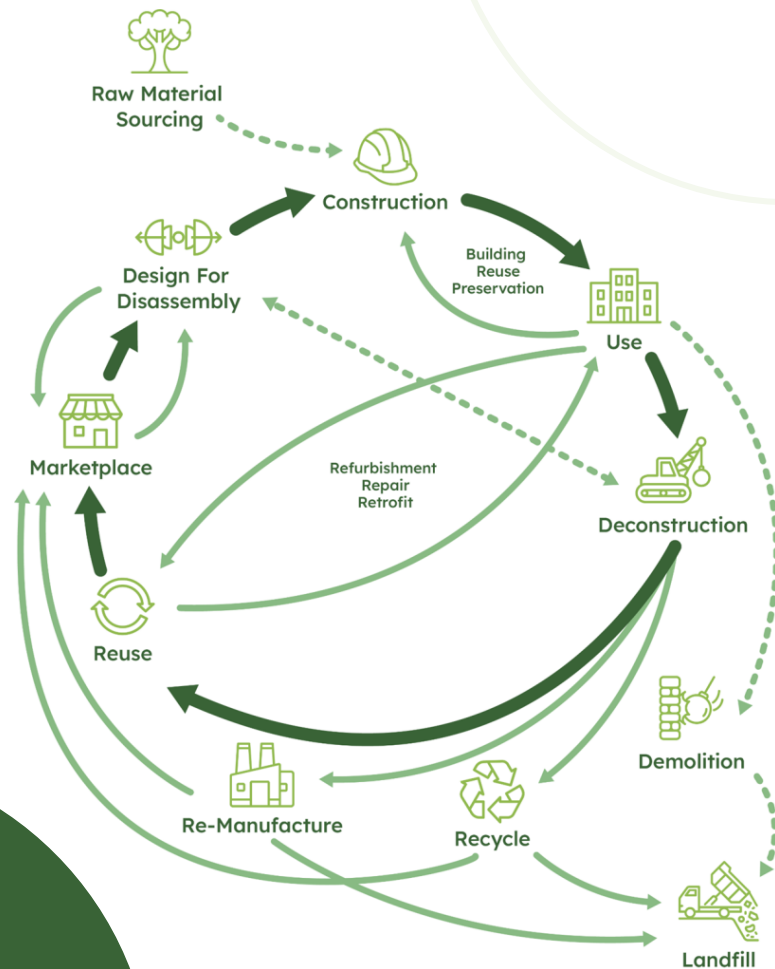


Zero Waste Strategies Across Design, Build, & Operations

REBUILD 2026
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Speakers

- Moderator -



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Agenda

- 01 Integrative Framework for Circularity
- 02 Operational Strategies for Zero Waste
- 03 Construction Waste Management
- 04 Designing for Deconstruction
- 05 Moderated Q&A



Learning Objectives

- 01 Explore design strategies for the deconstruction and salvaging of building materials.
- 02 Learn how to create a waste management approach that contributes to a circular economy.
- 03 Learn how companies can manage their waste streams to achieve zero-waste operations.
- 04 Understand how design, construction, and operational phases are considered to achieve a circular design that minimizes waste on a project.

01

Integrative Frameworks for Circularity



RECYCLE
It Makes A Big Impact
PAPER | CARDBOARD | GLASS | METAL | PLASTIC



Total **Resource Use & Efficiency**

Support Public Health & Ecosystems

Protect resources through waste reduction, reuse and recycling

Reduce Carbon Footprint

Use fewer resources and extend material life cycles

Advance the Circular Economy

Lower costs, create value, generate jobs and support sustainability goals



TRUE for Construction

- Establish Zero Waste Practices: Implement consistent waste reduction strategies across projects.
- Increase Impact: Scale zero waste practices across the construction portfolio.
- Gain Recognition: Showcase leadership in sustainable construction.
- Reduce Costs: Improve material efficiency and lower disposal expenses.
- Learn More: true.gbci.org/resources-true-construction-pilot

