

## Green Star NZ rating system and New Zealand Steel Products

**New Zealand Steel is committed to continual improvement of environmental performance and the efficient use of natural resources. Our objective is to produce a range of versatile steel building products and steel solutions that are innovative, durable, safe and aesthetically pleasing.**

### Key Facts

- Green Star NZ is a rating system for the environmental performance of buildings not materials.
- Rating tool systems are being developed for different building types such as office, retail, health, education and industrial.
- New Zealand Steel products can help achieve higher ratings.
- New Zealand Steel consumes about 70,000 tonnes of internal scrap per year.
- Average recycled content of steel produced by New Zealand Steel is about 10-15%.
- Steel is the most recycled material in the world – the average recovery rate for steel in buildings is greater than 85%.

### What is Green Star NZ?

Green Star NZ is a voluntary rating system developed to evaluate the environmental design, efficiency and performance of New Zealand buildings. A common misconception is that the system is used to evaluate individual building materials or products. This is not the case – Green Star NZ rates

the overall environmental performance of a building and a rating system has been launched for office buildings with other tools being developed for different building types such as retail, health, education, residential and industrial.

The Green Star NZ rating System was introduced to New Zealand by the New Zealand Green Building Council (NZGBC) and is derived from the Australian Green Star rating system, LEED rating tool used by the US and the British BREEAM rating system. It contains a number of environmental measurement criteria, which collectively determine the environmental rating for a building. These criteria fall under eight categories, plus innovation, including energy and water efficiency, indoor environmental quality and resource conservation.

Green Star NZ – Office Design v1, was launched in April 2007 to assess the environmental impacts of offices. The Green Star NZ rating tool system will be developed for other building types including retail, health, education, residential, industrial and so on. For new Office Design projects, the following ratings can be achieved: ...cont



**Kiwi to the core**

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100% RECYCLABLE**



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4 star Green Star NZ Certified Rating  
= Best Practice

5 star Green Star NZ Certified Rating  
= New Zealand Excellence

6 star Green Star NZ Certified Rating  
= World Leadership

### Why was it introduced?

Green Star NZ was created to establish a common language and standard of measurement for green buildings, promote integrated whole-building design, raise awareness of green building benefits, recognise environmental leadership and reduce the environmental impact of development.

### New Zealand Steel products and Green Star NZ

New Zealand Steel products have a significant role to play in both new building design and rebuilding existing structures and can help achieve higher Green Star NZ ratings.

10% of the points system used in Green Star NZ – Office Design v1 is dedicated to materials use with an emphasis on recycled content. Steel products manufactured by New Zealand Steel will not earn any direct points in the material evaluation tool as their recycled content is less than 60%. However, steel is 100% recyclable and the strength and versatility of steel in preserving and re-using existing structures is unmatched by many other materials.

Specifically, steel can potentially help achieve higher scores in the evaluation tool by:

- **Potable water efficiency**

Green Star NZ Office Design v1 awards up to five points where the predicted potable water consumption for sanitary use within



Steel is 100% recyclable, infinitely, without product degradation.

the building has been reduced. One way to achieve this is through the use of rainwater collection systems, where steel products have played an important role in New Zealand for more than 100 years.

- **Reuse of facade**

Two points are awarded where at least 50% of the total facade of the building by area comprises re-used building facades. Steel facades are relatively easy to recover and re-use.

- **Reuse of structure**

Up to four points are awarded where a design allows for re-use of a significant proportion of an existing major structure by gross building volume and where the re-used structure comprises at least 50% of the total final structure by building volume. Superior spanning capabilities means fewer columns and more usable space making steel structures relatively easy to add to for new uses.

- **Recycled content of steel**

Up to two points are awarded when it can be demonstrated that the percentage of all steel in the design has a post-consumer recycled content greater than x% (60% by mass = 1 point, 90% by mass = 2 points) Whilst no points are available based on the recycled content of New Zealand Steel products, there is an opportunity to

assist with achieving points in combination with other products such as in structural steel for flooring. If a combination of structural steel decking and steel reinforcing is used for the floor construction, the recycled content average may be over 60%. NB Steel reinforcing is manufactured by other industry manufacturers, with 100% recycled content, via the Electric Arc Furnace (EAF) manufacturing process (refer separate fact sheet: Recycling of Steel Products).

- **Design for disassembly and adaptability**

Steel is versatile and superior over many products as fixing techniques often use non-permanent fasteners. Steel can be disassembled without loss of strength and can be adapted to a variety of building situations. Green Star NZ Office Design v1 allows up to five "Innovation" points to be awarded at the discretion of the NZGBC Technical Review Group.

For the full criteria required to achieve points in the above-mentioned areas, refer to Green Star NZ Office Design v1, which can be downloaded at [www.nzgbc.org.nz](http://www.nzgbc.org.nz)

Why steel is an environmentally responsible building product:

Steel is acknowledged as the world's most recycled material. In fact, it is 100 percent recyclable over and over again without product degradation, which means its life cycle is potentially continuous.

Steel scrap is a necessary component in the production of new steel. New Zealand Steel, which is owned by BlueScope Steel, consumes around 70,000 tonnes of scrap steel per year. The average recycled content of steel produced by New Zealand Steel is approximately 10-15%. The manufacturing process and the amount of scrap material available limit the recycled content of new steel. Overall steel recovery at the end of life is estimated to be above 85%. The recovery rate is higher for building materials.



Recycling steel building products.

Steel is ideally suited to today's built environment. The advantages of using steel include:

- Steel can be engineered to precise specifications resulting in minimal on-site wastage.
- Steel is non-toxic, minimizing health and safety risks.
- Steel products can be used to reduce a building's cooling and heating requirement, leading to a reduced load on energy infrastructure. NB: 90% of a

building's potential energy savings are achieved in the "use" of the building during its lifecycle, and only 10% in its construction (source: United Nations Environment Programme presentation at the World Green Building Council in Monterrey, Mexico).

- Steel products are light and can be easily transported.
- Steel products have been used for more than 100 years in New Zealand for the catchment and storage of drinking water.

- Steel is the most recycled material in the world. In addition, many steel products are reusable.
- Steel is available with factory applied finishes for greater corrosion resistance and durability.
- Steel has minimal maintenance requirements and a long life.
- Steel is non-combustible.
- Steel has a high strength-weight ratio potentially allowing additions to buildings without having to alter foundations and the creation of wide spans, which provide greater flexibility in the use of the resulting spaces.
- Steel does not suffer any product degradation through endless recycling.



#### **Steel – its place in an environmentally conscious future**

New Zealand Steel is working with other steelmakers, the New Zealand Government and a range of stakeholders to increase the amount of recycling, reduce energy intensity and research product improvements. The endless recycling properties of steel may, in many cases, far outweigh the higher percentage of recycled content in alternative building materials. This unique attribute is not fully recognised in rating systems such as Green Star NZ, but will over time gain increased recognition in an environmentally conscious future.