

US EPA ARCHIVE DOCUMENT



## RESIDENTIAL DECONSTRUCTION MANUAL

STARDUST NON-PROFIT BUILDING SUPPLIES, INC.  
U.S. EPA Grant I.D. # X-97900301-1

June 2005



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Table of Contents

Background ..... 1

Getting Started..... 2

Marketing - Recruiting Residential Sites for Deconstruction ..... 3

Materials Recovered..... 5

Labor ..... 6

Required Equipment ..... 7

Transportation ..... 8

Project Scheduling ..... 9

Jobsite Safety ..... 9

Tracking ..... 10

Warehouse Space ..... 11

Pricing Structure ..... 12

Lessons Learned ..... 12

Appendices

## Background

Stardust Non-Profit Building Supplies, Inc. ("Stardust") is an IRS §501(c)3 non-profit organization organized and registered under the State of Arizona. Stardust was founded in 1997 with the mission:

*"to assist families, individuals and other non-profit organizations through marketing reusable materials and providing other related sustainability programs while having a positive impact on our environment".*

This mission is accomplished by diverting reusable construction and home improvement materials from landfills and marketing those materials at substantial and affordable discounted prices to the public, focusing primarily on low- and fixed-income homeowners. Materials are obtained through donations from the construction and remodeling industry, be they reusable or excess new materials, as well as manufacturers, distributors, retailers and individuals. Materials are placed for sale at one of two warehouse stores and discounted at up to 80% off of typical retail prices. Materials are also used to support our own community service programs, **Angels On Call** and **Computers for Kids**, as well as donated to non-profit housing and shelter groups to support their community needs and efforts. Additionally, excess revenues are used to fund these same community outreach programs.

**Angels On Call** is an important program developed by Stardust to reach out to local communities and provide home repair assistance while at the same time fostering volunteerism and demonstrating environmental responsibility. Due in large part to our gracious donors, both through deconstruction and direct donations, we are able to use building and home improvement supplies received or excess funds generated from our two stores to repair homes in low income neighborhoods for families and individuals in need. These materials combined with volunteer skilled labor allow us to facilitate safety, security and quality of life repairs that would otherwise go untouched. Homeowners receiving these services develop a newfound pride in their homes that is apparent to neighbors and friends. Pride in one's home leads to pride in one's neighborhood and fans the flame of community strength and unity.

By using quality new and reusable building and home improvement materials, we are able to eliminate a substantial amount of material going to Valley landfills. We provide volunteer opportunities to people having skills they can use to make a difference in their own communities. We provide job opportunities for at risk youth and others needing a second chance in life.

Similarly, **Computers for Kids** is a program developed by Stardust that provides refurbished computers to elementary aged children through schools, primarily in the inner city. Children are able to earn computers by increasing their reading, and then are tested on what they have read. The program has already significantly increased the number of books being read by students. It is expected that this will result in a significant improvement in the drop out rate, which currently is above 70% in some cases.

In 1999 Stardust began "de-constructing" homes prior to demolition or remodel, retrieving reusable materials. In return for the deconstruction, Stardust received the materials, which it then sold to the public at significantly reduced prices through its warehouse stores. In addition to eliminating, or at least reducing, the material removal

costs to the homeowner, the homeowner also received a donation receipt, which could qualify for a deduction against their income taxes. This proved to be an attractive option to many homeowners.

In 2001, Stardust sought and received a \$40,000 grant from the United States Environmental Protection Agency (“EPA”), RCRA 8001 – Deconstruction and Salvage Program. The purpose of the grant was to develop a formal program and process for deconstructing and recovering reusable construction and home improvement materials, as well as educating homeowners and the construction industry on the benefits of reuse.

This grant is part of EPA's partnership program, the [Resource Conservation Challenge \(RCC\)](http://www.epa.gov/rcc) <http://www.epa.gov/rcc>. The RCC is organized around ambitious challenges and voluntary partnerships that aim to make dramatic progress in the achievement of these goals:

- Prevent pollution and promote recycling and reuse of materials;
- Reduce the use of toxic chemicals; and
- Conserve energy and materials.

