Designing for Reuse
in the Built Environment

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About Delta Institute

Delta Institute is a Chicago-based nonprofit that collaborates with communities to solve complex environmental challenges across the Midwest.

Since 1998, Delta’s been working with public and private partners.

We design, test, and share market-based environmental solutions that yield social, environmental, and economic benefits for communities.
Delta’s Initiatives

- Resilient Communities
- Sustainable Buildings
- Waste Reduction
- Regenerative Food Systems
- Land Stewardship
- Green Infrastructure
Waste Reduction

Midwestern states **generate more waste per capita** than other regions and have lower recycling rates.

With years of research and project experience in waste planning, construction and demolition waste, and household hazardous waste, we recognize that **waste is a byproduct of choices** and that better waste management could yield significant environmental and economic benefits.
Reuse Potential in Traditional Housing Stock

- 5-15% of materials cannot be reused or recycled
- Up to 70% of materials can be recycled
- Up to 25% of materials can be reused
Deconstruction

The process of taking apart buildings in a systematic way that allows for reuse of building materials.

Reuse

To give material a second life without being shredded, chipped, grinded, melted, or smelted.
Deconstruction Benefits

Environment + Public Health

- Produces significantly less toxic dust than standard demolition
- Reduces risk of lead and particulate exposure
- Results in significant waste diversion and reduced consumption of virgin materials
Deconstruction Benefits

Economic Impact + Job Creation

● Increases labor hours and wages paid
● Creates economic opportunity through material resale and value-added processing
● Mitigates barriers to redevelopment
Deconstruction Spectrum

**FULL DEMOLITION**
Full demolition is the most common way hazardous structures are removed. High-value items such as brick, scrap metal, and appliances are often salvaged, but all other materials are cleared and disposed of in aggregate.

**1-DAY SKIM DECONSTRUCTION**
One-day deconstruction garners higher-valued items, i.e. hardwood floors, stained glass windows with a 4-6 person crew that spends an entire day salvaging as much material as possible before demolition the following day.

**3-DAY SKIM DECONSTRUCTION**
The three-day approach recovers more material, but labor costs are higher. The value of the reclaimed materials may offset the additional labor costs, and the composition of reclaimed materials may be better suited for sale.

**FULL DECONSTRUCTION**
In full deconstruction the house is systematically dismantled from the top down. It is very labor-intensive and costly, and it should be reserved for the oldest homes with unique features.
Low Cost Alternatives to New Products
Value Added Processing
Creating a Marketplace for Reclaimed Building Materials in Chicago, IL and Gary, IN
Rebuilding Exchange - Chicago, IL
Rebuilding Exchange - Chicago, IL

Setting the stage - City of Chicago passes C&D Recycling Ordinance

2006

Delta establishes advisory committee with partners from government agencies, universities, and nonprofits

2007

Development of market study + business plan

2008

Deconstruction of 30 homes in partnership with TRP to develop inventory

2009

Rebuilding Exchange opens for business in Brighton Park!
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Rebuilding Exchange - Chicago, IL
Rebuilding Exchange - 10 Years of Impact

- **22 million pounds** of waste diverted from landfills since inception including:
  - Over **500,000 feet of lumber**
  - **10,000 doors**
  - **7,000 windows**

- **111 apprentices trained**
  - 100% completion rate
  - Four currently employed at RX

- **300 workshops** per year with 1,000 annual community participants
Vacant & Abandoned Structures in Gary, IN
Steel City Salvage - Gary, IN

- **Reclaim & Reuse**
  - Salvage valuable materials from 6,000+ vacant homes and buildings in Gary

- **Revive**
  - Provide a collaborative outlet for creative reuse and support local artisans
  - Remove blight from neighborhoods
  - Generate local economic activity
  - Provide job training and employment opportunities for Gary residents
Deconstruction Pilot
Deconstruction Contractor Training

- Curriculum provided by the Building Material Reuse Association
- Enhance practices and methods of materials salvage and reuse
- Maximize resale potential for other materials
Advisory Committee - Building the Team

- City of Gary departments
- Local community & arts organizations
- Universities
- Foundations
- Deconstruction contractors
Steel City Salvage Development + Material
SCS Pop-Up Market + Value Added Products
Securing a Space - Building Reuse Challenges
Steel City Salvage - Next Steps

- Continued and expanded collaboration
- Flexible space
- Commercial + institutional salvage opportunities
Questions + Discussion
Contact Us

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To learn more about Delta Institute and access all of our tools and resources, visit www.delta-institute.org/tools