



Building
something
great

Case study

ENVISIA® Concrete for precast panels



Bunzl Warehouse – Pemulwuy, Sydney

Taylor's were appointed the builders and the works involved the complete design and construction of a new 21,300m² warehouse and a two level office. A key part of the design and construction was to achieve the 6 Star Green Star rating and that included minimising the green house gases related to the construction.

Overview

Location

Pemulwuy, Sydney, NSW

Builder

Taylor Construction

Supplier of precast panels

XL Precast

Completion date

November 2022

Outcomes

- Taylor achieved its sustainability targets.
- XL Precast were able to lift the panels the day after casting.
- The panels had a light coloured off form finish.

Typically concrete contributes a significant portion of the green house gases due to its high embodied carbon content.

Minimising the embodied carbon of the concrete was particularly challenging for this project as the walls were made of precast concrete panels. Concrete Used for precast panels normally has a high cement content to achieve the early age strengths required for lifting and transporting the panels to site and a high cement content also means a high embodied carbon. **Taylor** tasked their precast panel supplier, **XL Precast**, with the challenge of supplying **lower carbon concrete panels**. After reviewing what was available **XL Precast** realised that they could only reduce the embodied carbon and achieve the required early age strengths by using **Boral's ENVISIA® Concrete**.

ENVISIA® Concrete is a low cement, low embodied carbon concrete with good early age strength allowing panels to be lifted the day after casting.

Concrete performance*

ENVISIA® 50 MPa

Portland cement reduction**	60%
Embodied carbon reduction***	52%
1-Day strength*	16.5 MPa
3-Day strength*	34.5 MPa
4-Day strength*	39.0 MPa
7-Day strength*	43.5 MPa
28-Day strength*	57.0 MPa

* Mean result.

** cf GBCA (D&AB) reference case.

*** cf GBCA Upfront carbon emissions calculator for a GP mix.

" This 6 Star Green Star development at Pemulwuy, Sydney is the new home for Bunzl. "

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Testimonial–Bunzl Warehouse

At Taylor, we are committed to protecting the environment and implementing sustainable practices throughout our construction projects. This includes minimising our environmental footprint, particularly the embodied carbon, in all our projects, including the Bunzl Project located in Pemulwuy, New South Wales.

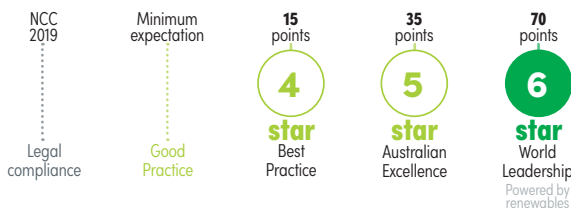
The Bunzl Industrial endeavour posed unique difficulties, as a large portion of the concrete used was meant for precast panels that traditionally contribute significantly to carbon emissions. Precast panels require concrete with high early-age strength for timely lifting and site delivery, aligned with the construction timeline. Such concrete typically demands a high concentration of portland cement, leading to elevated embodied carbon content.

To meet our stringent Green Star project sustainability criteria without compromising the construction timeline, our precast contractor, XL Precast, utilised Boral's ENVISIA® concrete, a unique solution for this industrial project. ENVISIA® concrete is a low-carbon alternative that meets the required one-day strengths for efficient panel lifting and delivery. **At Taylor, we take pride in collaborating with XL Precast and Boral Concrete to achieve a lower-carbon future.**

– Aaron Persson
ESD Manager, Taylor



6 Star Green Star building rating



A 6 Star rated building showcases World Leadership. It has been built to be climate positive (fossil fuel free, highly efficient building fully powered by renewables) that addresses a significant number of environmental and social issues and contributes to the community.



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