REDUCTION OF CONSTRUCTION AND DEMOLITION WASTE

Points available: 2

INNOVATION CHALLENGE SUMMARY

Construction and demolition waste represents a significant proportion of waste that is sent to landfill. While the impacts of this waste are addressed by the credit Man-7 ‘Waste Management’ in Green Star, the credit only rewards high recycling rates. This may lead to outcomes where even though the recycling rates are high, there is still a high proportion of waste that is sent to landfill. Therefore, the credit does not encourage the reduction of waste through good design solutions.

This Innovation Challenge aims to encourage the building industry to reduce the amount of waste sent to landfill. It does this by rewarding the reduction of waste that is sent. This challenge also recognises that there are multiple avenues for reducing waste, such as through the use of modular elements, not just via recycling rates.

The GBCA has recently developed Construction and Demolition Waste Reporting Guidelines. This Innovation Challenge also aims to increase the demand for facilities and contractors that comply with the guidelines, thus improving the reporting quality of the industry.

ELIGIBLE RATING TOOLS

- Green Star rating tools for Design and As Built (legacy rating tools)

TO CLAIM THIS INNOVATION CHALLENGE

To claim this Innovation Challenge your project team must:

- Demonstrate that construction and demolition waste from the project has been reduced by a significant amount over standard practice.
- Demonstrate that waste processing facilities and waste contractors that have been independently audited to comply with the GBCA’s Construction and Demolition Waste Reporting Guidelines have been used.

NEXT STEPS

1. Review the credit as outlined below.
2. Sign up for this Innovation Challenge using the Green Star Project Manager.
3. Receive approval from GBCA to use Innovation Challenge.
4. Submit documentation with Round 1 or Round 2 assessment submission.
5. Provide feedback to GBCA on the application of the Innovation Challenge to their project. This feedback is to be provided to the GBCA in written format to help inform improvements to the content of the Innovation Challenge.

   It is expected that 500 to 1000 words would suffice and the feedback must include:
   a) The name of the Innovation Challenge claimed;
   b) The time period related to the implementation of the Innovation Challenge (how long it took to implement);
   c) The type of development the Innovation Challenge was applied to (NCC building class or building use);
   d) The perceived or demonstrated benefits to the owner and project team. This should form the core of the feedback provided. Qualitative and quantitative information may be used.
   e) The perceived or demonstrated difficulties with implementing the Innovation Challenge and suggestions for improvements. Qualitative and quantitative information may be used.
AIM OF CREDIT
Reduce the amount of waste sent to landfill from construction and demolition works.

CREDIT CRITERIA
Up to two points are awarded based on the amount of waste sent to landfill from all demolition, construction, and packaging of materials in the project.

COMPLIANCE REQUIREMENTS

Waste to landfill
To consider this criterion met, the project’s total amount of waste to landfill must be reduced as much as possible. Points will be awarded based on any improvement under the benchmark waste target of 17.5 kg per meter square of the building area as follows:
- 0.5 points = 17.5kg/sqm building GFA
- 1 point = 15kg/sqm building GFA
- 1.5 points = 12.5 kg/sqm building GFA
- 2 points = 10kg/sqm building GFA

A project can use any number of initiatives to demonstrate compliance, whether reusing or recycling construction waste, implementing waste avoidance measures like incorporating design solutions that make use of modular and prefabricated installations, recycling or reusing materials, or not demolishing significant parts of the previous building space.

Construction & Demolition Waste Management Operational and Reporting Criteria
All waste contractors and waste processing facilities providing reports to evidence the building’s waste to landfill contributions must hold third-party verification of compliance with the Green Star Construction and Demolition Waste Management Operational and Reporting Criteria which has been issued by a Suitably Qualified Auditor.

The waste contractors and waste processing facilities servicing the building must provide the Green Star project team with a copy of their current Compliance Verification Summary to the Operational and Reporting Criteria. It is the responsibility of the waste contractor to ensure that the waste processing facilities that they use to dispose of the building’s C&D waste all hold current Compliance Verification Summaries.