RCC voluntary partnerships seek to improve environmental performance by challenging stakeholders to identify and implement innovative approaches that go beyond compliance and current regulations. By focusing on resource conservation—including more efficient use of materials—the RCC unites partners that will lead shared projects and will identify and achieve waste and toxic reduction goals.

One of the Primary Focus Areas of the RCC is increasing the beneficial use of construction and demolition debris. EPA estimates that 136 million tons of building-related construction and demolition debris are generated in the U.S. annually, and that building demolitions account for 48% of the waste stream, or 65 million tons per year; renovations account for 44%, or 60 million tons per year; and construction sites generate 8%, or 11 million tons per year.

### **Getting Started**

The most critical factor to developing a deconstruction and salvage program will be obtaining the necessary funding/financing. There are many sources of funding – from grants to donations to loans to other sources – however, one must identify the amount of money necessary to get the program started and continue it until it is self-sustaining.

Like starting any business, the first step in establishing a program is developing a well thought out, detailed plan. The plan must include the following:

1. An analysis of the potential need/market for deconstruction and salvage services.
2. A review of any competition.
3. A detailed listing of the materials to be recovered/salvaged and how this will be accomplished.
4. Identification of an outlet(s) for the recovered/salvaged materials.
5. A detailed, targeted marketing strategy to reach the desired market segment.
6. Amount and source of needed man power.

7. A detailed listing of tools and equipment necessary to perform the services.
8. A financial analysis of the start-up costs, revenues and operating costs to determine the sustainability of the program. This analysis should be very conservative to account for unexpected issues.
9. Identification of sources of funding for the start-up, and a strategy for approaching the targeted sources.
10. A conservative timeline for getting the program up and running. Additionally, it is critical that the plan have a long-term perspective as well – 3-5 years.

No plan will be perfect, however, analyzing and considering these factors will better prepare you to develop a program. In addition, the business plan will likely be a good tool for soliciting funding so take the time up front to make it a good one.

Another key to success is being flexible (and having a plan with some flexibility) for when actual results differ from expectations. We found this to be the case in many areas, especially marketing, scheduling and transportation.

### **Marketing - Recruiting Residential Sites for Deconstruction**

From the beginning, Stardust targeted residential home building materials for our deconstruction and salvage operation. This was based on an observed high volume of residential remodeling occurring in the area and similar observation that the vast majority of the materials being removed were being thrown in a dumpster and disposed of at the local landfills. At the same time, many city officials were pointing to the need for re-development of certain areas of the city and the increasing level of poverty.

Stardust's marketing strategy was to work with and through city officials to reach the homeowners having remodel projects performed on their homes. The following comments identify many of the successes and difficulties we experienced with our strategy:

- Working with cities works. We found the cities approached to be very interested and supportive as they recognized the benefits they could realize; i.e. less waste to the landfills and, to a lesser degree, housing improvement opportunities to their less fortunate constituents.
- Working with permit offices is both successful and difficult in a large metropolitan area. Working with permit offices was not cost/time effective because of the number of cities and permit offices in the area; instead the most successful method identified involved contacting individual cities, either at the city council or specific planning office level. However, through the cities targeted and focused on, we were able to get the Stardust deconstruction program mentioned and/or have our flyers presented to the applicants for remodel and/or demolition permits. See Appendices A and B for copies of the Deconstruction brochure and Stardust presentation used in this process.
- Contacting homeowners directly by telephone was not effective. We were able to obtain lists of homeowners holding current remodel and/or demolition permits from various city permit offices that we then attempted to contact by

telephone. This proved difficult because they were unfamiliar with deconstruction and thought Stardust was trying to sell them additional services.

