

# Guide to Developing Building Material Reuse Centers



Houston-Galveston Area Council  
2008



# Acknowledgments

H-GAC staff would like to thank Jim Culkin, Shane Endicott, Esther Herklotz, Sarah Mason, Barbara Smith, Matthew St. Onge and Amanda Tullos for their participation in the interviews.



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# Guide to Developing Building Material Reuse Centers

## Introduction

### *Purpose of this Guide*

This guide is intended to assist local governments and non-profits with the development of building material reuse centers. The Houston-Galveston Area Council's ("H-GAC") 13-county region is one of the fastest growing areas in the country. That growth has brought an expansion of new construction, demolition and remodeling projects. The majority of the waste material from these projects will be deposited at area landfills; however, the opportunity for a second life for these materials is possible through the establishment of building material reuse centers. As you will learn by reading this guide, there are many opportunities for reuse of building materials that can have social benefits such as the creation of jobs and the building and repair of homes for low-income residents.

H-GAC's region has a population of more than 5.7 million people and covers an area of 12,500 square miles. The region ranges from very large urban to very small and rural. The range of solid waste services offered varies among the different cities and counties but regionally they include waste collection, curbside and drop-off recycling, household hazardous waste and electronic waste collection, composting and mulching, community clean ups, and local enforcement of illegal dumping programs; however, there are only two local government-operated building material reuse programs. The majority of building material reuse programs in the region is operated by private industry and non-profits.

### *Methodology*

The guide provides an in-depth look at several successful centers and provides the reader with information on their start up, funding and operations. Conditions may be drastically different outside of the H-GAC region and the state, so two case studies outside of Texas have also been included. H-GAC staff conducted interviews with building material reuse center staff through surveys. The case studies include:

- Houston Habitat for Humanity, Houston, Texas
- Habitat for Humanity Montgomery County, Conroe, Texas
- City of Houston, Texas
- City of Huntsville, Texas
- The Rebuilding Center, Portland, Oregon
- Building Material Resource Center, Boston, Massachusetts

In addition to the case studies, the reader will also find information on building material reuse centers' basic requirements, challenges and potential solutions.

### *What is C&D Debris?*

C&D debris is the waste material resulting from construction and demolition of structures. This type of material is typically considered non-putrescible, meaning the material does not rot, have an odor or attract rodents and other disease vectors. According to Title 30 of the Texas Administrative Code, Chapter 330.3 Subchapter A, the definition of construction and demolition debris is “Waste resulting from construction or demolition projects; includes all materials that are directly or indirectly the by-products of construction work or that result from demolition of buildings and other structures, including, but not limited to, paper, cartons, gypsum board, wood, excelsior, rubber, and plastics.”

In the Houston-Galveston Area Council 13-county region, roughly one-third of all municipal solid waste is construction and demolition waste. Texas and the H-GAC region are unique in that we are fortunate to have inexpensive land relative to other areas; however, inexpensive land prices also reduce landfill tipping fees and can make recycling markets less economical. Despite this challenge, the H-GAC region has a number of successful building material reuse centers.

### *Why Use Reclaimed/Recycled Building Materials?*

There are many benefits to using reclaimed or recycled building materials, including:

- **Provide Cost Savings**  
Using reclaimed building materials can save money. Oftentimes, a manufacturer will have off-specification materials that cannot be sold to retail stores. Instead, the manufacturer will donate the material or sell it at reduced cost to a building material reuse center if one exists locally. Consumers can purchase this material at a greatly reduced price. High transportation costs of new building materials are also not present with reclaimed materials because the source of materials is local.
- **Advance Green Building Movement**  
Using reclaimed building materials can help promote the green building movement. Recently, the green building movement has risen in popularity and in practice. Ratings systems such as the US Green Building Council’s Leadership in Energy and Environmental Design™ (LEED) green building rating system awards certification to projects that incorporate salvaged building and recycled content materials in their buildings. Buildings that achieve these reclaimed materials credits and other green design elements are awarded LEED certification. These types of green building practices promote the use of materials from and increase demand for building material reuse centers.
- **Conserve Natural Resources and Reduce Embodied Energy Loss**  
Using reclaimed building materials can help conserve natural resources by avoiding such processes as the extracting of new ore for metal, felling of timber for lumber and drilling of oil for plastics and fuel. The result is healthier forests and wildlife habitats and cleaner air and water.



Using reclaimed building materials avoids loss of the previously expended energy and also future energy expenditures for new products. This previously expended energy is called embodied energy. Embodied energy refers to the total amount of energy involved in the creation of a building. It includes the energy used for raw material extraction (felling of timber for lumber, mining of ore for steel, drilling of oil for plastics), the manufacture and installation of building materials, the transportation of materials and the deconstruction of the product once it has reached its end of life.

- **Stimulate Local Economies**  
Using reclaimed building materials can stimulate local economies. Building material reuse centers provide employment in the areas in which they are located. They create local markets for reusable materials. These buildings can also act as a community redevelopment tool because of the trickle down effects of transforming a blighted parcel of property into one that improves a community's image.
- **Improve Communities**  
Using reclaimed building materials can improve communities. As you will read in the case studies, building material reuse centers can provide materials for low income citizens and non-profits that build homes for low income families. Home ownership can have positive trickle down effects for the owners and community.
- **Conserve Landfill Space**  
Using reclaimed building materials can divert a significant amount of material from local landfills.

### *C&D Waste Stream Categories*

The C&D waste stream can be broken down into two categories: residential (43%) and non-residential (57%). The C&D waste sources of the residential and non-residential waste streams are construction, demolition, or renovation. A graphic representation of the C&D waste sources is available in Figures 1 and 2.

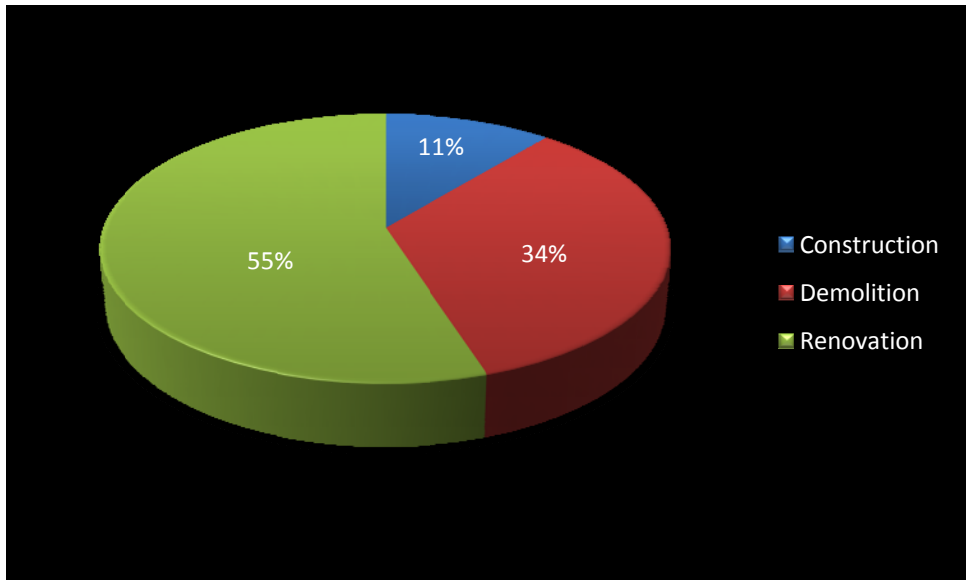


Figure 1: Sources of Residential C&D Debris<sup>1</sup>

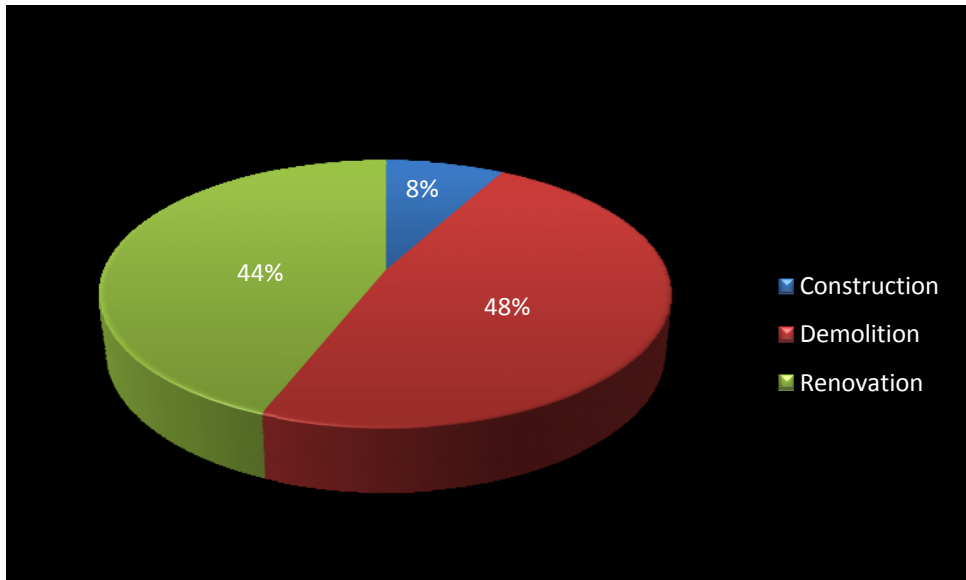


Figure 2: Sources of Non-residential C&D Debris<sup>2</sup>

Much of these C&D materials can be recycled or used in other projects.

