

*Text-based links for non-javascript users below*

## **Construction Waste Management Handbook**

### **HOMESTEAD HABITAT FOR HUMANITY**

#### **JORDAN COMMONS**

Prepared for:  
Homestead, Florida  
Habitat for Humanity

Prepared by:  
NAHB Research Center  
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## **INTRODUCTION**

The National Association of Home Builders (NAHB) Research Center, with funding from the U.S. Environmental Protection Agency, is investigating residential construction waste management. At three sites across the country, the Research Center is working with builders, waste management firms, local and state solid waste officials, and building product manufacturers on waste reduction, reuse, and recycling of common construction waste materials.

The Homestead Habitat for Humanity (HHFH) Jordan Commons development is an ideal housing project for the demonstration of alternatives to conventional construction waste disposal for two primary reasons. First, the emphasis on resource-efficiency in the design, construction, and operation of the homes of Jordan Commons makes the construction waste management program an important and integral element of the overall project. Second, the overall size of the project-187 homes plus community common buildings-provides the opportunity for significant economies of scale in the collection, separation, and marketing of recovered materials.

The objectives of the Jordan Commons construction waste management program are to maximize material recovery, minimize waste, and reduce total waste management costs on a per-house basis. The following steps were taken in the development of the program to meet these objectives:

1. Determine waste management costs for conventional disposal.
2. Determine the types and quantities of construction waste generated during the construction of Jordan Commons homes.
3. Identify alternatives to the disposal of construction waste materials
4. Determine the costs associated with HHFH handling the recovery of various construction waste materials.
5. Request bids and proposals from construction waste management firms to handle all or most of the construction waste materials, given the emphasis on maximizing material recovery. Use the submitted waste management bids and proposals to compare strategies for recovering materials
6. Determine how to handle materials on-site to meet the requirements of recycling outlets. On-site waste management objectives include minimizing contamination, minimizing the number of times materials are handled, and maximizing HHFH volunteer involvement.

To date, approximately 75% of all construction waste--all metals, drywall, cardboard, and most wood--has been recycled. The following sections describe how this was achieved. Refer to the tables in Appendices A and B for discussions of steps 1-5.

## **DEVELOPMENT OF CONSTRUCTION WASTE MANAGEMENT PLAN**

### **Conventional Waste Disposal Costs**

The business manager of the HHFH affiliate determined the costs of conventional construction waste management by averaging total costs for waste services for a recent 30 home Homestead Habitat development. The average was \$750 per house. This cost is similar to the per house costs reported by two for-profit builders in South Florida. This cost involved little to no recycling or reuse of construction waste materials. Note also that this cost does not include any labor associated with handling construction waste materials.

### **Waste Composition and Quantities Waste**

Estimates of construction waste composition and quantities from Jordan Commons homes were obtained by measuring the volume and mass of various component waste streams for four Jordan Commons prototypes. When measurement was not possible, estimates of mass and volume were obtained by multiplying the total number of square feet of an average Jordan Commons home by average per square foot waste rates from previous NAHB Research Center construction waste assessments. The quantities are reported in the second column of the table in Appendix A

### **Identification of Construction Recycling and Reuse Outlets**

Outlets for ferrous metals, wood, corrugated cardboard, and aluminum were identified with the help of local solid waste officials and area phone books. The outlets' locations, fees or premiums, and handling requirements are presented in Appendix A. Requirements ranged from maximum dimensions of materials to delivery only in a vehicle capable of dumping. Whenever delivery was required, it was assumed that the HHFH stake-body truck would be used. Containers for materials handled by HHFH would be constructed out of surplus job materials.

### **Individual Recovery Costs or Premiums**

Column five (Rate Recycle) of the table in Appendix A gives the projected cost or premium estimated for individual separated construction materials. Under this strategy, recovery of separated materials would be accomplished through individual arrangements with various recovery outlets. If the outlet provides a container and service (for example, Miami Iron for steel), then the rate is based solely on the quantity of that material generated per house. If an outlet requires the delivery of materials, the cost or premium for the material is based on vehicle cost per mile, vehicle capacity, and outlet unit fee or unit premium. A transportation cost for the, HFH stake-body truck was calculated at \$1.00 per vehicle mile.