02

Operational Strategies for Zero Waste



RECYCLE
It Makes A Big Impact
PAPER | CARDBOARD | GLASS | METAL | PLASTIC



02

Operational Strategies for Zero Waste



RECYCLE
It Makes A Big Impact

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03

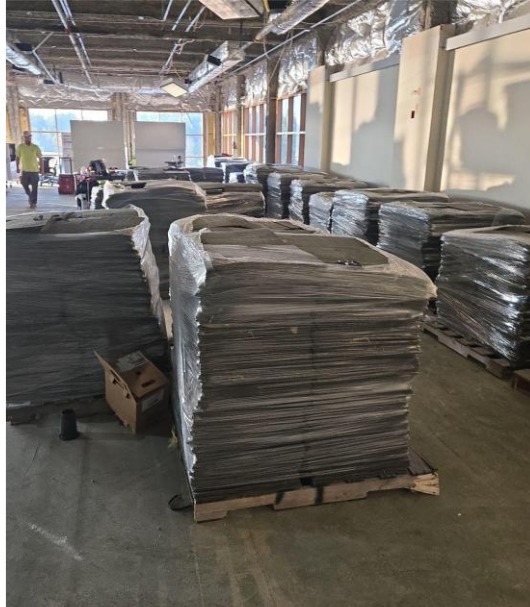
Construction Waste Management



Available Markets

- Capabilities of Haulers & Processing Facilities Vary Significantly
- Markets Decide What Can Easily be Diverted and What Cannot
- Cost to Recycle vs Throw Away





Project Site Logistics

On-Site Sorting & Staging

- Effective logistics begin with *source separation and on-site sorting*, which improves recycling rates and reduces contamination that can destroy market value.
- Space limitations, tight schedules, and lack of sorting zones are common logistical challenges, especially in urban and dense construction sites.

Transportation & Haul Planning

- Coordinated waste hauling, container placement, and route planning are critical, poorly planned logistics increase cost and emissions.
- Real-time tracking technologies (IoT, digital bin sensors) can optimize collection timing and reduce unnecessary transport.

Site Safety & Sequencing

- Logistics must integrate with site safety protocols; waste storage and movement influence site flows, worker safety, and project sequencing.





Contamination



Subcontractor Contracts & Education

Contractual Frameworks

- Subcontractor contracts increasingly include waste diversion and recycling requirements, specifying how waste is separated, documented, and where materials are delivered.
- Aligning contracts with diversion targets and incentive structures ensures subcontractors are accountable for achieving waste goals.

Education & Training

- Education of subcontractors on material segregation, contamination avoidance, and reuse options is essential for success, poor sorting undermines recycling markets.

Communication & Alignment

- Regular communication, kickoffs, briefings, written protocols, and on-site reminders, helps ensure all trade partners follow the same waste plan.



Expanding & Creating New Markets

- Take back programs with manufacturers
- Expanding service territory
- Exploring non-traditional waste streams



repurposedMATERIALS



USA Gypsum®



Selective Deconstruction & Reuse

Planning

- Early collaboration and coordination
- Evaluate and utilize existing materials

Repurposed Materials Included:

- Doors & Frames: Reused 5 wood interior doors with metal frames and hardware
- Glazing: Reused glass entries
- Lighting: Reused all existing light fixtures
- Ceilings: Reused over 96% of the ceiling system, replacing just 200 square feet out of 6,000.
- Flooring: Achieved 100% reuse of carpet tile, using salvaged material and attic stock as needed
- Wood Trim: Refinished and reinstalled approximately 100 linear feet of wood trim.

