

■ SELF-SUPPORTING WOODEN PEDESTRIAN BRIDGE WAS INSPIRED BY DA VINCI

Inspired by a design for a self-supporting bridge attributed to Leonardo Da Vinci himself, architect Diego Poblete of the Federico Santa María Technical University in Chile developed a structure that can be assembled within 15 minutes, without using a single screw. The self-supporting wooden bridge is constructed using traditional carpentry joints, manufactured by an industrial robot.

The pedestrian bridge was designed by Poblete as a thesis project, and is based on a modular design that could be repeated over larger stretches. The construction can easily and quickly be assembled, without the need to use any screws or nails. Thanks to this construction, the bridge can also easily be disassembled when it is no longer needed, and reassembled elsewhere.

The principle of structural reciprocity on which the original design by Da Vinci is based was complemented by the design and machining of trapezoidal dovetail joints, to avoid displacement of the structural members. The bridge's components are machined in wood by an industrial robot.

The prototype of the bridge is a walkway of 4 metres (13 feet) long and can hold a weight of up to 500 kilograms (1102 pounds).



Source: <https://materia.nl/article/self-supporting-bridge-da-vinci/>

■ HYGROSKIN CLIMATE-RESPONSIVE WOOD APERTURES

Developed by Achim Menges, Oliver David Krieg, and Steffen Reichert for a demonstration pavilion, the HygroSkin approach is loosely based on the spruce cone's passive response to climate, in which its seed scales open and close based on changes in humidity.

Assemblies of delicate plywood-veneer scales are set within a robotically crafted envelope composed of concave plywood sheets. These hygroscopic scales react to a shifting humidity range between 30 and 90 percent, equivalent to the difference between clear and rainy weather in moderate climatic zones. As the petals adjust, they regulate the amount of direct light exposure, view access, and natural ventilation to the interior.



Source: <http://transmaterial.net/hygroskin>

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