MECLA

Case Studies

PRIME PROJECTS

Sustainable Industrial Warehouse Slab

Embodied carbon reduction total tCO2e removed*:

77.25 tCO2e

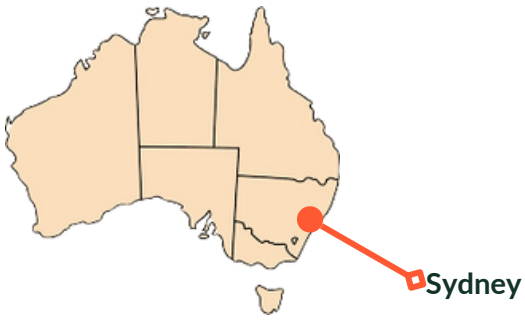
Category:

Product	System	**Project**	Concept

Supply Chain:

Manufacturing	Transportation
Processing	**Construction**

Region:



Prime Projects is a contractor delivering projects across NSW.

Opportunity:

A 5 Star Green Star rating with the current Green Star Building v1 - Revision C rating requires a 20 percent reduction in embodied carbon for industrial buildings compared to the GBCA reference case. By 2030, this requirement is set to increase to an ambitious 40 percent.

The cement used in industrial warehouses is the largest emitting factor. The primary place those emissions are located is in the slab. Prime Projects NSW recognised the opportunity for using lower carbon concrete in the slab to achieve significant emissions reductions.

High performance requirements for warehouse floors rely on jointless fibre floors with burnished concrete finishes. This industry standard makes it hard to deviate, and there is a reluctance to alter the mix design.

Solution:

Prime Projects NSW, in collaboration with Griffiths Engineers Australia, designed and installed a concrete mix that demonstrates a 41 percent reduction in embodied carbon compared tot he GBCA's industrial ground floor slab reference. This achievement is a significant milestone because it not only meets the current 5 Star Green Star criteria, but satisfies the 2030 Green Star rating requirement.

Lessons:

The concrete mix used not only achieves a substantial reduction in embodied carbon but also matches the strength and abrasion results of traditional fibre mixes.

Lower carbon mixes that satisfy high-performance requirements, such as the requirements in the industrial warehouse flooring, exist today. The crucial step is building confidence in supply chains to use it. Prime Projects went through a process of installing trial slabs before going ahead with delivering a finished floor area.

Impact:

Prime Projects placed 3400 square metres of finished floor area using the concrete mix demonstrating a 41 percent reduction in embodied carbon compared to the GBCA's industrial ground floor slab reference.

The achievement underscores the importance of collaborative efforts between industry players, engineers, and onnovators to develop practical solutions to reduce embodied carbon in building practices.