805,192	\$1,693,427	84		

Union-Anson County Habitat for Humanity Expands Material Recovery

by Matt Ewadinger, RBAC Manager

During the past year, Union-Anson County Habitat for Humanity has developed a Repair, Rehab and Recycle program as an extension of its current program that recycles about 300 tons per year of items such as cardboard, aluminum cans and plastics. The new program focuses on the recovery of construction materials from vacant, derelict properties throughout Union and Anson counties.

The Repair, Rehab and Recycle team includes a full-time staff member with construction/rehab experience, as well as a group of dedicated and hard-working volunteers. A used box truck, new construction trailer and tools were purchased for this program, in part with a Recycling Business Assistance Center (RBAC) grant in 2013.

In addition, Union-Anson County Habitat for Humanity has developed several partnerships with donors, local governments and a for-profit land clearing/demolition company. Bank of America and JPMorgan Chase, for instance, will donate foreclosed homes in various states of repair; the city of Monroe assists with demolition permits, asbestos/lead testing and utility



Kitchen cabinets in the foreground await loading onto Union-Anson County Habitat for Humanity's box-body truck with hydraulic tailgate. These and other reusable building materials will be delivered to the Habitat Reuse Store.



costs; the Repair, Rehab and Recycle Team deconstruct the structure to recover all reusable building materials; and, Privette Enterprises assists with the demolition of the rest of the structure recycling the wood, concrete, steel and brick that remains. Once the house structure has been removed from the property, Union-Anson County will build a new Habitat house for a lower-income family on the remaining lot.

“We are focusing on acquiring vacant homes and land in the Monroe, Waxhaw and Wadesboro areas and using the recyclable materials for the construction of Habitat homes. In addition, reusable items such as windows, doors, appliances, HVAC units, and cabinets will be sold at our two ReStores,” said Mike Reece, Union-Anson County Habitat for Humanity executive director. “In many instances, these derelict properties can be donated to our Habitat affiliate and the donors can receive a tax-deductible receipt for their donation.”

For more information about the Union-Anson County Habitat for Humanity Repair, Rehab and Recycle program, contact Mike Reece at 704-296-9414 or mreece@unionhabitat.org.



The six-foot wide by 12-foot long enclosed trailer shown above hauls tools and equipment to and from deconstruction job sites.

North Carolina C&D Recovery to Disposal Ratio On the Rise

by Sherry Yarkosky, Recycling Business Development Specialist

A recent analysis of N.C. permitted private C&D facility and local government solid waste annual reports from 2006-2013 confirms that C&D disposed waste is on the decline, matching a similar decline in overall waste disposal.

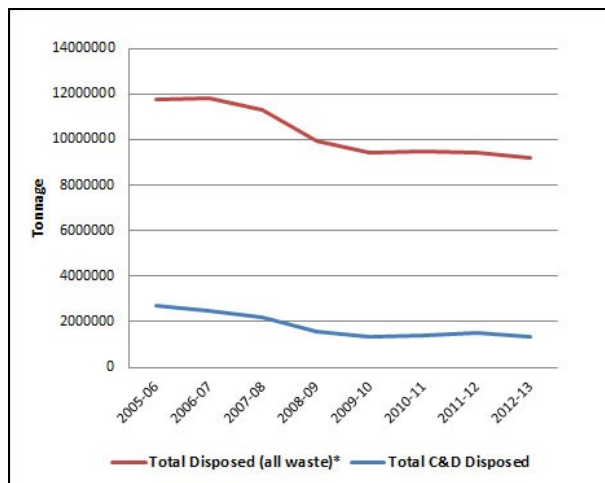


Figure 1: Total Disposed Waste vs. C&D Disposed Waste. *All waste includes MSW (municipal solid waste), Industrial, C&D and out-of-state disposed waste. Data Source: North Carolina Annual Solid Waste Reports.