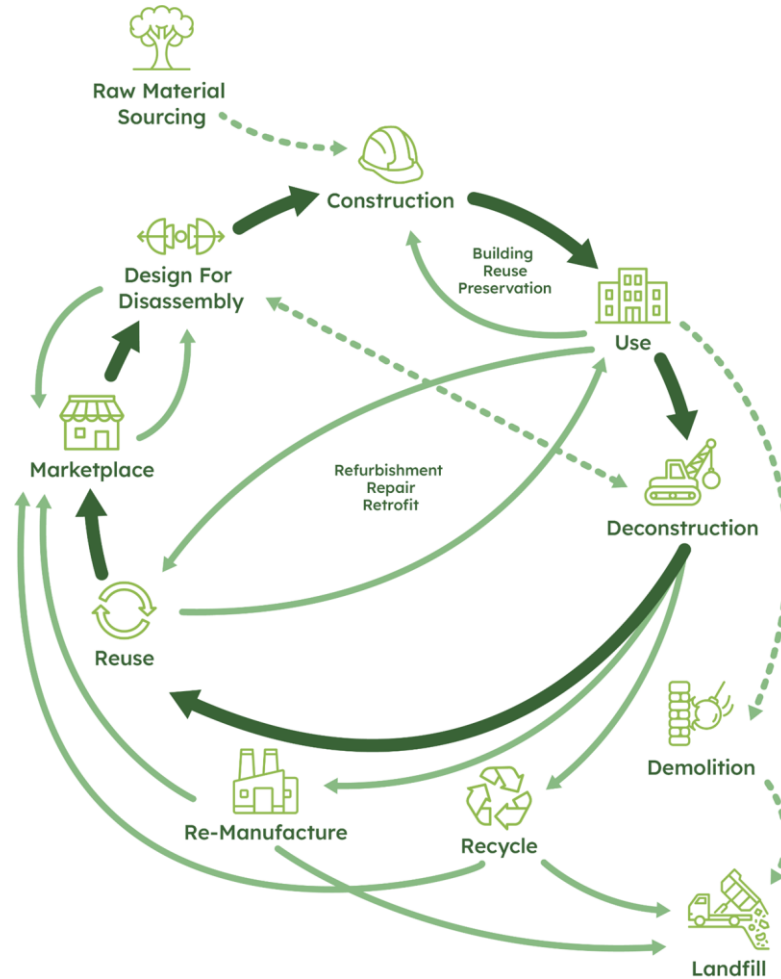




04

Designing for Deconstruction

Designing for Deconstruction (DfD)



Project Viability

Landfill cost

Labor &
Equipment

Ease of
Deconstruction

Value of
Materials

Time

Project Typology



Strategies - Materials

- Use materials feasible for recovery
- Minimize the number of different materials
- Avoid composites of dissimilar materials
- Minimize toxic materials



Strategies - Systems

- Consider building system relationships, and efficiency
 - Concrete
 - Steel
 - Wood