- Contacting homeowners directly by direct mail was not effective. The next step was to develop and distribute a mailer to potential customers, both from our database and from a list we purchased based on demographic information—income level, size of home and area. Appendix C shows the mailer we used. While this method proved to be more effective than the telephone process, it too was deemed to be cost prohibitive on a continual basis.
- Developing construction contractor relationships works well. A list of all remodel contractors and related businesses was obtained. This group was contacted primarily via direct mail with information on the benefits of our deconstruction services to the environment, the community and their company. We found that the response to this method of contact was more productive and efficient in terms of dollars and labor hours spent. In addition, through word of mouth we developed direct relationships with many of these contractors. Another good way to develop relationships with the construction industry is through their trade associations, such as the National Association of Home Builders (NAHB) and the National Association of Remodelers Institute (NARI). We have written articles for their newsletters, made presentations at their meetings, and had information tables at their events, all of which are very successful and welcomed by the groups.
- Participate in Home Shows. Stardust has participated in nearly all of the home shows held in the Valley. Maricopa County sponsors three three-day shows each year in Phoenix that draw in excess of 45,000 attendees that we have attended for at least the last three years. In addition, we have participated in several other shows periodically including “Green Building” Expos, the Contractors’ Association trade shows and various other smaller shows in neighboring municipalities. We have been fortunate in that being a non-profit charitable organization, we are often able to get booth space for free or at significantly reduce rates. In the beginning, we used a storyboard approach to tell the “Stardust Story” and educate attendees on the benefits of deconstruction and salvage. More recently, we have taken actual salvaged product to the shows to support the storyboard and let attendees actually experience the types and conditions of materials we get. This has dramatically increased the interest attendees have in our booth and made it easier to explain and understand. We also hand out flyers on all of our programs, business cards and coupons at these events. The big shows are a great marketing tool for us - a great way to reach a lot of people inexpensively.
- A website is helpful. Having a website to promote your program and service is required, even though many of your customers and/or donors may not have access to a PC and/or the Internet. To not have one, is to be viewed as not a serious player. In addition, the Internet allows for the e-mailing of marketing materials instead of incurring the cost of, and relying on “snail mail”. Accordingly, we rely on our web site to education consumers on our

programs and goals. Our website can be found at:  
<http://www.stardustbuilding.org>.

- Strategic partnerships with renovation companies/home stores. In December 2003 Stardust formed a strategic relationship with a large well-respected home renovation company that specializes in kitchens, plumbing and appliances for the Phoenix metropolitan area. Through this partnership the renovation company recommends to its customers that all deconstruction and old appliances that were regularly thrown out be offered to Stardust for recycling. We believe in the concept of strategic relationships and are pursuing such arrangements with several local remodeling contractors, cabinet distributors, fixtures distributors and retailers including The Home Depot and Lowe's. A presentation similar to that included as Appendix B is used for this purpose.
- Use multiple marketing methods. As with any advertising or marketing, the best source is word of mouth; recommendations from happy customers. Our program is no exception to the rule. However, it is not just the word of mouth of the homeowner; it is the remodeling contractor, appliance distributor, cabinet distributor, home show attendees, donors and store customers as well as the homeowner. Accordingly, it is important to utilize several methods and avenues to reach these people. We strongly recommend using the city permit offices, working with the contractors directly and through trade associations, and participating in home show and expos.
- Until recently, we have not marketed from our non-profit/charity point of view; i.e. by utilizing Stardust you are supporting/aiding your community. However, this is an avenue we intend to use more. We do promote Stardust Building Supplies as the sponsor of the Angels On Call and Computers For Kids programs in all press and media relations.

Marketing is the key to success. Don't overlook it.

### **Materials Recovered**

The following is a list of the most common items we are able to recover/salvage:

- Kitchen cabinets
- Kitchen appliances
- Countertops, sinks and fixtures
- Bathroom vanities/cabinets
- Tubs, showers and toilets
- Washers and dryers
- Built-in furniture and bookcases
- Millwork and molding
- Light fixtures
- Electrical fixtures – speakers, fans, switches, outlets
- Doors – interior and exterior
- Windows
- Mirrors
- Closet doors and hardware
- Carpeting
- Garage doors and openers
- HVAC equipment and materials
- Water heaters
- Fencing and gates
- Spas and pool/spa equipment

Obviously, there are many other materials involved in residential demolition and salvage, however many of them are difficult to convert into revenue or a reusable form. For that matter, some materials even cost money to recycle; and there is a disposal cost for



everything that gets thrown away. For instance, there is a cost to “give” concrete to a recycler who will crush it; re-used roof tiles are not eligible for insurance with some insurance companies; and it costs to give wood to a recycler just to chip up for landscape materials. Accordingly, one must consider these factors in deciding what materials to recover/salvage.