### Case Studies

Low landfill tipping fees and a lack of legislation and regulatory bans on C&D debris make the economics for recycling in Texas unique. In the H-GAC region, the majority of building material reuse centers is operated by non-profit organizations. There are only two municipally operated building

<sup>1</sup> Franklin Associates, *Characterization of Building-Related Construction and Demolition Debris in the United States*

<sup>2</sup> Franklin Associates, *Characterization of Building-Related Construction and Demolition Debris in the United States*  
 Guide to Developing Building Material Reuse Centers  
 Houston-Galveston Area Council, 2008

centers is operated by non-profit organizations. There are only two municipally operated building material reuse centers in the region. This organizational structure is common in Texas. A quick poll of other Councils of Government within the State of Texas indicated that the building material reuse centers in their regions were operated by non-profits, largely, by Habitat for Humanity. To get a broader perspective, this guide includes case studies within the H-GAC region and two other out of state models.

### *H-GAC Region*

#### *Non-Profit Case Studies*

Habitat for Humanity is a non-profit organization established to eliminate poverty housing and homelessness through the building of decent housing. Habitat for Humanity has affiliates throughout the US and other countries. Many of the affiliates choose to open “ReStores” to raise money for house construction for families, reduce landfill waste and provide discounted building materials.

#### Houston Habitat for Humanity

In 2003 the Houston Habitat for Humanity (HHH) affiliate, through fundraising, purchased property and converted a former discount department store building into a reuse center. The center is located at the Interstate Highway (IH) 610 (the South Loop) and Wayside Drive. The Houston Habitat for Humanity ReStore is open Monday through Saturday. The ReStore building is over 25,000 square feet with a large parking lot on 2.8 acre lot.

The HHH ReStore is completely sustained by its revenue and helps support construction of Habitat for Humanity house projects. The ReStore is competitive with other nearby home improvements stores, especially in laminate flooring.



*Figure 3: Entrance to Habitat for Humanity Houston's ReStore*

Approximately 60% of the merchandise in the ReStore is new and is the result of discount purchases made by HHH and odd lots of materials donated from builders. This new merchandise includes items such as kitchen and bathroom cabinets, furniture, rugs and flooring. The remaining 40% of merchandise is used donated material. Donation sources vary, but can include private citizens, churches, local builders and businesses.

The ReStore accepts almost all types of materials, except hazardous materials. HHH will not accept any opened paint cans or buckets because they may contain lead. Because the ReStore accepts most materials, and not all of it can be resold, HHH has high disposal costs. For example, in one truckload of used appliances, there may be only a small portion of reusable materials; the rest is waste and HHH must pay for its disposal. The ReStore employees refurbish appliances and sell what cannot be salvaged for scrap. Donations may be collected by the HHH box truck or received at the store. Lumber is accepted; however, only a small portion of the material is reusable because much of the lumber has damage. The ReStore does not grade stamp lumber (see call-out box on page 7).

Some advice Mr. Jim Culkin, the ReStore Director, had for others embarking in buildings material reuse was to set acceptable standards for incoming materials and to utilize a vehicle for collection of materials from donors. Having a list of acceptable materials can keep costs down and prevent having to dispose of hazardous products. Having a vehicle maximizes the amount of merchandise the ReStore sells because HHH can go out to get quality merchandise for resale. Without the vehicle, the amount of quality merchandise would be much less. According to Mr. Culkin, baseline needs for a reuse center, aside from a location and building, include a box truck, fork lift and adequate personnel. The HHH ReStore currently has six full time employees and utilizes community service workers.

#### **Houston Habitat for Humanity Facts**

Location: 6161 South Loop East, Houston, TX 77087

Open to the public: Yes

Number of employees: 6 Full Time Employees

Building size: 25,000 square feet

Accept paint: Only new, unopened cans and buckets of latex and oil-based

Baseline needs: Box truck, fork lift and adequate personnel

Approximate landfill tipping fee: \$25/ton

Grade stamp lumber: No

Web address:

<http://www.houstonhabitat.org/restore/index.php>

### **Grade Stamping Lumber**

The use of reclaimed lumber is an opportunity to encourage the most efficient use of harvested materials. Existing forests, clean air and water can be preserved. At a building construction site, building officials require some measure of performance for lumber used for structural purposes. Typically, this assurance is made by a grade stamp on virgin mill-produced lumber. The grade stamp is supported by engineering tests that meet grading criteria.

In a demolition or deconstruction project, there are many board feet of lumber that could potentially be reused for structural purposes; however, the acceptance of these reclaimed materials in new construction can depend on the presence of a grade stamp. If a grade stamp is not used, the use of the material usually has low value that is non-structural. For example, large timbers can be reclaimed as floor boards. A higher value of reuse of the material is in structural applications.

In order to reuse lumber structurally, lumber needs to be stamped and graded. A building material reuse center stamps the lumber for identification of the source, but the end user needs to have the wood graded if it will be used for structural purposes. A lumber grader will inspect the wood and stamp it as Select, No. 1, No. 2, No. 3, utility, economy, or stud and identify the wood species and moisture content. The grader will then place the grade on the lumber. There is a fee assessed for this service by the grading agency.

In some parts of the country, particularly the Pacific Northwest, grading agencies have trained and certified graders to regrade Douglas fir for structural reuse. The assumption when it comes to the quality of reclaimed wood is that generally old growth wood is better than more recently harvested wood because old growth wood has a higher density, among other reasons; however, not all grading agencies are confident old lumber is adequate for new structural situations. A reclaimed piece of lumber may not have the same structural integrity as it did when first grade stamped because of nail holes, notches or damage from deconstruction.

### **Habitat for Humanity Montgomery County**

As Montgomery County is one of the fastest growing counties in the US, the opening of a reuse center presents a unique opportunity. Development of housing and commercial buildings has been happening at a rapid pace for the past several years.

Habitat for Humanity Montgomery County (HHMC) opened its ReStore building material reuse center in 2005. The ReStore is located on Seventh Street in Conroe, which has a population of approximately 46,342 people<sup>3</sup>, about one and a half miles east of IH 45. The ReStore is opened Fridays and Saturdays from 10 a.m. to 4 p.m. and has one full time and three part time employees.



Figure 4: HHMC ReStore logo

Start up costs equaled about \$100,000. Seed money came from the Houston Endowment, H-GAC<sup>4</sup> and Cooper Industries. The Re-Store has also received substantial financial and volunteer support from a non-profit environmental group, the Woodlands GREEN. The ReStore is self sustaining. The ReStore building has approximately 6,000 square feet of covered

<sup>3</sup> U.S. Census Bureau 2005-2007 estimates

<sup>4</sup> Copies of the H-GAC grant budgets are available in Appendix A.  
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Houston-Galveston Area Council, 2008

storage plus 4,000 square feet of outdoor storage for sinks, shower stalls, etc. Materials are sold to anyone and some of the materials are used in HHMC's home repair program.

The ReStore maintains a list of acceptable items, but also has restrictions on some items such as computers and some paints. The ReStore will accept only unopened five-gallon containers of latex paint. In the past, the ReStore accepted opened cans of latex paint, but oftentimes HHMC was left with the disposal if the paints were odd colors that did not sell. If paint is brought to the ReStore, staff refers donors to the Montgomery County Precinct 3 Household Hazardous Waste Recycling Center. Donated metal that cannot be resold is delivered to a scrap metal recycler. The ReStore sells reclaimed lumber but does not grade stamp reclaimed lumber and tells customers that the lumber is reclaimed.

Unlike the HHH ReStore, almost all items donated to the ReStore are used materials. Occasionally, HHMC will receive overages from builders. Similar to the HHH ReStore, the HHMC ReStore accomplishes three goals: reducing landfill waste, providing discounted building materials and providing funding for home

### Habitat for Humanity Montgomery County

Location: 1501 Seventh Street, Conroe, TX 77301

Open to the public: Yes

Number of employees: 1 Full Time Employee, 3 Part Time Employees

Building size: 6,000 square feet covered storage, 4,000 square feet outdoor storage

Accept paint: Only new, unopened 5-gallon buckets of latex paint

Baseline needs: 10,000 square feet building, box truck and driver, fork lift

Approximate landfill tipping fee: \$33/cubic yard, uncompacted

Grade stamp lumber: No

Web address: <http://www.hfhmctx.org/>



Figure 5: Pedestal sink selection at HHMC.

construction to families through Habitat for Humanity house building program. The HHMC also has a box truck to collect donated materials.

Ms. Barbara Smith, Executive Director of HHMC, had a few suggestions for baseline requirements for organizations interested in operating building material reuse centers. She suggested a 10,000 square foot building at a minimum, a forklift, a box truck and a driver to collect materials. Lessons the HHMC has learned from experience include not accepting paint and being creative with their space. For example, HHMC uses an old shipping container as a “bargain barn”, a clearance area for merchandise. Ms. Smith also suggested other organizations wishing to start a building materials reuse center should partner with a local environmental organization if recycling is part of the focus.

#### **Another Approach: Historic Houston**

Historic Houston is a non-profit organization dedicated to preserving Houston’s historic architectural and cultural resources through scholarly research, education and advocacy of sustainable design and conservation. Founded in 1998, Historic Houston was begun by amateur and professional historians and preservationists concerned that Houston's rich historical and architectural heritage was rapidly disappearing.

Historic Houston provides a variety of programs including deconstruction, house relocation, education, and operating a salvage warehouse. The warehouse opened in 2003 and has various types of materials salvaged from historic homes. Area homeowners and restoration professionals may make donations or purchase building materials for repair or remodeling purposes.

