

US EPA ARCHIVE DOCUMENT



Deconstruction Works: A Study of Programs in Action

Case Study #1: Public/Private Partnership

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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.

North County Community Development Council Desconstruction Project

Project Goals

Located in Eastern Madera County, California in the community of North Fork, is a 135-acre closed lumber mill, which was once the leading employer in the area. The Old Mill Site (OMS) was donated to the Madera County Redevelopment Agency for the North Fork Community Development Council (CDC). In October 1998, the Mill Re-Use Master Plan was completed. It outlined the North Fork Deconstruction Project plans to address two issues critical to the community:

1. The need to create long-term local employment opportunities to replace more than 100 jobs lost due to the Mill closure; and
2. The clean up of the OMS to eliminate safety hazards and prepare the site to be marketed for redevelopment.

The CDC aimed to train up to 45 participants in basic construction skills during a 16 month-long initial project, rotating participants through the program in groups of five. Eligible participants were to be drawn from CalWORKS and Madera County Private Industry Council (PIC) programs. The CDC partnered with Carpenters Local Union 701 in Fresno, California and the Northern California Carpenters Training Committee (CTC) in order to provide training to participants. Eligible participants were to be enrolled in Local 701's apprentice program.

After learning skills through the Deconstruction Project training program, participants were to be rotated out to unsubsidized union jobs, allowing additional candidates to rotate into the training program. The focus was to recruit economically disadvantaged individuals (especially women and minorities) who were residents of Madera County (North Fork or Eastern Madera County, specifically). Participants would receive training in worker safety, hand tool skills and lead abatement prior to starting work, and then regular apprentice training offered by the Carpenters Union Training program to meet all state and federal government standards.

In addition to training and employing 45 individuals, the CDC intended to start a micro-enterprise (cottage industry). This would consist of a small planing mill to be located at the OMS and staffed full-time by two or three project participants. This mill would create high-end wood products (flooring and/or tables) by reusing the salvaged lumber. Four buildings were selected for dismantling, totaling approximately 61,556 square feet. It was estimated that 211,338 board feet of lumber and 100 tons of steel and machinery could be salvaged from these buildings.

Project Detail

Before work began on the site, an environmental services firm was hired to organize the Health and Safety Plan in compliance with CAL-OSHA guidelines, paid for with the Materials for the Future Foundation (MFF)/US Environmental Protection Agency (US EPA) Deconstruction Grant. This plan included a test for lead exposure and development of dust control measures to minimize worker exposure.

Building Partnerships and Leveraging Funds

The North Fork Deconstruction Project was a unique combination of local government, union organizations and private business. The seed grant from the MFF/EPA Deconstruction Grant Program was used to leverage significant support and funding from other sources. The Madera County Private Industry Council (PIC) provided \$45,900 of support for on-site project supervision and the Madera County Department of Public Welfare provided \$100,000 for participant wages. In addition, the Carpenters Local Union 701 in Fresno, California and Northern California Carpenters Training Committee agreed to provide union training and job placement to project participants, valued at approximately \$35,000 (\$2,500 per trainee).

Employment/Training

A total of fourteen workers were selected to participate in the first round of deconstruction at the OMS. Forty percent of the participants were women, which exceeded project goals by twenty percent. The Carpenters Training Committee of Fresno Local 701 provided training to the workers during their involvement in the project. The project provided all participants with five weeks of classroom training and seven weeks of on-site training. After the pilot was concluded, PIC and the Union determined that the five weeks of classroom training for this first group of trainees was too onerous because full attendance was required and trainees were not paid for their time. Participants were certified in safety training, tool handling, scaffold erection, forklift operation, welding, lead abatement, large equipment rigging, and hazardous materials training.

As a result of the long up-front classroom training, both the PIC and the Union decided to place all participants on the work site at the start of the project, rather than limiting groups to five trainees at a time. Several participants were placed in jobs after less than six weeks on the project and eleven had been placed in construction-related employment by the end of the project. Given that it was early fall, when the construction market is robust, the Carpenters Union was able to place these trainees with relative ease. Medical problems prevented three individuals from continuing in the field.

