CONSTRUCTION & DEMOLITION WASTE

Points available: 3

AIM OF CREDIT

To recognise reductions in the amount of waste sent to landfill from construction and demolition works.

CREDIT SUMMARY

This credit assesses reductions in the amount of construction and demolition waste that is sent to landfill from Green Star projects. It recognises that there are numerous strategies which can be used to avoid the creation of construction and demolition waste and provides designers and builders the opportunity to implement their own waste avoidance strategies rather than prescribing specific waste avoidance measures. Credit points are awarded when the project can demonstrate that less than 4.5kg of waste per square metre of fitout area have been committed to landfill.

CREDIT CRITERIA

Construction and demolition waste	Up to three 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 which was sent to landfill must have been reduced as much as possible. Up to three points are awarded in accordance with the 'Waste to landfill' calculator. Points will be awarded based on any improvement under the benchmark waste target of 5kg per meter square of the fitout area as follows:

3 points = 1.6 - 2.5kg/sqm fitout area

2 points = 2.6 - 3.5kg/sqm fitout area

1 points = 3.6 - 4.5kg/sqm fitout area

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

Additional Waste Allowance

Additional waste allowances are available to encourage selection of sites where the fitout project is accountable for demolition waste generated by alteration or removal of a previous fitout.

For example, selecting a site that has already been made good, lowers the potential for reducing waste generated from the demolition works. This is because there is no accountability as to the amount of waste generated during the demolition of the previous fitout. However, if the site had not been made good, the new tenant can take responsibility for how the construction and demolition waste is managed and can demonstrate its reduction.

The additional waste allowances are applied on top of the waste to landfill benchmarks listed above and are awarded based on the selection of sites as determined in table 1.

Site/Space	Additional Waste Allowance
"Made-Good" space	0 kg/sqm
Conventionally delivered (refurbished)	0 kg/sqm
Conventionally delivered (new)	0 kg/sqm
Shell and Core (refurbished)	1 kg/sqm
Refurbishment of own fitout	1 kg/sqm

Shell and Core (new building only)	2 kg/sqm
Integrated fitout (new building only)	2 kg/sqm
Untenanted, un-demolished previous tenancy	3 kg/sqm

Table 1: waste to landfill benchmarks.

For the purposes of awarding additional waste allowances, at least 80% of the fitout must meet one of the space definitions in table 1. Where less than 80% of the space meets the selected definition, a percentage of the total allowance corresponding to that space type will be deducted based on a simple linear scale.

For example, if 60% of the project can be considered to be an untenanted, un-demolished previous tenancy, then the additional waste allowance would be 3kg/sqm x 60% which equals 1.8kg/sqm. This means that 1.8kg/sqm may be added to the credit's waste to landfill benchmarks for the project in the example (i.e. the 1.8kg additional allowance results in the 5 point benchmark in this example being raised from 0 - 0.5kg/sqm fitout area to 1.8 - 2.3kg/sqm).

Requirements for waste contractors and waste processing facilities

All waste contractors and waste processing facilities who are commissioned to provide documentary evidence of a fitout's waste-to-landfill contribution must hold third-party verification of compliance with the Reporting Criteria, as issued by a Suitably Qualified Auditor. The certificate issued to the facility is termed a ‘Compliance Verification Summary, it is the responsibility of the waste contractor to ensure that all waste processing facilities that they use to dispose of construction and demolition waste hold current compliance verification summaries’.

The waste contractor must issue monthly waste reports to the building owner or their representative for the entire duration of construction works. 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 construction and demolition waste removed from a construction site reported by weight;
- Breakdown 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 that was sent to landfill, reported by weight; and
- The fate of recovered materials, by material types, detailing what the recycled product outputs from the processing facilities engaged by the waste contractor to receive C&D waste from site are.