The salvage warehouse is located near downtown Houston at 1307 W. Clay Street in Montrose, an area in Houston with historic homes. The types of materials that Historic Houston accepts are tubs, sinks, lighting, hardware, windows, doors, flooring, lumber and specialty items such as trim, bead board, fireplace mantles, arches and phone nooks. The salvage warehouse is open twice a week or by appointment.

Historic Houston has received a Rediscovered Wood Certification through the Rainforest Alliances SmartWood program which evaluates forest product operations that use reclaimed, recycled, and/or salvaged wood. This certification can assist with LEED credits for recycled or reclaimed materials.

### **Local Government Case Studies**

#### **City of Houston**

The City of Houston provides an array of solid waste services to its citizens, including household waste, heavy trash and brush collection, curbside (to limited number of households) and drop-off recycling, household hazardous waste and electronic waste collection, and local enforcement of illegal dumping programs. In early 2009, the City of Houston elected to expand the services by opening a Building Material Re-use Warehouse. The Building Material Re-use Warehouse will open in early 2009 and is located at 9003 North Main Street, in close proximity to IHs 45 and 610. The warehouse is a three-sided building located at the site of a former city maintenance facility that had been vacant for several years. Substantial improvements were necessary to bring the facility into code compliance. New electrical, water lines, a restroom, an office and security were added to the facility. Having city property already in possession was a big cost saver for the project.

In 2007, the city was awarded an H-GAC solid waste implementation grant to fund one full time facility manager, equipment, supplies, and partial renovation of an existing warehouse<sup>5</sup>. Once the grant funds are exhausted, the city will pick up the costs but is also considering leasing the operation to a non-profit in the future.

The warehouse will accept donations from private citizens, builders and other organizations. A list of acceptable items is available in Appendix C. Acceptance of these items will vary according to their supply. The warehouse will then provide reclaimed and surplus building materials to local



Figure 6: Front of the City of Houston Building Material Reuse Warehouse, before opening.

**City of Houston Building Material Re-use Warehouse**

Location: Houston, 9003 N. Main St., Houston, TX 77022

Open to the public: No. Materials are free to non-profit organizations. Not for sale to the public.

Number of employees: 1 Full Time Employee

Building size: approx. 6,700 square feet covered storage

Accept paint: No

Baseline needs: fork lift, electronic floor scale, industrial shelving, computer with inventory software, pallet jack, carts and hand trucks.

Approximate landfill tipping fee: \$25/ton

Grade stamp lumber: Interested

Other: Can provide verification of salvaged material for LEED credit. Site of future neighborhood depository and recycling center.

non-profits for use in their own construction projects. Non-profits must register with the warehouse and show proof of non-profit status. After verification, the non-profit may acquire building materials at no cost. The warehouse staff will provide the non-profit with a liability waiver to release the city from any possible liability concerning the warehouse or materials from the warehouse. A copy of the liability waiver is available in Appendix D.

The warehouse site will maximize the use of the Building Material Re-use Warehouse property by providing receptacles for traditional recyclables (glass, plastic, paper, cans, etc.) as well as an additional neighborhood depository for residential waste and heavy trash.

<sup>5</sup> Copies of the job description and grant budget are included in Appendix B.  
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Houston-Galveston Area Council, 2008



According to Ms. Sarah Mason, the warehouse project leader, baseline requirements would depend on the scale of the warehouse, but for the City of Houston they include a large facility, forklift, electronic floor scale, industrial shelving, a computer with inventory software, a pallet jack and several carts and hand trucks. The city is also interested in acquiring a grade stamp to increase demand for dimensional lumber.

The city staff learned a few lessons during the coordination of the warehouse project. Utilizing city employees for improvements to the facility could have decreased start up costs. Also, the lead staff coordinating the project had little construction experience, and had to heavily rely on city general services staff and a consultant to oversee the completion of the warehouse improvements. The barrier to C&D recycling according to the city project leader is acquiring the donation of clean materials from builders.

### City of Huntsville

The City of Huntsville is located in Walker County, the northernmost county in the H-GAC region. The City's population is estimated at 35,078 people<sup>6</sup>. The City of Huntsville operates a transfer station and also provides household waste, heavy trash and brush collection, drop-off recycling, household hazardous waste and electronic waste collection events and community clean ups. The City of Huntsville opened its Trash in Plow Shares ("TIPS") warehouse in November 2003. The TIPS warehouse is a two-sided structure located at the same location of the city's transfer station and recycling (cans, glass, plastic, paper, etc.), used oil and antifreeze drop off center, in close proximity to IH 45. The TIPS warehouse received grant funding for the start up but is now supported by the city budget.



Figure 7: City of Huntsville TIPS Warehouse

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<sup>6</sup> City of Huntsville  
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Houston-Galveston Area Council, 2008



Figure 8: Door selection at TIPS warehouse

The TIPS warehouse accepts donations from local builders and citizens. Customers are low-income citizens and non-profits from Huntsville and other areas who receive the materials at no charge. Customers must call ahead and provide low-income status verification to utilize the building materials. The city is fortunate to have a good partnership with a local residential construction company, Phoenix Commotion, that is able to utilize the building materials because the company builds homes for low-income citizens. The homes are constructed out of a large portion of reclaimed materials. At the TIPS

warehouse, customers complete a questionnaire and sign a liability waiver. The city also keeps track of the materials the recipients take from the warehouse. Because the warehouse is located at the same location as the transfer station, the city is able to weigh the quantities of materials which helps the city track inventory movement

The TIPS warehouse accepts a variety of materials such as plumbing and lighting fixtures, lumber, flooring, tile, windows, and doors. The warehouse does not grade stamp reclaimed lumber. Toilets and sinks can be problematic because they are stored outside and collect water. Accepting oil-based and latex paint has been a problem because the quality can vary and cans may be rusty. In this situation, the city is left with disposal, so the policy is to not accept any paint.

One of the lessons learned dealt with the type of shelving initially purchased. The facility is outfitted with multiple racks of identical width. Adjustable racks would be preferred, as the top shelves are too high and difficult to access. The City has also

**City of Huntsville Trash in Plow Shares (TIPS) Warehouse**

Location: Huntsville, at City transfer station off of IH 45

Open to the public: No. Materials are free to non-profit organizations and low-income citizens. Not for sale to the public.

Number of employees: 0 Dedicated Full Time Employees

Building size: approx. 6,000 square feet covered storage

Accept paint: No

Baseline needs: Building, properly sized forklift, adjustable shelving and ladders with wheels to access shelving.

Approximate landfill tipping fee: \$60/ton

Grade stamp lumber: No

Other: Materials are free to non-profit organizations and low-income residents; not for sale to the public.

increased signage in the area, so newcomers are not confused about how to proceed once they arrive at the warehouse.

One of the barriers the city has encountered is staffing. There currently is not a designated staff person to operate the warehouse. Existing solid waste staff works at the warehouse the second and fourth Wednesdays of the month. Having a regularly scheduled employee three to four hours a week would help keep the warehouse tidier.

According to Ms. Esther Herklotz, Solid Waste Superintendent for the City of Huntsville, baseline requirements for a warehouse would include a building, adjustable shelving, a properly sized forklift and ladders with wheels for the shelving. For a warehouse located where other activities take place, such as the transfer station and recycling drop-off in Huntsville, adequate space is necessary for customer vehicles and 18 wheelers associated with hauling waste at the transfer station. Also, Ms. Herklotz noted that a reuse center does not need to have a large marketing budget to be successful. The city does not purchase any advertising to market the warehouse. Marketing is conducted through presentations and speaking engagements at local organizations.

#### *Outside the Region and State of Texas*

##### The ReBuilding Center – Portland, Oregon

Our United Villages, doing business as The ReBuilding Center (“TRC”), in Portland Oregon has been in operation since 1999. To start its building material reuse center, TRC took out a \$15,000 loan for working capital and received a \$32,000 for capital purchases, but is now is self-sustaining. Baseline requirements included a forklift, shelving, a 20-foot flat bed truck, computer, cash register and miscellaneous office supplies. TRC utilizes volunteers and has 45 full time employees and three part time employees which work at the center and participation in TRC’s deconstruction services. The total building foot print is 65,000 square feet, with approximately 55,000 square feet dedicated to merchandising used materials.



Figure 8: The ReBuilding Center in Portland, OR

**Our United Villages DBA The ReBuilding Center**

Location: Portland, OR  
Open to the public: Yes

Number of employees: 45 Full Time  
Employees, 3 Part Time Employees

Building size: Approximately 65,000  
square feet covered storage

Accept paint: No

Baseline needs: Forklift, racking, 20 foot  
flat bed truck, computer, cash register,  
miscellaneous office supplies

Grade stamp lumber: Yes

Approximate landfill tipping fee: \$41-  
60/ton

Other: ReFind Furniture, Instruction on  
carpentry, furniture making and other  
topics, Deconstruction services

Web address:  
<http://www.rebuildingcenter.org/>

According to the Executive Director, Mr. Shane Endicott, TRC is successful even though there are currently no ordinances or legislation that increase diversion amount; however, higher tipping fees contribute to the success. A local private C&D landfill's tipping fees are between approximately \$41-70 per ton, depending on location inside or outside Portland's city limits.

TRC is open seven days a week. The merchandise at TRC includes lumber, trim and siding, doors, windows, plumbing fixtures, and other items. The items are either donated at the center or collected in TRC's 20-foot flat bed truck. No traditional recycling commodities are collected at the center. TRC has had no problematic materials but does not accept certain items, such as office partitions, toxic or hazardous substances, vinyl flooring or siding, and window coverings. A detailed list is provided on their website.