In spite of best efforts to “pre-qualify” the quality of the materials to be salvaged, it is not unusual to get to a deconstruction site or receive a donation of materials that is not saleable. This can be a tricky situation to handle because you do not want to have an unhappy customer. In these situations, we give the donor the option making a cash donation for having us proceed with the project or we reject the project. We do the same for direct donations brought to our stores; request a cash donation to cover our disposal costs, i.e. dumpster fees, or decline the donation. The situation is even more complicated when only a portion of the materials is not salvageable. For these situations, we use a guideline that if 75-80% of the materials are good, we take the remainder without requesting a fee. One material, we always request a donation for is ceramic tile countertops. They are virtually un-salvageable.

The following analysis of our stores’ sales mix supports our decision on the materials we handle:

<u>Product Category</u>	<u>Percent of Total Sales</u>
Doors & Windows	19.8%
Kitchen	35.9%
Bathroom	9.2%
Hardware & Lumber	6.0%
Flooring & Tile	5.0%
Paint	1.0%
Plumbing	3.2%
Electrical	3.7%
Appliances	11.1%
Miscellaneous	<u>5.1%</u>
Total	<u>100.0%</u>

Another program in another area will likely have a different mix, but this illustrates our findings.

**Labor**

In considering the labor needs of a deconstruction and salvage program, it is important to recognize the need for other than construction related skills, especially in the early stages of program development. If you are starting a program through another organization, you may have people with administrative and marketing skills to call on to assist with certain parts of the program development. However, if you are an individual or small start-up group, you may want to look for an expanded skill set.

The ideal people or person you employ to develop and initially run should have strong people, planning, selling, administration, marketing, financial and construction skills. That’s quite an order.

In the beginning, Stardust began with a single person to develop and operate the deconstruction and salvage operation. This person not only found the jobs, but scheduled them, got the tools and equipment, recruited the necessary labor, performed the physical deconstruction, prepared the donation receipts for the donors and completed the tracking and bookkeeping for the organization. That's what it took and we were blessed to find such a person.

Today, Stardust employs three full-time and three part-time people for its deconstruction operations. The use of part-time staff has made the operation much more cost effective. The use of contract or "day" laborers on occasion for very large projects and/or very tight deadlines is also a great cost effective way to manage labor costs while meeting schedule demands. Overall, we have found this structure to allow us the flexibility to be most cost effective.

Although many projects could be done with a smaller crew of 3 or 4; it would only extend the time frame it would take to complete the job. Accordingly, because of the demand for our services we have chosen to go with the larger number of employees. See the table below for the range of total required labor hours for individual projects.

The total required labor hours for individual projects varies significantly depending on the type of project – kitchen, bathroom, total house, etc. – and the physical size of the area and fixtures being deconstructed. The following table demonstrates the total required labor hours for individual projects based on our experience.

PROJECT TYPE	TOTAL REQUIRED LABOR HOURS
Kitchen demolition	6 – 20 hours
Bathroom demolition	2 – 6 hours
Appliance removal	2 – 6 hours
Total house demolition *	15 – 80 hours
Miscellaneous demolition **	2 - ? hours

\* - Defined as the removal of all reusable non-structural materials, such as doors, windows, appliances, sinks, tubs, countertops, hardware, HVAC, garage doors, cabinets, fencing, gates, pool equipment, etc.

\*\* - Defined as anything not falling under one of the other categories, or only a part of another category, such as fence removal.

In addition, the organization employs fourteen others to operate the retail stores, and three administrative staff (total equals 23).

**Required Equipment**

In general, the tools and equipment required for deconstruction and salvage activities are the same as those required for most types of construction. As our deconstruction operation is primarily focused on residential construction, the tools needed tend to be a little lighter duty. The following is an approximate listing of tools required to support a 3-4 person crew.