For full details and definitions of the terms ‘Criteria’, ‘Compliance Verification Summary’ and ‘Suitably Qualified Auditor’ please refer Reporting Criteria available at www.gbca.org.au

Measurement by Volume

All construction and demolition waste weight figures reported in the cumulative waste report documentation requirement for this credit must be attributable to weigh bridge disposal dockets. The waste contractors are often required to determine the weight of particular waste material streams from visual inspections of a load's volume for the purpose of reporting 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’. Special waste includes asbestos waste and asbestos containing material, or other hazardous waste and restricted solid waste as defined by the NSW Department of Environment, Climate Change Water Waste Classification Guidelines: http://www.environment.nsw.gov.au/waste/envguidlns/, these are applicable nationwide for the purpose of the credit.

Soil from site works (e.g. excavation) is also excluded from the credit. However, soil generated from site clean-up works which incorporates soil leaving the site mixed with general construction and demolition waste, must be included in the waste-to-landfill calculations, as it forms 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 reuse must be provided in the credit submission Short Report. Where volume-to-weight conversion factors are used to determine the weight of reused waste the EcoRecycle Victoria volume-to-weight conversion factors should be applied.

Small Fitouts

For a fitout project, less than 250sqm, where no waste contractor is engaged, e.g. builder transports construction and demolition waste to waste processing facility directly and generates own waste reports. It is the builder's responsibility to:

- Obtain the waste processing facility or facility's current Compliance Verification Summary for inclusion in the credit submission; and
- Support the confirmation of reporting accuracy with copies of the waste disposal dockets issued from the waste processing facility.

The GBCA invites feedback on the following:

- Is the guidance sufficient for determining what is included in the calculation for waste sent to landfill?
- Is the guidance for excluded waste sufficient?
- Are there any other options for demonstrating compliance with this criterion?

GUIDANCE

Standards noted in this credit

- Reporting Criteria.
- 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 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; and
- 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 construction and demolition waste typically include concrete, wood, metals, gypsum wallboard, asphalt, roofing material, and debris like soil and rock.

Conventional delivery

A space that, prior to fitting out, was delivered with:

- Ceilings, floor coverings and lighting systems; and
- Ducts from air supply and return risers, electrical and hydraulic services are installed above the ceiling from the riser throughout the fitout areas.

Reporting Criteria

Establishes minimum acceptable operational and reporting practices for the waste contractors and waste processing facilities that provide construction and demolition 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 Reporting Criteria as a prerequisite for the waste reports that they provide to be recognised in Green Star Construction and Demolition Waste credit submissions.

The Reporting Criteria document containing also providing the means by which auditors are to establish compliance with the criteria and the auditors competency requirements.

Integrated fitout

Where the fitout design and construction is fully coordinated with the base building. This includes finishes, services and fitout to all areas, both common and fitout-specific, with services fully installed at each floor. The definition of integrated fitout for purposes of Green Star is a fitout space where:

- All ceilings, floor coverings, lighting systems, mechanical, electrical and hydraulic services, partition walls, and finishes are installed, fit for purpose for the fitout occupant, prior to leasing.

Made good space

The process at the end of a commercial property lease where, after a previous occupation, the space has been reinstated the premises to the original fittings, fixtures and finishes. In essence, the space has been refitted to attract new and prospective tenants.

Landfill

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

Refurbishment of own fitout

Refurbishment of part or all of a tenants existing fitout

Shell and core

- A space that, prior to fitting out, was delivered with: no ceilings, floor coverings, lighting systems and partition walls, and
- Ducts from air supply and return risers finish within 1m of the face of the riser.

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 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 Reporting Criteria document.

Untenanted, un-demolished previous tenancy

A space that is leased by a new tenant which has not been made good by previous tenant or building owner.

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 construction and demolition waste from construction sites to lawful waste processing and recycling g facilities. They provide their customers with reports on the contents, dates, volumes and/or weights of the construction and demolition 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 construction and demolition 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. 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 the new Green Star - Interiors PILOT rating tool 'Construction and Demolition Waste credit (kg waste/m2) were determined from an assessment of all reported waste data submitted to the GBCA from 50 Green Star - Office Interiors v1.1 certified projects. They also follow a similar approach used to benchmark construction waste from base buildings in international green building standards (for example the UK SmartWaste program and ASHRAE 189 Standard for the Design of High Performance Buildings, clause 9.3.1.2).

