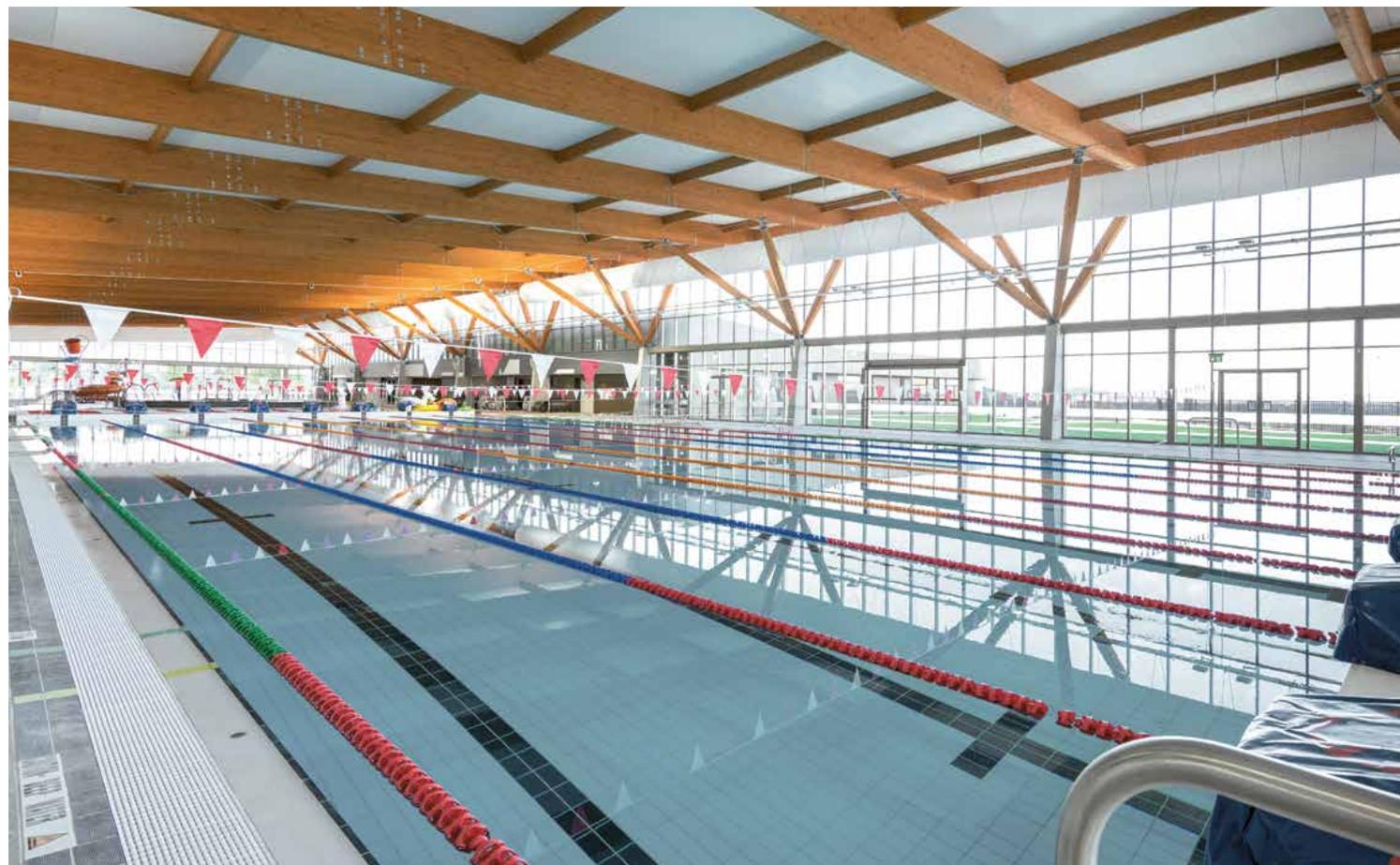


IMPRESSIVE ECO-BALANCE

# RECORD-BREAKING CONSTRUCTION

The newly built Stromlo Leisure Centre (SLC) in the Australian city of Molongo is a “landmark” for many reasons. Building owner, architects and client decided to implement a timber roof structure to create a direct architectonic bond to the surrounding Stromlo Forest Park. The visible use of glued laminated timber is an absolute novelty for this region of the world.



The location of the Stromlo Leisure Centre directly influenced the planning and design of the entire project.

The municipality of Molongo is located at the Stromlo Forest Park, at the foot of Mount Stromlo, home to the world-famous Mt. Stromlo Observatory. More and more people are moving to this region that is located west of the city centre of Canberra. Reason enough for the Australian Capital Territory administrations to enlarge leisure facilities and installations in this area. Cox Architecture has developed – at least for Australian standards – a quite unusual solution: the use of glued laminated timber as visible and load-bearing elements for the spanning glulam roofing structure.

