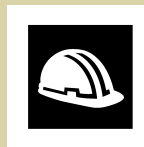




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safety**



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resources**

**ENGINEERING AND ENVIRONMENTAL**





# From Demolition to Deconstruction

*Shades of Green*





# What is Deconstruction?

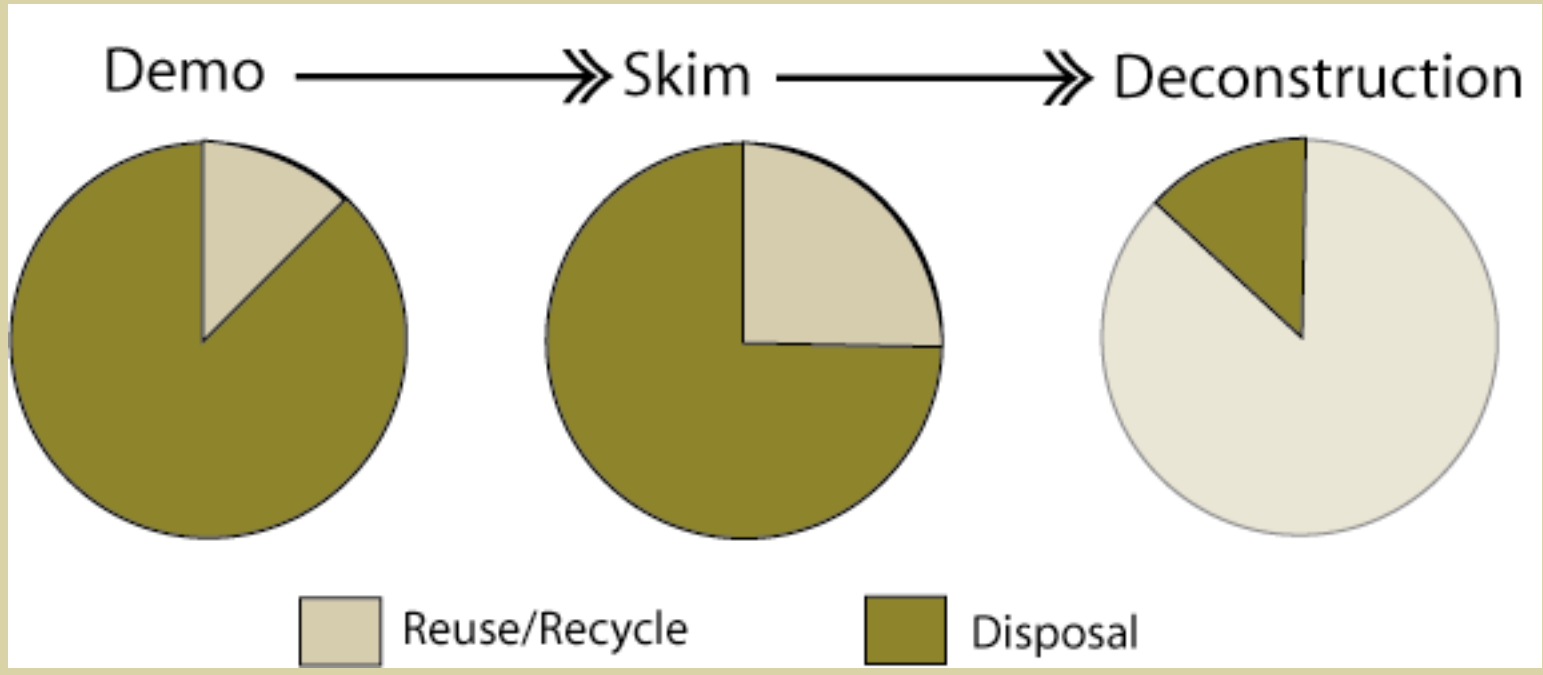
***de-con-struc-tion:*** 1) Selective disassembly of a building structure in reverse order of assembly, usually by hand to maximize re-harvest of materials for re-use.

