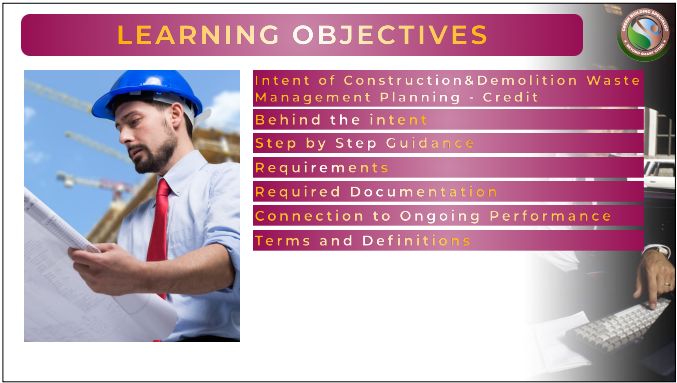








INTENT

POTENTIAL TECHNOLOGIES & STRATEGIES

CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT PLANNING

REQUIREMENTS

IMPLEMENTATION

REQUIRED DOCUMENTATION

Documentation	All projects
Construction waste management plan	X
Total construction waste	X

BEHIND THE INTENT

Developing a CWM plan early in the design process allows more time for planning and coordination, identifying appropriate strategies, and developing contractual agreements. Educating project team members, site workers, and waste haulers helps ensure that the plan is followed and material is actually diverted from landfills and incinerators. A well-developed CWM plan can also minimize cost and maximize return by decreasing tipping fees, selling high-valued scrap materials, or identifying materials for reuse.

STEP-BY-STEP GUIDANCE

STEP 1. IDENTIFY WASTE DIVERSION GOALS

STEP 2. SELECT COLLECTION AND DIVERSION METHODS

- Incineration may be considered diversion if reuse and recycling methods are not readily available in the project's location; this must be included in the CWM plan. Wood-derived fuel, or wood combustion, is considered diversion and not subject to the additional requirements for incineration (see *Further*

STEP-BY-STEP GUIDANCE

Estimation: Waste-to-energy

- Using a recycling facility for which recycling rates have been independently certified by a third party, such as the Recycling Certification Institute (recyclinginstitute.org), provides assurance that diversion rates are accurate, but it is not required for compliance. Some buyers work with local municipalities to verify their average diversion rates.
- Consider how CWM plan requirements, or the requirement to write a plan, can be included in specification documents under Division 1, General Requirements.

STEP 3. DRAFT CONSTRUCTION WASTE MANAGEMENT PLAN

The CWM plan must be customized for each project. The plan must include an overall project waste diversion goal and identify at least five kinds of materials that will be diverted from landfills or incineration.

- There is no minimum threshold for diversion, though project teams may earn points for meeting the thresholds set in the corresponding credit. (See MR Credit: Construction and Demolition Waste Management.)
- All projects must comply with this prerequisite, including projects located in areas without recycling services and those not intending to pursue the corresponding credit.
- The plan must account for all materials, including land-clearing debris, materials to be used for alternative daily cover (ADC), and other materials not contributing to diversion but not included in the diverted waste total.
- The safe removal and disposal of hazardous materials must also be covered in the CWM plan. Hazardous materials must be tracked separately and not be included in the project's total waste.
- Specify the means and methods of diversion for each of the five selected material streams and the approximate amount of waste of each.
- If possible, provide contracts or sample contract language that describes the waste-sorting strategies and technologies used by the waste hauler and facility. Successful CWM plans start with early establishment of contractual obligations.

When developing the waste hauler contract, consider including the waste reporting structure, a schedule that identifies the responsible parties and their contact information, and a clear chain and method of communication. Consider involving waste haulers in regular construction meetings.

STEP 4. DECIDE WHETHER TO PURSUE CREDIT

Determine whether the project team will seek to achieve the corresponding credit, which awards points for implementing the plan developed in this prerequisite and meeting diversion thresholds (see MR Credit: Construction and Demolition Waste Management). A project team that does not pursue the credit must document the decision and produce a final waste report.

STEP 5. PRODUCE WASTE REPORT

Create a final report on the total construction and demolition waste produced by the project and the total waste diverted, using the following equation.