TRC grade stamps reclaimed lumber. The center got its certification in 2001 through West Coast Lumber Graders, who sent a representative to TRC to train a staff member and provide a stamp. TRC has a special certification that allows them to only re-grade their own salvaged lumber at their site. TRC pays \$350 a month when to grade any lumber for resale (even for only one board) and \$50 a month to maintain the license when they do not grade.

Mr. Endicott stated one of the barriers to recycling or reusing building materials is not keeping inventory moving out as fast as it comes in. He also stated that building relationships with those that generate C&D debris and those that are motivated to see it diverted for reuse is a lesson learned from their successful experience.

**Building Materials Resource Center - Boston, Massachusetts**

The Boston Building Material Co-Op ("BBMC") opened the Building Materials Resource Center ("BMRC") in 1993. The BMRC is open to the general public but provides steep discounts to non-profits and their target audience, which are income-eligible members.

According to Mr. Matthew St. Onge, the BBMC's Executive Director, there is currently a landfill ban in Massachusetts on asphalt, brick, concrete, metal and wood. Mr. St. Onge also stated that landfill

tipping fees in Boston are \$130 per ton. These two factors help with the operational success of the BMRC.

The BBMC recently designed a business plan for a satellite venture in Lawrence, Massachusetts. The start up costs for the satellite venture were approximately \$77,650, excluding a 5,000 square foot building but including

information technology (server, computers, telephones, etc.), a new van, office furnishings, web site update and material handling equipment and display racks. Annual operating expenses are approximately \$345,000. The existing Building Materials Resource Center in Boston is a 6,000 square foot building has six full time employees and five part time employees. The start up and operating costs are available in Appendix E.



Figure 9: One of several services that the BBMC provides.

**Building Materials Resource Center**

Location: Boston, MA

Open to the public: Discounts for members (\$10 membership fee)

Number of employees: 6 Full Time Employees, 5 Part Time Employees

Building size: approx. 6,000 square feet covered storage

Accept paint: No

Baseline needs: Building, information technology, van, office furnishings, material handling equipment and display racks

Grade stamp lumber: No

Approximate landfill tipping fee: \$130/ton

Other: Massachusetts has a landfill ban on asphalt, brick, concrete, metal and wood.

Conduct home improvement and other workshops.

Web address:  
<http://www.bostonbmr.org/bostonbmr/index.html>

The BMRC is open Monday through Saturday. The merchandise at the BMRC includes cabinets, windows, doors, lumber, flooring, electrical and plumbing fixtures and appliances. The items are either donated at the center or collected in by a truck. No traditional recycling commodities are collected at the center. The BMRC does not accept certain items, such as windows and doors without frames, used cast iron tubs, toilets that are not low-flow, and commercial electrical equipment. A detailed list is provided on their website. They do not grade stamp reclaimed lumber.

The lesson learned by the BBMC is that it takes a lot of labor to run a reuse store. For the Building Materials Resource Center, this labor includes staff for truck/pick-up, sales and constant organization of inventory, receiving/processing inventory, donations coordinator, development, and an executive director for overall management.

Mr. St. Onge stated one of the barriers to recycling or reusing building materials is accepting windows. Windows are difficult to fit into existing openings because there are many different sizes

and styles. Another barrier includes not being able to provide a warranty for the used appliances that BMRC sells. Not grade stamping lumber was also listed as a barrier.

## **Roundtable Discussion**

To help the reader, this guide includes a summary of an H-GAC roundtable. In November 2008, H-GAC hosted an event called *Developing Building Material Reuse Warehouses Roundtable*. Approximately 30 people from around the H-GAC region attended to listen to the case studies presented in this report and to a panel comprised of representatives from the Cities of Houston and Huntsville, Houston Habitat for Humanity and Living Paradigm, a non-profit organization that works with families to build their own homes from free, salvaged and recycled materials. Comments from the November 6, 2008 Roundtable have been incorporated into and helped shape this guide. Panel questions and answers may be found at the end of this report in Appendix F.

## **Challenges to Establishing Building Material Reuse Centers**

While building material reuse centers can provide communities with a host of benefits such as natural resource conservation, landfill diversion, low cost building materials, and local jobs, there are several challenges these centers must overcome.

- *Lack of Incentives* - Texas and, specifically, the H-GAC region have some of the lowest disposal fees in the country. While this is a beneficial quality from a cost of living standpoint, it can make financial incentives to recycle difficult. In the City of Huntsville, landfill tipping fees are more than twice the fees in the City of Houston. Waste is hauled from the City of Huntsville's transfer station to a landfill in College Station approximately 70 miles away. Due to the longer haul distance that the City of Huntsville has to transfer its waste to a landfill, the City of Huntsville has a higher incentive than other areas to divert more C&D waste. The City of Huntsville provides bins to local businesses that have applied for building permits, so the businesses can donate their leftover building materials to the TIPS warehouse. Regardless of the financial incentives, the City of Huntsville recognizes that the TIPS warehouse provides a needed service to its community, both the users and donors, and would still be successful if landfill tipping fees were higher.

Texas also has no landfill bans on C&D waste, so there is no regulatory requirement to divert these types of materials. Of the cases studies presented in this guide, only one is located in a state (Massachusetts) where there are landfill bans on C&D waste.

- *Storage and Turnover of Materials* - Storage and turnover of materials at building material reuse centers are likely the top barriers to recycling C&D materials in the H-GAC region. There is a disconnect between generators of reusable building materials and the end users of these materials. Building material reuse centers can provide a link between these two groups.

Oftentimes, a reuse center may have to reject good loads of clean, sorted materials because of the lack of storage within their warehouses. Reuse center managers should actively market their surplus materials to potential end users. Displays of creative uses of surplus material may also provide inspiration to end users. For reuse centers that sell materials, consider reducing the cost of the surplus materials to move them quickly.

- *Limited Staff* - Staffing of building material reuse centers was also cited as a barrier to operating a successful building material reuse center because of the on-going expense involved. For example in Huntsville, city solid waste staff is moved to the TIPS warehouse on slow days. No staff is dedicated to the TIPS warehouse. Many of the reuse centers profiled in this report utilize volunteers and community service workers.
- *Recognition and Marketing of Programs* - Many of the building material reuse centers in this guide operate on very small budgets that do not have budgets for marketing. Some programs have gotten creative in order to publicize their work. For example, Historic Houston has a well-marked pick-up truck to enhance the organization's visibility in its target neighborhoods. Reuse center managers can make presentations to local community groups to promote the concept of reuse as well as their own reuse centers. Prominent signage can also help patrons and donors recognize a center's activities.
- *Lack of Collection Opportunities* - Lack of transportation vehicles can make collections difficult. Valuable donations are missed for many of the reuse centers because they are unable to go to job sites to recover the materials. Homeowners or commercial builders may have also difficulty delivering materials from their projects to the reuse centers. An exception to this is Habitat for Humanity Montgomery County and Houston Habitat for Humanity, which both have trucks and staff to pick up donations. Fueling these vehicles can be costly.
- *Perception as Waste* - Some people perceive reclaimed or salvaged material as dirty, unusable or as a waste. City inspectors may view salvaged lumber as trash. Public education is needed to change this common perception.
- *Quality and Prohibited Materials* - There is also some confusion on the part of the donors as to what can be reused or recycled and what cannot. As with most types of stores based on donations, the donated materials are oftentimes not useable. In this case, reuse centers should establish strict donation policies. The centers should reject these materials, as they will end up paying for their disposal. The reuse centers in the cases studies presented in this report all have a list of items they will not accept which includes unusable materials.
- *Confusion of Regulatory Requirements* - Confusion of what the state regulatory requirements are can also be a barrier to providing storage for C&D material reuse. State regulatory

requirements<sup>7</sup> can vary depending on the separation of the material, reporting and record keeping and whether or not you are a business, local government or non-profit organization.

### **C&D Reuse Options to Consider**

- *Grade Stamping Reclaimed Lumber* - Grade stamping reclaimed lumber provides assurance to end users that the material can be used for structural purposes. Grade stamping will assist with a higher turnover rate of reclaimed lumber at a center and also help supply the reclaimed lumber market with materials. A review of existing building codes may be necessary to ensure that codes do not restrict use of reclaimed materials.

Besides using reclaimed building materials for new construction projects, local governments and non-profits may want to consider promoting some alternate options for lumber if a grade stamp is not available. Some of those alternatives include:

- *Boarding Dangerous Buildings* - Local governments can use reclaimed lumber for internal purposes. Instead of purchasing new lumber, counties and cities can use reclaimed lumber to board doors and windows of dangerous houses.
- *Building Furniture* - Reclaimed lumber can be used by local artisans to create unique furniture pieces and home accessories.
- *Building Theatrical Sets* - Theatrical production companies and schools can use reclaimed building materials in theatrical sets. Reclaimed lumber, plumbing and lighting fixtures as well as furniture can provide low cost alternatives to new products.
- *Building Signage and Paths in Parks* - Reclaimed lumber can be used in parks for signage along trails as well as in decks, boardwalks and pedestrian bridges.
- *Building Wildlife Homes* - Reclaimed lumber can be used for the construction of wildlife homes such as bird houses and feeders.
- *Creating Mulch* - Untreated lumber can be chipped and ground for landscaping mulch. This mulch can also be used in periods of wet weather to allow trucks and workers to move through a construction site. If local governments cannot do the chipping and grinding themselves, they should check with local composting facilities to see if they will accept untreated lumber.

