The Bubble Pavilion

The Higher Technical School of Construction Engineering at the University of Seville launched an ambitious project to build an experimental pavilion – the "Bubble Pavilion" – using plywood panels as the raw material. The project stems from a geometric, structural, and construction research project undertaken by Roberto Narváez, a professor and researcher at the University of Seville, and his team of professors and students.

The project aimed to conduct practical research into new approaches to architectural design using computational or parametric design tools. Based on the geometric relationships found in spherical soap bubbles of equal radius, a geometric algorithm is designed using Rhinoceros and Grasshopper to adapt the natural arrangement of bubble clusters to any free-form surface.

Subsequently, another algorithm is designed in Grasshopper to materialize the structure using laminated wood panels and digital fabrication tools.

Timber – more specifically, plywood panels provided by Garnica – was used as the raw material to build the structure. According to the project designer, "its sustainability, strength, aesthetics, and the ease with which it can be machined, make timber one of the materials

that will play an extremely important role in the new methods of construction which will proliferate in years to come. This will be accompanied by the emergence of new structural and non-structural systems, adapted to organic and customized geometries that are worlds apart from the conventional constructions we see today".

The team behind the Bubble Pavilion project collaborated with Maderas Cilpe, a company based in Marchena (Seville, Andalusia) that specializes in timber products, and Garnica, who provided the plywood panels used in the construction.

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The project was carried out by a group of students and professors led by Roberto Narváez. CAD (Computer Aided Design) programs were used as part of the parametric and algorithmic design, while digital CAM (Computer Aided Manufacturing) techniques and systems were used to cut the pieces. These two technologies provide technical and economic feasibility for developing this project, which will change how we build in the years ahead. Timber will play a leading role in this new paradigm.