

MATERIAL LIFE CYCLE IMPACTS



INNOVATION CHALLENGE



POINTS AVAILABLE: 1–6 POINTS
ELIGIBLE GREEN STAR TOOLS: ALL TOOLS

Aim of challenge

To assess and reduce the environmental impacts of building materials for the whole building over its entire life cycle.

Why is this Innovation Challenge important?

Life cycle assessment (LCA) is gaining greater recognition in the field of sustainability assessment. Currently, products and materials are often compared like-for-like, not holistically and as assembled and used in the building or fit-out.

This Innovation Challenge aims to encourage a project team to perform whole-of-building, whole-of-life life cycle assessments of their project, and to demonstrate that their project performs better in most impact categories without negative trade-offs.

This Challenge also aims to increase demand and availability of life cycle data, and to build the capacity of industry to perform life cycle comparisons of projects.

Requirements

To achieve this Innovation Challenge, your project team must:

- Conduct a whole-of-building, whole-of-life life cycle assessment for the project; and
- Compare the results of the life cycle assessment to a reference case. Points are awarded based on the extent of environmental-impact reduction in six categories when compared to a reference building.

Note: Detailed suggested compliance criteria and guidelines for LCA are available on request from the NZGBC technical team.

References and resources

- *Application of Environmental Profiling to Whole Building Whole of Life Assessment – A Plan for New Zealand*, D. Dowdell, BRANZ Study Report (SR 275), Judgeford, 2013 www.branz.co.nz/cms_display.php?sn=198&st=1&pg=13292
- EeBGuide 2013 and various documents www.eebguide.eu
- *Environmental Profiling of New Zealand Building Material Products: Where to for the New Zealand Building Sector?*; R. Jaques, J. McLaren & B. Nebel, November 2011 www.branz.co.nz/cms_show_download.php?id=4436b82639e7b2bb813827975851be6f58371e4e
- “Life Cycle Impacts: LCA”, credit 19.A from Green Star – Design & As Built v1, Green Building Council of Australia www.gbca.org.au
- *New Zealand Whole Building Whole of Life Framework – Life Cycle Assessment-based Indicators*, D. Dowdell, BRANZ Study Report (SR 293), Judgeford, 2014 www.branz.co.nz/cms_display.php?sn=198&st=1&pg=13289
- “Analysis of five approaches to environmental assessment of building components in a whole building context”, Eurima, 2012 www.eurima.org/uploads/ModuleXtender/Publications/88/Force_Study_Building_certification_systems_May_2012.pdf

Challenge adapted from Green Building Council of Australia. www.gbca.org.au

“ IT TAKES 20–30 YEARS FOR THE ENERGY AND EMISSIONS FROM BUILDING OPERATIONS TO OUTPACE THE EMBODIED ENERGY AND EMISSIONS FROM THE MATERIALS AND CONSTRUCTION OF A BUILDING ”

Architecture 2030, 2030 Challenge for Products

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TO CLAIM THIS INNOVATION CHALLENGE

1. The Green Star Accredited Professional registers a project's interest in targeting an Innovation Challenge (new or current) or a Global Sustainability initiative with NZGBC.
2. Submit a completed Beyond Green Star Proposal form that outlines the intended initiative, its sustainability benefits and relevance in New Zealand.
3. Submit documentation for assessment (any time after registration and up to Round 2).
4. Provide feedback to NZGBC how the Innovation Challenge applies to their project. This should be sent to NZGBC in written format, so it can help inform improvements to the content of the Innovation Challenge.
5. Feedback should be 500–1000 words long, and must include:
 - a. The name of the Innovation Challenge claimed;
 - b. How long it took to implement the Innovation Challenge;
 - c. Type of development the Innovation Challenge was applied to (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.

The New Zealand Green Building Council (NZGBC) is a not-for-profit industry organisation that aims to ensure New Zealanders live, work and play in a sustainable built environment. We achieve this through setting standards of best practice through green building rating tools; education and training across the building industry value chain; and providing access to networks, information and resources for our members to lead the market.

www.nzgbc.org.nz



Green Star is the comprehensive rating scheme that evaluates the sustainability attributes of New Zealand's commercial buildings. Ratings range from 4 Green Star (best practice) to 6 Green Star (world excellence).