



Old Science Center Deconstruction Middlebury College

1354 tons of materials recovered for
reuse, recycling and energy fuel source

Tonnage of Materials Recovered through Deconstruction

Material from the Site	Qty Reclaimed (tons)	Percentage
Equipment & Building materials salvaged*	10.00	1%
Concrete and glass (crushed)	650.00	47%
Light mixed iron	178.80	13%
Steel (rebar)	368.50	27%
Wood	48.30	3%
Copper	7.85	1%
Aluminum	2.20	.2%
Brass	.08	negligible
Stainless Steel	12.30	1%
Limestone	76.00	5%
C&D debris (landfilled)	36.50	2.6%
TOTAL	1390.53	100%
Total Reclaimed	1354.03	97.4%

*estimated



Over 97% Reclaimed

- Fifteen area schools received thousands of dollars worth of science and classroom equipment
- An air compressor recovered from Old Science is now in use at the Natatorium
- Nearly 500 tons of crushed concrete became site fill for the new Recycling Center
- The deconstruction cost was equivalent to the cost of a traditional demolition process with disposal fees in Vermont according to a cost analysis provided by the contractor, T-Rex.

New England scrap metal dealers will market light iron, rebar, copper, aluminum, brass and stainless steel to domestic and export markets. Stainless steel will be made into sinks and countertop; aluminum becomes house siding; and copper, the “gold” of deconstruction, becomes pipe and wire again. Light metal goes into car panels. Heavy metal is turned back into beams and rebar into rebar. The wood became fuel chips for New England-based wood burning power plants, aggregate for road base within landfills, and a soil-textured material used by landfills in regions where appropriate daily cover soils are unavailable. Limestone will be sold in the spring for landscaping. Ground glass and concrete all stays on campus as fill.

Pros

- Keeps previously harvested resources in the economy
- Saves landfill space for materials that lack effective reuse or recycling options
- Supports sustainable systems – life cycle versus linear
- Reduces negative impacts on the community of removing a large building (noise, dust, large truck traffic)

Cons

- Limited local markets for some of the materials and few deconstruction firms
- More time consuming and building realities unknown until deconstruction underway

What We Learned

- Designing and constructing appropriate buildings from the start maximizes initial material and fiscal resource investment and provides opportunities for new uses
- Positive community response towards deconstruction as a technique for building removal - process is the friendliest method to take down a building
- Substantial harvesting of material resources is possible through deconstruction - national data suggests demolition only recovers 25-30% for recycling
- Data collection and learning process component of innovative projects must be included in contract specifications
- Rural Vermont lacks infrastructure for local marketing of recovered building materials, but could be created if the amount of salvaged materials continues or increases

- Deconstruction will provide more raw materials as natural resources become less available and more costly - old buildings are becoming the mines and forests of the future
- Project debriefing by Facilities Planning will assist College and others facing similar tasks in evaluating how to improve on the deconstruction process