Source Reduction in Residential Remodeling:
the Las Alturas Adobe

Architects, developers, contractors and building owners are recognizing the need to incorporate resource conservation strategies in construction, renovation, and demolition projects. In addition to serving as excellent examples of what can be accomplished with only a moderate amount of effort, it is also important to acknowledge the groups and individuals that are breaking new ground.

Resource efficiency is applicable to many aspects of development, including building design, material selection and waste reduction. A large part of creating greater awareness of resource management, and encouraging the appropriate responsiveness, is to demonstrate the successful implementation of waste reduction strategies.

This case study was developed to illustrate how a single project can have a significant impact on reducing waste.

Every effort was made to preserve and reuse materials during the remodel of this early 20th century adobe residence. With complete support from the homeowners, deconstruction, not demolition, was the approach from the beginning.

The existing native landscape was protected during construction by creating barriers, and carefully designating materials storage and wash out areas. Walkways and patios were gravel covered to permit rainwater percolation and decrease site run-off.

The most ambitious aspect of the project was restoring the existing adobe brick walls. Where walls were removed, the original bricks were cut out and salvaged. Where walls were added, new adobe bricks were made on site. By scouting around the site, a source of clay was identified that was very similar to that used in the original bricks. This clay was used to make the new bricks.

Total Waste Diversion:
14 tons
86% overall recycling rate

Disposal Cost Savings:
$832 (13 tons salvaged or reused instead of tipped @ $64)
$20 (1 ton recycled @ $44 instead of tipped @ $64)

Job-Site Diversion:

- **Wood**
  95% of wood was saved and reused in the structure

- **Tile**
  Tile was carefully covered before work began; where new walls were to be constructed intact pavers were removed and used to patch other damaged areas.

- **Appliances and cabinetry saved to be reused on this job.**

- **Other**
  75% of other materials were reused on site or recycled. Doors, windows and hardware were diverted to other jobs, with a portion being donated to Habitat for Humanity in Ventura County.

Project Statistics:
2,700 square feet

Location: Santa Barbara, CA

General Contractor:
Allen and Associates
1424 Tunnel Rd.
Santa Barbara, CA 93105
805-682-4305

Other sustainable features include the use of 15% coal fly ash in the concrete mix; the result being longer curing time, lower permeability, and stronger concrete with less cracking. Engineered lumber was incorporated extensively in the framing, and encapsulated fiberglass insulation with 30% recycled content was used throughout. The existing water heater and forced air furnace were overhauled and insulated and an in-place hydronic radiant floor heating system was restored and expanded.

General Contractor Dennis Allen, of Allen Associates, explains, "Reduce, reuse, and recycle have become operative words in our company, but we are especially proud of what we accomplished on this project. We disassembled the areas where change was planned piece by piece and ended up recycling about 95% of all the wood and 75% of everything else—materials that typically go into the landfill. All of the doors, windows, cabinetry, appliances, hardware, plumbing, and electrical fixtures were saved. Some were reused in this house, some were used on other company projects, saving the purchase of new materials. Still others were donated to Habitat For Humanity's ReStore in Ventura. Concerning new construction debris, our regular company waste recycling efforts were conscientiously applied."

Additional Information

The C&D Waste Reduction and Recycling series consists of 9 fact sheets, each focusing on a different aspect of waste management. Factsheets in this series include:

What's in a Building: Composition Analysis of C&D Debris
Onsite Source Reduction: Cutting the Scrap
Setting up a Jobsite Recycling Program
Deconstruction: New Opportunities for Salvage
Calculating Effectiveness: The Waste Management Plan
Reducing Waste for Building Owners
Waste Recycling Through Commingled Recovery: the Summerland Heights Residential Development
Deconstruction on Commercial Renovation Projects: the Victoria Street Presbyterian Sanctuary
Source Reduction in Residential Remodeling: the Las Alturas Adobe

Visit these web sites for downloadable publications, listserve information, and links to other green building sites:

www.ciwmb.ca.gov
www.epa.gov/greenbuilding
www.aia.org
www.tjcog.dst.nc.us/cdwaste.htm
www.buildinggreen.com
www.oikos.org
www.EDCmag.com
www.materials4future.org
www.usgbc.org

The C&D Waste Reduction and Recycling Series is a joint project of the Santa Barbara County Solid Waste and Utilities Division, The Community Environmental Council, and The Sustainability Project.

For more information please contact the U.S. EPA, Region 9 Office of Pollution Prevention and Solid Waste at (415) 972-3282.

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