Waste Diversion

This project partially deconstructed one building and completely dismantled another, diverting a total of 31,000 board feet of lumber. In addition to removing and recycling scrap iron and structural steel, the crew retained reclaimed wood on-site for remanufacturing in the second phase of the project, the planned micro-enterprise mill.

Grant funds were used as follows:	
Workers' Health and Safety Plan	\$3,619.65
Equipment rental, tool purchases	\$2,286.21
Water system repair	\$1,849.81
Portable toilets, wash stations (rental)	\$1,285.00
Fire extinguishers, first aid kits	\$849.32
Water truck	\$60.01
Permits	\$50.00
Total	\$10,000.00

The following materials were reclaimed:	
corrugated steel siding	64000 sq. ft.
2x6 tongue & groove	2000 board ft.
1x4	4000 board ft.
1x6 and 1x12	15000 board ft.
2x4	2000 board ft.
2x6 and 2x8	4000 board ft.
12x12	4000 board ft.
Total Lumber	31,000 board ft.

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 39 tons of lumber and 32 tons of steel, this project reduced greenhouse gas emissions by 34 Metric Tons of Carbon Equivalent (MTCE) -- roughly the amount emitted annually by 25 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>, and for additional information on climate change and waste visit <http://www.epa.gov/globalwarming/actions/waste/index.html>.

Lessons Learned

The pilot project was successfully completed, but the Deconstruction Project was unable to move to the next phase for various reasons.

Difficulties arose with the contractor hired to oversee the project and the contract for project supervision was eventually terminated. In addition, the CDC staff person who was coordinating the project was forced to take an extended medical leave of absence as the actual deconstruction was beginning, resulting in poor communication between partners and a slower rate of progress than anticipated.

Before the pilot phase ended, a local wood recycling enterprise, Crossroads Recycled Lumber, moved on to the OMS and set up operations. Crossroads produces flooring products from reclaimed building timbers. This enterprise will be a ready market for the wood deconstructed from the project site. Money raised through sales to Crossroads will be used to continue funding the Deconstruction Project.

This project proved that a relatively small amount of seed money can stimulate substantial support from government agencies, unions and private businesses. Over \$300,000 in funds and/or in-kind support for the project were leveraged from three county and federal government agencies and the Carpenters Union. In addition, two local private enterprises were involved in the extraction and processing of dismantled materials. The project was very successful at developing effective partnerships.

The decision to place all fourteen participants at the site rather than rotating them in groups of five stretched supervision resources during on-the-job training. Although eleven of the participants were placed in construction employment, two did not remain employed. Future trainee groups will be limited to five to six participants and given a minimum of eight weeks of on-the-job training to improve the supervisor-to-trainee ratio and to increase job retention after placement.

Another obstacle for the North Fork project was the initiation of another deconstruction project in the adjacent community of Ahwahnee, also organized by Madera County officials. This project was launched soon after the North Fork pilot phase began. No additional staff was allocated to work on the Ahwahnee project, leaving PIC and Carpenters Union staff stretched between the two projects. This drained significant resources from the North Fork project.

Delays were also caused by the PIC requirement that all participants be fingerprinted and pass security checks before starting work. This not only delayed the participation of some trainees, but also excluded others from participating because they could not meet this high standard. As a remedy, PIC had these participants hired by the contractor directly.

Conclusions

Since the end of the pilot phase, the State of California changed PIC's authorizing legislation. As a result of these changes, PIC can no longer directly manage training programs as it did during the pilot phase. Specifically, PIC can no longer handle payroll for North Fork trainees. PIC has hired a private contractor to manage this part of the project.

After the pilot phase was completed, the CDC received a \$179,300 grant from the Department of Housing and Urban Development's Rural Housing and Economic Development to continue the project. The CDC has hired a full-time site manager with funds from the Economic Development Administration.

This manager, who has 10 years of experience in construction supervision, began in August of 2000.

The current phase of the project has successfully trained and placed ten participants in jobs. Another five are currently being trained on-site. The North Fork and Ahwahnee projects have been linked by the County of Madera and are being supervised by the same contractor. The project partners have been so enthusiastic about the results that they have expanded the project to include a pre-apprenticeship class offered by the school district. The district will also participate in cost sharing for on-the-job supervision.

This is the first 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 and 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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