The waste contractor must issue monthly waste reports for the entire duration of construction works to the building owner or their representative. The figures in the report must be supported by copies of waste disposal dockets stating the amount of waste removed from the building site and where it was disposed of. Waste reports must include:
- total amount of C&D waste removed from a construction site reported by weight;
- break down by estimated weight (using volume to weight conversion factors) of most common material types removed from site (e.g. timber, plasterboard, concrete, carpet);
- breakdown by location of where the waste was taken for recovery;
- total amount of waste from the site diverted from landfill, reported by weight;
- total amount of waste residual from the site sent to landfill, reported by weight;
- the fate of recovered materials, by material types, detailing what the recycled product outputs are from the processing facilities engaged by the waste contractor to receive C&D waste from site.


**Measurement by Volume**

All C&D waste figures reported in the cumulative waste report documentation requirement for this credit must be in weight, and attributable to weigh bridge disposal dockets. However, the waste contractor is often required to determine the weight of particular waste material streams from visual inspections of a load's volume for the purpose of reporting to the owner/builder the estimated weights of material types removed from site (e.g. timber, steel, plasterboard, concrete, carpet). Where this is the case, the waste contractor is encouraged, but not required, to convert all such volume-based measurements to weight using the standard volume-to-weight conversion factors provided in the EcoRecycle Victoria Waste Wise Toolkit (page 46): (www.ecorecycle.sustainability.vic.gov.au/resources/documents/WWE_Toolkit_(Full_Version).pdf).

**Excluded Waste**

Excluded waste not addressed by this credit refers to Special Waste (asbestos waste and asbestos containing material, clinical waste and waste tyres); Hazardous Waste and Restricted Solid Waste as defined by the NSW Department of Environment, Climate Change and Water Waste Classification Guidelines: http://www.environment.nsw.gov.au/waste/envguidlns/

Soil from site works (e.g. excavation) is excluded from the credit. However soil generated from site clean-up works (e.g. soil leaving site mixed with general C&D waste) must be included in the waste to landfill calculations as it is part of the building site's general waste profile.

**Waste Reused On Site**

Waste reused on site (excluding soil from site works) must be included in the cumulative waste report and a brief description of the reprocessing/reuse provided in the short report. Where volume to weight conversion factors are used to determine the weight of reused waste, then the EcoRecycle Victoria volume to weight conversion factors should be applied.
GUIDANCE

Standards noted in this credit

- Green Star C&D Waste Management Operational and Reporting Criteria - Auditor Verification Document
- EcoRecycle Victoria Waste Wise Toolkit - Waste Wise Events Waste Volume to Weight Conversion Table
- NSW Department of Environment, Climate Change and Water - Waste Classification Guidelines

Definitions

Compliance Verification Summary

Document issued by a suitably qualified auditor that verifies and summarises the auditee waste contractor or waste processing facility compliance with the Operational and reporting Criteria. It is valid for 12 months from date of issue and must be current for the duration of the time that the auditee provides waste services and waste reports to a Green Star project. Compliance Verification Summaries must:

- state the auditee’s compliance or non-conformance with each of the criteria
- provides a summary of the corrective action(s) required of the applicant in cases where non-conformances are issued;
- be signed and dated by the auditor
- include a copy of the auditor’s RABQSA Certification and CV or Qualification Statement

Construction and demolition waste

Material produced during the construction, renovation, demolition, or deconstruction of structures. Structures include buildings and their infrastructure. Components of C&D waste typically include concrete, wood, metals, gypsum wallboard, asphalt, roofing material, and debris like soil and rock.

Green Star C&D Waste Management Operational and Reporting Criteria

Establishes minimum acceptable operational and reporting practices for the waste contractors and waste processing facilities that provide C&D waste management services and reports to Green Star projects. Waste contractors and waste processing facilities providing waste management and reporting services to Green Star projects must achieve independent verification of compliance with the Operational and Reporting Criteria as a prerequisite for the waste reports that they provide to be recognised in Green Star C&D waste credit submissions.

Green Star C&D Waste Management Operational and Reporting Criteria - Auditor Verification Guidance Document

A document containing the Operational and Reporting Criteria and providing the means by which auditors are to establish compliance with the Operational and Reporting Criteria.

