Better Plants
U.S. DEPARTMENT OF ENERGY

Construction Waste Management and Green Building Certification

Virtual INPLT Training

Session 5

Tuesday – March 18, 2025

10:00 am – 12:30 pm EDT

U.S. DEPARTMENT OF ENERGY

DOE's Waste Reduction Network:

- Open to all existing Better Plants partners
- Goals are flexible
- Six goal options based on partner feedback
- Quarterly webinars
- Bi-monthly newsletter
- Access to new waste-related tools, trainings and programmatic elements

Waste Virtual INPLT Agenda

- Week 1 (February 18th) – Introduction: Waste Diversion and Reduction 101
- Week 2 (February 25th) – How to Effectively Track and Measure Your Waste
- Week 3 (March 4th) – Source Reduction and Waste Minimization Techniques
- Week 4 (March 11th) – Finding Outlets for Hard to Manage Waste Streams
- Week 5 (March 18th) – Construction Waste Management and Green Building Certifications
- Week 6 (March 25th) – Scope 3 Emission Considerations
- Week 7 (April 1st) – Implementation of a Waste Diversion Program – Developing a Roadmap to Zero Waste
- Week 8 (April 8th) – Conclusions, Summaries, and Wrap up Presentations

Plan of Action

Today, we will:

- Review the previous training
- Discuss the homework
- Lecture on today's topic, "Construction Waste Management and Green Building Certifications"
- Test your knowledge with a Kahoot! quiz
- Conduct a Q&A session

Takeaways

Today, you will learn:

- How to handle construction and demolition waste
- How to develop a construction and demolition waste management plan
- The relationship between construction and demolition waste management and green building

Presenters from Sustainable Solutions Corporation

Lora Urbaniak, LEED Green Associate
Operations Manager
Sustainable Solutions Corporation

Julia Mascho, EIT, LEED Green Associate
Sustainability Analyst
Sustainable Solutions Corporation

Session 4 Review: Which of the following materials are not acceptable by a cement kiln? Select all that apply.

Please respond to the Zoom poll

Answer: Metal and Glass

Waste Outlets and Acceptable Materials: **Cement Kiln**

Acceptable

- Sludges
- Oils and fuels
- Paper and cardboard
- Wood
- Plastics including films
- Absorbents and rags
- Rubber
- Wood

Unacceptable

- Hazardous waste
- Some plastics
- Metals
- Glass
- Building materials such as brick, concrete, etc.
- Food waste
- General trash

Waste Outlets and Acceptable Materials: **Waste-to-Energy**

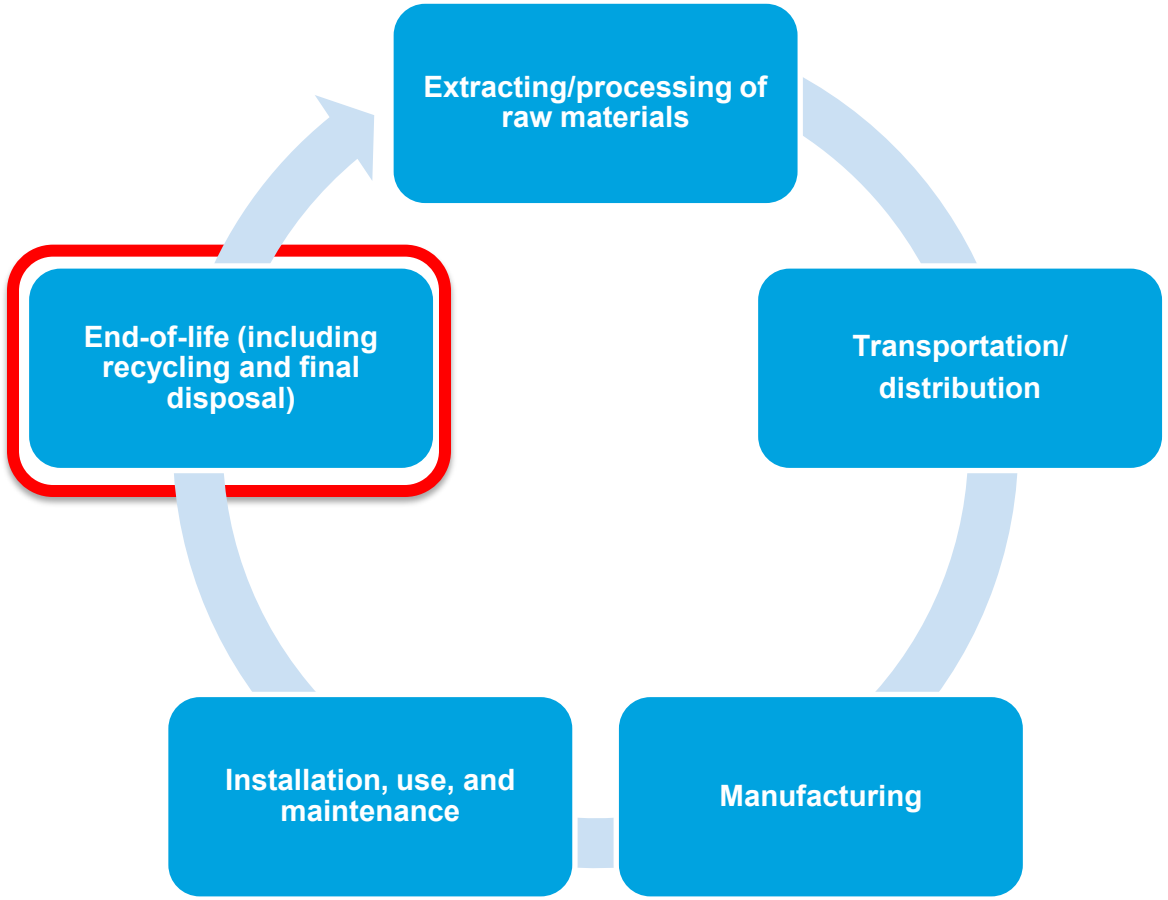
Acceptable

- Sludges
- Oils and fuels
- Some hazardous wastes
- Paper and cardboard
- Plastics
- Yard waste
- Wood
- General trash

Unacceptable

- Metal

Review: Finding Outlets for Hard to Manage Waste Streams



- A hard to manage waste stream is different for every company and site
- Do not just rely on local municipalities to handle waste streams
- Consider LCA thinking when considering waste outlets

Homework Discussion

Homework Takeaways

Overview

- Consider waste streams related to ongoing or previous construction or renovation projects and whether they were diverted from landfill. Identify strategies to include in a construction and renovation plan to divert more waste in the future.