As shown in Figure 1, in 2005-06 C&D disposed waste was 2,707,592 tons and the total disposed waste was 11,765,183 tons. In 2012-13, C&D disposed waste reported was 1,316,291 tons and the total disposed waste was 9,178,068 tons. C&D waste disposed decreased from 23 percent of total waste disposed in 2006 to 14 percent of total waste disposed in 2013.

Part of the reason for the drop in C&D disposal has been an increase in C&D recovery, as shown in Figure 2. In 2005-06, reported C&D materials recovered was 117,563 tons, or 4 percent of total C&D waste generated. In 2012-13, the reported C&D recovered was 304,328 tons, or 18 percent of total C&D waste generated. Although there was a slight decline in recovered

C&D tonnage from 2011-12 to 2012-13, C&D waste disposed had also fallen during that time as well.

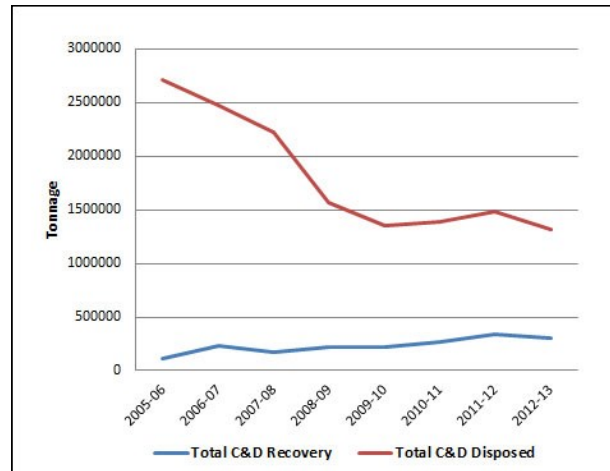


Figure 2: Total C&D Disposed and Recovered Waste.

To present a better comparison, the ratio of C&D recovered to C&D disposed can be used to represent year-to-year recovery progress. As shown in Figure 3, after an increasing trend in previous years, the 2012-13 recovery ratio has

(C&D RECOVERY continued on page 7)

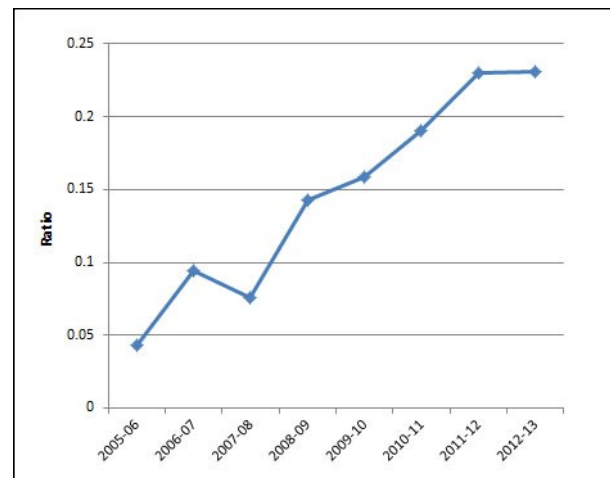


Figure 3: Ratio of C&D Materials Recycled to C&D Waste Disposed.

C&D Recovery continued from page 6

remained the same compared to the previous year.

Figure 4 shows the recovery of C&D materials by commodity type over the last eight years. The general C&D category is a summary of recovered materials that private permitted C&D facilities reported in the open-ended section of the annual facility report form. Materials in the general C&D category include: paper, glass, topsoil, carpet, LCID, salvaged materials and tires.

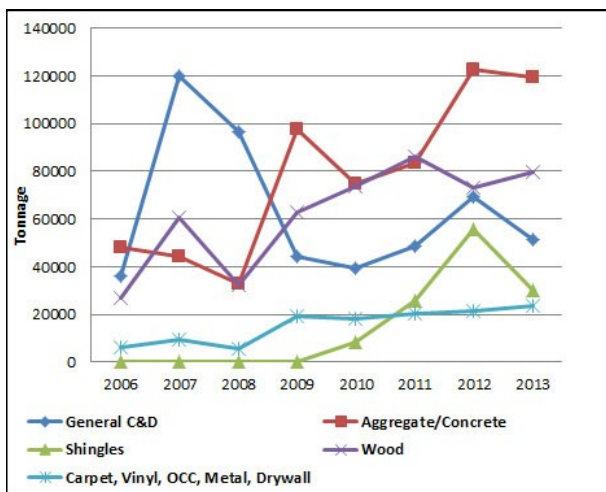


Figure 4: Total C&D Recovery by Commodity Type.