### **Requirements for Starting Building Material Reuse Centers**

The following list summarizes items necessary for start up of building material reuse centers:

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<sup>7</sup> Texas Administrative Code 330  
Guide to Developing Building Material Reuse Centers  
Houston-Galveston Area Council, 2008



- *Funding* – Opening and operating a center can be costly. To help finance a center, alternate funding sources should be explored. The majority of the case studies presented in this report received some form of grant funding for one to two years for start up and then became self sustaining. Some of the non-profit operated centers conducted fund raising to help support the centers. The municipally operated centers are supported by city budgets after grant funding expires.
- *Building* – Adequate storage is key to the successful operation of a center. All of the cases studies had buildings to store materials. The types of building vary depending on the center. The majority of the building material reuse centers were completely enclosed on four sides. One of the centers was three-sided and another was two-sided. Most of the centers had outdoor storage space for plumbing fixtures such as toilets and sinks. Proper signage will direct customers to the correct areas.
- *Equipment* – Equipment requirements may vary; however, all of the building materials reuse centers had forklifts as a minimum for equipment. Box trucks are helpful in collecting donations. Other pieces of light duty equipment such as panel carts, flatbed carts and panel jacks are also used. Adjustable shelving may be helpful as inventories change.
- *Staffing* – Adequate staffing is beneficial to operating the center. The municipally owned building materials reuse centers use city employees to staff their centers. Non-profits rely on paid staff and volunteers. One of the non-profit operated centers has paid employees and also utilizes community service workers.
- *Reclaimed materials* - A building materials reuse center must have merchandise to provide to customers. Centers must have somebody that can coordinate drop-off or collection of these reclaimed materials and off-specification items, and identify end users so materials do not become stock piled. The turnover of the inventory depends on advertising as well.
- *Advertising* - The best laid plans will fail if nobody knows about an organization's center. Reclaimed materials will not turn over and will become stockpiled. Advertising can be creative and does not have to be expensive. Many building material reuse centers' managers conduct advertising through presentations, flyers, and press releases. The Houston Habitat for Humanity has a large high visibility facility on IH 610. Historic Houston has a well-marked pick-up truck. The City of Huntsville Solid Waste Department staff work with their Planning Department staff and include a TIPS warehouse flyer in an information packet to all business that apply for building permits.
- *Signage* - Signage, like advertising, can help guide potential customers into a reuse center. Signage can also inform customers where they can park, where certain types of merchandise are located and areas that are off-limits to customers.

**2005 CONTRACT BUDGET  
City of Conroe**

<b>GRANT BUDGET SUMMARY</b>	
<b>Budget Categories</b>	<b>H-GAC Solid Waste Grant Funding</b>
1. Travel	\$0.00
2. Supplies (unit cost of less than \$1,000)	\$0.00
3. Equipment (unit cost of \$1000 or more)	\$23,534.60
4. Contractual	\$0.00
5. Other	\$11,487.40
<b>TOTAL</b>	<b>\$35,022.00</b>

<b>1. Travel</b>	<b>0</b>
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<b>2. Supplies</b>	<b>0</b>
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<b>3. Equipment</b>				
<b>Equipment</b>	<b>Model</b>	<b>Unit Cost</b>	<b>No. of Units</b>	<b>Equipment Funded</b>
Fork Lift (Used		\$12,250.00	1	\$12,250.00
Covered Trailer		\$4,662.30	2	\$9,324.60
Flatbed trailer		\$980.00	2	\$1,960.00

<b>4. Contractual</b>	<b>0</b>
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<b>5. Other</b>				
<b>Type Other</b>	<b>Description</b>			<b>Other Funded</b>
Postage / Delivery				\$0.00
Telephone / FAX				\$0.00
Utilities				\$0.00
Printing / Reproduction				\$0.00
Advertising / Public Notices				\$0.00
Signage				\$0.00
Training / Registration Fees				\$0.00
Dues / Membership Fees				\$0.00
Record Storage				\$0.00
Office Space				\$0.00
Basic Office Furnishings				\$0.00
Equipment Rentals				\$0.00
Books / Subscriptions				\$0.00
Repair / Maintenance				\$0.00
Legal Services				\$0.00
Temporary Services				\$0.00
	<b>Description</b>	<b>Unit Cost</b>	<b>No. of Units</b>	<b>Other / Eqmt. Funded</b>
Recycling Bins				\$0.00
Recycling Bins				\$0.00
Personal Protective Equipment				\$0.00
Computer Hardware				\$0.00
Computer Software				\$0.00
Audio / Visual Equipment				\$0.00
Promotional Item				\$0.00
Additional Other	Industrial shelving (in feet)			\$3,500.00
Additional Other	Flatbed carts	\$270.39	10	\$2,703.90
Additional Other	Pallet Jacks	\$490.63	2	\$981.26
Additional Other	Hand trucks	\$94.50	4	\$378.00
Additional Other	Trailer dolly	\$78.75	1	\$78.75
Additional Other	Appliance dolly	\$350.00	1	\$350.00
Additional Other	Panel carts	\$171.89	10	\$1,718.91
Additional Other	Cash register	\$400.00	1	\$400.00
Additional Other	Additional Pellet racks/shelving	\$624.00	1	\$624.00
Additional Other	Computer	\$752.58	1	\$752.58

**2006 CONTRACT BUDGET  
City of Conroe**

<b>GRANT BUDGET SUMMARY</b>	
<b>Budget Categories</b>	<b>H-GAC Solid Waste Grant Funding</b>
1. Personnel (Salary)	\$0.00
2. Fringe Benefits	\$0.00
3. Travel	\$0.00
4. Supplies (unit cost of less than \$1,000)	\$0.00
5. Equipment (unit cost of \$1000 or more)	\$71,727.64
6. Construction	\$0.00
7. Contractual (other than for construction)	\$1,096.48
8. Other	\$3,065.88
9. Indirect charges	\$0.00
<b>TOTAL</b>	<b>\$75,890.00</b>

10. Fringe Benefit Rate	0%
11. Indirect Cost Rate:	0%

<b>1. Personnel (Salary)</b>	<b>0</b>
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<b>3. Travel</b>	<b>0</b>
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<b>4. Supplies</b>	<b>0</b>
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<b>5. Equipment</b>				
<b>Equipment</b>	<b>Model</b>	<b>Unit Cost</b>	<b>No. of Units</b>	<b>Equipment Funded</b>
24' Box Truck with Lift Gate	GVSD09724102	\$54,977.64	1	\$54,977.64
Bobcat Skid-Steer Loader	S130	\$16,750.00	1	\$16,750.00

<b>6. Construction</b>	<b>0</b>
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<b>7. Contractual</b>		
<b>Contractor</b>	<b>Purpose</b>	<b>Contract Funded</b>
Part Time Driver	Pick-up large volume donations	\$1,096.48

<b>8. Other</b>				
<b>Type Other</b>	<b>Description</b>	<b>Other Funded</b>		
Postage / Delivery		\$0.00		
Telephone / FAX		\$0.00		
Utilities		\$0.00		
Printing / Reproduction		\$0.00		
Advertising / Public Notices		\$0.00		
Signage	Sign for truck	\$1,270.50		
Training / Registration Fees		\$0.00		
Dues / Membership Fees		\$0.00		
Record Storage		\$0.00		
Office Space		\$0.00		
Basic Office Furnishings		\$0.00		
Equipment Rentals		\$0.00		
Books / Subscriptions		\$0.00		
Repair / Maintenance		\$0.00		
Legal Services		\$0.00		
Temporary Services		\$0.00		
	<b>Description</b>	<b>Unit Cost</b>	<b>No. of Units</b>	<b>Other / Eqmt. Funded</b>
Recycling Bins				\$0.00
Personal Protective Equipment				\$0.00
Computer Hardware				\$0.00
Computer Software				\$0.00
Audio / Visual Equipment				\$0.00
Promotional Item				\$0.00
Additional Other	Insurance coverage	\$1,795.38	1	\$1,795.38



# CITY OF HOUSTON

## Job Posting

1		<i>Applications accepted from:</i>	SOUTH OPERATIONS/RECYCLING DIV. ONLY
2		<i>Job Classification</i>	PROJECT MANAGER
3		<i>Posting Number</i>	
4		<i>Department</i>	SOLID WASTE MANAGEMENT
5		<i>Division</i>	SOUTH OPERATIONS / RECYCLING DIVISION
6		<i>Section</i>	NA
7		<i>Reporting Location</i>	611 Walker *
8		<i>Workdays &amp; Hours</i>	M - F, 8 a.m. - 5 p.m.*
			*Subject to change
9	<b><u>DESCRIPTION OF DUTIES/ESSENTIAL FUNCTIONS</u></b>		
	Provides supervision and coordination of workforce labor. Serves as a liaison between City personnel; donors; recipients; workforce; and community groups. Reviews, approves and tracks materials flow. Oversees Warehouse operations. Oversees personnel and volunteers working at the Warehouse. Reviews preliminary plans and evaluates future plans for operation. Manages materials inventory database. Resolves construction problems. Operates vehicle to and from various sites. Attends reviews, staff and other meetings. Prepares and reviews various reports and records. Provides management of multiple projects of various sizes. May develop standard protocol for operations. Other duties as assigned.		
10	<b><u>WORKING CONDITIONS</u></b>		
	There are occasional discomforts from exposure to moderate heat, cold, moisture/wetness and unpleasant air conditions. The position may involve occasional exposure to soiled materials and light chemical substances such as cleaning solutions. This position requires stooping, bending, and/or lifting of items of up to 30 pounds with occasional periods of walking on rough surfaces.		
11	<b><u>MINIMUM EDUCATIONAL REQUIREMENTS</u></b>		
	Requires a bachelor's degree in Civil Engineering, Business Administration, Physical Sciences or closely related field.		
12	<b><u>MINIMUM EXPERIENCE REQUIREMENTS</u></b>		
	Four years of experience in construction, construction inspection, design, geotechnical, environmental of closely related field. Directly related professional experience may be substituted for the education requirement on a year for year basis.		
13	<b><u>MINIMUM LICENSE REQUIREMENTS</u></b>		
	Valid Texas Class C driver's license and compliance with the City of Houston's policy on driving		
14	<b><u>PREFERENCES</u></b> None		
15	<b><u>SELECTION/SKILLS TESTS REQUIRED</u></b> None		
16	<b><u>SAFETY IMPACT POSITION</u></b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
	If yes, this position is subject to random drug testing and if a promotional position, candidate must pass an assignment drug test.		