Takeaways

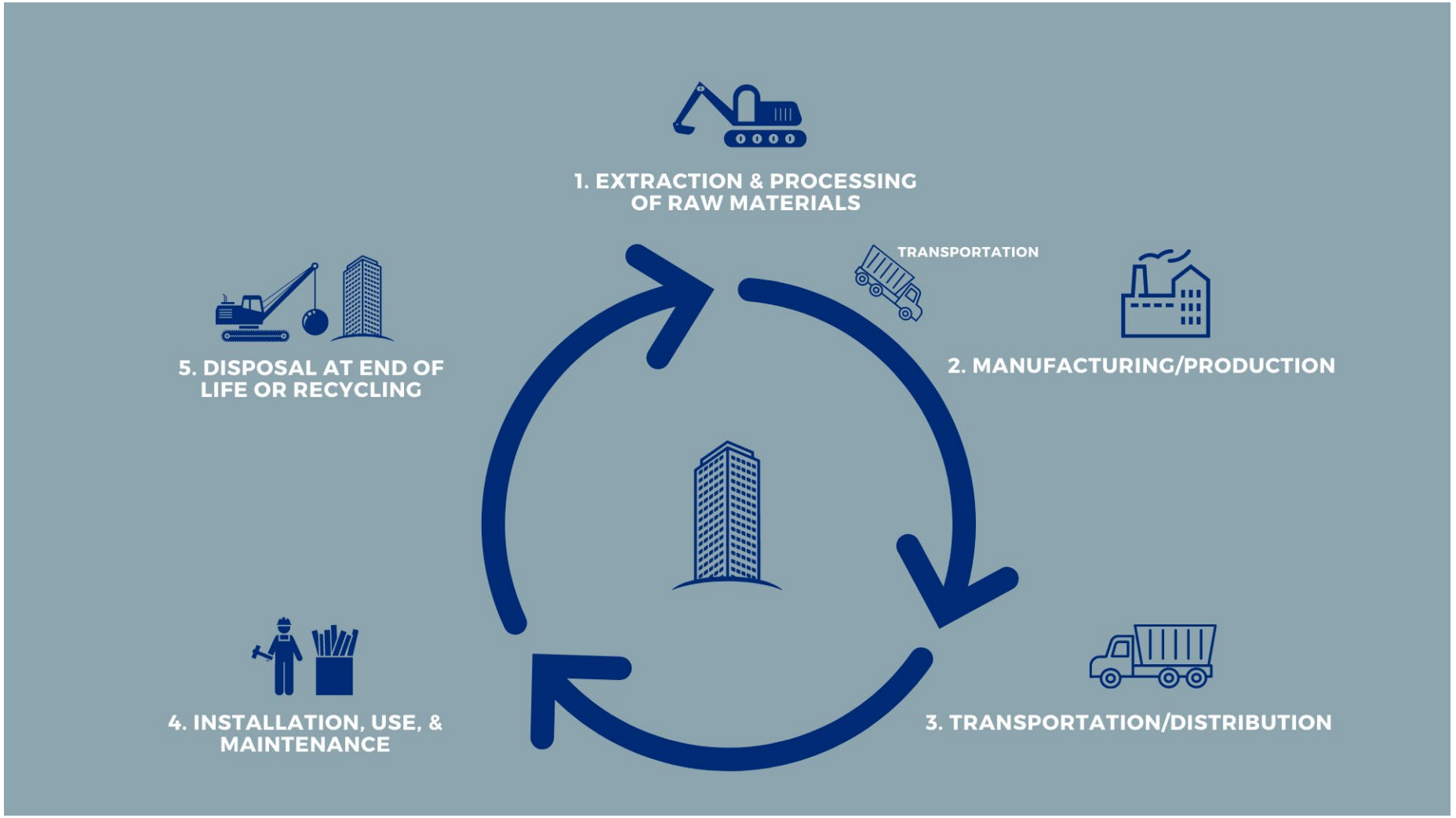
- Construction and demolition waste has not been a focus for diversion. Waste management and diversion were left to the contractors or MMOs.
- Diversion requirements varied by company
  - Some had policies regarding diversion and others did not
  - Many companies focus on a few key materials to divert

Today's Topic:

Construction Waste Management and Green Building Certifications

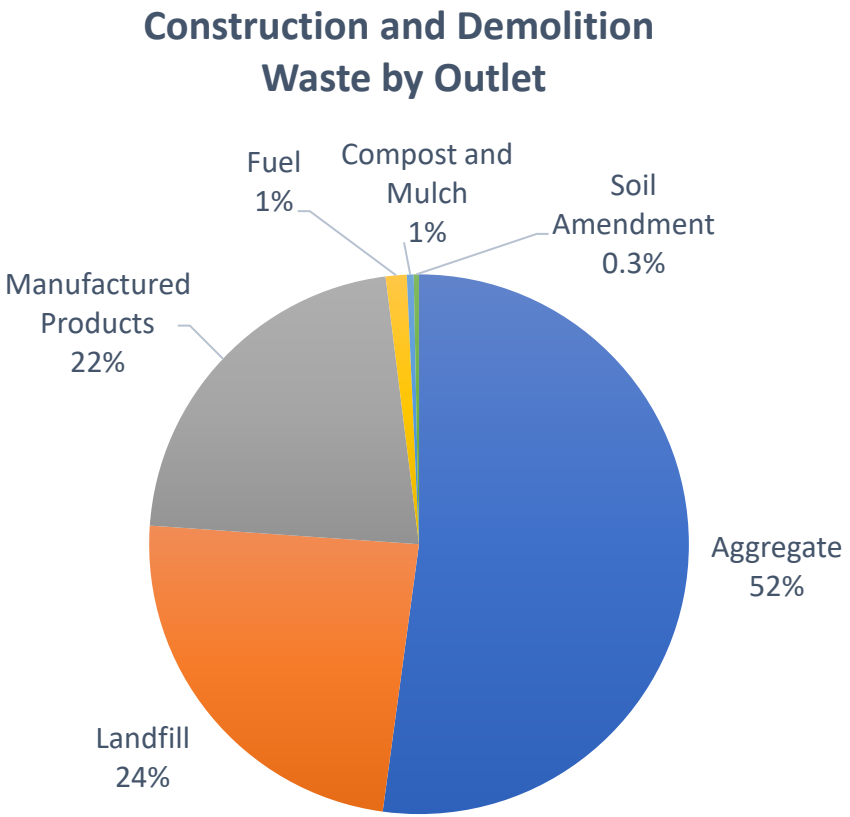
U.S. DEPARTMENT OF ENERGY

Life Cycle of a Building



Construction and Demolition Waste Facts

- 600 million tons of C&D waste were generated in the US in 2018, twice the amount of MSW
- Over 455 million tons of C&D debris were diverted and 145 million tons were sent to landfills
- 90% of the waste was generated from demolition
- 10% of the waste was generated from construction



EPA Source

Construction and Demolition Waste Management Plans

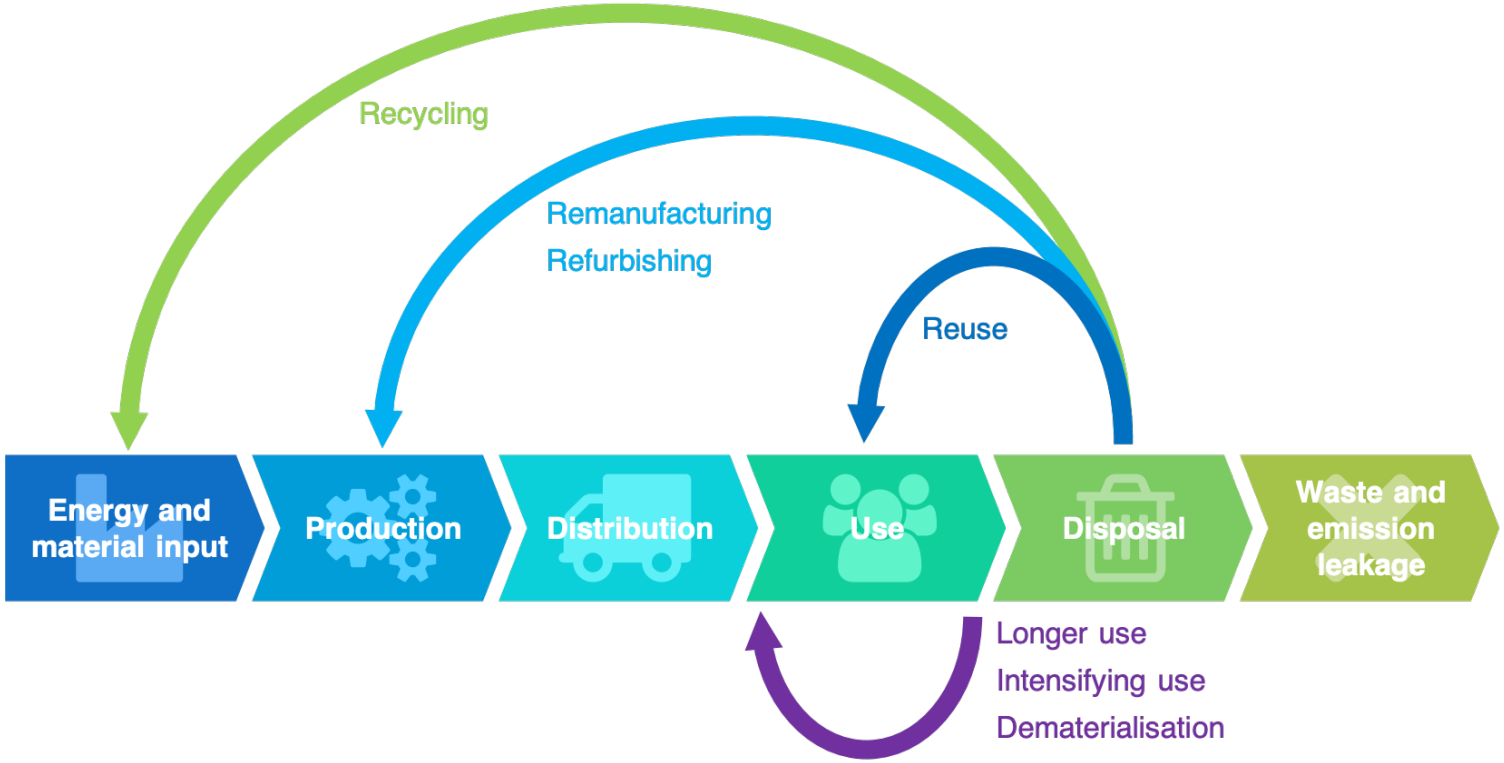
U.S. DEPARTMENT OF ENERGY

Question: What are some current practices to plan for or manage construction and demolition waste at your company?

