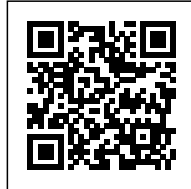




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Robotic fabrication in architecture. Within the Innovation Dock in Rotterdam the first robotically fabricated building of the Netherlands has been produced by Studio RAP. The young design- and fabrication studio managed the entire building process; the design, engineering, production and construction of this special building.

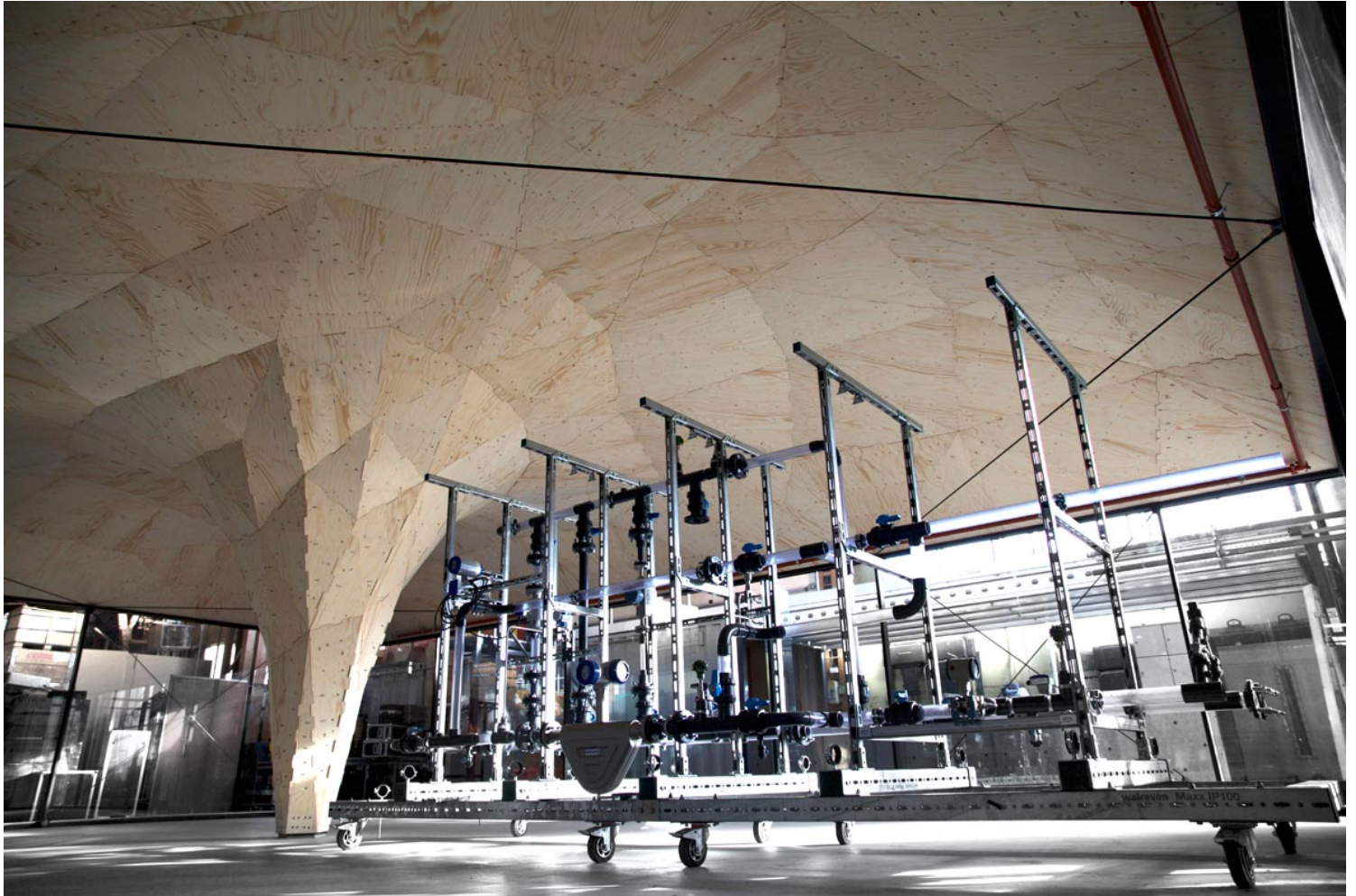


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Architectural design

The building, that covers 130 square meters, consists of an office, presentation space and a training center. These spaces are covered by a large vault consisting of 225 unique wooden panels which spans over 8 meters. The vault rises up in a spectacular way from a central column that gradually blends into the roof construction in one smooth motion.

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Form finding & digital fabrication

The unique shape of the vault is distilled out of digital form-finding methods. This optimization results in a compression-only roof structure. Afterwards the doubly-curved shape was translated to triangular wooden panels which are connected by finger joints and a screw connection.

The large quantity of instructions required for the robotic fabrication process were extracted directly from the digital model. In this way it was possible to prepare complex operations, like milling the undulating angled edges of the panels and the pre-drilling of the angled holes for the screw connections, for all the elements in a short period of time.

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Vision

The design and the construction approach for the building are closely related to the vision of the innovative studio. They embrace the role of the contemporary, digital master builder. Integrating new developments concerning design and fabrication technologies, RAP designs and produces smart, sustainable buildings with a unique architectonic expression.

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