Column five represents a strategy of material recovery that would require the highest commitment of HHFH staff, time, and resources. Given a certain amount of uncompensated volunteer labor, this recovery approach results in a net savings in comparison to conventional disposal (see last column). Even the disposal of construction waste results in a savings under the recovery strategy because of a lower C&D tipping fee if plastics, cardboard, and other municipal solid waste materials are kept out of the construction waste container. Although it was unlikely that the HHFH affiliate would adopt a recovery strategy as described in columns three and five, development of this information provided critical background information for discussions of services with waste management firm

### **Selection of a Waste Management Service**

Four local waste management firms were asked to submit proposals for providing waste management service to Jordan Commons. HHFH asked each firm to include as much material recovery as the firm could provide. The proposals received were compared to each other and to the costs of individual

recovery as described above (column five in Appendix A). The waste management contract submitted by Browning-Ferris Industries, Inc. (BFI) proved to offer the best terms. The table in Appendix B presents waste management services at Jordan Commons based on the actual BFI/Homestead contract for container service and arrangements confirmed with recovery outlets for wood, drywall, and various municipal solid waste materials. Note that the waste management firm selected did not offer services for all materials and did not necessarily offer the most cost-effective option for each specific material. The firm's proposal for service, however, did not allow individual modification and, as such, provided the best overall container service for the Jordan Commons projec

### **Development of Job Site Service**

After determining that wood, cardboard, drywall, metals, and other miscellaneous materials could be cost-effectively recovered after the source-separated materials left the site, a system was developed to handle the materials on the job site. The on-site waste management plan was developed to minimize the number of times materials were handled, minimize contamination, and maximize the opportunity to educate Jordan Commons visitors, volunteers, and staff about alternatives to conventional construction waste disposal. Key elements of the on-site waste management plan are described below.

**Training** -- The materials management crew leader (HHFH staff or intern) is trained to:

1. distinguish reusable materials from materials suitable for recycling,
2. work with staff carpenters and site superintendent on the best locations for stockpiling reusable materials,
3. separate materials for recovery,
4. coordinate pickup of full roll-off containers; and,
5. supervise volunteers for the materials management crew.

**Waste management services** -- The on-site collection center is presented in Appendix C. The collection center:

1. is remote from active job site, limiting access to control contamination,
2. has two large signs describing area's purpose (see Appendix E),
3. houses separate containers for:
  - a. scrap metals (20-yard roll-off)
  - b. "clean" scrap wood (20-yard roll-off)
  - c. corrugated cardboard (20-yard roll-off)
  - d. unrecoverable mixed construction waste (20-yard roll-off)
  - e. MSW that cannot be mixed with construction waste (2-yard box)
  - f. aluminum, plastic, and glass beverage cans (90-gallon BFI containers)
  - g. "clean organic waste" (COW) - incidental food stuffs, paper wrappers and packaging (90-gallon BFI containers)
4. holds pallets loaded with stacked drywall cut-off waste.

Galvanized metal framing waste is recycled into new steel. Scrap wood materials are chipped into sawdust for horse bedding. Corrugated cardboard is recycled into other paperboard products. The clean organic waste (COW) is recycled into compost as part of a pilot program developed by the South Florida Soil and Water Conservation District. The drywall cut-off waste is backhauled to a drywall manufacturing plant for blending with gypsum ore in the manufacturing of new wallboard. Approximately 75-80% of the total construction waste is being recovered at Jordan Commons.

**Site clean-up services** -- The HHFH pickup truck and materials management crew of two to four make rounds to clean up job sites. The size of the crew and frequency of pickups are determined by construction activity. The crew uses the truck, trailer, and 32-gallon plastic containers to pickup all unusable materials for recovery or disposal. The crew also sorts reusable materials into stockpiles suiting the needs of the construction crews. The rounds end back at the collection center where all materials are placed in designated containers.

