

Steelcon Gains a Competitive Boost From Reducing Embodied Carbon by 49%

Responding to market demand for low-carbon steel, Steelcon engaged Mantle to measure and manage the embodied carbon in its signature SIN Beam product and create its first environmental product declaration (EPD).

CHALLENGE

Steelcon designs, fabricates, and builds industrial, commercial, institutional, and multi-residential projects made from structural steel. It has more than 712,000 sq ft of fabrication space across five facilities strategically located in Canada and the U.S.

Steelcon's signature product is SIN Beam. This innovative structural steel element is light, efficiently manufactured, and provides a higher load capacity-to-weight ratio than traditional I-beams.

SIN Beam was already a popular choice for builders, but Steelcon's customers wanted an EPD (environmental product declaration) showing the product's carbon data. They needed this data to: 1) make informed decisions about their project's overall carbon footprint; 2) perform their Scope 3 emissions accounting, and 3) achieve LEED points.

Steelcon engaged Mantle to help them answer the following questions:

1. What is the embodied carbon footprint of our current SIN Beam product, and can this be presented as an EPD?
2. Can we reduce the product's emissions by tackling supply chain hotspots?

APPROACH

To meet this challenge, Mantle followed a structured, multi-step approach.

First, Mantle collected all relevant carbon data. This included facility energy use, material sources and quantities in its supply chain, and transportation modes and distances.

With this data, Mantle then performed a life cycle analysis (LCA) of the SIN Beam product. This gave Steelcon a benchmark for the product's carbon footprint and an understanding of the product's potential to contribute to global warming.

Next, Mantle identified supply chain and/or operational carbon hotspots.

Having identified ways that Steelcon could minimize these hotspots, Mantle then performed a second life cycle assessment to measure the new, reduced carbon footprint.

Steelcon's SIN Beam has a higher load capacity due to its wave shape.

49% lower embodied carbon

Ryan Zizzo and his team at Mantle Developments have been instrumental in leading and supporting Steelcon on this journey, and it doesn't end here. We remain committed to ongoing improvement, collaboration with industry partners, and innovation-driven solutions prioritizing environmental stewardship and structural integrity.

— **Jennifer Nelson**

Marketing Manager

Steelcon

RESULTS

Measuring SIN Beam's carbon footprint uncovered an opportunity to tackle one of its major supply chain hotspots: a key supplier using a blast furnace to manufacture their steel.

Mantle worked with Steelcon to identify an alternative supplier, one that could provide a similar product but manufactured using an electric arc furnace instead. Mantle found that using this new supplier would significantly reduce the product's overall footprint. The best part: both suppliers had roughly the same cost.

Steelcon has since made this supply change switch, and the embodied carbon of its SIN Beam product is now 49% lower.

And Steelcon has published an updated EPD for its lower-carbon SIN Beam product.

This EPD—a company first—allows Steelcon to confidently market a lower-carbon product and gives its customers the third-party, verified carbon information they need.

The EPD also provides a new, lower benchmark to measure future progress. Steelcon continues to use the data from the EPD process to drive its own decarbonization strategy, which includes working with Mantle to prioritize lower-carbon raw materials.



Steelcon's SIN Beam consists of a web and flat plate flanges.