An interesting note is that from 2011-12 to 2012-13, reported asphalt shingle recovery declined from 56,000 tons to 30,160 tons. However, this decline is misleading due to recent regulatory changes that no longer require solid waste facility permits and annual reporting for facilities or end-markets that collect and process source-separated or clean shingles. Due to conversations with asphalt producers that actively source and use recycled shingles in asphalt production and do not have reporting requirements, the actual recovery of asphalt shingles is believed to be underestimated in this analysis.

Figure 5 shows the percentages of reported C&D recovered commodities by weight. Aggregates/concrete, wood, shingles, and the general C&D category make up 92 percent of the total recovery by weight. The remaining 8 percent of

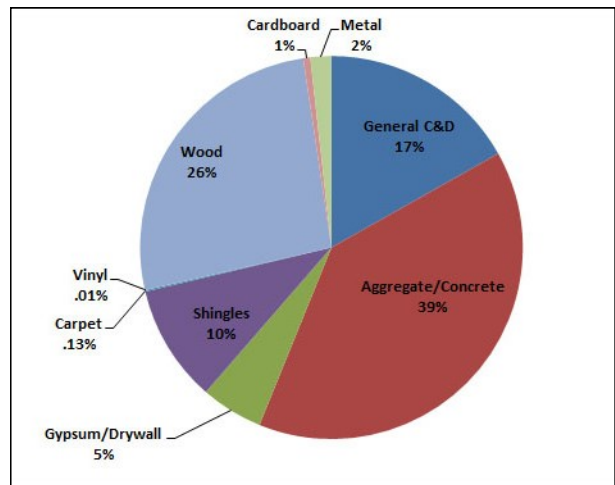


Figure 5: 2012-13 C&D Recovered Commodities by weight.

recovery by weight is attributed to the recovery of drywall, metal, cardboard, carpet and vinyl.

One important note is that the C&D recovery data in the analysis is conservative. The analysis did not include the recovery of C&D materials that are source-separated and taken directly to market or from facilities that are not required to have a solid waste permit. Taken into account with the increased direct collection of shingles by pavement contractors, actual C&D recovery in N.C. may be quite a bit higher than is represented in the figures above.

For more information, contact Sherry Yarkosky at sherry.yarkosky@ncdenr.gov or (919) 707-8133.



Making up approximately 5 percent of the total C&D recovery, drywall (shown above) is separated and processed for recycling at various sites across the state.

Todco Expands Operation to Recycle Mixed C&D Material

by Mike Greene, Recycling Business Development Specialist

Located in Davidson County, Todco Inc. is a wood recycler and mulch manufacturer that offers a wide range of products, including recycled wood fuel and a variety of natural and colored mulch. Building on the company's solid business foundation and reputation, Todco's newest venture into construction and demolition recycling provides a new recycling outlet in central North Carolina and is already making an impact.

Todco has been a family affair since it was founded in 1991 by husband and wife team, Todd and Cherie Warfford. The company began with a focus on yard waste and wood waste from the furniture industry to make boiler fuel. When furniture manufacturing began to decline, Todco transitioned into mulch products made from both virgin and recycled material. In 1995, the Warffords started a new hauling company, Best Disposal that hauls recycling, municipal solid waste, and wood with a commercial/industrial front-loader and roll-off fleet.



Todco's Todd Warfford (above) and his wife Cherie founded the wood processing company in 1991. In 2014, Todco expanded service to include mixed C&D processing and recycling.