The 32-gallon plastic containers are all the same color and labeled with the house recycling logo presented on the title page. This same logo is on billed caps worn by each member of the materials management crew. The intent of having the logo on both the containers and the caps of materials management crew members is to highlight the novel way in which materials are being handled at the Jordan Commons project. In this way, all Jordan Commons visitors and volunteers are more likely to take back to their own projects new approaches to construction waste minimization and materials recovery.

The plastic containers are donated to HHFH homeowners as they move into their new homes. Along with the used but still useful plastic container comes a reminder for the homeowner of how the containers were used in materials recovery at the Jordan Commons project.

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## **OPERATION OF THE CONSTRUCTION WASTE MANAGEMENT PLAN**

Operation of the Jordan Commons construction waste management plan involves servicing the collection center, servicing active job sites, and disseminating information on its operation to all Jordan Commons workers and visitors. The Except during blitz builds, these tasks require approximately 20 hours a week or less. Having one individual responsible for all three tasks eases coordination of the three. The following sections provide details on servicing the collection center, servicing active job sites, and spreading the word on how waste management is handled at Jordan Commons.

These three tasks can be accomplished by a single individual, a construction waste manager, or by a team of dedicated volunteers.

### **Servicing Recycling Center Containers**

#### ***Collection Center Layout***

The Recycling Center (waste management area) is a 110' by 80' area at Jordan Commons (see Appendix C for site layout). The Recycling Center is located approximately 600 yards from current construction activity in the southeast quadrant of the Jordan Commons site. The Recycling Center area contains the following:

- Four 20-yard roll-off containers-Metals, Cardboard, Wood, Construction Waste
- One 2-yard container-Municipal Solid Waste (MSW)
- Four 90-gallon plastic containers-Clean Organic Waste (COW), Plastics and Glass, Aluminum
- Landscaping box-scrap lumber to be used for flower beds
- Pallets loaded with scrap drywall
- Signs describing collection center (see Appendix E)

#### ***Spacing Requirements***

The 20-yard roll-off containers are located at least 12 feet apart and 12 feet away from the nursery fence. The first distance is to allow room for the pickup truck to park between the containers when unloading materials and the second is to keep anyone from using the containers as a platform to get over the fence

and into the nursery. The front of each roll-off must be kept clear of obstructions so that BFI drivers can pull the containers when full.

The 2-yard MSW box must be located so that front-loading BFI trucks have access to the slotted side lift bars. The location of the four 90-gallon containers is less critical--they are serviced by the HHFH pickup truck.

The pallets loaded with stacked scrap drywall are lined up for easy fork lift access. When the lifts of scrap drywall are backhauled to Jacksonville, 20 to 30 lifts are forked onto a flatbed or into a dump trailer. Arranging the drywall pallets so that the forklift has direct access to each pallet ties up the forklift and tractor trailer for less time during loading. The stacked scrap drywall must be tarped to keep the material relatively dry.

The collection center is located in a sheltered corner of the site to limit contamination but is also on the route between the job site and panelization area to provide convenience. The location can be easily changed to accommodate new areas of activity.

### ***Sorting Materials***

The materials in each source-separated container at the collection center have value or a significantly reduced disposal cost only if contamination is controlled. Controlling contamination is the sole reason for locating the containers away from active job sites, locating the containers out of the general public's view, and having a single person or small group service the job site and collection center containers.

Although the emphasis within the Jordan Commons waste management plan is on the recovery of construction wastes (wood, metal, drywall, and cardboard), consumer product wastes (aluminum, compostable paper and food, and plastics and glass beverage containers) are also being recovered. At this stage of the project with no homeowners or HHFH office staff on-site, recovery of consumer wastes is quite labor intensive given the small volume of materials. The recovery of these consumer wastes will be more efficient when they can be handled as part of larger quantities generated by project residents and business employees.

