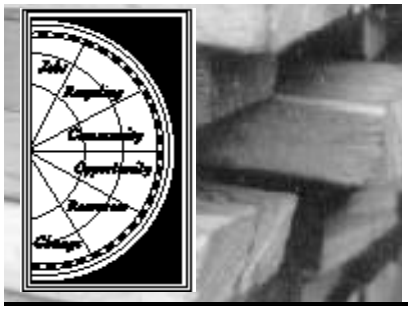

Deconstruction Works:
A Study of Programs in Action

Case Study #3: Youth Training Program

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What is Deconstruction?

Deconstruction is the process of carefully dismantling a building in order to salvage components for reuse and recycling. This labor intensive, low-tech, and environmentally sound process has emerged as an alternative to traditional demolition methods. Demolition places high priority on removing structures as quickly and cheaply as possible, and in the process, minimizes employment and maximizes waste.
Deconstruction has many benefits, including: maximizing the recovery of materials, conserving finite old growth forest resources, and providing many employment and job training opportunities. By coupling deconstruction activities with traditional demolition methods, communities can create local economic activities around remanufacturing or reprocessing salvaged materials while diverting demolition debris bound for landfills and preserving resources through reuse.

Youth Employment Partnership Deconstruction Program

Project Goals

The Youth Employment Partnership, Inc. (YEP) operates many employment and development programs for low-income in-school and out-of-school youth. One of these is the Deconstruction Program which trains high-risk youth, ages 18 to 29, in the construction trades by dismantling buildings at the Harbor Transportation Center, located at the Port of Oakland. The program targets high school drop-outs, single mothers, and welfare recipients. It provides participants with 32 weeks of paid training which includes hands-on deconstruction and construction skills (including lead abatement), leadership development activities, academic instruction based on individual needs, and an opportunity to earn a general equivalency degree.

YEP's Deconstruction Program participants develop discipline, teamwork, conflict resolution, and problem-solving skills in a non-threatening environment. Mistakes made deconstructing buildings are less costly than those made in construction, manufacturing, or other less forgiving occupations. The YEP Deconstruction Program offers an informal environment in which to improve skills and build confidence, preparing the participants for work in the private sector. It is an innovative and extremely appropriate training activity for those with significant barriers to employment. Beyond practical job skills, participants also learn the value of recycling and reusing materials.

Much of the lumber that was salvaged through the Deconstruction Program was painted with lead based paint. Since this posed a safety risk to trainees and because certification in lead abatement is useful for anyone entering the construction field, the $10,000 Materials for the Future Foundation (MFF)/US Environmental Protection Agency (US EPA) Deconstruction Grant were used to train approximately 40 young adults in lead abatement. These participants are now California State certified in lead abatement.

The YEP Deconstruction Project also received funding from the following sources: Alameda County Source Reduction and Recycling Board, $130,000; the Oakland Private Industry Council, $120,000; and Citibank, $10,000.

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Over 95% of the waste from deconstructed buildings has been diverted from landfills. YEP has helped the field of deconstruction mature and demonstrated its benefits to the local, state, and national audience.

Project Goals

The goals of the deconstruction project were threefold:

1) to train low-income young adults from Oakland in construction skills (including lead abatement);
2) to dismantle buildings at the Port of Oakland; and
3) to enable trainees to acquire jobs at the completion of their training.

Employment/Training

Over 150 young adults received deconstruction training, including 118 Welfare-to-Work participants. Of the 118 Welfare-to-Work participants, 89 found placement in unsubsidized employment upon completing their training.

Waste Diversion

This project diverted approximately 1,530 tons of waste from local landfills. Four buildings were completely deconstructed, and four more were partially dismantled. Most of the waste was salvaged lumber used to build YEP's Youth Center (to be completed in 2003) or sold on the open market.