Please type your answer in the chat

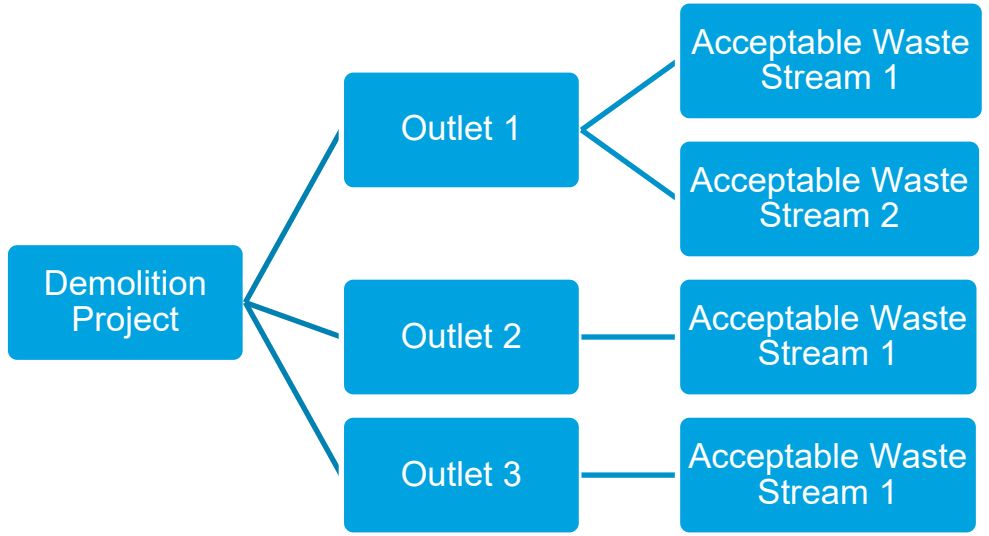
C&D Plan Overview

The base goal or structure of any C&D plan should be focused on reducing waste going to landfill and maximizing recyclability of materials



C&D Plan Overview

- A C&D waste management plan must be project specific
- The waste management plan should reflect the builder's expectations for waste management and diversion including:
  - Anticipated waste streams
  - Waste diversion targets
  - Acceptable waste handling and diversion strategies
  - Acceptable end-of-life scenarios for various materials
  - Reporting criteria and frequency
  - Identification of MMOs
  - Contractor training and communication with subcontractors



C&D Specifications

- Establish construction specification which includes considerations for waste handling, segregation, and diversion
  - Provide this to any potential MMOs or contractors to ensure they can comply
  - Language should clearly define expectations and/or acceptable methods for diversion, materials handling, segregation, and acceptable end-of-life for materials, as well as tracking and reporting
- Provide comprehensive list of materials and acceptable outlets

Example C&D Specifications

- **Plan Requirements**
  - Develop and implement Construction and Waste Management Plan and have the plan accepted by Owner
    - Note: Can specify that this plan align with specific a green building standard
  - Intent:
    - Divert construction, demolition, and land clearing debris from landfill
    - Redirect recyclable materials back to manufacturing process
    - Generate cost savings or increase costs minimally for Project waste disposal

- **Performance Requirements**
  - Divert a minimum 75% by weight of construction waste materials for duration of Project through resale, recycling, or adaptive reuse
  - General Contractor
    - Implement Construction and Waste Management Plan
    - Distribute Construction and Waste Management Plan to all subcontractors
    - Oversee and document results
    - Review with Owner
  - Maintain orderly arrangement of collection area with materials clearly separated to avoid co-mingling

Question: What are typical waste materials generated by construction and demolition projects?

Please type your answer in the chat

Example List of Materials to Include in Specifications

Materials suggested for recycling:

- Packing materials
  - Cardboard
  - Pallets
  - Films
  - Paper
- Recyclable plastics
- Organic plant debris
- Earth materials
- Native stone and granular fill
- Asphalt and concrete paving
- Masonry
- Concrete
- Metals
  - Steel
  - Piping
  - Copper Wiring
- Gypsum products
- Acoustical ceiling tile and grid
- Flooring products
- Insulation
- Cabinets
- Plumbing fixtures
- Mechanical equipment
- Equipment oil
- Electrical conduit
- Lamps
- Lighting fixtures
- Ballasts
- Electrical devices
- Glass
- Wood
  - Studs
  - Lumber
  - Plywood
  - Wood sheet materials and trim
- Roofing

Materials suggested for adaptive reuse:

- Concrete and crushed concrete
- Masonry units
- Lumber suitable for re-sawing or refinishing
- Casework and millwork
- Doors and door frames
- Windows
- Window glass and insulating glass units
- Hardware
- Acoustical ceiling tile
- Equipment and appliances
- Fluorescent light fixtures
- Plumbing fixtures
- Cabinets

Question: After viewing the materials list, what materials or groups of materials has your company not had diversion consideration for?

Please type your answer in the chat

Identify The Right Outlet

- Work with MMOs who will segregate waste for you
- State criteria for segregation and acceptable means of diversion, waste tracking and reporting in the contract/provided specifications
- Express if there is interest or plans to pursue green building certification

C&D Waste Management Tracking

- Internally establish plans for recording C&D waste data
  - Should this data be recorded separately from typical onsite waste?
    - If construction is regularly occurring, perhaps not
  - Should C&D waste influence waste diversion and minimization goals?
- Continue MMO coordination and follow-up
  - Receive monthly reports which should include:
    - Description of materials
    - Whether or not the material was diverted from landfill
    - Diversion method, if applicable
    - Amount of waste generated
    - Hauler or destination
    - Pick-up date

Pre-Construction Meeting

- Conduct a group meeting prior to the start of construction or demolition
- Discuss Construction and Waste Management Plan details
- Establish goals, expectations, lines of communication, timelines, etc.

Contractor Training

- Train and communicate waste handling and diversion expectations to all subcontractors
  - Any new subcontractors brought onsite should undergo training
- Inform violators of C&D waste management policies

Onsite C&D Waste Management Planning

Consider the following prior to starting construction

- Anticipate waste streams
  - When a stream will be generated
  - Estimated volume
  - Condition of the waste
- Contact material management organizations (MMOs)
  - Determine what waste streams each outlet will take
- Plan for waste collection area(s)
  - Generate signage
- Train and establish expectations for contractors
- Establish diversion rate goal

Poll: How far in advance of construction starting should C&D waste management planning begin?

Please respond to the Zoom poll

Answer: At the beginning of the design process and when the general contractor is brought on