For the construction waste materials, note the difference in cost between an accepted, clean load and a rejected, contaminated load.

#### ***METAL***

Cost: Accepted load - None, Rejected load - \$275-\$375

metal framing less than 24 inches in length

damaged and unusable metal framing longer than 24 inches

completely empty metal containers (for example, paint cans)

NO:

aluminum

composite materials (items containing metal but also made up of plastic, wood, or other non-metallic materials)

#### ***WOOD***

Cost: Accepted load - \$140, Rejected load - \$275-\$375

solid-sawn lumber

plywood

damaged wooden pallets

NO:

painted, primed, stained, or pressure-treated wood

cement-coated foundation form boards and sheathing

Note:

A wooden box is located in the collection center for any wood posts suitable for creating flower beds. Wooden 2 by 2 dunnage from steel framing lifts are appropriate.

#### *CARDBOARD*

Cost: Accepted load - None, Rejected load - \$375

corrugated containers  
heavy brown kraft paper

NO:

plastic liners  
wax-coated boxes

Note:

Boxes must be empty and broken down to conserve space in the roll-off container.

#### *DRYWALL*

Cost: Accepted load - None, Rejected load - \$990

any dimensional scrap that can be stacked on a four by four wooden pallet.

NO:

nails or screws  
cornerbead  
painted drywall

Note:

Scraps can be quickly scored with a utility knife on one side and folded to fit on the pallet.

#### *CONSTRUCTION WASTE*

Cost: Accepted load - \$275, Rejected load - \$375

treated wood  
roofing paper waste,  
cement-coated foundation form boards and sheathing

NO:

solvents,  
paint cans/buckets,  
automotive lubricants,  
recyclable wood and metals,  
food or food-packaging waste,  
broken concrete block waste

Note:

Broken block is placed inside foundations as clean fill before concrete slabs are poured.

#### *MUNICIPAL SOLID WASTE*

non-recyclable plastic,  
stretch wrap,  
cement bags with plastic liners,  
non-paper food packaging,  
styrofoam,  
wax-coated cardboard,  
paint containers with less than one-half inch of contents

NO:

hazardous materials such as automotive lubricants and hydraulic fluids  
recyclable wood  
metal  
cardboard

Note:

Unusable paint is left in original containers (lids on tight, no mixing) and stored on a pallet in the recycling center.

A home chemical collection center in Miami accepts up to 10 gallons of paint at a time.

#### *CLEAN ORGANIC WASTE*

food waste,  
paper products (trays, plates, cups),  
incidental yard wastes

NO:

plastics (straws, plastic utensils, cellophane wrappers), glass, metal, styrofoam

#### *ALUMINUM*

beverage cans,  
foil trays,  
tins

#### *PLASTICS AND GLASS*

plastic beverage containers,  
glass beverage containers

NO:

plastic tarps,  
bags,  
straws,  
utensils, cups, etc.,  
cellophane

#### **Collection Center Container Service**

BFI Waste Systems provides service for the four 20-yd containers and the small 2-yd MSW containers. The small 2-yd container is serviced every week on Thursdays; no call is necessary for this container's service. The four 20-yd containers are pulled only when they are full and BFI has been notified. BFI requires approximately 24 to 48 hours notice for container service. When the 20-yard wood roll-off is full, J.W. Dawson Co., as well as BFI, must be notified of the full wood load.

The Clean Organic Waste (COW) is collected in two or more of the 90-gallon retired BFI containers. Anyone handling food or used food containers should wear the heavy rubber gloves provided. When full, the containers are taken to the TREC facility in the HHFH pickup truck. The COW material is processed as compost under a pilot program.

All beverage containers are handled by a future Jordan Commons home owner. The aluminum is recycled for cash and the plastics and glass go into municipal recycling. In the future, BFI Waste Systems will be servicing the plastics and glass at Jordan Commons as part of office services at Jordan Commons.

