

## Case study

# Grattan Street Apartments

December 2022



Truecore®

# Framing made from TRUECORE® steel supports this inspired facade



#### Project Details:

**Project:** Viridi Apartments, Prahran

**Fabricator:** Dynamic Steel Frame

#### Sources:

– Peter Blythe [PB], Director, Dynamic Steel Frame

– Alex Salom [AS], Contracts Administrator, Cobild

**Facade Engineer:** Inhabit

**Builder:** Cobild

**Architect:** Plus Architecture

**Developer:** Little Projects

**Facade Installer:** Bolt Blue Constructions

**Principle Steel Product:** 13,000 lineal metres LGS framing made from TRUECORE® steel

**Photographer:** Tom Roe Photography

**Address:** Grattan Street, Prahran



Lightweight yet strong, light gauge steel (LGS) structural framing made from TRUECORE® steel was the material of choice for the striking facade structure inspired by its parkland surroundings.

Situated in Prahran overlooking the Grattan Gardens, this multi-residential development with its skilfully raked facade delivers far more than a building in harmony with its surroundings.

By utilising light gauge steel framing made from TRUECORE® steel for the facade's structure, the following benefits were realised:

#### *Engineered Precision*

The facade frame made from TRUECORE® steel was fabricated to fine tolerances to structurally support and accommodate the roof tiles, and specialised flashing system that channels waterflows around the windows and down the facade. [PB]

#### *Efficient Construction*

The fully engineered facade solution was prototyped and tested prior to prefabrication. The thorough detailing completed during the design phase, coupled with the exact tolerances achievable with prefabrication, resulted in the smooth installation of the facade system at site. [AS]

#### *Lightweight yet strong*

Collaboration between contractors, delivered a facade frame with the structural adequacy to support the significant weights of roof tiles and the protruding windows. [PB, AS]

#### **Project Highlights**

Situated in the Melbourne suburb of Prahran, amongst heritage cottages and cafes and across from Grattan Gardens, this striking multi-residential development blends artfully into its surroundings. The sloping facade, tiled in hues of green gently pulls away from the street, allowing it to sensitively harmonise with the park around it. The windows that punctuate the facade's

design, capture views of the surrounding environment, and allow light to fill the internal spaces.

The appointed builder, Cobild, not only delivered on the design intent of this facade but enhanced it with the clever selection of cladding material and the structure required to support it. The facade design originally called for the use of hot-rolled structural steel with a glass-fibre reinforced concrete skinned cladding (GRC). With the desire to improve the facade's enduring visual appeal and serviceability, Cobild recommended that the facade structure was changed to that of a structurally engineered LGS frame, designed to support roof tiles as well as the distinctively large windows.

Varying in colour from deep forest greens to lighter turquoise, the skilful blending of the high gloss imported tiles delivers an intensity of colour that heightens the visual interest of the facade's finish. However, the modularity and weight [70kg per m<sup>2</sup>] of the imported terracotta tiles also added to the design complexity, and the demand on the facade structure underneath.

Lightweight yet strong, LGS structural framing made from TRUECORE® steel was the material of choice for the facade structure. Utilising almost 13,000 lineal metres of TRUECORE® steel, Bolt Blue Constructions and Dynamic Steel Frame collaborated with the facade engineers to deliver a facade frame with the structural adequacy to support the significant weight of the roof tiles and the protruding windows [some up to 300kgs].

With the window reveals protruding above the face of the tiled facade, a specialised flashing system was required to ensure waterflows were channelled around the windows and down the facade. The LGS facade made from TRUECORE® steel was fabricated to fine tolerances to both structurally support and appropriately accommodate these flashings. Leaving nothing to chance, a prototype of the window details was designed, manufactured and tested prior to full scale fabrication of the facade structure.

Post-tensioned concrete slabs were used at each level of the build, providing rigidity to the structure. Using over 800 brackets, and 1600 bolts, the LGS facade structure was then



securely connected to these slabs using a method that allowed for slab deflections. The final facade structure was also designed so the battens could be appropriately installed at defined intervals to support the roof tiles.

Alex Solam from Cobild stated that, "significant effort was required at the design stage to ensure the prefabricated LGS frames were consistent with the architect's vision, performed structurally, and could be efficiently installed during construction."

Given the uniqueness and complexity of the design, Dynamic Steel Frame spent many hours finalising the details of the fully engineered LGS facade structure prior to its manufacture. This commitment, coupled with the exact tolerances achievable with LGS fabrication, resulted in the efficient installation of the facade structure at site. "Once familiar with the approach, the lightness and accuracy of LGS frames made for efficient installation. Using installers that specialise in LGS framing installation was also beneficial", stated Alex.

"We under-estimated the design's complexity at the start of the project, so it was pleasing to have such a successful outcome during construction", stated Peter Blythe, Director of Dynamic Steel Frame.

Peter Blythe said, "This project really showcases what structural framing made from TRUECORE® steel can achieve with the right expertise."

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