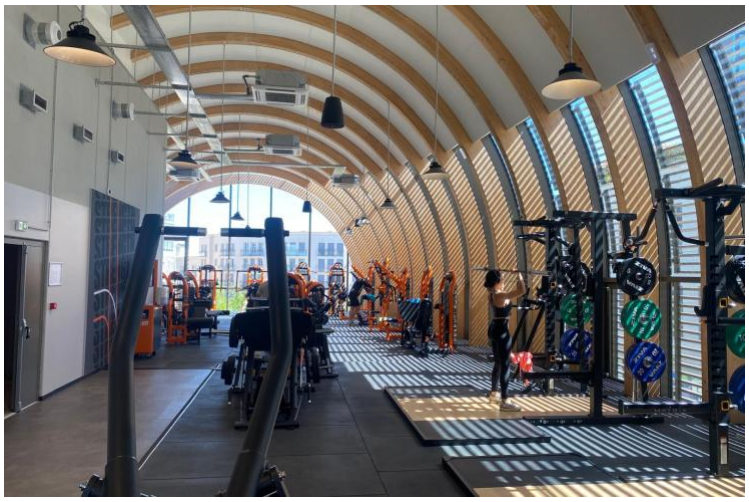

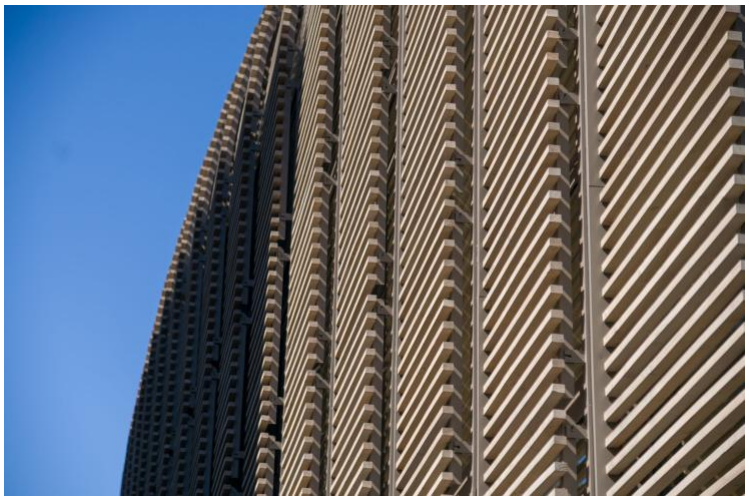

Versailles Biosphère

Location : Versailles-Chantier

Architect : Carl Fredrik Svenstedt

Client : Magidas & Ruimy Immobilier

Package : Structure, Charpente bois, Façades, Verrière et Couverture

Scope : Etudes, conception et suivi de réalisation structure et enveloppe

Date : 2022-2024

Located on Place Raymond Poincaré, at the junction between the historic Versailles–Chantiers district and the new developments built around the SNCF railway station, the Biosphère stands as an architectural landmark completing the urban reconfiguration of the neighborhood. Designed by the agency Carl Fredrik Svenstedt Architect, the building accommodates retail spaces and wellness facilities across four levels (one basement level and three upper floors), all sheltered beneath a glazed arch that evokes a contemporary greenhouse.

Conceived like a winter garden, this distinctive building is characterized by a series of arches made of glued laminated timber, forming successive vaults that define a crenellated main volume framed by two gables rising to 14 meters. The north and south façades curve at a height of 9 meters to follow the arch of the structural vault, whose highest point reaches 14 meters.

Assembled on site, the structure is both lightweight and expressive, spanning the roof while also supporting the glazed façade. T/E/S/S was responsible for the design and verification of the connections between the timber elements and the steel components, taking into account constraints related to thermal expansion, hygroscopic shrinkage, and wind load transfer. The engineering work focused on the stability of the shell, the control of construction tolerances, and the development of a secondary steel framework allowing the installation of large-format glazing without compromising the architectural legibility of the timber structure.

Beyond the flat façades of the two glazed gables, the envelope of the vaults is composed of curved glass panels reaching 3.5 meters in height with a particularly tight bending radius. Interface details ensuring air and water tightness, as well as compatibility with the differential movements of the timber structure, were precisely defined in order to meet the architectural ambitions of the project. A secondary skin made of open-jointed timber slats covers the vaults, acting as a sun-shading device by filtering solar gain through the glazed portions while contributing to a unified architectural identity.

The Biosphère thus stands as an engineering achievement in which structural rigor supports the transparency and lightness envisioned by the architectural design.