#### **Servicing Job Site Containers**

Active job sites are serviced using the HHFH small pickup truck, 32-gallon plastic containers, and, if necessary, the two-wheeled trailer, or, alternatively, by the 12-foot stake body truck as part of normal runs between the job sites and panelization area. The plastic containers are labeled with the Jordan Commons recycling logo and one of the following: "metal", "aluminum", "cardboard", "plastics/glass", and "trash". Jordan Commons currently has between 30 and 60 of the plastic containers.

A set of the five containers is delivered to each of the active job sites at the start of the work day. Depending on the level of construction activity, the containers will require service during or at the end of the day. Containers are collected at the end of each day, their contents placed in the appropriate container at the collection center, and the truck and plastic containers stored in the panel area overnight.

### **Reuse of Materials on the Job Site**

Plywood sheathing cut-off scraps that are rectangular and are 18 inches or more in width are stockpiled for use as foundation forms. Check with the construction superintendent on the best location for stockpiling reusable plywood. Plywood scrap forms are generally used four times in foundation work before they become too splintered and cement-coated to reuse. The cement-coated forming wood waste cannot be recycled as horse bedding and must be discarded in the 20-yard construction wasteroll-off.

Small amounts of concrete block waste are generated from foundations and the exterior walls of all-block homes. The broken block is placed as clean fill inside the raised foundation before the concrete slab is poured.

### **Special Note - Blitz Builds**

A blitz build is an event in which a multitude of volunteers, staff, homeowners, and others come together to build a large number of houses in a short period of time. More frequent service of the job site and even the collection center containers is likely during a blitz build. Below is a list of actions to consider in preparation for a blitz build at Jordan Commons.

1. Check with the construction superintendent on the planned level of construction activity and number of people expected. If the current stock of plastic containers is insufficient, it will be necessary to purchase more. Each new container will require a logo and a label.
2. Check the level of the containers at the Recycling Collection Center. Let dispatch at BFI know about any containers that need to be serviced prior to the blitz build and the likelihood of more frequent servicing needed during the week of the blitz build.
3. Check to make sure the HHFH pick-up truck has been gassed up and is in good working order.

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## **EDUCATION AND INFORMATION DISSEMINATION**

One of the primary objectives of this project is to provide the building industry and general public with information on the feasibility and expected benefits of a construction waste management program. It is very important that all those who come to Jordan Commons understand how and why the construction waste management system works. Builders, volunteers, homeowners, and prospective donors may each take elements of the model waste management program at Jordan Commons back to their own businesses and communities.

### **NAHB Builder Week Seminar**

One week of every month, a group of builders arrives at Jordan Commons to participate in a steel framing training session. This is an excellent opportunity to demonstrate the benefits of the construction waste recovery program to innovative members of the building community.

The training week begins with an orientation on Monday morning. An explanation of the construction waste management program, including a brochure (see Appendix F), is an integral part of the orientation. This ensures that the visiting builders understand how and why the Jordan Commons recycling and reuse program works.

### Blitz Builds

Blitz builds offer an excellent opportunity to educate the general public about the Jordan Commons material recovery program. The construction waste management display board can be set up at a common meeting place such as the lunch tent and a brief presentation of the program can be given during a common meeting time.

### Volunteers

The brochure mentioned above (see Appendix F) is designed to inform any site visitor or volunteer about the Jordan Commons construction waste management system. The brochure is available in English as well as Spanish.

### Homeowners

Each Jordan Commons family must spend a minimum of 400 sweat equity hours working on their own or a neighbor's home. As site volunteers, they too, need to understand how construction waste materials are handled at Jordan Commons. An explanation of the construction waste management system has been incorporated into one session of the homeowner education program. Homeowners will also be reminded of the way in which construction waste was managed at Jordan Commons when they receive a used but still useful 32-gallon plastic container from the project.