<u>Item</u>	<u>Quantity</u>
Reciprocal saw (Saws-All)	1 – 2
Circular saw	1
Hand saws – various types/sizes	2 – 4
Sledge hammer	1 – 2
Pry bars/crowbars	4 – 5
Cordless drills/screw guns	2 – 3
Screwdrivers – various type/sizes	8 – 10
Pliers and wire cutters – various sizes	4 – 5
Utility knives/putty knives	4 – 5
Ladders – various sizes	2 - 3
2- and 4-wheel dollies	3 – 5
Shop vacuum – minimum 5-gallon	1
Garbage cans and brooms	2 – 5
Packing materials – blankets, shrink wrap, tape, etc.	15+

It is important to consider using rechargeable, cordless tools as often the electricity to a project property has been turned off, or for safety purposes the deconstruction crew has turned it off. It is also necessary to maintain an inventory of blades, bits and tips to be ready for different types of materials and to allow for wear and breakage.

In addition to the construction tools shown above, there are occasions when additional equipment is required, such as a pallet jack, forklift, or scissor lift. We have found it most cost-effective to rent these items on an as needed, short-term basis.

However, there is one main piece of equipment that we have found it nearly impossible to operate without because of scheduling issues (discussed below). That is a heavy duty truck designated specifically for the deconstruction crew(s). The Stardust Deconstruction Crew has primarily operated with a box truck; initially a 16-foot long, 7-foot high box, and now a 20-foot long, 8-foot high box. Also, as we have grown and added trucks for our regular donation pick-ups, we have incorporated a stake-bed truck into our fleet. This offers us some flexibility in dealing with extremely large objects, as we can “swap” trucks around to accommodate the needs.

Leasing additional trucks improves collection efficiency. Stardust leased two additional trucks in late 2001, giving us a total of three. The trucks were allocated one to each of our two stores for donor pick-ups, and one for full-time use by the deconstruction operation. The “deconstruction truck” goes along with the deconstruction crew, assisting in the early demolition work and then loading materials as soon as there is a significant quantity for them to fully dedicate their time to loading and transporting. Thus, the driver and helper have become an integrated part of the deconstruction team. Renting an additional truck on a short-term basis to cover a large project or extremely tight schedule of heavy volume works well.

Finally, no matter what type of truck one uses, it is best to have a lift-gate attached to the back. Our lift-gates have a capacity of 1,500 to 1,800 pounds and facilitate loading the trucks.

**Transportation**

All reusable materials obtained from deconstruction operations are transported to one of two Stardust stores – which store materials from a specific project are transported to is

primarily determined by the proximity of the project to one store over the other, or the time of day the load is being transported. The time of day for transporting is also a consideration as the deconstruction crew is based out of one store and it would generally not make sense to unload at one store and go on to the other.

With a pre-existing operation that has an adequate truck, it is possible and potentially a good idea to share use of such truck. This will keep start-up costs down. However, once the deconstruction and salvage operation grows to much size at all, it becomes necessary to have separate deconstruction and salvage donation pick-up crews to avoid customer complaints and/or material losses. (If salvaged materials are left unattended over night because they could not get a truck there due to scheduling conflicts with other donor pick-ups, it might be missing or damaged affecting our cost to revenue generated ratio.) Likewise, if the truck arrived too soon, before the materials to be salvaged were ready, there are “waiting” and/or re-routing costs.

One tool that is very helpful not only for scheduling and coordinating pick-ups between different operations, but in communicating between the on-site deconstruction crew and a driver making a delivery of previously salvaged materials is a cellular telephone.

### **Project Scheduling**

Scheduling projects is one of the biggest challenges of the deconstruction and salvage operation. Conflicts and difficulties arise from customer demands and expectations, to project types and sizes, to project location and proximity to one of our warehouse stores. As the operations have grown, these challenges have become greater and more frequent.

The “formula” for scheduling was developed through experience by our Deconstruction Manager who estimates the amount of time that will be required for a project (depending on the type and size) and then look at the location of the project in relation other projects’ locations and their proximity to one of our stores. We try to stick with a “first come, first serve” approach, while avoiding excessive driving between jobs. This sometimes results in the need to reschedule projects with customers. Scheduling varies depending on the demand for services at any one time and is done on a calendar one to two weeks in advance.

Again, it is important to be able to be flexible in scheduling due to the many variables that affect a remodel or construction project.