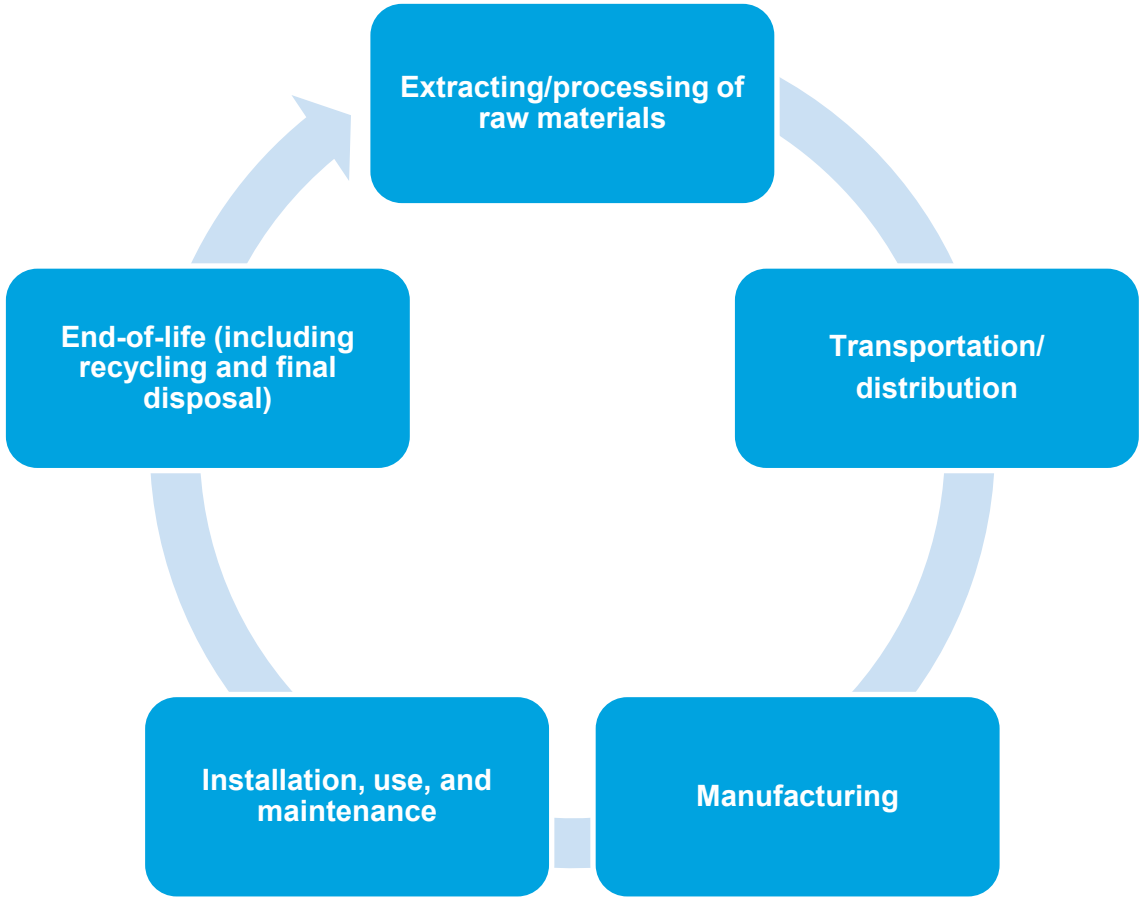
Onsite C&D Waste Handling Best Practices

- Establish a designated waste collection area
- Provide clear signage for each waste stream
  - Ensure signs will not be removed with dumpster pickup
- Cover dumpsters (if necessary)
- Ensure regular pickups for dumpsters
- Regularly monitor waste segregation

Installer Training

Construction waste considerations can go beyond your site

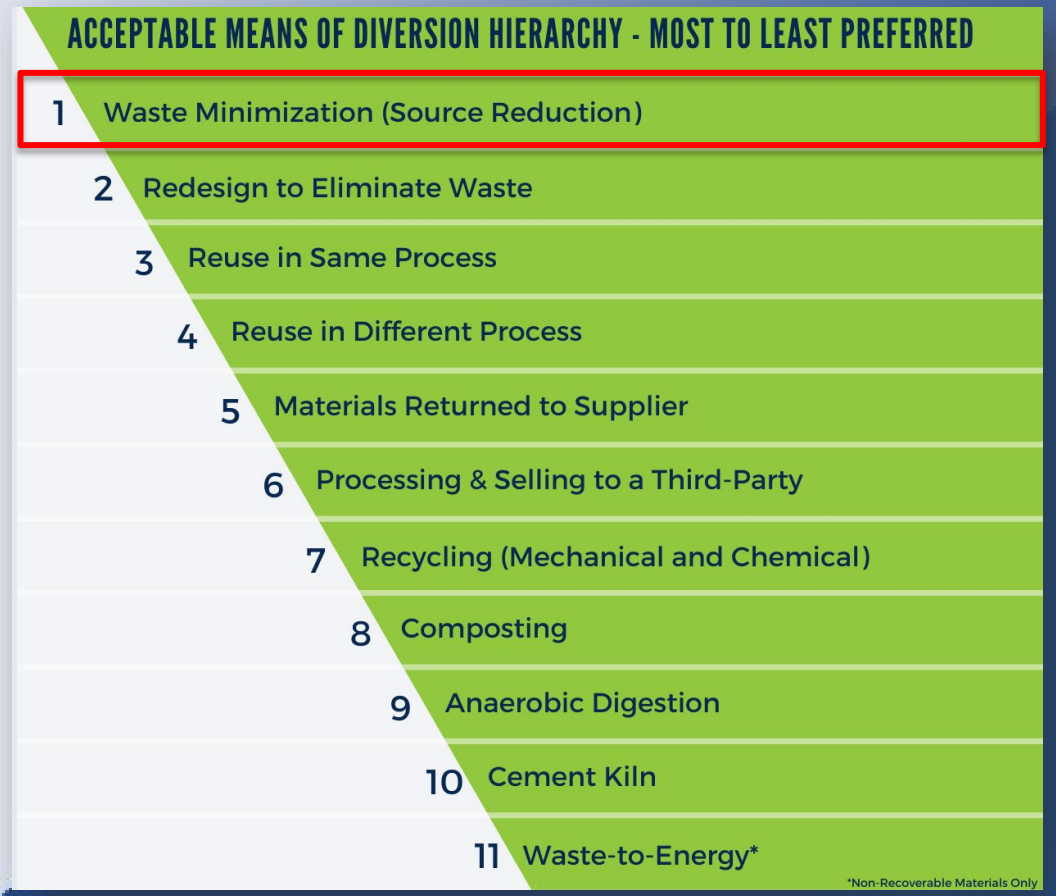
- Train installers on waste minimization and diversion
  - What materials (if any) can be returned to the supplier for use as recycled content in new products
  - How to reduce scrap during installation
  - Importance of waste segregation
  - Outlets for commonly generated waste streams
  - What types of questions to ask site contact regarding waste collection



Construction and Demolition Waste Minimization and Diversion

U.S. DEPARTMENT OF ENERGY

Construction Waste Management



Best Practices – Source Reduction

- Source reduction reduces life-cycle material use, energy use, and waste generation
- Examples of source reduction for C&D waste:
  - Preserving existing buildings
  - Optimizing the size of new buildings
  - Designing new buildings for adaptability to prolong useful lives
  - Using construction methods that allow disassembly and reuse

Best Practices – Source Reduction

Preserve existing buildings

- Renovations generate less waste than demolition and construction
- Consider if aspects of the current building are preservable
  - Is the structure in good shape but the interior needs work?
  - Can we rethink what the new building "needed" to look or be shaped like?
  - Is part of the building usable but another is not?

Best Practices – Source Reduction

Optimizing the size of new buildings

- Does the building need to be as large as its being designed to be?
  - Are there extras or amenities that can be removed?
    - If break rooms are centralized, can the building be smaller?
- Are we going to have as many people onsite as we planned?
  - Will many people be working remotely full or part-time?

Best Practices – Source Reduction

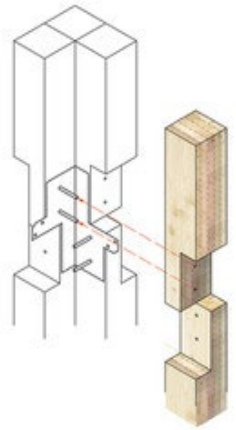
Design new buildings for adaptability to prolong useful lives

- Can we make a smaller building now, but create a design that will lend itself to additions later?
- Design adaptable space
  - Flat, open concept floor plans will lend themselves to flexibility in design compared to broken out floor plans
    - Non-load bearing partitions
  - Increase floor-to-floor heights
- Plan when choosing equipment
  - Oversize mechanical systems in initial design
    - Will allow for adaptability for future renovations
  - Install extra electrical panels and breakers
  - Accommodate future needs in computers and technology
    - Outlets, server rooms, etc.

Best Practices – Source Reduction

Use construction methods that allow disassembly and reuse

- Establish interest in disassembly methodology when meeting with architects
- Plan the deconstruction of the building while designing
- Choose materials that are durable and highly recyclable
- Utilize unique connection methods
  - Use bolt, screw, or nailed connections
  - Do not bond or create permanent connections



Question: Has anyone's company undergone construction or renovations and considered the presented strategies?

