

# Case Study



## Innovation helps keep Vaughan Constructions on top

When it comes to construction efficiency you'd think there's not a lot industrial specialist Vaughan Constructions would need to learn.

After all, Vaughan's can point to 1700 successfully completed projects in Sydney and Melbourne for a client list that includes leading retailers, banks, manufacturers and logistics companies.

One of the key reasons for the company's 50 years of growth and success, however, has been its willingness to seek out and adopt new methods with the potential to increase its efficiency.

### Customer

Vaughan Constructions

### Location

Eastern Creek, NSW

### Project

Cahill Transport





It was that attitude that led Vaughan Constructions to examine and then adopt innovative structural steel framing solutions suggested by BlueScope Buildings Australia.

An opportunity was presented when Cahill Transport's expansion of its interstate and local transport, warehousing and contract logistics operations in New South Wales prompted the need for the new premises in Sydney's west.

"We like to be innovative and at the forefront of technology and BlueScope Buildings Australia approached us with a proposal unlike any other," said Tony Buterin, Vaughan Constructions' Manager for the Cahill Transport depot at Eastern Creek in Sydney.

"We have a panel of selected pre-qualified structural engineers we prefer to use, but having said that, we are always open to innovations such as the pre-fabricated tapered beam system BlueScope Buildings Australia was proposing."

***“We like to be innovative and at the forefront of technology”***

**Tony Buterin**  
Construction Manager  
Vaughan Constructions

BlueScope Buildings Australia approached Vaughan Constructions with the idea of using fabricated tapered steel beams flange-bolted in sections to achieve large clear-span areas.

The tapered sections are flange-bolted together to provide beams that are deepest where stresses are greatest – at the columns.

Although new to Australia, this structural steel solution has been extensively used by BlueScope Steel companies in China and the USA.

One of the system's major advantages is its ability to reduce the weight of steel required for framing by as much as 30 percent compared to hot-rolled sections traditionally used – with significant cost reductions.

BlueScope Buildings Australia was already providing a structural solution for another Vaughan Constructions project in Melbourne by the time the two companies discussed the 143-metre by 110-metre Cahill Transport warehouse.

"We engaged our own checking engineer to independently certify the tapered beam design for the Cahill Transport warehouse," Tony Buterin said.



“Engineering wise it all worked well and we have since engaged BlueScope Buildings Australia to produce a structural package for a warehouse we built at Port Kembla.

The structural solution provided for the Cahill Transport depot consisted of portal frames made from 10.125-metre tapered columns supporting tapered rafters with two Internal Columns (250UC72) at 31.2-metre intervals.

The portal frames were spaced at 10.81-metres to create large and efficient loading docks and to provide maximum internal flexibility for racking and material handling equipment access.

BlueScope Buildings Australia was contracted to organise supply and erection of the frames, purlins, girts and wind-bracing for its design solution and to supply exterior steel cladding. The company also designed and supplied footing bolts for the warehouse.

Vaughan Constructions arranged for one side of the building to be protected by a 20-metre long cable-stayed canopy made from hot-rolled steel beams supported by the tapered columns of the portal frames.

“*The concept of the tapered beams and columns achieved exactly what we wanted*”

Tony Buterin  
Construction Manager  
Vaughan Constructions

“The concept of the tapered beams and columns achieved exactly what we wanted on the Cahill Transport project, but more importantly it showed us what could be achieved in terms of savings on larger projects,” Vaughan Constructions’ Tony Buterin said.

“I’m thinking of clear spans up to 50-metres where we’ve previously used 1.8-metre to 2.0-metre deep trusses. Using the tapered beam alternative in those situations would have been significantly more economical.

*“ Looking back, not only was the Cahill Transport depot project a success in its own terms, but BlueScope Buildings Australia and Vaughan Constructions each learnt useful information about how each other operates. ”*

Tony Buterin  
Construction Manager  
Vaughan Constructions



“Once you come to spans of 50-metres and above the tapered beam approach introduced by BlueScope Buildings Australia really comes into its element.

“Looking back, not only was the Cahill Transport depot project a success in its own terms, but BlueScope Buildings Australia and Vaughan Constructions each learnt useful information about how each other operates.

BlueScope Buildings Australia uses a combination of software, design methodologies, fabrication techniques and supply-chain management to provide innovative solution for steel framed building construction.

To find out more about the benefits of partnering with BlueScope Buildings for your next project contact us on **1800 213 423** or visit our website **[www.bluescopebuildings.com.au](http://www.bluescopebuildings.com.au)**

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