Equation 1: Diversion rate

Diversion rate = (Total waste diverted from landfill / Total waste produced by project) x 100

- Units may be weight or volume but must be consistent throughout.
- If the project team is pursuing the corresponding credit, see MR Credit: Construction and Demolition Waste Management for additional requirements for the final waste report.

REQUIREMENTS

NC, CS, SCHOOLS, RETAIL, NC, DATA CENTERS, WAREHOUSES & DISTRIBUTION CENTERS, HOSPITALITY, NC, HEALTHCARE

Develop and implement a construction and demolition waste management plan and achieve points through waste prevention and/or diversion.

Waste Management Plan and Report:

All projects must develop and implement a construction and demolition waste management plan:

- Identify strategies to reduce the generation of waste during project design and construction.
- Establish waste diversion goals for the project by identifying the materials (both structural and nonstructural) targeted for diversion.
- Describe the diversion strategies planned for the project. Describe where materials will be taken including expected diversion rates for each material.

Provide a final waste management report detailing all waste generated, including disposal and diversion rates for the project. Calculations can be by weight or volume but must be consistent throughout. Exclude excavated soil and land-clearing debris from calculations. Include materials destined for alternative daily cover (ADC) in the calculations as waste (not diversion). Any materials sent to a composted recycling facility for processing must take the facility average recycling rate and must include any ADC as waste (not diversion).

Option 1: Diversion (1 point)

Follow the Waste Management Plan and divert at least 50% of the total construction and demolition materials from landfills and incineration facilities.

AND/OR

Option 2: Waste Prevention (0-2 points)

Prevent waste through reuse and source reduction design strategies. Salvage or recycle renovation and demolition debris and utilize waste minimizing design strategies for new construction elements. Track all materials generated by the project from start of construction through project completion to determine the project's total waste generation. Include all construction and demolition waste and diverted materials in the calculation of total project waste. Exclude hazardous materials and land-clearing debris from calculations.

Path 1: Generate less than 15 lbs./ft² (75 kg/m²) (1 point)

Path 2: Generate less than 10 lbs./ft² (50 kg/m²) (2 points)

CONNECTION TO ONGOING PERFORMANCE

LEED O+M MR Prerequisite Waste Performance: Similar Measures with Modified Requirements for existing buildings is required for the O+M v4.1 rating system and is a strategy that can help achieve the MR prerequisite: waste performance.

REQUIRED DOCUMENTATION

Required Documentation

- ▶ A compliant Construction and Demolition Waste Management Plan.
- ▶ A narrative for waste prevention/design strategies used on the project to achieve the waste threshold and calculation of total waste per area (if pursuing Waste Prevention points).
- ▶ MR construction and demolition waste management calculator that demonstrates total and diverted waste amounts and documentation of recycling rates for commingled facilities.
- ▶ International projects: justification narrative for use of WTE strategy for international teams and documentation of WTE facilities adhering to EN standards (if applicable)



REFERENCED STANDARDS

- ❑ European Commission Waste Framework Directive 2008/98/EC:
www.ec.europa.eu/environment/waste/framework/index.htm
- ❑ European Commission Waste Incineration Directive 2000/76/EC:
www.europa.eu/legislation_summaries/environment/waste_management
- ❑ EN 303-1—1999/A1—2003, Heating boilers with forced draught burners. Terminology, general requirements, testing and marking:
www.cen.eu/cen/Products



EXEMPLARY PERFORMANCE

- ❑ Generate less than 10 lbs./sf. (50 kg/m²) and divert 50% or more of waste



TERMS AND DEFINITIONS

Alternative daily cover (ADC) material other than earthen material is placed on the surface of the active face of a municipal solid waste landfill at the end of each operating day to control vectors, fires, odors, blowing litter, and scavenging. In general, these materials must be processed so that gaps in the exposed landfill face are not allowed. [CalRecycle]

Clean up nonhazardous materials left over from construction and demolition. Clean waste excludes lead and asbestos.

Commingled waste streams are building waste streams that are combined on the project site and hauled away for sorting into recyclable streams, also known as single-stream recycling.

Natural land-clearing debris and soil materials (e.g., rock, soil, stone, vegetation). Materials that are man-made (e.g., concrete, brick, and cement) are considered construction waste even if they were on site.

Waste-to-energy is the conversion of non-recyclable waste materials into usable heat, electricity, or fuel through a variety of processes, including combustion, gasification, pyrolysis, anaerobic digestion, and land-fill gas (LFG) recovery.



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