### BlueScope Steel Steel framing



# The sustainability of steel framing

# Using steel provides design and construction benefits when it comes to sustainability.

Lightweight, strong and delivered pre-cut or prefabricated to building sites, steel has the potential to deliver numerous sustainability benefits which can contribute to reduced site disturbance, reduced onsite waste, re-use of existing structures and more cost-effective buildings.

BlueScope's steel products can be used in greener building designs to improve energy efficiency and thermal comfort, and reduce energy and water demand. This makes it easier for homeowners and developers to meet mandatory sustainability requirements or accrue credits under voluntary green building ratings systems. Any reduction in energy usage delivers economic and environmental benefits such as reduced energy bills, less pressure on energy infrastructure and lower greenhouse gas emissions.

Steel frames made from BlueScope's TRUECORE<sup>®</sup> steel offers the following features and sustainability benefits:

#### Features and Sustainability Benefits

1.	Quality (BR) Australian steel
2.	Termite proof
3.	Won't catch fire
4.	Precision and efficiency
5.	Design freedom
6.	Life cycle benefits
7.	Credible sustainability partner
8.	Information that you can trust

#### Quality steel

Steel made by BlueScope in Australia meets or exceeds the requirements of the National Construction Code (NCC) and the relevant Australian Standards. In 2013, BlueScope introduced next generation TRUECORE<sup>®</sup> steel which incorporates magnesium into the aluminium/zinc alloy coating enhancing product durability and providing confidence through the 50 year warranty<sup>1</sup> available for TRUECORE<sup>®</sup> steel.

Due to steels ability to be recycled into new products, not down cycled, steel is considered a permanent material. This facilitates the circular economy incorporating the so called 4R's – reduce, reuse, remanufacture, recycle. BlueScope's steel products are 100% recyclable and all BlueScope steel products contain recycled steel.



#### Information that you can trust

EPDs (Environmental Product Declarations) offer an unprecedented level of transparency into the life cycle impacts of BlueScope products. The independent verifier commended BlueScope on having "gone to great lengths ... to accurately calculate the environmental performance of its products ... in line with best practice standards". You can trust the information that BlueScope provides in its EPDs. See the EPDs at http://steel.com.au/articles/environmentalproduct-declarations. A TRUECORE<sup>®</sup> steel EPD will be available late 2017.

#### **Design freedom**

The inherent strength, durability and consistency of framing made from TRUECORE® steel can contribute to structural integrity in diverse environments and conditions – from Australia's cyclone-prone north to the cold climate regions of the south; in bushland and to coastal regions (subject to NCC restrictions).

Steel framing encourages designers to think outside the square and make the most of available space. It lends itself perfectly to innovative designs and non-conventional roof lines, helping to create distinctive, highly individualised structures.

In particular, the high strength-to-weight ratio of steel roof framing allows for long spans, which in turn enables larger, more open living areas. And because it's steel, it measures up against increasingly stringent building and fire regulations.

Because steel framing can stand the test of time, it is perfect for designing structures that can be re-fitted and re-used many times over, further saving valuable resources.

#### Termite proof

Steel is not damaged by termites or borers. The National Construction Code of Australia (NCC) says that steel used as a "primary building element" (i.e. as a structural component) is a "termite resistant material" and there are no mandatory termite treatments or inspections required by the NCC for the building.

Using steel framing provides the confidence that the building will stand for many years to come without the need for additional chemical treatments to protect the steel frame from pest attack. Ongoing pest treatments are not required to safeguard steel framing nor are any such treatments required during construction on site for each exposed cut and drilled surface.<sup>2</sup>

Steel framing is also not subject to rot and mould, which can present an increasing risk as building envelopes are more effectively sealed to increase comfort and energy efficiency.







#### Won't catch fire

Steel does not burn; therefore steel framing will neither sustain nor contribute to the spread of a fire.

House frames made from TRUECORE<sup>®</sup> steel won't catch fire and therefore ideal for bushfire prone areas –suitable for construction in all of the Bushfire Attack Levels as identified in the National Construction Code.<sup>3</sup>

#### Life cycle benefits

An investment in steel is an investment in resources for the future. Steel is considered a permanent material as it is 100% recyclable, over and over again. A robust Australian scrap steel industry exists based on the ease and value of recycling steel.