## Driven By:

- Building Type
- Local Resources/Markets
- Site Conditions



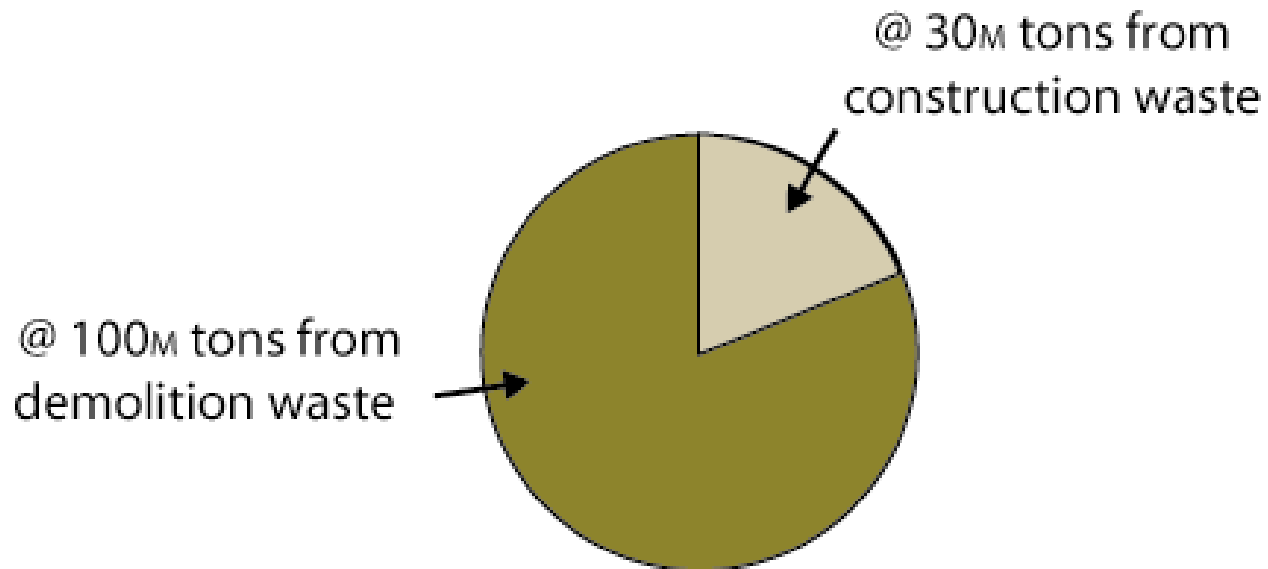
# Degrees of Separation





# The Need

US Total C&D Waste 130MM Tons



Sources: National Association of Home Builders, "Building a Balance: Solid Waste Disposal Environmental Education Fact Sheet," 2004, EPA, "A Characterization of Building-Related Construction and Demolition Debris in the United States," 1998





# The Need (cont'd)

- Move toward sustainable model
- Landfill Space Valuable
- Benefit to Local Economy
- Force to Change Markets
- Can Prove Cost Effective
- LEED



# Hurdles

- Cheap to Landfill
- Project Schedule/Cost
- Hazardous Materials
- Secondary Markets Still Maturing
- Difficulties in Documentation





# Project Elements

- Clear Project Goals
- Comprehensive Material Inventory
- Identify Material Streams
- Develop Material Management Plan
- Plan for Source Separation
- Waste Tracking/Verification
- Contract Overlay



# Recycling vs. Downcycling

- Re-Use before Recycle
- Know Your Markets
- Evaluate Alternatives
- Ask Questions
- Require Documentation



# Contracts

- Public vs. Private
- Incentivize whenever possible
- Contractor Reporting



# Case Studies

## Morrison Building



- 40k SF
- Skim salvage/deconstruction
- 2,200 tons concrete on/off site
- 93% recovery by weight
- Under budget





# Case Studies

## Whitaker School

- 256k SF
- Re-use/recycling
- Concrete as structural fill
- Expect >90% recovery by weight





# Looking Forward

- Disposal Costs Increase
- Secondary Markets Develop
- Contractors Gain Experience
- LEED continues to transform industry
- Building Lifecycle Considered



# Resources

- [Boneyard NW](http://www.BoneYardNW.com) – Web based clearinghouse for used commercial building materials. Sell and buy used building materials for free. [www.BoneYardNW.com](http://www.BoneYardNW.com)
- [METRO Construction Waste Recycling Toolkit](http://www.metro-region.org/toolkit) – Waste prevention and recycling information for construction sites for the METRO region and beyond. [www.metro-region.org/toolkit](http://www.metro-region.org/toolkit)
- [Building Green.com](http://www.buildinggreen.com) – Information on green building including the *GreenSpec Directory*, Specifications and product information for green products. [www.buildinggreen.com](http://www.buildinggreen.com)
- [Cascadia Region Green Building Council](http://www.cascadiagbc.org) - Cascadia Region Chapter of the US Green Building Council. Information on LEED rating system and sustainable development. [www.cascadiagbc.org](http://www.cascadiagbc.org)
- [Portland Office of Sustainable Development](http://www.portlandonline.osd) – [www.portlandonline.osd](http://www.portlandonline.osd)
- [Building Materials Reuse Association](http://www.buildingreuse.org) - The BMRA is a non-profit educational organization whose mission is to facilitate building deconstruction and the reuse/recycling of recovered building materials. [www.buildingreuse.org](http://www.buildingreuse.org)



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