

Building Materials Salvage

Environmental and business development opportunity



About the project

Building type: single family home, one story

Square feet: 1200

Year built: 1935

Construction: wood frame, exterior brick veneer, concrete foundation

Salvage method: hybrid (mechanized) deconstruction

Location: Ballard neighborhood, Seattle

Project completed: September 2007

This building was slated for demolition in order to make way for a new pocket park in Ballard. Seattle Parks contacted Seattle Public Utilities (SPU) to see if SPU would be interested in using the building as a salvage case study.

Approach

SPU approached the Seattle Conservation Corps (SCC), a City service that trains youth in trade skills, to conduct the deconstruction. SCC in turn contacted a 501c3 (not for profit) deconstruction contractor, allowing the value of

the salvaged materials characterized as charitable donations to the building owner—a substantial tax benefit. This approach was abandoned, due to the parties being unable to come to agreement on profit sharing.

Instead, SPU contacted a salvage consultant who evaluated the property's salvage potential and provided an estimate of time and labor required using different deconstruction techniques. The consultant estimated that manual deconstruction would require approximately nine days for a crew of five, versus three to four days for a crew of four for a hybrid, or partially mechanized, approach. In addition, the consultant would train SCC staff in salvage and deconstruction skills. Contracts were signed with both SCC and Re-Use Consulting.

To receive a demolition permit, the project was required to apply for a Master Use Permit to convert the land from residential zoning to public open space. (Seattle has a "no net loss"

Project participants

Owner:

Seattle Parks Department
www.seattle.gov/parks

Salvage consultant:

Re-Use Consulting
<http://reuseconsulting.com>

Deconstruction:

Re-Use Consulting, Seattle Conservation Corps
www.seattle.gov/parks/scc

Hauler:

Allied Waste
www.rabanco.com

Recycler:

Allied Waste; Seattle Recycling + Disposal Stations
www.seattle.gov/utilities

Pilot project funding:

Seattle Public Utilities
www.seattle.gov/utilities

Ballard Park Hybrid Deconstruction

A 1935 single family home was dismantled in to make way for a small neighborhood pocket park in Seattle's Ballard neighborhood. Utilizing mechanized deconstruction methods, a total of 15-20 tons of materials were diverted from the landfill.

Resources

Seattle's City Green Building Program

offers technical assistance and advice on green building strategies, including sample deconstruction specifications, design for disassembly guidelines, remodeling guide to salvage and reuse, and how-to information on salvaging windows, doors, and flooring. City Green Building also provides incentives and assistance to increase the environmental performance of buildings in Seattle.

www.seattle.gov/dpd/GreenBuilding

King County GreenTools Program

online directory of recycling and salvage services for construction materials, lists recycling rates for local companies handling construction and demolition materials, and has additional deconstruction case studies.

www.greentools.us

Seattle Dept. of Planning + Development Client Assistance Memos (CAMs)

CAM 336: Reuse of Building Materials
CAM 337: Demolition Permits
CAM 1302: Building Material Salvage and Recycling
www.seattle.gov/dpd/publications/

WA Dept. of Ecology: Demolition Debris

Describes the solid waste and hazardous waste elements of demolition debris.
www.ecy.wa.gov/programs/hwtr/demodebris/

For more information

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Seattle Public Utilities
Andrew Lee, General Manager and CEO
www.seattle.gov/utilities



This information available in other formats upon request.

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housing law that requires either an approved building permit or a change of land use prior to granting a demolition permit.) Once the permit was issued, the structure was analyzed to identify hazardous materials; lead and asbestos were abated.

Salvage began by extracting interior, non-structural materials from the house. The deconstruction crew then began a **hybrid deconstruction** process, cutting the house into sections and removing the panelized elements using an outreach forklift and tractor. The panels were placed on the ground and the materials separated for reuse and recycling. The SCC deconstruction crew consisted of five laborers and two site supervisors split into two teams, one for panelizing and one for disassembling materials. Lumber and structural timbers, interior doors, kitchen cabinets, a fireplace mantle, sinks and a tub were salvaged. Unusable wood, porcelain (toilets), and metal was recycled.

Schedule

Week 1: Interior salvage; roof and main floor removed
Week 2: Structural basement timbers salvaged
Weeks 3+4: Deconstruction complete; concrete crushed for basement backfill; site cleaned.

Lessons learned

Space constraints dictated the need for a street use permit to place bins in the public right of way, adding expense to the project. Permitting processes and training the deconstruction workforce extended the project schedule. The crew's unfamiliarity with deconstruction practices likely contributed to injuries on site. In addition, the house had been vacant and boarded up, causing damage to doors and frames and reducing the value of the salvaged materials.

More diligent materials tracking and identifying roles and responsibilities would have minimized mistakes (a load of recyclable wood likely ended up as demolition waste, and the asphalt shingles were not weighed). Also, recycling rates were reduced by contamination—mixing good wood with painted and/or treated wood.

The project attracted media attention, which in turn was helpful in raising awareness about salvage on projects; for example, staff at Sound Transit saw coverage of the project, leading to the Capitol Hill Redevelopment project in this Case Study series. In a private sector context, such coverage is essentially free advertising and positive public relations for the firms involved.

Materials analysis*

Material	Tons
Wood (recycled)	3.75
Metal (recycled)	0.25
Commingled demo waste** (recycled)	0.09
Commingled demo waste** (disposed)	4.41
Concrete (crushed and used as fill on site)	
Tons diverted from landfill***	4.09

Total diversion rate: 48%

* Salvaged materials tonnages are excluded from this table, due to lack of data.

** Recycling rate at Allied Waste's 3rd + Lander facility in September 2007 was 2%.

*** Concrete foundation was crushed and used on site; these tonnages are not reflected in the diversion from landfill.

Project costs

CPG/SPU contribution: deconstruction	\$18,000.00
Parks contribution: deconstruction	\$23,200.00
Parks contribution: consultant costs	\$3,000.00
Parks contribution: recycling + disposal	\$2,300.00
Total project cost	\$46,500.00