

# Deconstruction

## Leadership

Points: 3

Developed in partnership with Auckland Urban Development Office (AUDO) and NZGBC

## Outcome

The project increases the amount of demolition waste being reused and upcycled.

## Rating Tool Applicability

- Green Star Buildings NZ
- Green Star – Design & As Built
- Homestar

## Criteria

<b>Credit Achievement</b>	<b>1 point</b>	<p>The following are completed for the project site:</p> <ul style="list-style-type: none"> <li>• A pre-deconstruction survey</li> <li>• A final deconstruction report / resource recovery plan</li> <li>• 10% of material leaving site during deconstruction/demolition is reused/upcycled</li> </ul>
<b>High Performance</b>	<b>1 point</b>	<p>In addition to the <i>Credit Achievement</i>:</p> <ul style="list-style-type: none"> <li>• 30% of material leaving site during deconstruction/demolition is reused/upcycled</li> </ul>
<b>Exceptional Performance</b>	<b>1 point</b>	<p>In addition to the <i>High Performance</i>:</p> <ul style="list-style-type: none"> <li>• 60% of material leaving site during deconstruction/demolition is reused/upcycled</li> </ul>

## Additional information

### Stage implementation

Strategy      Brief      Concept      Design      Tender      Construction      Handover      Use

### Synergies with other credits

- Responsible Construction
- Upfront Carbon

- Life Cycle Impacts

### Sustainable Development Goals

- Goal 9 (Industry, Innovation and Infrastructure)
- Goal 11 (Sustainable Cities and Communities)
- Goal 12 (Responsible Consumption and Production)
- Goal 13 (Climate Action)

## Why is this Leadership Challenge important?

In New Zealand around 50% of our waste going to landfill is from construction and demolition. Even in Green Star and Homestar projects, when this material is diverted from landfill, it is typically downcycled. To view buildings as valuable resources, with materials that can be reused, this leadership challenge encourages the conversion of a project’s demolition waste into deconstruction material. This will create markets where these materials can be reused for other projects in the community.

In New Zealand most project sites with existing buildings, which are not being refurbished, undergo demolition, with waste being recycled where possible. Deconstruction involves extracting fixtures, fittings, and materials in a building or structure so that the value of materials is preserved and they can be reused. Deconstruction is higher up the waste hierarchy and requires forward planning with contractors and identifying wider opportunities for destinations for the recovered materials and places for reuse and re-purpose without value reduction, rather than being processed as waste at waste processing facilities.

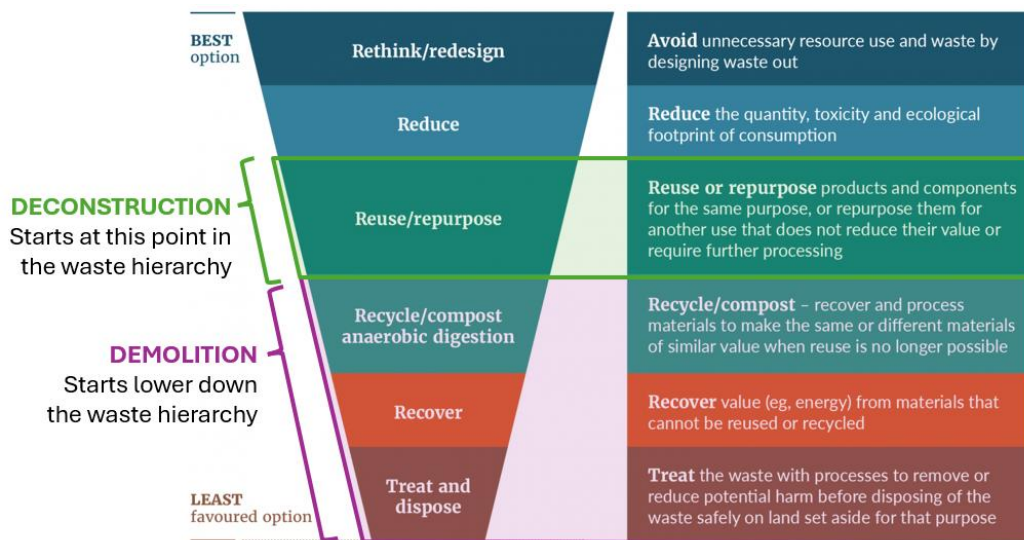


Figure 1: Created by Sarah Daniel from eCubed modified from MBIE Waste Hierarchy with definitions