### **Jobsite/Safety**

Upon reaching the project site, it is imperative to perform the following prior to commencing any actual deconstruction activity:

1. Speak to the homeowner/donor or representative to clarify the exact area(s) and materials to be deconstructed.
2. Visually inspect the area(s) and materials to be deconstructed to see that they are of a satisfactory quality for our program; or if not, request and receive a monetary donation to at least cover the cost of disposal.
3. Identify the traffic patterns for the transport of the salvaged materials from the house, identifying areas that may be susceptible to damage.

4. Inquire and verify the status of utility services to the house. This is critical to the safety of everyone on site, as well as helps determine what tools can be used on the project.
5. Protect the traffic areas by putting down plastic or rugs, pads, padding corners, moving furniture and other items to prevent damage in transport.

The actual deconstruction procedures performed will vary depending on the type of project. However, whenever it is even remotely possible that utility services or lines may be in the area of the project, the actual location of the services should be identified and that area shut down if possible.

Safety is of the utmost importance to successful deconstruction; safety from worker injuries from electrical shock, cuts, bruises, over exertion, burns, etc. to accidental damage to the project property. Accordingly, it is imperative at all times to be aware of your location, albeit on a ladder or under an overhang, the location of your co-workers, any utility services or lines, the weight of the materials being worked with, and the way in which the materials were originally constructed and now are being dismantled. Any oversight or misjudgment of any of these types of items can result in a serious injury or other problem.

During the actual deconstruction, it is important to be professional and courteous.

At the end of the job, we like to clean up the deconstructed area as much as possible. This simple step goes a long way in promoting customer satisfaction, which in turn can lead to future referrals – the best marketing and advertising there is.

### **Tracking**

A tracking system of some kind is necessary simply to measure the cost effectiveness of the program. The “system” can be as simple or as complex as you choose, with the general rule, “the more information you have, the better your ability to make decisions” applying. For a non-profit organization, it is probably more critical to have a more comprehensive system in order to be able to track details necessary to support the use of funds from grantors and donors. A database program is a good tool for developing a tracking system.

The types of data that should be tracked are:

1. The type and quantity of materials salvaged from each project;
2. The amount of labor used in each project; both the dollar cost and number of hours;
3. The weight of the salvaged materials from each project;
4. The name, address, project type, receipt number, and date each project was performed; and
5. The amount of revenue realized from the salvage (sale) of the salvaged materials.

By using a database and entering the above data, the organization can sort and perform a wide variety of analyses to determine the success of the program and make adjustments for improvement and/or expansion. See Appendix D for an example of a tracking system report that can be created and maintained in a simple spreadsheet or database program.

In order to focus on maximizing the benefits of the deconstruction and salvage program, a simple average weight measure per truckload can be developed. This can be done by calculating an average based on as few as twenty (20) truckloads. To do this, the trucks are completely loaded with salvaged materials from a project or projects and sent to a truck scale and weighed. From that point on, the amount of truck space used for each project is estimated – 1/8, 1/4, 1/2, 3/4, full, etc. – and a prorated weight assigned to the project. This method provides a solid average per truckload allowing substantial savings from fewer labor hours, less fuel and less mileage for the truck used as a result of continuous trips to the scales. This data can be a strong marketing point: “Our program diverted XXXX tons of reusable building materials from the landfills into the hands in need,” or something similar.

With a non-profit organization attempting to provide donors with a tax deduction for their donations, a receipt is necessary. Accordingly, one of these “receipts” or acknowledgement forms is completed for exactly what was salvaged/donated for each project. This form works well in a multiple-part (copy) format, with one part going to the homeowner/donor, another part being used for administration purposes (to enter inventory into the system, documentation of jobs performed, and general support for the donation) and another part used strictly for deconstruction operations analysis. An example of a donation receipt is included as Appendix E.

### **Warehouse Space**

Stardust operates two retail stores in the Phoenix metropolitan area located approximately 20 miles apart. The stores are located in small strip shopping centers and consist of approximately 16,000 and 24,000 square feet of selling space with additional smaller amounts of backroom storage space.

