

**INNOVATION IN THE USE OF
TIMBER IN CONSTRUCTION**
structural glue laminated timber products



Engineering Learning Hub University of the Sunshine Coast



↑ The University of the Sunshine Coast Engineering Learning Hub is a contemporary display of the use of timber together with concrete.

The \$37.2 million Engineering Learning Hub was designed by Brewster Hjorth Architects in collaboration with nettleontribe, and constructed by Hutchinson Builders. The state-of-the-art complex demonstrates innovation fitting for the engineers of our future - and was the first university in the world to adopt a CAVE2™ virtual environment for teaching.

The USC facilities are cutting-edge learning and teaching spaces, with a world class visualisation theatre, 3D and virtual reality technologies, the space allows students to see and interact with huge amounts of complex data.

To aid the immersive learning experience and house the large-scale visualisation facilities, Brewster Hjorth and nettleontribe designed the building with open, non-enclosed, spaces in mind.

Hyne Timber produced the portal frame structure for the four-storey building, using H4 treated glue laminated timber (GLT).

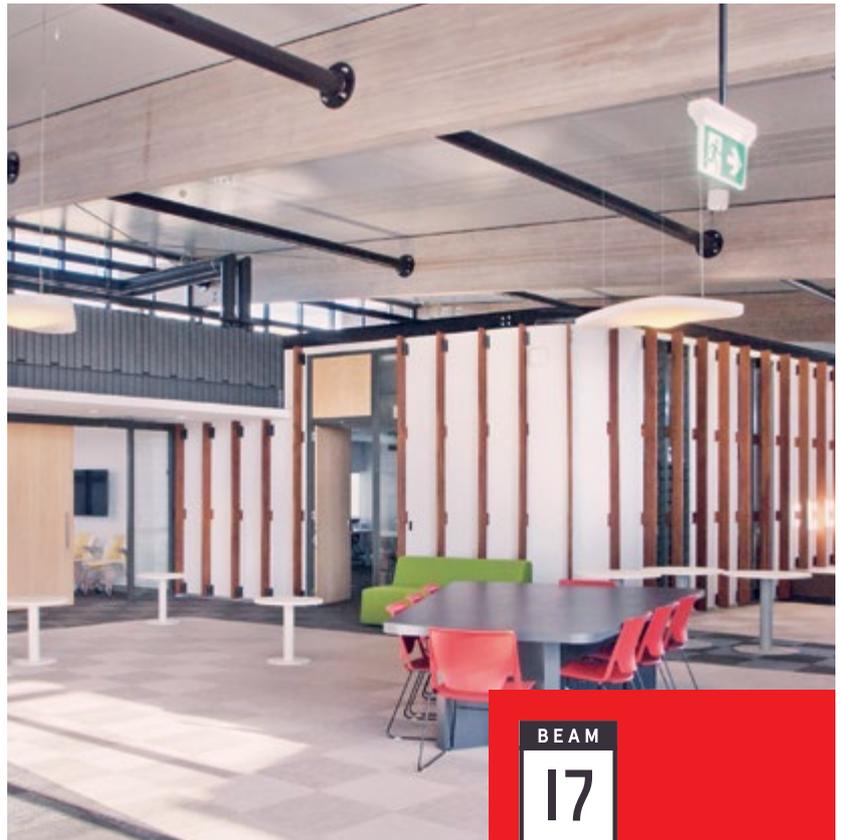
Hyne Timber's custom treated Beam 17 was chosen because no other product could provide the structural performance and cost efficiencies that were needed for the long span structure and low profile columns.

Never before has an H4-equivalent treatment been used in structural Australian produced pine GLT beams, providing a level of hazard protection well suited to the humid coastal climate. The treatment process maximises the design life of the structure and protects against severe decay, termites and borers and is suitable for use outside and in ground.

With long spans, the timber portal structure allows natural daylight to filter through the internal spaces. Being in a tropical climate also called for external non-enclosed shaded spaces, giving students and staff the opportunity to transform outdoor areas into informal learning spaces.

In keeping with the campus masterplan and focus on sustainable design, the building was designed to meet the 5 star GBCA Green Star rating (self assessed).

Various design and construction techniques were incorporated, for the educational benefit of up-and-coming students. Utilising timber for its structural capabilities will stand out as an example of local, 100% sustainable and highly durable solutions for future students.



BEAM
17

Product Overview

Depth/Width/Length

- Up to 1200mm deep/600mm wide
- Beams up to 18m long

Available Profiles

- Straight
- Cambered (600m radius)
- Curved (>1.5m radius)

Certification Schemes

- S Mark to AS/NZS 1328.1:1998
- PEFC/AFS Chain of Custody

Ready-made or custom sizes available
Available in steel reinforced sections

The structure adopted a steel roof with steel beams to support the shade structure. Timber, being a construction material of choice, was easily connected with the roof using coach screws in pre-drilled holes.

The construction technique, and use of timber, not simply for its aesthetic qualities but for its structural capability is something that stood out to USC's Engineering Professors and will serve as an example for up-and-coming engineering students.

AWARDS

Winner, Building of the Year, Sunshine Coast Master Builders Award 2015

Winner, Commercial Building over \$5m, Sunshine Coast Master Builders Award 2015

Hyne Timber Beam 17

Beam 17 utilises high grade, structural AFS and PEFC certified Australian plantation pine, supporting local manufacture and locally grown, sustainable timber resources.

The L-shaped columns, dubbed 'hockey sticks' by the Hutchinsons site team, negated the requirement for bolted connections in exposed locations. Encasing and protecting connections maximises durability, improves aesthetics and contributes to the stability of unbraced members.

Hyne Timber has a dedicated GLT specification team who worked in close coordination with the steel fabricator during production. Together we ensured product quality, gained efficiencies in transportation and reduced on-site costs by prefabricating connections.