Appendix B

17 **SALARY INFORMATION**

Factors used in determining the salary offered include the candidate's qualifications as well as the pay rates of other employees in this classification. The salary range for this position is:

**Salary Range - Pay Grade 24**

\$1419 - \$2155 Bi-weekly \$1419 - \$36,894 Annually

18 **OPENING DATE** June 18, 2008

19 **CLOSING DATE** Open Until Filled

20 **APPLICATION PROCEDURES**

**Only online applications** will be accepted for this City of Houston job and must be received by the Human Resources Department during posting opening and closing dates shown. **Applications must be submitted online at:** [www.houstontx.gov](http://www.houstontx.gov).

For application status inquiries or special accommodations, please call 713- 837-9113. Our TDD (Telephone Device for the Deaf) phone number is (713) 837-9471.

All new and rehires must pass a pre-employment drug test and are subject to a physical examination and verification of information provided.

An equal opportunity employer

166-1278.DOC

## City of Houston Project Manager

### BUILDING MATERIALS REUSE WAREHOUSE

#### Project Description

The REUSE Warehouse will house reusable building materials from the public sector until distributed to any non-profit group at no cost.

The City of Houston has a job opening for a Program Manager. The person will oversee the functions of the Building Materials REUSE Warehouse. Duties include providing supervision to community volunteers and workforce labor; managing inventory; advertising to the construction industry to bring in materials, and to the non-profit sector for distribution of material.

Minimum education requirements include a bachelor's degree in Civil Engineering, Business Administration, Community Development, Physical Sciences or closely related field. Minimum experience includes four years of experience in construction, design, engineering, environmental programming or closely related field. Education may be substituted for experience. Direct related professional experience may be substituted for education requirement on a year for year basis.

For more information please contact Sarah Mason, 832.393.0997

Appendix B

**2008 CONTRACT BUDGET  
City of Houston**

<b>GRANT BUDGET SUMMARY</b>	
<b>Budget Categories</b>	<b>H-GAC Solid Waste Grant Funding</b>
1. Personnel (Salary)	\$44,970.00
2. Fringe Benefits	\$13,491.00
3. Travel	\$0.00
4. Supplies (unit cost of less than \$1,000)	\$0.00
5. Equipment (unit cost of \$1000 or more)	\$37,500.00
6. Construction	\$30,000.00
7. Contractual (other than for construction)	\$0.00
8. Other	\$23,700.00
9. Indirect charges	\$0.00
<b>TOTAL</b>	<b>\$149,661.00</b>

10. Fringe Benefit Rate:	30%
11. Indirect Cost Rate:	0%

<b>1. Personnel (Salary)</b>					
<b>Position</b>	<b>Function</b>	<b>Status (FT/PT) perm/temp</b>	<b>Monthly Salary</b>	<b>Time (%FTE)</b>	<b>Salary Funded</b>
Project Manager	to oversee operation of facility	FT	\$3,747.50	100%	\$44,970.00

<b>3. Travel</b>	<b>0</b>
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<b>4. Supplies</b>	<b>0</b>
--------------------	----------

<b>5. Equipment</b>				
<b>Equipment</b>	<b>Model</b>	<b>Unit Cost</b>	<b>No. of Units</b>	<b>Equipment Funded</b>
Forklift	5,000 lbs indoor	\$30,000.00	1	\$30,000.00
Electronic floor scale		\$7,500.00	1	\$7,500.00

<b>6. Construction</b>		
<b>Type of Construction</b>	<b>Sub-Contracted (Y/N)</b>	<b>Construction Funded</b>
Restoration of warehouse to make it operational and to construct new office space. Labor will be provided by city staff and contractor as needed	Both	\$30,000.00

<b>7. Contractual</b>	<b>0</b>
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<b>8. Other</b>		
<b>Type Other</b>	<b>Description</b>	<b>Other Funded</b>
Postage / Delivery		\$0.00
Telephone / FAX		\$0.00
Utilities		\$0.00
Printing / Reproduction		\$0.00
Advertising / Public Notices		\$0.00
Signage		\$0.00
Training / Registration Fees		\$0.00
Dues / Membership Fees		\$0.00

Appendix B

Record Storage				\$0.00
Office Space				\$0.00
Basic Office Furnishings				\$0.00
Equipment Rentals				\$0.00
Books / Subscriptions				\$0.00
Repair / Maintenance				\$0.00
Legal Services				\$0.00
Temporary Services				\$0.00
	<b>Description</b>	<b>Unit Cost</b>	<b>No. of Units</b>	<b>Other / Eqmt. Funded</b>
Recycling Bins				\$0.00
Personal Protective Equipment				\$0.00
Computer Hardware	Desktop unit (computer)	\$1,200.00	1	\$1,200.00
Computer Software	Inventory software	\$10,000.00	1	\$10,000.00
Audio / Visual Equipment	Digital camera	\$400.00	1	\$400.00
Other Equipment (<\$5k)	flatbed carts	\$300.00	5	\$1,500.00
Other Equipment (<\$5k)	hand trucks	\$90.00	5	\$450.00
Other Equipment (<\$5k)	panel carts	\$350.00	2	\$700.00
Other Equipment (<\$5k)	pallet jack with scale	\$1,500.00	1	\$1,500.00
Additional Other	industrial shelving (racks)	\$500.00	5	\$2,500.00
Additional Other	shelving per foot			\$5,000.00
Additional Other	cable reel rack	\$225.00	2	\$450.00

Wish list for excess funds from personnel:

Security camera

Signage



Appendix C  
City of Houston Materials Re-Use Warehouse  
**Acceptable Items**

**Building Materials**

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- |   |   |   |
|---|---|---|
| <ul style="list-style-type: none"><li>▪ Dimensional Lumber</li><li>▪ Lumber</li><li>▪ Trim</li><li>▪ Plywood</li><li>▪ Luan</li><li>▪ Drywall</li><li>▪ Sheetrock</li><li>▪ Insulation</li><li>▪ Rigid foam</li><li>▪ Insulation board</li><li>▪ Fiberglass batts</li><li>▪ Drywall mud</li><li>▪ Wood Siding</li><li>▪ Vinyl Siding</li><li>▪ Moldings</li><li>▪ Stair railing and balusters</li></ul> | <ul style="list-style-type: none"><li>▪ Hardware</li><li>▪ Block, brick, pavers</li><li>▪ Mortar</li><li>▪ Caulking, putty, adhesives, grout</li><li>▪ Roof shingles</li><li>▪ Corrugated roofing</li><li>▪ Standing seam roofing</li><li>▪ Flashing</li><li>▪ Cement</li><li>▪ Rebar</li><li>▪ Steel</li><li>▪ Copper</li><li>▪ Pipe, cast iron, PVC</li></ul> | <ul style="list-style-type: none"><li>▪ Plumbing supplies</li><li>▪ Stairways</li><li>▪ Exterior house shutters</li><li>▪ Fencing</li><li>▪ Hardwood fencing</li><li>▪ Fireplace screens</li><li>▪ Grates</li><li>▪ HVAC - Ducting and vent covers</li><li>▪ Tools - Hand &amp; Power</li><li>▪ Gutters and accessories</li><li>▪ Commercial shelving</li><li>▪ Fasteners: nails, screws, bolts, etc.</li></ul> |
|---|---|---|

- Wood must be de-nailed enough for safe handling
- Cannot accept lumber, trim or siding with: excessively peeling paint, pest infestations, or dry rot.