Please type your answer in the chat

Construction Waste Management

Best Practices – Diversion of Materials

- Diverting materials not only keeps materials out of landfill, but also reduces life-cycle material use
- Examples of material diversion of C&D waste:
  - Reusing materials
  - Recycling materials
  - Establishing circularity
    - Using recycled materials

Anticipated Wastes

- Construction and Demolition waste often contains bulky and heavy materials such as:
  - Wood
  - Metals
  - Concrete
  - Asphalt
  - Masonry
  - Gypsum
  - Plastics
  - Other salvaged building components

Best Practices – Reusing C&D Materials

Deconstruction is the process of carefully dismantling buildings to salvage components for reuse and recycling

- Determine which materials could be reusable elsewhere and identify outlets prior to beginning deconstruction
- Recovering used, but still valuable C&D materials for further use saves natural resources

Best Practices – Reusing C&D Materials - Examples

- Examples of reusing C&D materials:
  - Easy-to-remove items
    - Doors, hardware, appliances, fixtures, flooring
  - Wood
  - Masonry such as brick, pavers, or stone
  - Packaging materials
    - Can be returned to suppliers for reuse

Best Practices – Reusing C&D Materials

- Recall points from earlier in the session…
  - Planning is critical
    - Anticipate reusable materials
    - Communication and training contractors
    - Coordinating with MMOs
  - Site segregation
    - Establish collection areas
    - Provide clear signage

Best Practices – Recycling C&D Materials

Many building components can be recycled where markets exist

- Review expected materials and establish connections with possible outlets
  - Asphalt, concrete, and rubble can be turned into aggregate or new asphalt and concrete products
  - Wood can be converted into engineered-wood products (furniture or mulch)
  - Metals including steel, copper, and brass remelted into new products
  - Brick, concrete, and masonry can be recycled on site as fill or subbase material
    - Can have a mobile concrete mill onsite
- Ask recyclers questions about compliance and/or third-party certification to ensure proper and intended management of materials

Best Practices – Recycling Equipment

- Most equipment and components can be recycled or sold for refurbishment
- There are companies which will purchase old equipment for resale
  - Everything from motors to PLCs

Best Practices – Establishing Circularity

Used construction materials increases circularity and reduces life-cycle material use

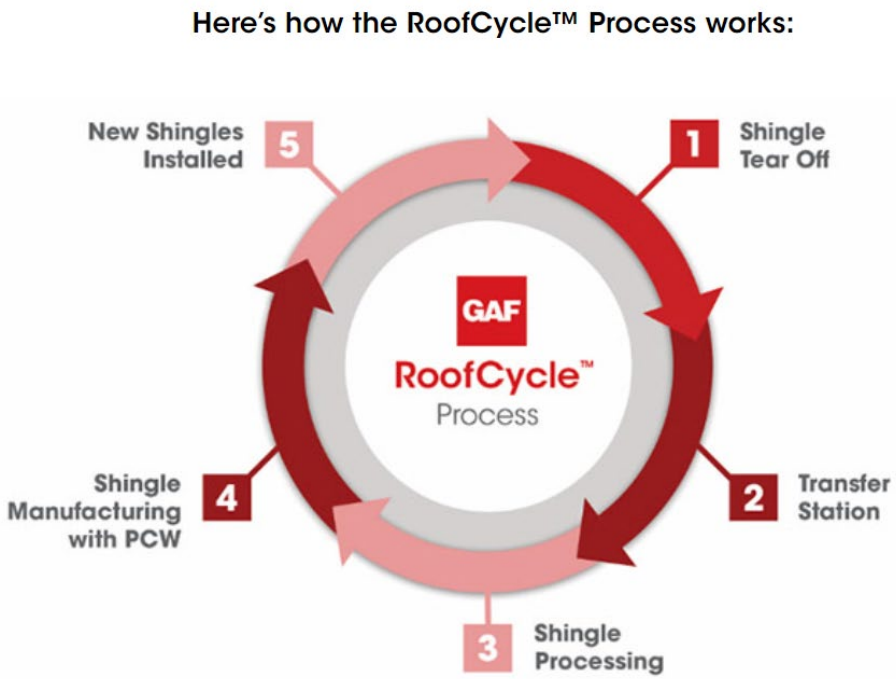
- Buying used C&D materials and recycled content products for use in new construction can:
  - Boost local economy
  - Lower construction and renovation costs while maintaining building function and performance
  - Ensure materials collected from reuse/recycling will be used again in the making of new products or construction
  - Preserve local architectural character and historic significance

Best Practices – Establishing Circularity

- Many building materials can be recycled into new products
- Establish connection with suppliers to understand if they have a takeback program for any materials
  - Could include materials existing in the building (such as ceilings, walls, insulation, etc.) or scrap from installing new products

Establishing Circularity – Roofing and Ceiling

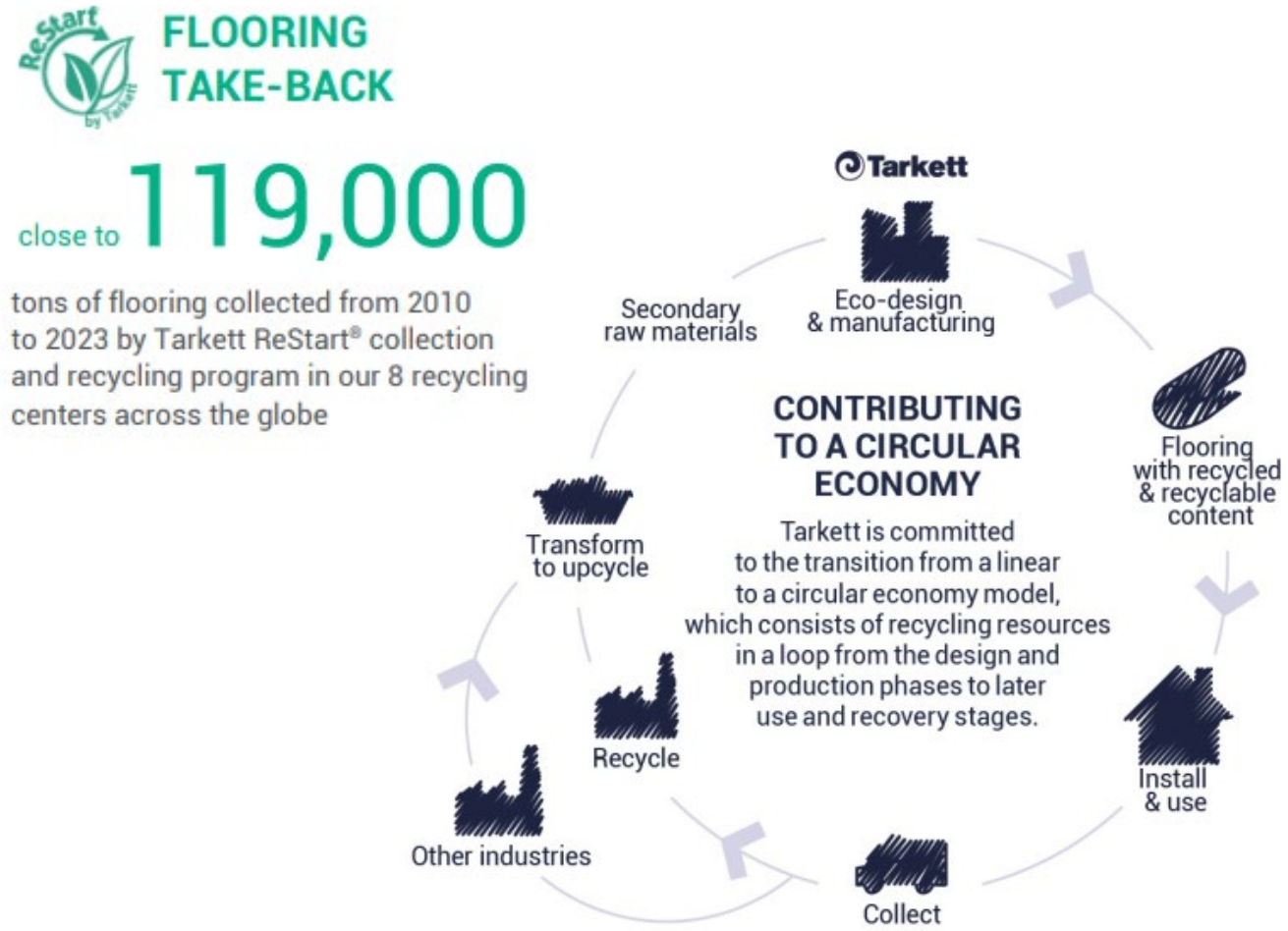
- Roofing material takeback programs
  - GAF and Owens Corning
    - Shingle takeback program under development
- Ceiling takeback programs
  - USG Corporation - Ceilings
  - Armstrong Ceilings
  - CertainTeed
  - Saint-Gobain
    - France only program as of now