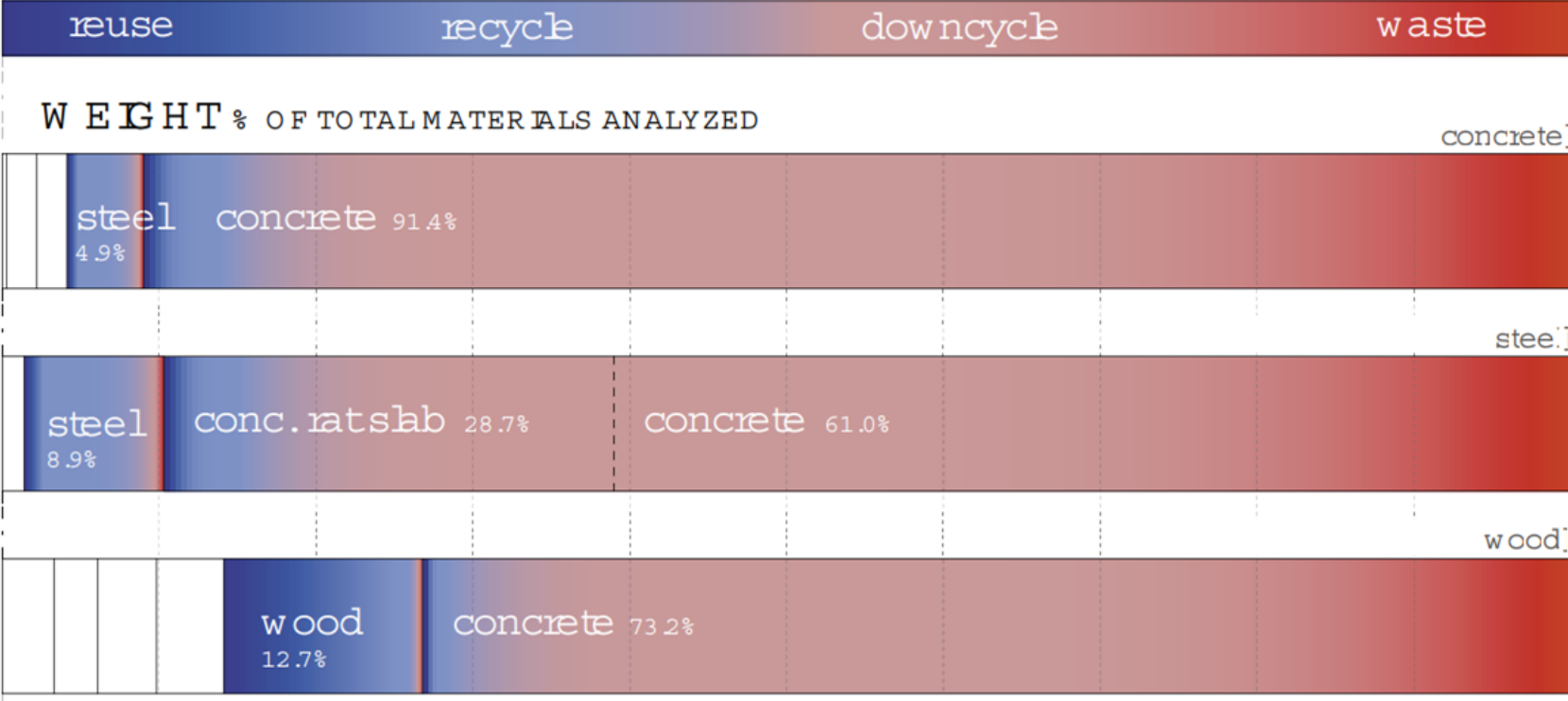


Strategies - Assemblies

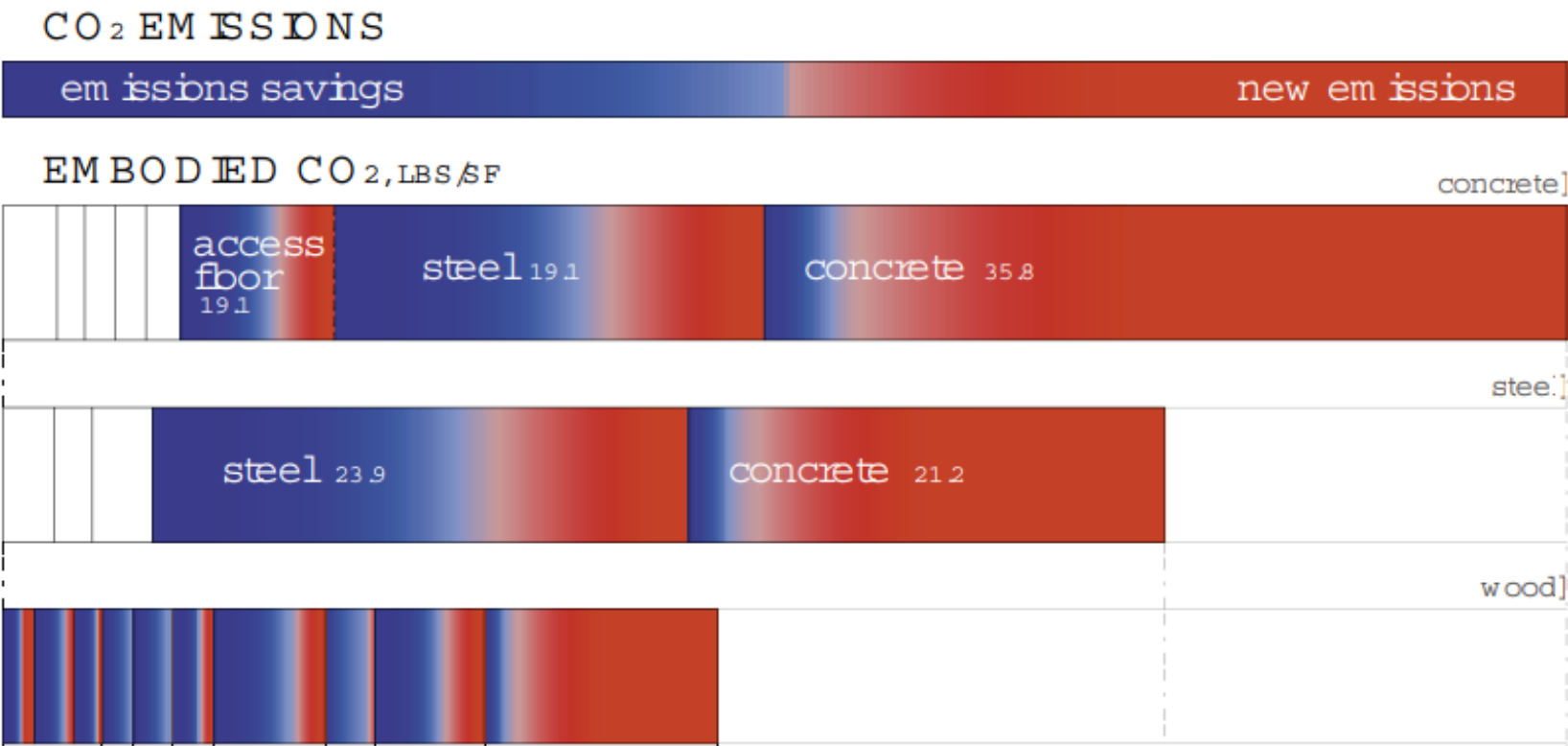
- Use fewer, but larger elements
- Use mechanical fasteners instead of sealants and adhesives where possible
 - Use fewer, strong fasteners where possible
- Simplify connections and make sure they are visible
- Disentangle utilities from the structure