**Windows**

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- |   |   |  |
|---|---|--|
| <ul style="list-style-type: none"><li>▪ Double-pane</li><li>▪ Wood and Vinyl</li><li>▪ Aluminum</li><li>▪ Storm windows</li></ul> | <ul style="list-style-type: none"><li>▪ Thermal pane</li><li>▪ Divided light windows</li><li>▪ Wood frame</li><li>▪ Fixed windows</li></ul> | <ul style="list-style-type: none"><li>▪ Picture windows</li><li>▪ Shutters</li><li>▪ Blinds</li><li>▪ Curtain rods</li></ul> |
|---|---|--|

**Doors**

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- |  |   |  |
|--|---|--|
| <ul style="list-style-type: none"><li>▪ Storm doors</li><li>▪ French doors</li><li>▪ Fireplace doors</li><li>▪ Hollow core doors</li></ul> | <ul style="list-style-type: none"><li>▪ Commercial doors</li><li>▪ Aluminum screen doors</li><li>▪ Security doors</li></ul> | <ul style="list-style-type: none"><li>▪ Sliding glass doors</li><li>▪ Paneled doors</li><li>▪ Hardware (locks, knobs, hinges, clasps, handles)</li></ul> |
|--|---|--|

- Door knobs and locks **with keys**

**Bathroom**

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- |   |   |  |
|---|---|--|
| <ul style="list-style-type: none"><li>▪ Vanities</li><li>▪ Fixtures</li><li>▪ Faucets</li><li>▪ Sinks</li></ul> | <ul style="list-style-type: none"><li>▪ Tubs</li><li>▪ Shower and tub enclosures</li><li>▪ Toilets</li><li>▪ Ceramic tile</li></ul> | <ul style="list-style-type: none"><li>▪ Accessories (towel racks, etc.)</li><li>▪ Radiators</li><li>▪ Shower doors</li></ul> |
|---|---|--|

- Please be careful to retain hardware when disassembling a toilet, otherwise the toilet may not be reusable

## Appendix C

### Kitchen

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- Cabinets
- Counter tops
- Fixtures (faucets)
- Cabinet doors and drawers
- Hardware
- Sinks

- Wall mount sinks should include wall bracket, if possible.
- No water damaged or heavily soiled cabinets

### Flooring

---

- Wood
- Tile (ceramic, rubber, vinyl)
- Engineered flooring (i.e. Pergo)
- Sheet vinyl
- T & G wood
- Parquet
- Unused carpet (rolls)
- Unused or lightly used carpet tiles

- No minimum size for sheet vinyl
- Cannot accept carpet with pet odors, stains, tread wear, etc.

### Electrical

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- Lighting and electrical fixtures
- Ceiling fans
- Electric baseboard heaters

### Wall Coverings

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- Wall Paper (full or partial rolls)
- Wainscoting
- Paneling

### Furniture

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- Any non-upholstered furniture

\*\*\*Please be aware that materials are accepted only at staff discretion. If you have something to donate that is not on this list, please call us at xxx-xxx-xxxx\*\*\*

## Items We Cannot Accept

- Paint
- Appliances
- Used carpet
- Commercial 200-volt electric items
- Loose glass
- Batteries
- Hazardous materials
- Asbestos-containing materials
- Oil tanks
- Florescent light bulbs & fixtures (unless ballast marked "No PCB's")
- Toxic or flammable products
- Containers that may have held chemicals
- Chemicals of any kind
- Thermostats containing mercury

\*\*\* You may dispose of many of these materials safely by taking them to City of Houston's Consumer Recycling Center, located at 5900 Westpark or calling the City of Houston Household Hazardous Waste Information Line at 713-551-7355 \*\*\*

Appendix C  
City of Houston Re-Use Warehouse  
**Donation Acceptance Policies**

The Re-use Warehouse accepts donations of building material from anyone in the Houston area. Our goals are to keep useable material out of the waste stream and to support local nonprofits by providing material that they would otherwise have to purchase.

If you have reusable building or remodeling materials that you no longer need, you can donate them to the Re-use Warehouse. In addition to your potential waste disposal and tax savings, you will support community development, improve the environment, and reduce pressure on our landfills.

Don't dump it, donate it!

### **General Acceptance Criteria**

Please read our list of acceptable items to see if we can take your materials. The Re-use Warehouse accepts many materials that other reuse organizations reject because part of our mission is keep useable material out of the waste stream. If you have something to donate that you think we can use but is not on our list, please call us.

Unfortunately, there are certain items that we are not able to accommodate. These are listed on our Acceptable Items document and include paint, appliances, and hazardous materials. Call in advance if you have questions about whether we accept specific items to avoid making an unnecessary trip. If you have a large amount of building materials, we may be able to schedule a preview of items to tell you if they are acceptable.

Materials are accepted only at staff discretion. Acceptance guidelines may change without notice. We reserve the right to refuse any item based on space availability and quality.

### **Drop off Times**

Items must be delivered to our facility, as we currently do not have trucks and are unable to offer pick up service. While we cannot offer pick up, we can provide you with a list of truck rental and moving companies in the area. Please ask a staff person for a copy of this list.

You can drop off materials any time during our operating hours:

Monday – Saturday  
9:00 am – 5:00 pm

Please arrive to drop off materials at least 30 minutes before closing. Do not drop items off after hours!

### **Unloading**

If you are donating items that are particularly heavy or large, you may need to bring an able-bodied person to our Warehouse to help unloading. We have a small staff with limited resources, and cannot be responsible for unloading materials from your truck. Please call ahead if you think you will be unable to unload your materials when you arrive at our Warehouse.

### **Tax Deductions**

City of Houston Re-use Warehouse gives all donated material away to 501(c)(3) non-profit organizations. Therefore, your donation may be tax deductible.

You will fill out a donation form when you drop off your materials, and a copy of this form can be used for taking your tax deduction. If you plan to deduct the fair market value of the materials from your taxes, it may be helpful to take photos of the materials to document your donation.

For more information about tax deductions, please visit: <http://www.irs.gov/pub/irs-pdf/p526.pdf>.

Appendix C

CITY OF HOUSTON  
REUSE BUILDING MATERIALS RECEIPT

NAME OF DONOR: \_\_\_\_\_

DONOR'S ADDRESS: \_\_\_\_\_

DONOR'S TELEPHONE NUMBER: \_\_\_\_\_

DESCRIPTION OF DONATED BUILDING MATERIALS:

---

DATE RECEIVED \_\_\_\_\_

CITY OF HOUSTON  
BUILDING REUSE WAREHOUSE

By: \_\_\_\_\_  
Printed name of City employee

**City of Houston Re-use Warehouse  
Material Collection Form and Liability Waiver**

Nonprofit Organization		
Contact Name		
Address		
City	State	Zip Code
Phone	Extension	
Alternate Phone		
Fax		
Email		
Description of materials collected		
How did you hear about the Re-Use Warehouse?		

**REUSE BUILDING MATERIALS RELEASE AND INDEMNITY**

IN CONSIDERATION OF BEING EXTENDED THE PRIVILEGE AND OPPORTUNITY TO USE BUILDING MATERIALS FROM THE CITY OF HOUSTON'S REUSE BUILDING MATERIALS WAREHOUSE, \_\_\_\_\_, A TEXAS NON PROFIT CORPORATION, ("RECIPIENT") AGREES TO THE FOLLOWING:

RECIPIENT ASSUMES ALL RISKS ASSOCIATED WITH THE USE OF BUILDING MATERIALS FROM THE CITY OF HOUSTON'S REUSE BUILDING MATERIALS WAREHOUSE LOCATED AT 9003 NORTH MAIN STREET, HOUSTON, TEXAS AND AGREES TO AND SHALL RELEASE THE CITY, ITS AGENTS, EMPLOYEES, OFFICERS AND LEGAL REPRESENTATIVES (COLLECTIVELY THE "CITY") FROM ALL LIABILITY FOR INJURY, DEATH, DAMAGE OR LOSS TO ANY PERSON OR PROPERTY SUSTAINED IN CONNECTION WITH OR INCIDENTAL TO ACCEPTANCE OR USE OF BUILDING MATERIALS, EVEN IF THE INJURY, DEATH, DAMAGE OR LOSS IS CAUSED BY THE CITY'S SOLE OR CONCURRENT NEGLIGENCE AND/OR THE CITY'S STRICT PRODUCTS LIABILITY OR STRICT STATUTORY LIABILITY. RECIPIENT ASSUMES ALL RISKS AND INJURIES TO ANY PERSON OR DAMAGE TO PROPERTY ARISING OUT OF THE USE OF THE BUILDING MATERIALS.

RECIPIENT FURTHER AGREES TO RELEASE, HOLD HARMLESS, AND COVENANTS NOT TO SUE THE CITY, ITS AGENTS, EMPLOYEES, OFFICERS AND LEGAL REPRESENTATIVES (COLLECTIVELY THE "CITY") FROM THE ABOVE-DESCRIBED CLAIMS, EVEN THOUGH SUCH INJURY TO PERSONS OR DAMAGE TO PROPERTY IS CAUSED, IN WHOLE OR IN PART, BY ANY DEFECT IN OR CONDITION OF THE PROPERTY, AND WHETHER OR NOT SUCH DEFECT OR CONDITION IS KNOWN OR SHOULD HAVE BEEN KNOWN TO THE CITY ITS SUCCESSORS OR ASSIGNS, AND WHETHER OR NOT SUCH CLAIMS ARISE FROM NEGLIGENCE ATTRIBUTABLE TO CITY ITS SUCCESSORS OR ASSIGNS.

RECIPIENT

\_\_\_\_\_  
Printed Name of Authorized Official

Street Address: \_\_\_\_\_

City and State: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Date: \_\_\_\_\_

**City of Houston Re-Use Warehouse  
Material Collection Policies**

The Re-Use Warehouse gives donated inventory away for free as a service to the community. Any nonprofit organization may “shop” our Warehouse and collect as much material as it can use at no charge.

**Proof of Nonprofit Status**

The first time you shop at the Warehouse, please be sure to bring your proof of nonprofit status (your organization’s tax exempt form or IRS letter). We will keep a copy on file in our office so that any representative from your organization can collect material from the Warehouse.

**“As-Is” Policy**

Materials at the Re-use Warehouse are given away as-is, with no warranties or guarantees, stated or implied. Materials may not be altered in any way on the Warehouse property.

**Loading**

The Re-use Warehouse is completely self-service. The Warehouse is a small operation with a small staff. Please bring tools for measuring and people to help load your purchases into your vehicle. We cannot be responsible for tying down or securing items onto or into a vehicle.