Landfill

A site where waste materials are disposed by burial between layers of soil.

Suitably Qualified Auditor
Refers to an auditor who has current relevant knowledge, skills and experience to provide advice to applicants on the issues addressed in the Operational and Reporting Criteria. It does not refer to ‘Appointed Auditors’ under State Environment Protection Acts. Auditors must be independent from and have no conflicts of interest with applicants (i.e. external, independent third-party auditor). They must also provide evidence of their qualifications as defined in the Operational and Reporting Criteria Auditor Verification Document.

**Waste Contractor**

The company or person(s) engaged by the builder, developer or owner for the purposes of managing the containerisation, collection and transport of C&D waste from construction sites to recyclers and/or lawful waste processing facilities. They provide their customers with reports on the contents, dates, volumes and/or weights of the C&D waste as well as the waste processing facility destinations and registration numbers of the vehicles transporting waste from the site to processing facility.

**Waste Processing Facility**

A lawfully operating site that receives C&D waste for the purposes of processing it to recover recyclable materials from the waste stream, including for energy, in a manner that minimises residual wastes to landfill. This includes resource recovery facilities, transfer stations and waste to energy facilities where waste is sorted through processes typically involving mechanical sorting, conveyors, trommels and human picking stations. Reprocessing facilities are also included in this definition and refers to businesses whose primary purpose is to trade in specific waste material types for the purpose of transforming (recycling) it into new products or feed stock which is then either sold or distributed back into local markets or exported. Examples include metal, concrete, paper and plastic recyclers like Sims Metal, OneSteel Recycling, Alex Fraser Group, and VISY. Any of the above listed facilities operating on the same site as a landfill are included in this definition however the landfill itself is not.

**Waste to Landfill Benchmarks**

The benchmarks used in this innovation challenge (kg waste/m2) were determined from an assessment of all reported waste data submitted to the GBCA from projects with an As Built rating. They also follow a similar approach used to benchmark construction waste from base buildings in international green building standards (e.g. UK SmartWaste program and ASHRAE 189 Standard for the Design of High Performance Buildings, clause 9.3.1.2).

**DOCUMENTATION REQUIREMENTS**

**DESIGN RATING**

- Extract(s) from the contract(s)

**Extract(s) from the contract(s)** between waste contractor and either the developer or the building owner, stipulating the full criteria for construction and demolition waste management, in compliance with the credit criteria, including total weight of construction and demolition waste per square meter which will be committed to landfill.
AS BUILT RATING

- Submission Template
- Cumulative waste reports
- Confirmation of reporting accuracy from waste contractor
- Compliance verification summaries of waste contractor and waste processing facilities used to manage the project’s C&D waste

**Submission Template:**

- The points being claimed
- Listing the waste contractors and waste processing facilities used
- The total weight of waste generated from C&D works
- The total weight of waste sent to landfill is
- The building's GFA
- Calculation for kilograms of waste disposed in landfill divided by the building’s GFA to determine the total kilograms of waste per square metre of area (kg waste to landfill / area = kg/m²).
- If waste is reused on site, a short description of the way in which it was reprocessed and/or reused onsite.
- Where volume to weight conversion is applicable, provide confirmation that the EcoRecycle Victoria volume to weight conversion factors have been used to determine the weight of reused waste.
- Reference to submitted documentation

**Cumulative waste report** summarising the total weight of C&D waste removed from site and the total amount of waste residual contributed to landfill must be provided to evidence compliance with the credit criteria. The cumulative waste report must be generated from the monthly waste reports provided by the waste contractor over the entire duration of C&D works.

Please note that the monthly reports and supporting waste disposal dockets do not need to be included in the credit submission.

**Confirmation of reporting accuracy** from the waste contractor(s) stating that the information provided in the cumulative waste report, pertaining to their waste disposal services, is an accurate reflection of the C&D waste recycling outcomes carried out for the building by their company and that the client has been informed of the waste to landfill contributions associated with the C&D waste generated from the building throughout the duration of the project.

**Compliance verification summaries** from waste contractor(s) and waste processing facilities as detailed in the Operational and Reporting Criteria - Auditor Verification Document.

**REFERENCES**


