A Process-Oriented Approach to Waste Stream Analysis in Building Deconstruction Projects

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A Process-Oriented Approach to Waste Stream Analysis in Building Deconstruction Projects

Introduction

Methodology

Application

Discussion
Existing analysis metrics

- Cost
- Speed of mass removal
- Total diversion rate
Introduction

Methodology

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Discussion

Diversion Dynamics: A Process-Based Approach to Deconstruction Analysis

Mechanized

Pace-oriented

Mostly unselective

Manual

Recovery-oriented

Selective
Demolition: Approx. 3 days

Deconstruction: Approx. 18 days

1600 SqF

Dantata et al., 2005
Introduction

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Diversion Dynamics: A Process-Based Approach to Deconstruction Analysis
Methodological workflow:

1. Define sequence of deconstruction operations
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1. Define sequence of deconstruction operations
2. Overview of tools used
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1. Define sequence of deconstruction operations
2. Overview of tools used
3. Duration of on-site activity
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2. Overview of tools used
3. Duration of on-site activity
4. Connection types
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5. Total diversion rate calculation
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6. Diversion rate breakdown based on material, connection, and tool types
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5. Total diversion rate calculation
6. Diversion rate breakdown based on material, connection, and tool types
Case study
The Snyder Veterinary Research Facility, University of Georgia
Analysis: Deconstruction sequence
Analysis: Connection types
Analysis: Material types, diversion rates
<table>
<thead>
<tr>
<th>Component</th>
<th>Qty.</th>
<th>Material group</th>
<th>Notes</th>
<th>Reuse (lb)</th>
<th>Recycling (lb)</th>
<th>Waste (lb)</th>
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<td><strong>Total (%)</strong></td>
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<td>84.46</td>
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Findings
Discussion: insights
Time-related
Economic
Technological
Sequence-based
Connection type-related

Riverdale*
- Reuse: 53%
- Recycling: 23%
- Waste: 24%

Snyder
- Reuse: 84%
- Recycling: 12%
- Waste: 4%

*NAHB Research Center, 1997
Acknowledgement:
Chris McDowell, University of Georgia Material Reuse Program manager, supervisor of the Snyder deconstruction project.

Published findings:
Matan Mayer, Diversion Dynamics: A Process-Based Approach to Deconstruction Analysis, ACSA Annual Meeting Proceedings, 2017

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