The stores are laid out in a warehouse style with significant amounts of adjustable industrial racking/shelving and open floor space similar to a Home Depot or Lowe’s store to allow for easy shopping. Accordingly, product groups are positioned in certain locations within a store and these locations are rarely, if ever, changed; i.e. doors are always located in the same area of the store. Within the product groups, similar products are further separated. For example, in the doors area, all of the exterior doors are in one area. Next to them may be the solid-core interior doors, and next to them the hollow-core interior doors and so on, through French doors, sliding closet doors, and bi-fold doors, etc.

Similarly, we try to arrange product groups in such a way that there is a natural and/or relational flow; i.e. the door group is next to windows is next to screens, etc., or the cabinet group is next to the countertop group that is next to the sinks group that is next to the faucets and plumbing fixtures group.

Certain smaller areas of a store are used to display special or promotional items, such as aisle end caps, and some floor space up near the front of the store. This provides the opportunity to create a very favorable first impression to incoming customers; in addition to highlighting products.

As with any retail store, appearance and merchandising are critical. Our store procedures require that all incoming product be cleaned and any potentially harmful issues such as protruding nails be removed. In support of this requirement, each of our stores is equipped with a power washer, air compressor and shop vacuum(s) as well as

typical cleaning products and supplies. Further, as much as possible, efforts are continually made to “face up” products in the same way and items removed for inspection by customers are replaced in the correct place and position. Finally, merchandise on the shelves is periodically dusted and straightened.

### **Pricing Structure**

Products in the store are priced at approximately 50%-80% below their new retail counterparts depending on age, make and condition. In fact, we promote just that in our advertising. This pricing is also based on price comparisons with other second-hand stores, such as Goodwill, Salvation Army, etc., newspaper ads and garage sale shopping.

Further, this pricing philosophy makes materials affordable to low and/or fixed income families, as well as allowing quick inventory turns. Based on physical inventories and annual sales volumes, our inventory turns about 4 times per year or once every three months.

As noted above, one of the variables used in our pricing is condition. We grade the materials as they are received and have a three-tier scale—Excellent, Good, Fair—which allows for varying prices for the same or similar items. This too facilitates movement of products in all conditions.

We are in the process of developing a complete pricing manual for our products. Although it is not complete, we have included as Appendix F a sample of a current price book.

### **Lessons Learned**

The development and operation of the deconstruction and salvage program has presented many unexpected challenges, surprises and even, benefits, which are listed below and are included for the purpose of better preparing other organizations that might undertake a similar program:

- For a non-profit program, target deconstruction services to accessible/non-labor intensive to recover, high-value materials rather than full deconstruction/demolition services
- Working with local permit offices to find deconstruction leads was not highly effective. The most successful method identified involved contacting individual cities, either at the city council or specific planning office level.
- Building relationships with developers and remodeling contractors is also an excellent source of deconstruction leads
- Flyers provided to demolition permit applicants should include reference to deconstruction services
- Developing average truckload weights rather than weighing each truckload makes tracking more efficient and cost-effective.

- Working directly with homeowners and mass mailings is not cost-effective deconstruction marketing tools
- As deconstruction operations expand, scheduling becomes more difficult, but having a central scheduler developing schedules 1-2 weeks out maximizes efficiency
- Using part-time employees and contract or day laborers to supplement crews as needed is cost effective
- Providing cell phones to Deconstruction Manager/Scheduler and drivers improves collection efficiency.
- In some areas, you may need a contractor's or other type of license in order to provide deconstruction and salvage operations.
- It is absolutely imperative that you carry liability and the necessary employer insurance coverages.

Finally, we have found deconstruction and salvage to be highly accepted by and exciting to the public, individuals (homeowners), politicians, environmentalists, and contractors. In addition to all of the benefits provided to the community, it can also be a profitable venture.



**For Additional Information**

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**Websites**

Stardust Non-Profit Building Supplies  
<http://www.stardustbuilding.org>

U.S. EPA Resource Conservation Challenge  
<http://www.epa.gov/rcc>

U.S. EPA Construction and Demolition Debris  
<http://www.epa.gov/epaoswer/non-hw/debris-new/index.htm>

Building Materials Reuse Association  
<http://www.buildingreuse.org>

Deconstruction Institute  
<http://www.deconstructioninstitute.com>