EPA Study

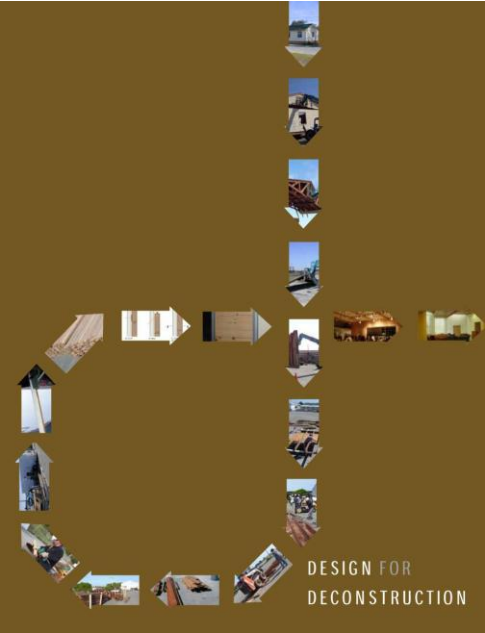
MATERIALS



EPA Study



Resources



ISO/TC58/SC17	environmental aspects	social aspects	economic aspects	technical aspects	functional aspects
Principles					
ISO 15390 General principles					
ISO TS 12726 Outline on the application of ISO 15390					
ISO TR 21933 Terminology					
Buildings (Parts 1)					
ISO 21930-1 Framework for the development of indicators – Part 1: Buildings					
ISO 21930-2 Framework for the development of indicators – Part 2: CEW					
ISO 21931-1 Framework for methods of assessment of the environmental, social and economic performance of construction works as a basis for sustainability assessment – Part 1: Buildings					
Civil Engineering Works, CEW (Parts 2)					
ISO 21931-2 Framework for methods of assessment of the environmental, social and economic performance of construction works as a basis for sustainability assessment – Part 2: Civil Engineering Works					
ISO 20887 Design for Disassembly and adaptability – Principles, requirements and guidance					
ISO 16745-1+2 Carbon metric of an existing building during use stage. Part 1: Calculation, reporting, communication. Part 2: Verification					
ISO 21678 Methodological principles for the development of benchmarks for sustainable buildings					
Products					
ISO 22087 Enabling use of Environmental Product Declarations (EPD) at construction works level using building information modelling (BIM)					
ISO 21930 Core rules for environmental product declarations of construction products and services					

LEED v5



LEED v5 for Building Design & Construction			
Material & Resources (MR)		NC	CS
		18	21
MRp1	Planning for Zero Waste Operations	Req.	Req.
MRp2	Quantify and Assess Embodied Carbon	Req.	Req.
MRc1	Building and Materials Reuse	3	5
MRc2	Reduce Embodied Carbon	6	8
MRc3	Low Emitting Materials	2	1
MRc4	Building Product Selection and Procurement	5	5
MRc5	Construction and Demolition Waste Diversion	2	2

LEED v4.1 (6 points)

- Building Life-Cycle Impact Reduction (5 points)



LEED v5 (9-11 points)

- MRc1: Building and Materials Reuse (5 points)
- MRc2: Reduce Embodied Carbon (6 points possible)



05

Moderated Q&A

Thank You!

What Questions Can We Answer?

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