GAF

Establishing Circularity– Flooring, Gypsum Wallboard, and Insulation

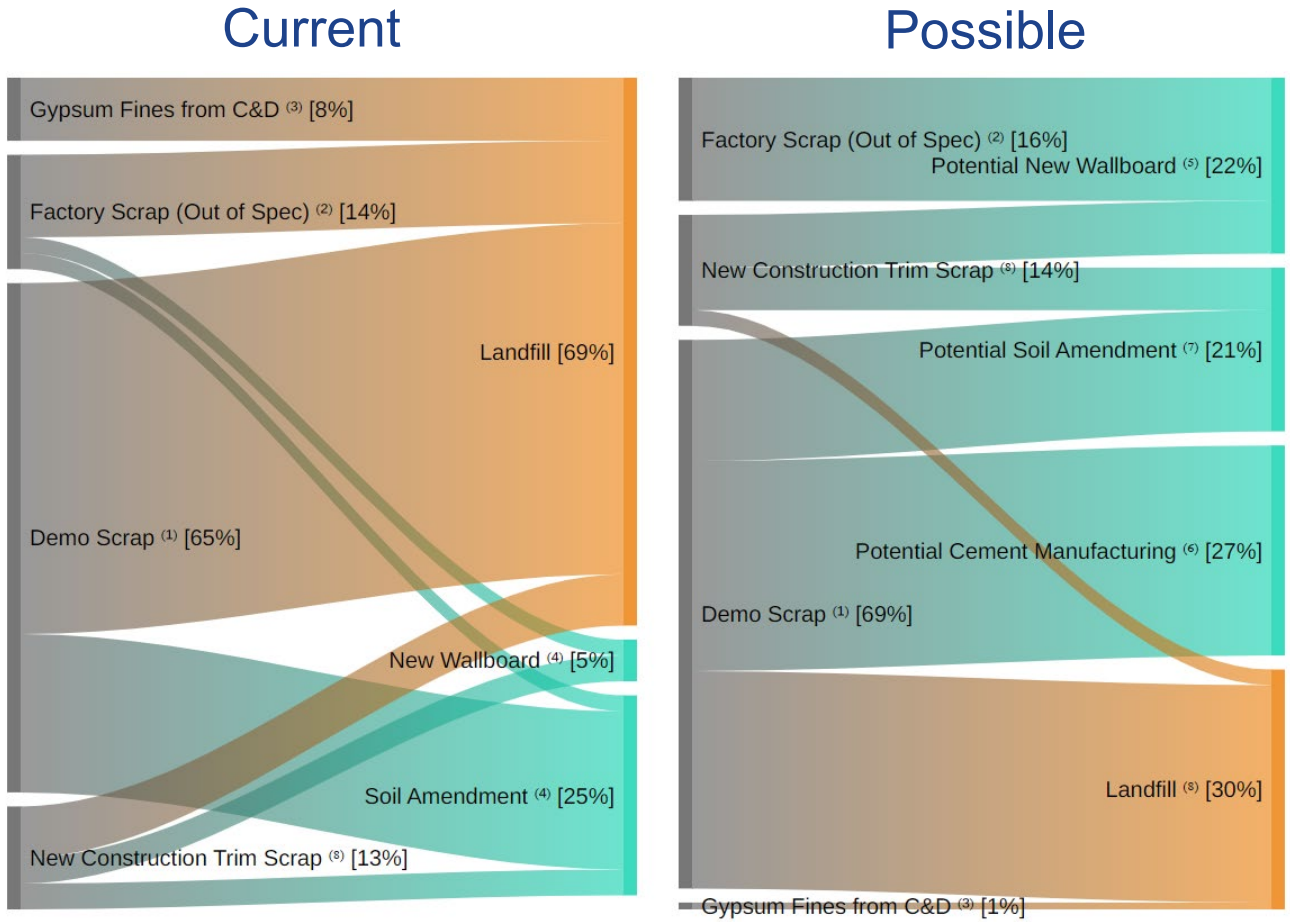
- Flooring takeback programs
  - Tarkett
  - Interface
- Gypsum wallboard takeback programs
  - USG Corporation - Gypsum
- Insulation takeback programs
  - CertainTeed
  - Knauf Insulation
  - Owens Corning



Tarkett ReStart® Program

Gypsum Wallboard Waste Diversion

The potential future of gypsum wallboard waste diversion



Building Product Ecosystems

Poll: Which of the following would not be a C&D source reduction technique?

Please respond to the Zoom poll

Answer: Coordinating with MMOs

We are looking for participants for Session 8!

- What is required:
  - Create a few slides following the template provided by SSC and ORNL
  - Speak about the slides during Session 8
    - If you cannot attend but would like your story told, SSC can present your slides for you
- Reach out to Nick by email or Lora in the chat to express interest or obtain more information

Construction Waste Management and Green Building

U.S. DEPARTMENT OF ENERGY

An Introduction to Green Building

Why do we care about green buildings if we are focusing on waste?

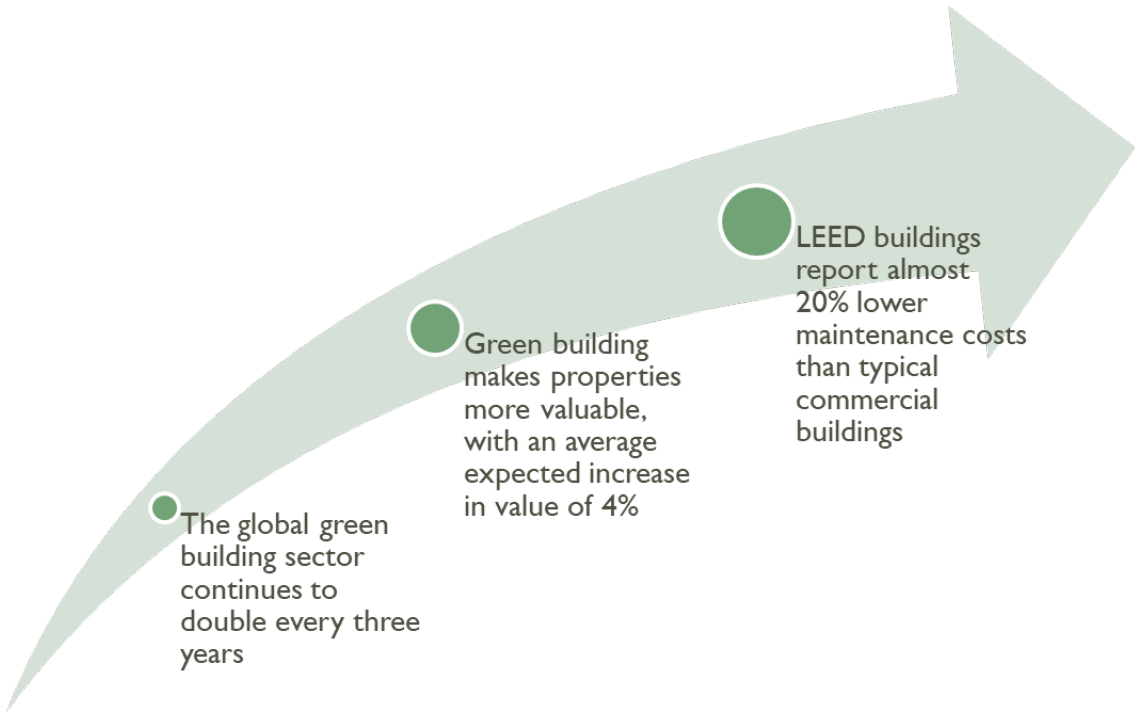
- Many companies are using green building standards to assist with meeting carbon reduction goals and science-based targets
  - Companies are doing critical reviews of their buildings and are working to reduce carbon footprints within them
  - When companies require green building standards, credit requirements for the standards become internal procedures as well
    - All major green building standards have considerations related to waste either for construction sites or within facilities

Poll: What does LEED stand for?