While we cannot offer delivery of items, we can provide you with a list of truck rental and moving companies in the area. Please ask a staff person for a copy of this list.

**Holds**

Materials in the Warehouse are given away on a first come-first serve basis. We recognize that organizations are not always able to take away larger items with them after the initial visit. Therefore, items may be placed on hold or “lay away” for up to 72 hours. After 72 hours, these items will be released and made available to other organizations on a first come- first serve basis. Due to space restrictions, longer-term storage is not possible.

**General Policies**

Children are discouraged from entering the warehouse. If you do bring children, please supervise them at all times.

There is no smoking, alcohol or drugs allowed on the premises at any time.

Appendix E

Projected Lawrence Building Material Reuse Center Start Up Costs

Building 5000+ Sq Feet

Technology

Server	1,500.00
Quickbooks Pro 3 Users	550.00
Intuit POS	
POS w/bundle hrdr	1,850.00
Ext Lisc	1,150.00
Upgrade Current Store	900.00
	3,900.00
CRM	2,000.00
MS Office	500.00

**Total Technology 8,450.00**

IT

Workstations (5@ \$1000)	5,000.00
Telephones & Cells	2,500.00
Fax Machine	200.00
Printer	500.00
Copier	500.00

**Total IT 8,700.00**

**New Van (Dodge Sprinter or equal) 50,000.00**

**Office Furnishings 2,500.00**

**Web Side Update 3,000.00**

**Material Handling Equip and display racks 5,000.00**

**Total 77,650.00**



## Appendix E

### Projected Lawrence Building Material Reuse Center Operating Costs

#### Income Sources

Government Grants	
Foundation/Corporate Grants	
United Way	
Individual Contributions	10,000.00
Earned Income	72,000.00
Interest Income	
In-Kind Income	
Membership & Pick Up Fees	6,000.00
Capital Improvement Income	

Total Income	88,000.00
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#### Expenses

Salary and Wages (Adjusted)	148,543.20
Employee Benefits & Taxes	44,388.74
Total Personnel Costs	192,931.94

Bank/Investment Fees	4,404.00
Depreciation Expense	8,000.00
Equipment Rental & Maintenance	5,450.00
Capital Improvement Expenses	
Meeting Expense	1,000.00
Fundraising/Development Expenses	14,350.00
Insurance Expense	2,000.00
Marketing/ Advertising	22,850.00
Postage and Delivery	4,300.00
Professional Development	1,000.00
Professional Fees	14,400.00
Rent and Occupancy	47,650.00
Supplies and Materials	7,000.00
Telephone/Internet Expense	3,620.00
Travel Expense	1,500.00
Other 1 - Auto Expense	12,000.00
Other 2 - State Taxes	500.00
Miscellaneous	1,000.00

Total Expenses	343,955.94
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Appendix E

Excess Revenue over Expenses	<u>(255,955.94)</u>
Fund Balance	<u>(255,955.94)</u>

NOTES

- |   |                          |                  |
|---|--------------------------|------------------|
| 1 | <u>Professional Fees</u> |                  |
|   | Acct/Audit               | 8,000.00         |
|   | IT Support               | 2,400.00         |
|   | Graphic Design           | 4,000.00         |
|   | Grantwriting/Development |                  |
|   | Other                    | -                |
|   | Total                    | <u>14,400.00</u> |
- 2 Bank fees associated with processing credit card payments at the BMRC store, and related charges
- 3 Meeting Expenses include monthly staff meetings, monthly board meetings, and annual meeting.

## Appendix F

### Panel Questions and Answers from November 6, 2008 Roundtable

Question 1: Why did you the two municipalities represented decide to get into building reuse? It seems like mostly non-profits operate these types of facilities.

*Esther Herklotz, City of Huntsville:*

Because the City operates a transfer station, we can see lots of different items that can be reused. The City of Huntsville had the support of enthusiastic person, Dan Phillips, who builds houses. We saw lumber, windows and doors in good condition. The City of Huntsville has higher tipping fees, which are 60.65 per ton so that changes the mentality of many small businesses.

*Sarah Mason, City of Houston:*

The City of Houston decided to operate a reuse warehouse because of the work of City of Huntsville and Dan Phillips. Research from H-GAC and the Houston Advanced Research Center shows that we do have existing facilities, but we still have a lot of material going to landfills that can still be reused. The City of Houston also looked at building codes to see if they could be made more sustainable and if reclaimed materials could be used in housing projects? Local builders said yes, but they needed somewhere to store it. The City's goal is to provide intermediate place for storage between generators and users and avoid landfilling these materials.

Question 2: How have your facilities been affected by Hurricane Ike? Are you seeing quality material coming in and are you able to sell it?

*Jim Culkin, Houston Habitat for Humanity:*

Business has grown dramatically since Ike. Many products that Habitat sells come from area businesses and construction companies. Business for this site is very strong.

*Esther Herklotz:*

The City of Huntsville does not sell merchandise; it only gives to families and non-profits. Some small school districts can get materials. Material received can fluctuate. We recently received 1,000 doors from a local company. Hurricane Ike has not slowed down operations.

Question 3: How do you deal with situations where you get too much material? More than what you can hand out to community? Can they sell material? Have you found that you need to push more product out? Are you keeping supply and demand equal?

*Esther Herklotz:*

We do not sell anything at this point. We have an equal supply and demand.

## Appendix F

### Question 4: Do you reject materials if you have a surplus?

*Esther Herklotz:*

We never reject anything. We will take it all. One thing that helps is to avoid opening packages to keep things tidy.

### Question 5: Did City of Huntsville's transfer station have enough room to accommodate the TIPS warehouse? Did you need to purchase additional space?

*Esther Herklotz:*

Our grant from H-GAC included building the warehouse on existing city property.

### Question 6: Do people sign release forms?

*Esther Herklotz:*

*We have a release of liability for customer when they are on-site.*

### Question 7: For Amanda, what kind of items does your organization need as an end user?

*Amanda Tullos, Living Paradigm:*

We need items in quantity, especially those that are structurally related. We need lots of repetitive items, even dimensional lumber cut-offs. Doors, windows, fixtures, tiles, wine corks (for floors), and beer bottle tops are things we can use.

### Question 8: Do you limit where you give these materials out to? Are they for your community only?

*Esther Herklotz:*

We have customers from different places – Madisonville, Cleveland, College Station. We are not restricted to Walker County. Small churches are considered non-profits. State parks are recipients of materials such as doors to assist with Ike repairs.

*Sarah Mason: Customers can be from anywhere but must have non-profit status.*

### Question 9: Who comes in and removes material that is slated for demolition?

*Jim Culkin:*

Houston Habitat for Humanity has a deconstruction team that just started. We took up a floor in one of the Greenway buildings and stored it at our facility for sale. Many of the contractors now visiting the HHH ReStore are builders and remodelers that are doing work in Galveston for Hurricane Ike repairs and rebuilding.

## Appendix F

### Question 10: For the cities, do you see deconstruction training in the future for probationers and/or community service volunteers?

*Esther Herklotz:*

No, but I will add it to my list.

*Jim Culkin:*

With deconstruction, we use community service workers a lot. They do need to be trained. We have our construction team that is better suited for deconstruction. Training takes about two weeks to become and trainees are paired up with experienced person. It is working for us. The value is there.

*Amanda Tullos:*

There is growing tide of awareness of “green collar” jobs. Deconstruction is a critical element of that. The idea is to train people in a community to do this type of job.

### Question 11: What are hardest items to sell that you receive?

*Esther Herklotz:*

We have some insulated metal. Only our Master Gardeners have been able to use it.

*Jim Culkin:*

We received large donation of windows of various sizes. I thought it would take long time to get sell them but they were gone in three days because of the need of materials for Hurricane Ike repairs.

### Question 12: Does deconstruction team receive payment besides material?

*Jim Culkin:*

The deconstruction team works for Habitat, so they are paid. We use people we’ve trained. The deconstruction team does not get material; they have to buy it through the store. Habitat does not pay the person or corporation that wants their building deconstructed, but the business/individual can do a tax write-off.

### Question 13: Would you deconstruct a house or does it have to be a business?

*Jim Culkin:*

We can do both.

### Question 14: Are you concerned about materials with lead based paint?

*Jim Culkin:*

No – if there is lead based paint, we do not take the material back with us to sell. The same is true for mold; it goes nowhere and is demolished with the rest of the structure.

## Appendix F

### Question 15: How do you determine the value of a donation for a tax deduction?

*Jim Culkin:*

The donor receives a receipt and decides the value.

### Question 16: Amanda, could you give some background on Living Paradigm?

*Amanda Tullos:*

I'm the founder and president of Living Paradigm in Houston. I saw what Dan Phillips was doing in Huntsville. We did a project in Huntsville with Dan Phillips. We are trying to lay a foundation within the City of Houston to minimize hurdles. It's really important to have an understanding of how reused materials fit into code. With LEED projects, very few projects use reclaimed materials because of complications with storage and putting them into drawings and permitting and it is unknown if inspectors will pass it.

We have some privately donated storage space and are slowly accumulating some materials. We are incorporating gray water and rainwater systems into our design.

### Question 17: Amanda, Can you describe the value of owning a home for your clients?

*Amanda Tullos:*

Rents are going up, but a mortgage does not. Many people are not able to afford what is considered "affordable" housing in the \$99,000 range. With Dan's program, they are given them tools to help themselves. They train unskilled workers a new trade.