Todco's newly permitted C&D recycling facility includes the covered storage and pre-processing pad (shown above) where employees pull out larger and hard-to-handle items.

In the spring of 2014, Todco began operation of the company's newly constructed and permitted C&D recycling facility. The C&D waste is delivered to the facility by Best Disposal, contractors and other waste disposal service providers. Established in part with funds from the RBAC grants in 2012 and 2013, the new C&D processing facility is recycling approximately 80 percent of incoming material.

The Warffords' son, Dalton Warfford, oversees a crew of temporary employees who sort the C&D material on the covered pad and at a series of stations on the raised picking line. Todco stores the construction waste until they have enough material to run the line for five straight days. As the loads are brought in and unloaded on a covered pad, crews pull out items that can slow down the line picking process, such as plastic sheeting, HVAC material, dry wall and insulation.

(TODCO continued on page 9)



Colored mulch, shown above, is one of the many recycled wood products produced by Todco.

TODCO continued from page 8



The raised picking line shown above allows workers to sort a variety of materials, including cardboard, wood, masonry, metal, plastic bottles and paper, for recycling.

Material is then screened to sort out dirt and other small pieces of masonry. A variety of materials, such as cardboard, wood, masonry, metal, plastic bottles, and paper, are separated for recycling by the crews on the raised picking line.

According to Todd Warfford, the biggest challenge has been optimizing the speed of the conveyor belt to allow the crew to process the material in a timely matter while also maximizing the opportunity to recover as much construction debris as possible.

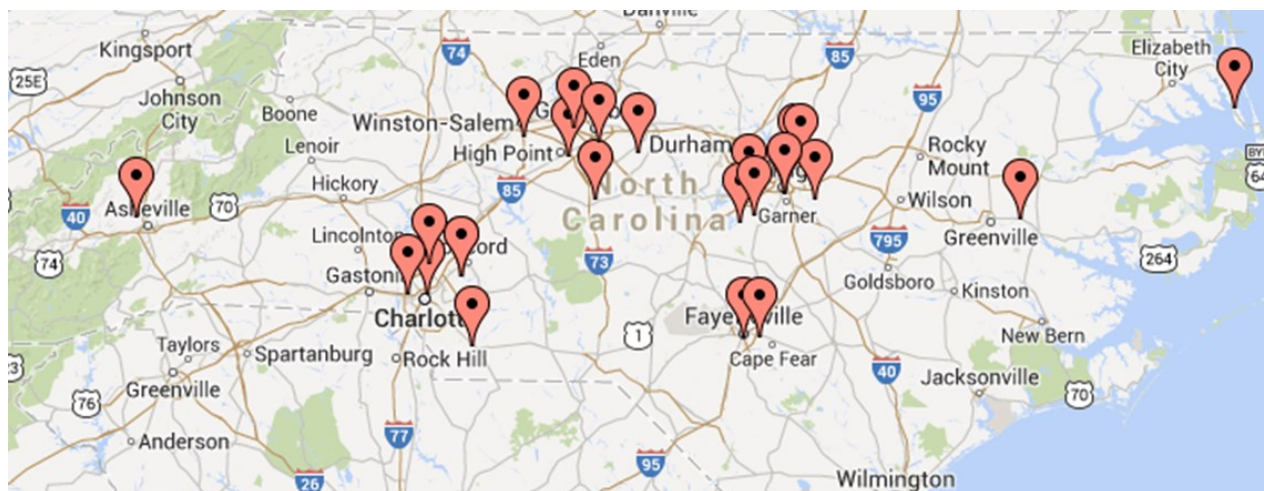
Todco's C&D operation is focusing on the materials that they have markets for, so they are selective about the loads they take in. Most of their current material mix comes from construction projects rather than demolition. But Todco has already found success and is looking at a bright future in C&D material recycling.

For more information, contact Todd Warfford at (336) 248-2001 or todd@todcoinc.com.



Todco's crew of temporary employees sort mixed construction debris for recycling as it moves past on the picking line's conveyor belt.