Please respond to the Zoom poll

Answer: Leadership in Energy and Environmental Design

An Introduction to Green Building



- Maximize efficiency to improve building performance and reduce operating costs
- In the U.S., buildings account for almost 40% of CO_2eq emissions and out-consume the industrial and transportation sectors

Statistic Source

Major Green Building Standards

LEED

Green Globes

WELL

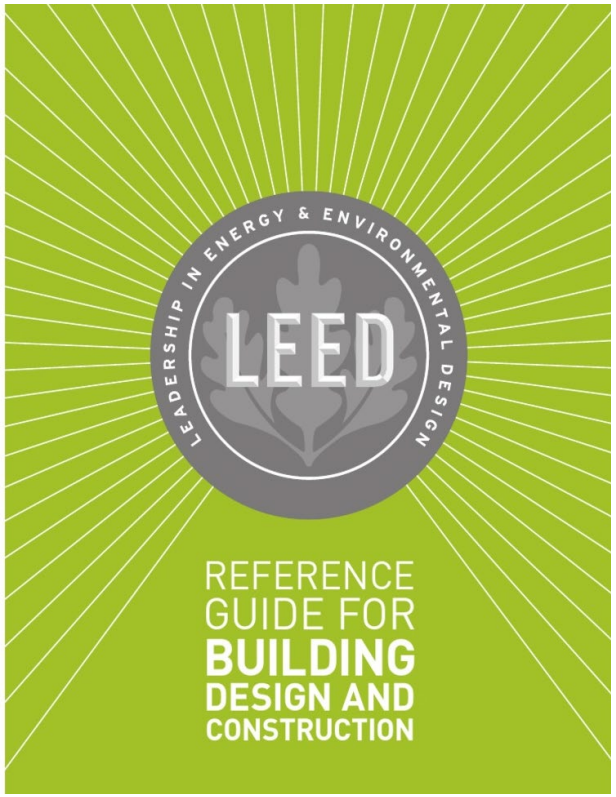
BREEAM

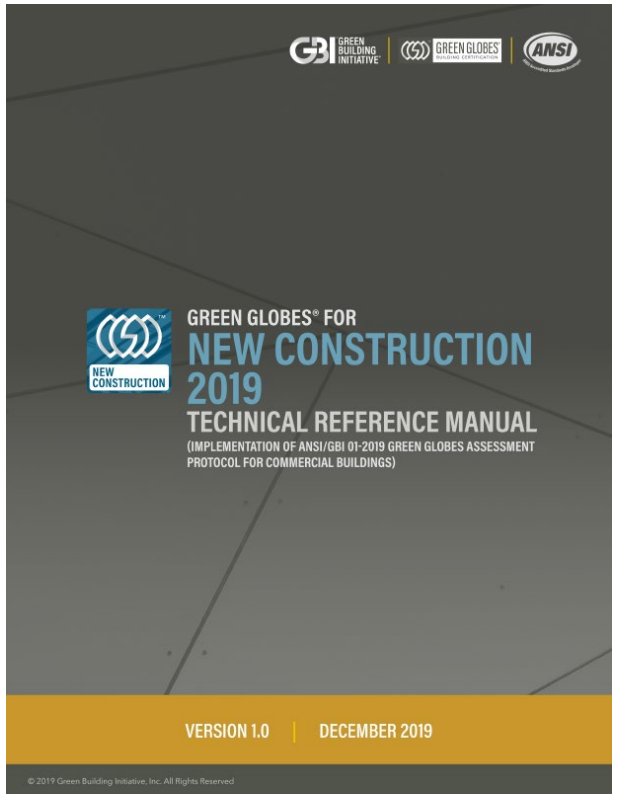
HQE

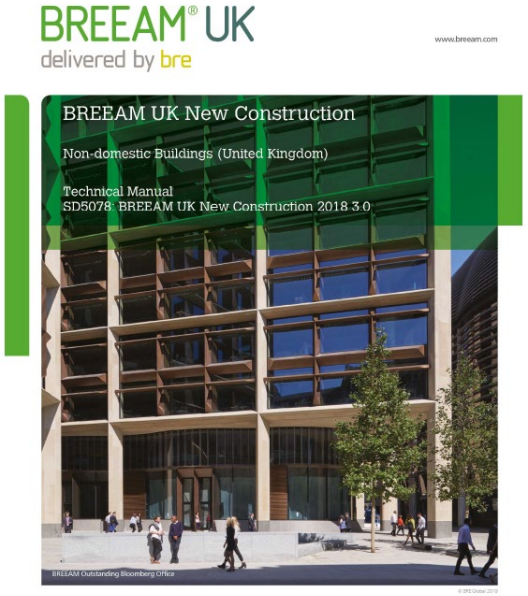
DGNB

An Introduction to Green Building

Each standard has a reference guide establishing the criteria to meet for various credits or credit categories







An Introduction to Green Building

LEED BD+C: New Construction Scorecard

Y	?	N			
			Credit	Integrative Process	1
0	0	0	**Location and Transportation**		16
			Credit	LEED for Neighborhood Development Location	16
			Credit	Sensitive Land Protection	1
			Credit	High Priority Site and Equitable Development	2
			Credit	Surrounding Density and Diverse Uses	5
			Credit	Access to Quality Transit	5
			Credit	Bicycle Facilities	1
			Credit	Reduced Parking Footprint	1
			Credit	Electric Vehicles	1
0	0	0	**Sustainable Sites**		10
Y			Prereq	Construction Activity Pollution Prevention	Required
			Credit	Site Assessment	1
			Credit	Protect or Restore Habitat	2
			Credit	Open Space	1
			Credit	Rainwater Management	3
			Credit	Heat Island Reduction	2
			Credit	Light Pollution Reduction	1
0	0	0	**Water Efficiency**		11
Y			Prereq	Outdoor Water Use Reduction	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Building-Level Water Metering	Required
			Credit	Outdoor Water Use Reduction	2
			Credit	Indoor Water Use Reduction	6
			Credit	Optimize Process Water Use	2
			Credit	Water Metering	1
0	0	0	**Energy and Atmosphere**		33
Y			Prereq	Fundamental Commissioning and Verification	Required
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Building-Level Energy Metering	Required
Y			Prereq	Fundamental Refrigerant Management	Required
			Credit	Enhanced Commissioning	6
			Credit	Optimize Energy Performance	18
			Credit	Advanced Energy Metering	1
			Credit	Grid Harmonization	2
			Credit	Renewable Energy	5
			Credit	Enhanced Refrigerant Management	1
0	0	0	**Materials and Resources**		13
Y			Prereq	Storage and Collection of Recyclables	Required
			Credit	Building Life-Cycle Impact Reduction	5
			Credit	Environmental Product Declarations	2
			Credit	Sourcing of Raw Materials	2
			Credit	Material Ingredients	2
			Credit	Construction and Demolition Waste Management	2
0	0	0	**Indoor Environmental Quality**		16
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
			Credit	Enhanced Indoor Air Quality Strategies	2
			Credit	Low-Emitting Materials	3
			Credit	Construction Indoor Air Quality Management Plan	1
			Credit	Indoor Air Quality Assessment	2
			Credit	Thermal Comfort	1
			Credit	Interior Lighting	2
			Credit	Daylight	3
			Credit	Quality Views	1
			Credit	Acoustic Performance	1
0	0	0	**Innovation**		6
			Credit	Innovation	5
			Credit	LEED Accredited Professional	1
0	0	0	**Regional Priority**		4
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
0	0	0	**TOTALS**	**Possible Points:**	110

Certified: 40 to 49 points, **Silver:** 50 to 59 points, **Gold:** 60 to 79 points, **Platinum:** 80 to 110

- Each green building standard will have a scorecard or checklist outlining the various credits available to fulfill
  - Completion of all credits is not necessary
- Most standards have certifications for different building types or situations

Construction Waste Management

- Credit requirements vary by green building standard and certification pursued:
  - In general, they require
    - Establishment of a plan
    - Documentation of waste streams
      - Tracking of volumes and verification of diversion
- Note that specific requirements may exist which influence the way waste is sorted, tracked, and diverted
  - Example: LEED has requirements related to commingled dumpsters
    - Haulers must be certified as a commingled facility
      - Commingled facilities which are certified sort and weigh materials, others may just do a visual inspection and provide estimates, which is not deemed as accurate

LEED ®

- **Areas used:** Worldwide
- **Common in:** United States
- **Prerequisites:** Yes
- **Categories covered:**
  - Location and Transportation (LT)
  - Sustainable Sites (SS)
  - Water Efficiency (WE)
  - Energy and Atmosphere (EA)
  - Materials and Resources (MR)
  - Indoor Environmental Quality (EQ)
  - Innovation (IN)
  - Regional Priority (RP)
- **Levels of Certification**
  - 110 points possible
  - Ranges from Certified (40 pts), Silver (50 pts), Gold (60 pts), Platinum (80+ pts)

Leadership in Energy and Environmental Design

Over 2.9 billion m^2

Over 197,000 projects

186 countries

www.usgbc.org/leed

Construction and Demolition Waste Management Credit

- **Prerequisite (in v4, not v4.1)**
  - Develop and implement a construction and demolition waste management plan which includes:
    - Diversion goals and strategies
    - Approximate diversion percentage
- **Credit Requirements**
  - Recycle and/or salvage nonhazardous construction and demolition materials
    - Points rewarded based on diversion rate
      - Divert 50% and three material streams (1 point)
      - Divert 75% and four material streams (2 points)
  - Prevent waste through source reduction design techniques
    - Generate less than 2.5 lb/square foot