Guidance related to Green Star - Performance

Green Star - Performance, a rating tool for existing building operations, is currently in development. During the PILOT process, and as Green Star - Performance is further developed, this section will be updated to reflect any guidance that is relevant to a fitout in a Green Star - Performance rated building.

Guidance related to integrated fitouts in a new building

There may be issues related to projects occupying a Green Star rated building, or a building that is to be rated. Namely, how does the project account for waste arising from base building works, not fitout works? Projects are encouraged to submit CIRs to clear up any issues.

Innovation Opportunities

Waste to Landfill	Projects that occupy an untenanted, un-demolished previous tenancy space and meet the waste to landfill benchmark of 0 - 0.5kg/ sqm fitout area will receive an innovation point.
Waste Processing Facility Diversion percentage	Projects that send all of their C&D waste to waste processing facilities with annual cumulative landfill diversion rates greater than or equal to 90% will receive an innovation point. Waste processing facilities landfill diversion percentage claims must be evidenced by a valid Compliance Verification Summary.

DOCUMENTATION REQUIREMENTS

- □ Short Report
- □ 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 construction and demolition waste

Short Report describing the submission for this credit. The short report must detail:

- the points being claimed;
- who the waste contractors were, the waste processing facilities that were used, the total weight of waste generated from construction and demolition works, what the total weight of waste sent to landfill is, what the fitout's area is, and the calculation for kilograms of waste disposed in landfill divided by the fitout area to determine the total kilograms of waste per square metre of fitout area (kg waste to landfill / fitout area = kg/m2);
- where additional waste allowances are claimed, a short description of the site/space type selected. Confirm what percentage of the fitout is comprised of the space type selected (e.g. 100% integrated fitout, 60% refurbishment of own fitout, 40% untenanted, un-demolished previous tenancy, etc). This information must correlate with any provided within the general section of the submission; and

- where waste is reused on site, then a short description of the way in which it was reprocessed and/or reused onsite. Where volume to weight conversion is applicable, then provide confirmation that the EcoRecycle Victoria volume to weight conversion factors have been used to determine the weight of reused waste.

Cumulative waste report summarising the total weight of construction and demolition waste removed from site and the total amount of waste residual contributed to landfill. The cumulative waste report must be generated from the monthly waste reports provided by the waste contractor over the entire duration of construction and demolition works. 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, relating to their waste disposal services, is an accurate reflection of the construction and demolition waste recycling outcomes carried out for the fitout by their company and that the client has been informed of the waste to landfill contributions associated with the construction and demolition waste generated from the fitout throughout the duration of the project.

Compliance verification summaries from waste contractor(s) and waste processing facilities as detailed in the Reporting Criteria.

REFERENCES & FURTHER INFORMATION

Centre for Design at RMIT (1999), Onsite Minimising Construction Waste, Maximising Competitiveness, onsite.rmit.edu.au.

Department of Climate Change (DCC) (2008), Waste Sector Greenhouse Gas Emissions Projections: 2007, February, Commonwealth of Australia, Canberra.

Department of the Environment, Water, Heritage and the Arts (DEWHA) (2007), ‘Waste and Recycling’, Waste Management, www.environment.gov.au/settlements/waste/index.html.

Hardie, M., Khan, S. & Miller, G. (2006.), Waste Minimisation in Office Building Refurbishments Projects: an Australian Perspective, University of Western Sydney, Sydney.

NSW Department of Environment and Climate Change (DECC) (2007), NSW Waste Avoidance and Resource Recovery Strategy 2007, NSW Government, Sydney.

Reardon, C. & Fewster, E. (2005), ‘5.3 Waste Minimisation’ in Department of Environment, Water, Heritage and the Arts (2005) Technical Manual: Design for Lifestyle and the Future, Commonwealth of Australia, Canberra.

Terry, A. & Moore, T. [eds] (2008), ‘Waste and Sustainable Commercial Buildings’ Your Building: Profiting from Sustainability, http://www.yourbuilding.org/library/Waste%20and%20sustainable%20commercial%20buildings.pdf.