

Melbourne Metro Train Stations, VIC

Greater Melbourne



Products Used

Studco Stud & Track Systems, Concealed Suspended Ceiling

From level crossing removals to platform reconstructions, Greater Melbourne train stations undergo transformations.

Under the Victorian State Government's Level Crossing Removal Project, train lines around greater Melbourne will see the removal of 75 dangerous and congested level crossings and the construction of a number of new train stations. Studco has proudly played a prominent role in this expansive project; forty-six crossings have been completed to date with the remainder due to be completed by 2025.

Innovative Solutions to Complex Problems

The ambitious project requires creative thinking to complex building problems on a number of fronts. Studco® is pleased to have collaborated closely with main contractor John Holland and the Major Transport Infrastructure Authority for solution engineering and value engineered designs. This applied to a number of lightweight framing systems for facades, walls, external ceilings, and concrete wraps at the new train stations.



The newly constructed pathway and structure leading to Platform 2 and an underpass.
(Source: City of Monash)

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Studco structural framing installed on the underside of the raised Hughesdale Station platform (left). The completed form of the same ceiling section (right).

"Studco's technical team have a really creative, solutions-focused mindset. It's part of our DNA to take complex, time-sensitive problems and look for simple, practical, unobvious answers that we can then turn into reality with our clients. Changing construction through innovation is one of our foundational values, and our engineers seek to live by that in everything they do."

Sam McKechnie

Head of Technical and Innovation at Studco Australia

The external ceiling and façade wraps lining the underside of the elevated concrete train line structure proved to be one of the most demanding aspects of the program. The original design involved extensive structural steel framing – not only cumbersome and difficult to manoeuvre but more costly than a lightweight framing solution. A method was needed to replace the heavy structural steel with a more cost-effective, user-friendly framing system. This task was left in the trustworthy hands of Studco's in-house structural engineering team.



Studco's steel framing founding the entrance and staircase at Moreland Station (left). A later stage of the staircase's construction with façade and cladding work completed by Castello's (right).

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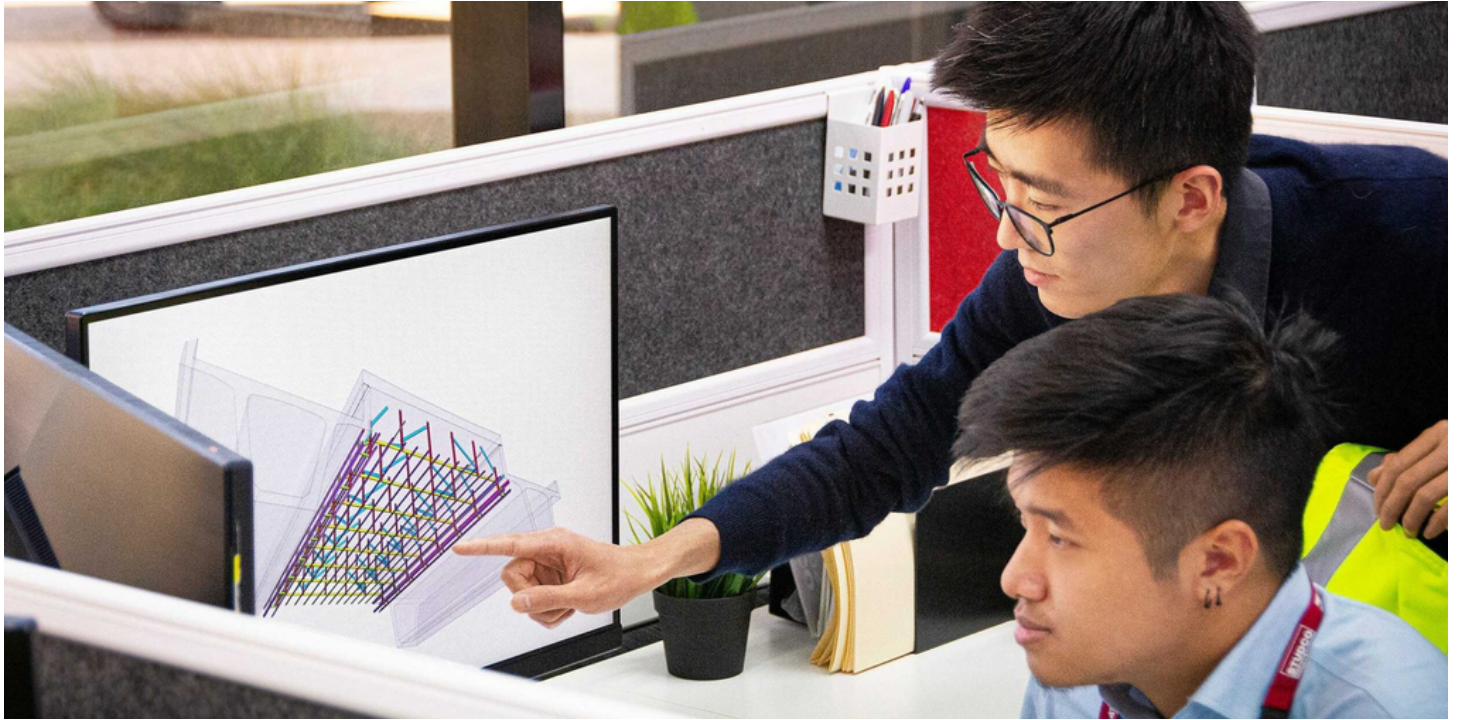
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The design have to withstand the extreme environmental forces of wind and weather. Not only this, but also the dynamic forces and significant vibration imposed by train movement along the line. In order to find a solution, Studco curated framing options through 3D models to our client's exact specifications. Balancing short and long-term considerations – and everything in between – finite element analysis was used to pinpoint potential issues. Expansion joints were strategically placed and slip joints were provided in all three axes. The result was defined by:

- Reduced construction time
- Optimum performance
- Tangible cost-savings



Studco's engineering team working on 3D models for the ceiling wrap on the underside of a station platform.

Compliance Assessment

The interface between the lightweight steel system and the precast concrete structure of the elevated train line required a delicate touch so that the anchor fasteners did not compromise the structural integrity of the concrete. In co-operation with Hilti, a number of anchor solutions were physically tested by an independent body to ensure compliance and durability.

Studco's Technical Team consists of professional engineers, CAD modellers and experienced site personnel who offer a comprehensive design service and the very best technical support. We provide a full structural engineering service for lightweight metal framing solutions, in accordance with relevant Australian Standards and the National Construction Code, and with the necessary certification.

At Studco, we take great pleasure in solving client problems with innovative solutions for their construction projects. Reach out to Studco's Technical Team on 1300 255 255 to find out how we can assist your next project.



The concrete anchor test in-progress to ensure structural integrity.

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