Greenhouse Gas Emissions

Source reduction of wood through deconstruction directly reduces greenhouse gas emissions by keeping the material out of the landfill and increasing forest carbon sequestration. By reusing 1530 tons of lumber, this project reduced greenhouse gas emissions by 664 Metric Tons of Carbon Equivalent (MTCE) -- roughly the amount emitted annually by 500 cars. To estimate your greenhouse gas reduction benefits from source reduction or recycling, use EPA's online calculator - Waste Reduction Model (WARM) at http://www.epa.gov/globalwarming/actions/waste/w-online.htm; for additional information on climate change and waste visit http://www.epa.gov/globalwarming/actions/waste/index.html.

Lessons Learned

The scale of the project was too large for an organization of YEP's size. It would have been beneficial for YEP to partner with a demolition contractor who could ensure that a critical path timeline be followed. The project was delayed six months and did not turn a profit. The experience of a demolition contractor could assist YEP in determining which products could be salvaged cost effectively. For example, some material deconstructed by YEP crews had no resale value, and was subsequently crushed and sent to a landfill. A demolition contractor could also assist with site clean up, depending upon the needs of the property owner. If the deconstruction proceeds too slowly, costs will rise and contractors will be reluctant to incorporate it into their building removal schedules. It is more realistic to combine deconstruction efforts with traditional demolition projects, rather than attempting to achieve 100% reclamation of materials.

YEP found it extremely profitable to sell some of the material while it was "in the air," before it was deconstructed. A home builder interested in reclaimed redwood lumber purchased a quantity of siding before it was removed from the building. This practice reduces marketing, storage, and transportation costs, giving YEP a greater profit marging on the sale.

Project Results

- 150 youth trained in construction and heavy equipment skills
- 110 youth placed in unsubsidized employment
- 35 youth obtained their GEDs
- 65 youth received state certification in lead abatement
- 95 youth completed community college courses
- 1530 tons of demolition waste diverted from landfills
- 4 buildings completely deconstructed
- 4 buildings partially deconstructed

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Conclusions

While YEP still runs construction training programs and is bidding on deconstruction projects, it does not currently have an active deconstruction program. YEP runs a Youthbuild program, which trains 18-24 year-olds through the construction of low-income housing, and a YouthMillworks program that employs young people in de-nailing and milling deconstructed lumber. YEP believes that deconstruction provides valuable job training and is pursuing deconstruction projects. One option being considered is combining the YouthMillworks operation with an outside deconstruction operation. In this case, YEP would pursue short-term deconstruction projects of a month or two at a time and still provide trainees with work experience even when there are no buildings to be deconstructed. For example, a trainee could spend two months in the YouthMillworks operation, then spend two months deconstructing, and then return to the YouthMillworks operation for two months. This would allow YEP to run a six-month program without having secured a deconstruction site. If trainees see the whole life cycle of a salvaged board from building to sale it will facilitate an appreciation of the board's worth and lead to more careful dismantling.

The lead certification program was one of the best components of the deconstruction project. Once trainees were exposed to safety training in the area of lead abatement it increased safety awareness in all aspects of the program. It also made them much more marketable as employees. Finally, the pride that trainees had upon successful completion of the lead abatement program was tremendous. Many of the participants have not had great success in the classroom which has lead to low self-esteem and a belief that they can not pass traditional tests. The success of obtaining their state certification in lead abatement buoyed their confidence and the value of their training facility considerably.

This is the third in a series of five case studies on deconstruction projects produced by the Materials for the Future Foundation. Funding provided by the United States Environmental Protection Agency, Region IX, under the Source Reduction and Recycling Initiative of the US Climate Change Action Plan. Project managed by Lisa Geller. Written by Chris Thomas. Designed by Simon Walker. Materials for the Future Foundation has compiled this information as a resource guide only and does not, by inclusion, endorse any of the organizations listed, nor, by omission, imply any negative opinion. Copyright 2001. The Materials for the Future Foundation. All rights reserved. Permission to use, copy, and/or distribute this document in whole or part for non-commercial purposes is hereby granted, provided that this notice and appropriate credit to MFF and US EPA are included. Commercial use requires prior written consent from MFF. If you have questions or comments about this material, please contact

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