Gaia – the largest wooden building in Asia

Nanyang Technological University (NTU) is home to Asia's largest wooden building, which is also a zero-energy structure that consumes as much energy as it produces. Launched on May 17, Gaia – named after the Greek goddess of earth – houses the Nanyang Business School and is the university's eighth zero-energy building. Lee Yu Hui and Chng Choon Hiong take a closer look.

**ABOUT GAIA**

**GROSS FLOOR AREA**

43,500 sq m

**BUILDING HEIGHT**

Six storeys

**FLOOR LEVELS**

1 auditorium (300 seats)
12 lecture theatres
15 seminar rooms
78 study rooms

**GREEN MARK PLATINUM (ZERO ENERGY)**

Gaia is the largest building in the NTU Campus with the highest level of all sustainable buildings as determined by the Singapore Department of Environment and the Singapore Green Marking Authority of Singapore.

There are currently 16 certified zero-energy buildings in the city.

**INSIDE ORGANIZATION**

The wooden building has six storeys, with the highest floor covered by the administrative building of the Nanyang Business School.

**MASS-ENGINEERED TIMBER**

Gaia is built using mass-engineered timber, a sustainable building material made from engineered wood products prefabricated off-site.

It was the first used by NTU in the construction of its mega sports hall. The Nanyang Business School, the Nanyang Polytechnic, and the National University of Singapore are also using mass-engineered timber.

**How cross-laminated timber is made**

Laths, a subcategory of engineered wood, is a panel product made from gluing together at least three layers of solid-sawn timber.

1. **An additional layer of wood on the interior side is inserted by finger jointing.**
2. **The laths are then glued together to make single layer boards of wooden slats in length.**
3. **The laths are then loaded together with their long axis perpendicular to adjacent layers.**
4. **The wooden element is cut to the specifications for the final build.**

**EFFICIENT TRANSPORTATION**

The building is made of glue-laminated timber and cross-laminated timber (CLT) and made in the construction of Gaia. There are currently 16 certifications for such buildings. Gaia is the largest wooden building in Asia.

**ECONOMIC ENVIRONMENT**

The building is built on mass-engineered timber, as a sustainable building material made from engineered wood products prefabricated off-site. It was the first used by NTU in the construction of its mega sports hall. The Nanyang Business School, the Nanyang Polytechnic, and the National University of Singapore are also using mass-engineered timber.

**NANYANG BUSINESS SCHOOL**

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