A project of this size requires implementation partners with appropriate and proven expertise. Backed by its

worldwide reference projects with comparable (or even larger) dimensions, Rubner Holzbau in Brixen finally convinced the key-decision makers of the project. The fact that with Theca Australia Pty Ltd. Rubner Holzbau already had a reliable partner on site was certainly an additional plus. In the last few years, these two companies had jointly executed the library in Marrickville and the shopping centre “The Link” in Chadstone and both projects have been awarded the highly renowned Australian Timber Design Award. This successful cooperation has now been resumed in the implementation of the Stromlo Leisure Centre. Structural implementation in Molongo was executed by the company Kane Constructions Pty Ltd.

To understand the technical challenges of this spanning glulam roofing structure of the pool hall, it is

necessary to have a closer look on the dimensions of the project. The main building with a base area of some 5,400 m<sup>2</sup> is dedicated to aquatic sports including an eight-lane 50 metres lap and competition pool, a 20-metres learn to swim pool, slides, toddler’s pool, and splash park. The adjacent areas house a gym and fitness studio, a café, a creche and swim store. The investment amounted to 36 million Australian Dollars, which equals some 23 million Euro.

This type of “water world” asks for a material that is neither impacted by high temperatures nor by high humidity. Moreover, visual appearance and haptic qualities were required to relate to the surrounding scrubland. These technical requirements literally plead for natural, low-maintenance and durable glued laminated timber. In addition, glulam offers almost the same

load-bearing performance as steel yet with much lower weight. The material secures high fire-resistance rates, and - compared to conventional massive structures - higher seismic stability as well as resistance against aggressive substances. On site, the material scores with high prefabrication rates and provides structures, which are free of thermal bridges over long spans. This is also the case in the Stromlo Leisure Centre, where main beams have a length of more than 47 m.

Rubner Holzbau was charged with the entire structural design, workshop designs, fabrication, logistics and technical support for the assembly of all individual construction elements on site. After having concluded the fabrication process in Brixen, all structural elements such as beams, and struts were shipped in containers to Australia and then transported to



construction site in Molongo by heavy-goods trucks. Each single of the 18 structural elements with an individual weight of almost 19 tons was then correctly positioned with the help of a crane within only 30 minutes. Thanks to high prefabrication rates, final assembly of one element only required the support of 4 workers.

Glued laminated timber elements are made 100% of spruce, which - with its bright and earthy colours perfectly complements the colours chosen for inside materials. All remaining surfaces in the pool hall have been chosen as robust, functional, and unprocessed materials selecting traditional Australian colours, such as warm orange tones, yellow or blue. However, largely dimensioned timber constructions in this visual quality are quite unusual in Australia. On the occasion of a TV interview with Sports Minister

Yvette Berry, she confessed that the visual timber elements on site had clearly stolen her the show.

A total of 350 m<sup>3</sup> of glued laminated timber were processed in this project. Therefore, with savings of approximately 226 t CO<sub>2</sub>, the ecological balance of this roofing structure is more than positive. In addition, the forest on the other side of the world secures a rapid regeneration: in Austria, the country where Rubner Holzbau sources and processes the wood for its structures, some 30 million m<sup>3</sup> of wood are re-growing. This means that the 350 m<sup>3</sup> of timber that were processed for the Stromlo Leisure Centre are compensated by natural re-growth in only 10 minutes.

For Peter Rosatti, CEO of Rubner Holzbau in Brixen, this project is an architectonic landmark Down Under:



"With the execution of the Stromlo Leisure Centre we have implemented the longest spanning glulam roofing structure throughout Australia. From the very beginning this project had a role model effect. Static properties, design, durability, and sustainability of the natural material wood convince more and more clients in Australia. It seems that we not only have put our finger on the pulse of time but that we are also setting trends."

**Completion:** 2020

**Building Owner:** Australian Capital Territory (ATC) Government, Canberra (AUS)

**Client:** Kane Constructions Pty Ltd., Manuka, Canberra (AUS)

**Architects:** Cox Architecture, Kingston, Canberra (AUS)

**Structural engineers:** Sellick Consultants Braddon, Canberra (AUS)

**Glued laminated timber:** 348 m<sup>3</sup>

**Steel fittings:** approx. 20,500 kg

**Wood type:** spruce

**Span width:** approx. 28 m

**Clearance between beams:** approx. 37.3 m

**Length of main beams:** approx. 47 m

**Photography:** Evolve Timelapse