Other Relevant LEED Credits

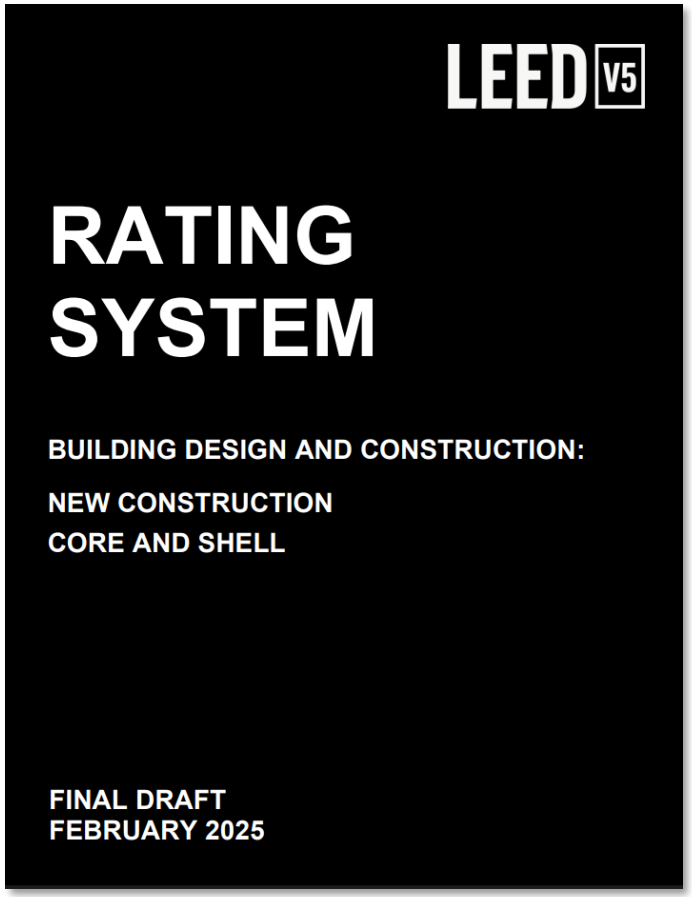
- **Building Design and Construction (BD+C) and Interior Design and Construction (ID+C)**
  - Construction and demolition waste management planning
  - Construction and demolition waste management
- **Existing Buildings Operations and Maintenance (EBOM)**
  - Facility maintenance and renovation policy
  - Solid waste management – facility maintenance and renovation
- **Cities and Communities (C+C)**
  - Construction and demolition waste management

Other Waste-Related Credits in LEED

- BD+C
  - Storage and collection of recyclables
  - Circular products (pilot credit)
    - Recognizes zero-waste to landfill facilities
- O+M
  - Ongoing purchasing and waste policy
  - Solid waste management – ongoing
- ID+C
  - Storage and collection of recyclables
- C+C
  - Solid waste management
  - Organic waste treatment
  - Recycling infrastructure
  - Smart waste management systems

LEED v5

- The v5 final drafts for LEED were released in February
- Includes waste-related credits
  - BD+C and ID+C
    - Planning for Zero Waste Operations
    - Construction and Demolition Waste Diversion
  - O+M
    - Waste Reduction Performance
    - Waste Reduction Strategies



Green Globes®

- **Areas used:** North America
- **Common in:** United States
- **Prerequisites:** No
- **Categories covered:**
  - Project Management
  - Site
  - Energy
  - Water Efficiency
  - Materials
  - Indoor Environment
- **Levels of Certification**
  - 1,000 points possible
  - Ranges from One (≥35%), Two (≥55%), Three (≥70% of pts), or Four (≥85%) Green Globes

Over 750 million m^2

Over 700 projects

83 countries

https://thegbi.org/

WELL®

- **Areas used:** Worldwide
- **Common in:** United States
- **Prerequisites:** Yes
- **Categories covered:**
  - Air
  - Water
  - Nourishment
  - Light
  - Movement
  - Thermal Comfort
  - Sound
  - Materials
  - Mind
  - Community
- **Levels of Certification**
  - 110 points possible
  - Ranges from Silver (50 pts), Gold (60 pts), Platinum (80+ pts)

INTERNATIONAL WELL BUILDING INSTITUTE™

Over 139 million m^2

Over 32,000 projects

98 countries

www.wellcertified.com

BREEAM®

- **Areas used:** Worldwide
- **Common in:** United Kingdom
- **Prerequisites:** Yes
- **Categories covered:**
  - Management
  - Health and Wellbeing
  - Energy
  - Transport
  - Water
  - Materials
  - Waste
  - Land Use and Ecology
  - Pollution
  - Innovation
- **Levels of Certification**
  - Weighted categories, certification level based on percentage of credits completed
  - Ranges from Pass (>30%), Good (>45%), Very Good (>55%), Excellent (>70%) and Outstanding (>85%)

BREEAM®

Building Research Establishment Environmental Assessment Methodology

Over 78 million m^2

Over 599,000 projects

93 countries

www.breeam.com

HQE™

- **Areas used:** Worldwide
- **Common in:** France
- **Prerequisites:** Yes
- **Categories covered:**
  - Energy
  - Environment
  - Health
  - Comfort
- **Levels of Certification**
  - Star system, 16 total stars (4 stars per theme)
  - Ranges from HQE Pass (no stars, all prerequisites), HQE Good (1-4 stars), HQE Very Good (5-8 stars), HQE Excellent (9-11 starts), and HQE Exceptional (12+ stars)

Haute Qualite Environmentale

Over 59 million m^2

Over 380,000 projects

Over 24 countries

www.behqe.com

DGNB System

- **Areas used:** Worldwide
- **Common in:** Germany
- **Prerequisites:** Yes
- **Categories covered:**
  - Management
  - Environmental Quality (ENV)
  - Economic Quality (ECO)
  - Sociocultural and Functional Quality (SOC)
  - Technical Quality (TEC)
  - Process Quality (PRO)
  - Site Quality (SITE)
- **Levels of Certification**
  - Weighted categories and credits
  - Ranges from Silver (≥50%), Gold (≥65%), and Platinum (≥80%)

German Sustainable Building Council

Over 57.5 million m^2

10,000 projects

30 countries

www.dgnb-system.de

Construction Waste Credits

- Green Globes
  - Reuse of existing structures and materials
  - Construction waste
- BREEAM
  - Construction waste management
  - Use of recycled and sustainably sourced aggregates
- HQE
  - Optimizing the worksite's waste management
- DGNB
  - Low-waste construction site

Other Waste-Related Credits

- Green Globes
  - Post occupancy solid waste recycling
  - Supply chain waste minimization
- WELL
  - Waste management
- BREEAM
  - Operational waste
- HQE
  - Optimizing the recycling of operational waste
  - Quality of the activity operational waste management system
- DGNB
  - Flexibility and adaptability
  - Ease of recovery and recycling

Closing Remarks

- Summary
  - Creating a C&D waste management plan
    - Anticipate waste streams
    - Communicate with MMOs and contractors
  - Minimizing and Diverting C&D waste
    - Utilize source reduction techniques in building design
    - Segregate divertible waste streams
  - Green building certifications are becoming the norm and so are their requirements
- Homework!
- Next training
  - Scope 3 Emission Considerations
  - March 25, 2025

Homework Overview

- Homework will:
  - Engage participants in the topics to be discussed in the following session
  - Serve as a guide for waste diversion and minimization
- If a homework is completed, please send to presenter, Nick, at nick@sustainablesolutionscorporation.com
  - Please use the subject “Better Plants Session # Homework: Complete – Company Name”
  - Participants will be asked to share their learnings and experiences in session 8, and if you would like to participate in this, please reach out to Nick

Homework Review

Assignment

1. Create a list of the waste streams, their weights, and their end-of-life scenarios. Input this data into the EPA's WARM tool.
2. Review the results from the tool and note the streams that contributed most to total emissions.
3. Describe if the largest contributors to the emissions total was surprising. Furthermore, consider and describe if the influence of any other waste streams were surprising.
4. Review a detailed breakdown of the emissions contributions per waste stream and see if any changes to Question 3 occur.

Bonus: Input data into the alternative management scenario and comment on the changes to the emissions total.

Goal

- To engage a participant in the process of estimating carbon footprint of wastes.
- Through calculating emissions, a participant may realize how important minimizing and diverting materials is.

Kahoot!

U.S. DEPARTMENT OF ENERGY

Q&A