BlueScope's steel manufacturing process aims to minimise the amount of fresh water, conserving the fresh water supply for our community and the natural environment.

BlueScope acknowledges that steel can be viewed as a carbon-intensive material compared to some other materials. The international steel industry is actively tracking performance and seeking manufacturing solutions. However, it should be noted that the carbon intensity of a building can be significantly influenced by the application of good design principles which can incorporate, for example, the use of high strength, lightweight steel products to deliver efficient, adaptable, durable and climate-appropriate designs.

BlueScope believes that holistic assessment of materials across a range of impact categories and the whole life cycle is the most appropriate method of seeking genuinely sustainable solutions.

#### **Precision and efficiency**

Light gauge steel framing has a number of properties that make it ideal for use in a building frame application.

**Lightweight:** Steel framing is easy to handle on site which can reduce construction time and time on-site. As a lightweight material steel can reduce crane requirements, therefore reducing site preliminary costs.

Straight and true: Building frames made from TRUECORE<sup>®</sup> steel won't warp, twist, sag or shrink, reducing the occurrence of jamming doors, sticking windows, cracked cornices, and sagging and wavy rooflines. This also makes steel the ideal material for precision manufacturing in a factory environment. Precision manufactured frames can assist in achieving installation that is accurate, smooth and efficient.

**Low waste**: The continuity of steel coils in rollforming processes and material efficiency of modern framing systems means wastage in steel frames is negligible. All steel frame waste generated is 100% recyclable and a valued commodity, so framing doesn't have to contribute to growing landfill stress and costs.

Versatile: Rollforming/punching capabilities means light gauge steel framing integrates well with other materials in a factory environment (eg. claddings, services). This also means that many on-site tasks (eg. drilling holes) can be replaced by processes during manufacturing.

**Strong**: The strength of light gauge steel framing enables it to be used in place of other materials such as hot rolled structural steel, thereby reducing cost. The strength of light gauge steel framing also makes it capable of accommodating the stresses of transport when fabricated as prefabricated components or as part of a modular system.

**Installation**: There are no known issues associated with the use of steel framing with regard to internal fixtures and fittings, as a vast range of commercial fasteners are available to fulfil requirements.

- Lightweight steel-framed construction is subject to the same design considerations, limitations and safety regulations as alternative systems.
- From a working at heights perspective, there is simply no difference between materials.
- Service holes for plumbing and electrical installation are pre-punched in steel framing, with additional holes able to be added on site simply and effectively.

#### Credible sustainability partner

Although BlueScope is a small manufacturer on a global scale, it is a leader in sustainability for the international steel industry. BlueScope is a leading contributor to the WorldSteel Product Sustainability committee.

BlueScope was a Green Star 2014 Thought Leader and is currently chairing the Materials Working Group and committee member of the Ethical Supply Chain Working Group of the Infrastructure Sustainability Council of Australia. BlueScope is a respected leader of sustainability in Australia within:

- The diverse Australian building materials industry
- Standards Australia committees and international standards working groups
- The Australasian EPD Programme and life cycle assessment community

BlueScope chairs the Board of the Steel Stewardship Council that is developing a global sustainable supply chain standard to be called Responsiblesteel.

Many key leaders in the Australian building market sustainability community know and trust the BlueScope sustainability staff for their balanced views, expertise and advice. A partnership with BlueScope and its products can add new depth to your sustainability value proposition.

## steel.com.au/TRUECORE

To learn more about steel framing by BlueScope

1800 022 999 For more information





1. For residential applications, subject to standard terms and conditions. Commercial warranties may be available on application. Warranty periods are determined by BlueScope Steel and may vary according to project design and location. For an indication of warranty periods that may be offered for a specific project, please contact BlueScope Steel Direct on 1800 022 999. 2. http://www.kopperspc.com.au/pdf/LOSP%20H2%20brochure\_web.pdf 3. NCC 2016 BCA Volume 2. Part 3.7.4 Bushfire Areas. TRUECORE®, BlueScope and the BlueScope Steel Limited. © 2017 BlueScope Steel Limited ABN 16 000 011 058. All rights reserved.