2013 Private, Permitted C&D Facilities in North Carolina



The map above shows permitted, private C&D facilities, including disposal, processing or transfer station facilities, with documented diversion in North Carolina.

Holt Custom Trailer Recycling Finds Value in Abandoned Mobile Homes

by Mike Greene, Recycling Business Development Specialist

Holt Custom Trailer Recycling of Graham was established in 2011 after Daniel Holt helped his friend, Daphne Crouse, with a mobile home remodeling project. Three years later, Holt and Crouse have become leaders in mobile home recycling and used parts supply with a recovery rate as high as 90 percent for some salvaged homes.



Daphne Crouse and Daniel Holt in their retail space where the public can select recycled mobile home parts for their projects.

Holt and Crouse discovered the need for recovered mobile home parts during Crouse's remodel when none of the materials purchased from the chain home improvement stores fit her home. Doors, windows, cabinets and bathroom fixtures for mobile homes are not the same standard sizes that are found in materials from stick-built homes. They reasoned: if they were having this issue, other mobile home owners were having the same problem.

Holt and Crouse started running the business on Holt's grandfather's farm. While other mobile home recyclers were stripping the metal from the mobile homes and sending the rest to the landfill, Holt discovered that it was possible to recover a long list of materials including rafters, doors, windows, lumber, drywall, electrical outlets, switches, insulation, sinks, tubs and cabinets.

According to Holt, as the business expanded, "Our company went from using one corner of an old chicken house to half of the building."

The company started by simply listing recovered parts on Craigslist. Holt and Crouse were surprised at how quickly the items sold. People noticed the ads and called for other parts. Holt began keeping a waiting list of items that customers were seeking.

Before long, customer traffic grew and the two business partners knew they needed a dedicated, customer-friendly location. Holt and Crouse secured a lease at an old body shop with acreage at 3421 Woods Chapel Road in Graham. Holt transformed the old body shop into office space and a showroom for Holt Custom Trailer's recovered parts.

Holt and Crouse have a crew of four to dismantle the mobile homes. To maximize the materials they can salvage, most of the mobile homes are taken apart by hand. The amount that can be recovered depends on the condition of the home. If a mobile home can be moved, Holt takes it to their Graham location. If it can't be moved, as is often the case with mobile homes that were built in the 1960s, the crew deconstructs the project on site.

(HOLT continued on page 11)



By deconstructing mobile homes by hand, Holt Custom Trailer can recycle up to 90 percent of the home's material.

HOLT continued from page 10



In addition to mobile home deconstruction and part sales, Holt Custom Trailers can do custom renovations. Holt built this kitchen for Crouse's remodeling project.

When mobile homes are found to only need a cosmetic makeover, Holt will sell the mobile home as-is and at a very low price. The buyer has the option of buying parts to remodel the mobile home themselves or they can hire Holt Custom Trailer to do the work for them.

Word of mouth about Holt Custom Trailer Recycling is spreading throughout the region. Ac-

ording to Crouse, the items that customers request come in stages. "This month, it is all cabinets. Last month was tubs."

Holt receives calls from all over the southeast and as far away as North Dakota. The customer in North Dakota called them when he was refurbishing a 1970s-era mobile home and was looking for period-accurate parts. Holt adds, "We did not think he was serious at first." The call turned out to be legitimate as the customer soon sent trucks to North Carolina to pick up the parts.

According to Crouse, "We didn't think it was going to go this far. Nobody else saw the need for this kind of business. If it were not for my own home remodel, the need would have gone unseen. It made it personal."

For more information, contact Daniel Holt at holtcustom@aol.com or 336-269-5915.

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WasteTrADER**

**www.ncwastetrader.org
N.C.'s Industrial Waste Exchange**

North Carolina's marketplace for discarded or surplus materials and products.

This free, waste exchange service is designed to divert recoverable materials from disposal while providing feedstocks and supplies to potential users.

**For more information, call
Tom Rhodes, 919-707-8140**

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