# Requirements

## Credit Achievement

The projects must comply with **all** of the following criteria:

- Pre-Deconstruction Survey for the project site (at design phase)
- Final Deconstruction report for the project site (at built phase) / Completed Resource Recovery Plan & Site Specific Resource Recovery Schedule (at built phase)
- 10% by volume of material leaving the deconstruction site is upcycled/reused. This does not include downcycling such as crushing concrete and using for foundations or for roads.

### At the Design Phase provide the following:

1. Pre-Deconstruction Survey for the project site
2. Example template of Final Deconstruction report for the project site describing which will be undertaken including a template of the Resource Recovery Plan.
4. Example template of Site-Specific Resource Recovery Schedule that will show the final calculated volume/weight and destination of all materials removed from the site. Volume is the preferred metric to minimise the effect of rubble weight overshadowing all of the work done to divert material through downcycling.
5. Explanation of how the building materials/resources will be protected to ensure that the materials in the building will not be vandalised or removed prior to the deconstruction starting at the site. This will also include protection from the elements and contamination.

### At the Built Phase provide the following:

1. Pre-Deconstruction Survey for the project site (if any modifications occurred during the process).
2. Completed Final Deconstruction report for the project site describing the process undertaken including a completed Resource Recovery Plan
4. Completed Site-Specific Resource Recovery Schedule showing the final calculated volume/weight and destination of all materials removed from the site. Volume is the preferred metric to minimise the effect of rubble weight overshadowing the work done to divert material from downcycling.
5. Explanation of how the building materials/resources were protected against vandalism, removal, and from the elements.
6. Any additional evidence to support what was accomplished including a case study showcasing how deconstruction was dealt with on this project.
7. Evidence that 10% by volume of material leaving the deconstruction site is upcycled/reused. This does not include downcycling such as crushing concrete and using for foundations or for roads.

## High Performance

The project must comply with the following criterion:

- 30% by volume of material leaving the deconstruction site is upcycled/reused. This does not include downcycling such as crushing concrete and using for foundations or for roads.

## Exceptional Performance

The project must comply with the following criterion:

- 60% by volume of material leaving the deconstruction site is upcycled/reused. This does not include downcycling such as crushing concrete and using for foundations or for roads.

## Submission content

### Submission for this credit must contain:

- **Submission form**
- **Pre-Deconstruction Survey** for the project site (at design phase)
- **Final Deconstruction report** for the project site (at built phase)
- **Completed Resource Recovery Plan & Site Specific Resource Recovery Schedule** (at built phase)
- **Photos** showing the final use of some of the materials .
- **Case Study celebrating this Leadership Challenge with the above Photos.**

### Recommended evidence:

- **Other supporting documentation**, where required, for example receipts or other acceptable proof of where the reusable material was sent to.

## Guidance

As the material receivers are not '*waste processing facilities*' they do not need to have a Compliance Verification Summary (CVS) which is a minimum requirement for such facilities processing waste for Credit 22 in Design & As Built and Credit 2 in Green Star Buildings. For this Leadership Challenge Waste Contractors moving the deconstruction material from the project site to a final destination are not required to have a CVS.

Project teams can still pursue the Credit Achievement for Construction and Demolition Waste in Credit 2 of Green Star Buildings. For the Demolition part of the project they may use this Leadership challenge. For the Construction part of the project they will have to fully comply with all aspects of Credit 2's Credit Achievement including ensuring Waste Contractors and Waste Processing Facilities handling the projects construction waste must have a CVS. Therefore, to achieve the Credit Achievement, 70% of both the construction and demolition waste must be properly diverted from landfill.

It is recommended that the reuse/upcycling strategy is part of the Leadership presubmittal to ensure that the proposed process is not considered downcycling and will be accepted as part of the final submittal.

## Supporting information

The following resources support this credit:

- Challenge adapted from Auckland Urban Development Office Avondale and Northcote project Innovation Challenge.
- Resource Recovery Plan Template.docx
- Site Specific Resource Recovery Schedule Template.docx