

Greenbridge Hybrid Deconstruction Pilot Project

This project explored the practicality of hybrid deconstruction techniques on low income housing units. The knowledge gained will help others in overcoming the disincentives of increased labor costs and delayed schedules on future projects.

Deconstruction Case Study

Dismantling the past for a more valuable future.



Hybrid deconstruction can save time and labor money while recovering materials of value from a project.

About the project

Project Background

- In 2006 the King County Housing Authority (KCHA) needed to remove structures under their authority to make way for phase II of their new mixed-income community – Greenbridge.
- KCHA agreed to provide the King County Solid Waste Division with the opportunity to remove three of the buildings (duplex units) using hybrid deconstruction techniques.
- Hybrid deconstruction is the practice of selectively using heavy machinery to strategically dismantle a building in such a way as to recover materials of value as quickly as possible
- Deconstruction work was done by the King County Roads Department Crews
- Partial funding for this project was provided by the Washington State Department of Ecology

Resources Saved

- The most valuable resource that has come from this project is the knowledge gained. Several tip sheets and short educational training videos are being developed as products of this project. To be updated on the development of these resources contact Kinley Deller (contact info on back).
- Nearly nine tons of materials were salvaged for reuse from these buildings. Salvaged items included rafters, beams, doors, windows, decking, and vinyl siding.
- Nearly five tons of materials were recycled. These included scrap metal, appliances, and damaged lumber.



King County

Department of
Natural Resources and Parks
Solid Waste Division

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This material will be provided in alternate formats upon request.

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Challenges

- Abatement overruns. The abatement process took considerably more time and money than originally planned which resulted in having to cut the scope of the project from three buildings to two.
- Ceilings double layered. The ceilings were extremely sturdy and constructed of double layers of furring strips and drywall nailed heavily to the underside of the trusses. This made the intact removal of the trusses nearly impossible.
- Low quality trusses. In addition to the problem of the trusses being very strongly nailed at the bottom, they were of a lower quality than originally thought. All attempts to remove the trusses intact ended in considerable separation and splintering of the wood.
- Site limitations. The presence of several protected trees, efforts to minimize impacts on soils and grass, required citing of perimeter fencing, and the presence of abatement crews working on other houses all impacted access to the buildings.
- Hidden lead and contamination concerns. Initial lead testing did not turn up any lead so plans were put in place to panelize the walls and deconstruct them off-site. Additional lead testing just prior to the onset of the deconstruction process revealed lead paint on the innermost (4th) layer of siding. This prevented the walls from being panelized and prevented the recycling of any of the exterior wall material as the C&D recycler would not accept any lead contaminated material.

Lessons Learned & Recommendations

- Hybrid deconstruction can save time and labor money while recovering materials of value from a project.
- Make sure that all suspect materials are tested for hazardous materials as early as possible and take efforts to get as accurate a cost estimate as possible
- Fully understand what materials are in the building(s) and how they are connected (to the greatest extent possible)
- Don't do deconstruction if materials in the building do not warrant the effort
- Valuable lessons were learned from this project and salvage/deconstruction techniques were refined. A series of one page tip sheets and short videos will be issued so that others may learn from this project. These materials will be made available to anyone with web access through the King County GreenTool's website (www.greentools.us).

The King County Construction Works web site also provides helpful information:

<http://www.metrokc.gov/dnrp/swd/construction-recycling/constructionworks.asp>