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## RECORD-KEEPING

The following tables are used to keep track of quantities and types of materials recovered and discarded at Jordan Commons. The tables can also be used to estimate per cent material recovery, a good measure of the program's effectiveness in diverting construction waste away from disposal (Clean copies of the tables are provided in Appendix H). For example, totaling all recovered materials to date (approximately 113 cubic yards) and comparing to the unrecovered waste (61.5 cubic yards) gives a per cent recovery rate of 65% by volume for all materials and a recovery rate of 73% (100 of a total 137.5 cubic yards) for construction waste materials.

Tables 1 and 2 compile the information for construction and miscellaneous waste materials respectively. Table 3 (only shown in Appendix H) was developed to keep a record of the dates for various construction activities at the homes. From this table, a relationship of the waste generated as a function of the level of construction activity can be established. This information is necessary to determine waste generation and recovery on a per house basis.

**TABLE 1: BFI 20-YARD CONTAINER PULLS  
(Construction Materials)**

Date	Material Description	Material - Volume In Cubic Yards/Weight In Tons			
		*→ Recycled ®*	*→ Discarded®*		
		Metal	Wood	Cardboard	CONSTRUCTION
		(M)	(W)	(CB)	Waste (CW)

7/28/95	M - scrap framing	20 cy			
8/10/95	CW - tarps, broken pallets, broken block				17.5 cy
8/26/95	M - scrap framing, wire mesh, cans, screws, nails	20 cy/2.5 tons			
10/18/95	M - rebar, banding, angle, framing, tire rims	20 cy/3 tons			
11/13/95	M - framing, lath, nails, banding, roofing	20 cy/7.22 tons			
12/4/95	CW - foundation forming waste, broken pallets, (broken furniture from off-site)				20 cy
12/9/95	M - framing, banding, lath, roofing	20 cy			
Total	-	100 cy			37.5cy

**TABLE 2: OTHER CONTAINER PULLS  
(Miscellaneous Materials)**

DATE	*→ Recycled ®*			
	*→ Discarded ®*			
	CLEAN ORGANIC WASTE (~.5 cu. yds)	ALUMINUM (~.5 cu. yds)	PLASTICS/GLASS (~.5 cu. yds)	MSW (2 cubic yards)
As of 1/1/96	9.5	2.4	1	24
Total	9.5	2.4	1	24

### APPENDIX A

#### COST PROJECTIONS FOR DISPOSAL/MATERIAL RECOVERY PER "AVERAGE" HOME (1,350 SQ. FT.)

MATERIAL	Q'TY	REQUIREMENTS	CONTACT	RATE RECYCLE (-) COST (+) PREMIUM	RATE DISPOSAL	COST (-) / PREMIUM (+) RECYCLING	COST DISPOSAL	NET PREMIUM - RECYCLING
<b>Metals</b>	1,000 lbs (3.1 cy)	Container & service provided	Miami Iron Bernie Farinas (305) 634-3090	+\$25.00/ton (+\$4.07/cy)	-\$18.75/cy	+\$12.50	-\$ 58.13	+\$ 70.63
<b>Wood Reuse</b>	1,000 lbs (3.3 cy)	Container & service provided	American Salvage Barbara/Terence Waldron (305) 691-7001	\$0/ton	-\$18.75/cy	\$0	-\$ 61.88	+\$ 61.88
<b>Wood Recycle</b>	1,000 lbs (3.3 cy)	Container & service required, 75-mile round trip w/ HHFH stake-body truck, 24" max. width	J.W. Dawson Co. Sam Heatherdale (305) 634-8618	-\$41.67/ton (-\$6.25/cy)	-\$18.75/cy	-\$20.83	-\$ 61.88	+\$ 41.05
<b>Cardboard</b>	400 lbs (4.0 cy)	Container & service required, 75-mile round trip w/ HHFH stake-body truck	Community Recycling (BFI) (305) 633-2700	+\$75.00/ton (+\$3.75/cy)	-\$18.75/cy	-\$10.00	-\$ 75.00	+\$ 65.00
<b>Drywall</b>	1,350 lbs (4.5 cy)	Pallets & baling required, 400- mile backhaul	USG Jacksonville	-\$15.44/ton	-\$18.75/cy	-\$10.42	-\$ 84.38	+\$ 73.96
<b>Recyclable Containers (all aluminum)</b>	25 lbs (1.0 cy)	Container & service required, 15-mile round trip w/ HHFH stake-body truck	Reynolds Recycling Centers, 675 Flagler Ave. (305) 592-9484	+\$45.00/100 lbs	NA	+\$11.25	\$0	+\$ 11.25
<b>Unrecoverable Construction Waste</b>	750 lbs (3.0 cy)	20-yd roll-off & service required	Atlantic Sanitation Gabe (305) 591-9456	-\$275/pull (-\$13.75/cy)	-\$375/pull (-\$18.75/cy)	-\$41.25	-\$ 56.25	+\$ 15.00
<b>MSW Disposal</b>	200 lbs (2.0 cy)	2-yd container & service required	Atlantic Sanitation Gabe (305) 591-9456	-\$80.00/month	-\$18.75/cy	-\$20.00	-\$ 37.50	+\$ 17.50
<b>TOTAL</b>	5,575 lbs (≈ 24.2)	--	--	--	--	-\$78.75	-\$435.02	+\$356.27

cy)

## APPENDIX B

### COSTS FOR DISPOSAL/MATERIAL RECOVERY PER "AVERAGE" HOME (1,350 SQ. FT.)

MATERIAL	Q'TY	REQUIREMENTS	SERVICE	RATE RECYCLE (-) COST (+)PREMIUM	RATE DISPOSAL	COST (-) / PREMIUM (+) RECYCLING	COST DISPOSAL	NET PREMIUM - RECYCLING
<b>Metals</b>	1,000 lbs (3.1 cy)	Container & service provided	BFI	NO CHARGE	-\$18.75/cy	\$0	-\$ 58.13	+\$ 58.13
<b>Wood Reuse</b>	750 lbs (2.5 cy)	HHFH Stack for reuse as foundation forms	HHFH	-\$13.75/cy	-\$18.75/cy	-\$34.38	-\$ 46.88	+\$ 12.50
<b>Wood Recycle</b>	1,250 lbs (4.2 cy)	BFI container (\$140/pull)-Dawson charges no tipping fee	BFI	-\$40.00/ton (-\$7.00/cy)	-\$18.75/cy	-\$29.40	-\$ 78.13	+\$ 48.73
<b>Cardboard</b>	400 lbs (4.0 cy)	Container & service provided	BFI	NO CHARGE	-\$18.75/cy	\$0	-\$ 75.00	+\$ 75.00
<b>Drywall</b>	1,350 lbs (4.5 cy)	Pallets & baling required, 400-mile backhaul by USG	USG Jacksonville	NO CHARGE	-\$18.75/cy	\$0	-\$ 84.38	+\$ 84.38
<b>Recyclable Containers (all aluminum)</b>	25 lbs (1.0 cy)	Container required, serviced at no charge by homeowner	HHFH Homeowner	NO CHARGE	NA	\$0	\$0	\$ 0
<b>Unrecoverable Construction Waste</b>	750 lbs (3.0 cy)	Container & service required	BFI	-\$275/pull (-\$13.75/cy)	-\$375/pull (-\$18.75/cy)	-\$41.25	-\$ 56.25	+\$ 15.00
<b>MSW Disposal</b>	200 lbs (2.0 cy)	2-yd container & service required	BFI	-\$70.00/month	-\$18.75/cy	-\$35.00	-\$ 37.50	+\$ 2.50
<b>TOTAL</b>	5,575 lbs (≈ 24.2 cy)	--	--	--	--	-\$140.03	-\$436.27	+\$296.24

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ISSUE AREAS 

URL: <http://www.smartgrowth.org/>

### Smart Growth Network

*This web site is a subset of <http://www.sustainable.org>, developed and maintained by the*

***Sustainable Communities Network (SCN)***

Revised January 6, 2000

Webmaster: [info@smartgrowth.org](mailto:info@smartgrowth.org)

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