

V-Zug Semiramis, Zug

2022



"Semiramis" is a 22.5-meter-high planted architectural sculpture located in the new innovation quarter - Zug's Tech Cluster.

The project

"Semiramis" is a highly complex affair not only in terms of assembly and production. The five plant bowls are all differently shaped and have a diameter of up to 10 meters. The slender and tall structure is lushly planted with large shrubs and trees and thus has a stately dead weight. The supporting structure of the shell is made of cross laminated timber (CLT). Bonding is done with a two-component PU system from TS3. Timbatec developed this process in several research projects with the ETH Zurich and the Bern University of Applied Sciences. Today it is mainly used for the construction of floor slabs, but also allows structures like "Semiramis".

The construction

The connection of the individual cross laminated timber panels is solved with a TS3 joint. The end faces are treated with primer beforehand. After the panels have been brought into the correct position by robots, the TS3 casting resin is applied. The cross-laminated timber panels can thus be joined to each other at the end faces by joint grouting without pressing pressure.

The challenge

Bracing the structure with the eight slender columns was a challenge. The wind pressures on the shells were calculated using a fluid mechanical RWIND simulation from Dlubal Software, which simulates the flow around the structure in a wind tunnel. In addition, due to the slender construction, resonance effects along and across the wind direction had to be considered in the calculations.



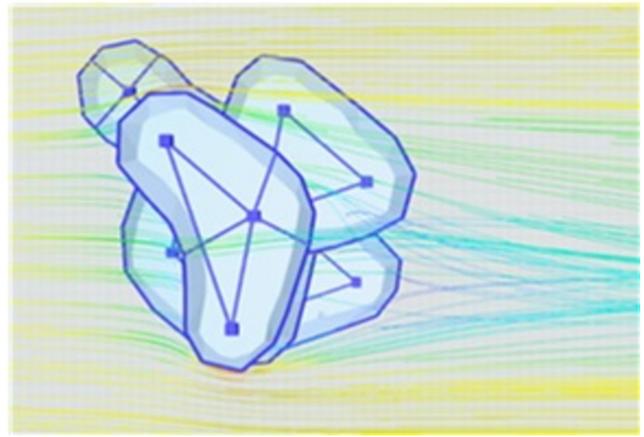
Semiramis in the heart of the Tech Cluster

Construction Data

- Height 22
- 5 m
- Cross laminated timber approx. 35 m³
- Steel 18 t

Services of Timbatec

- SIA Phase 31 Preliminary project
- SIA Phase 51 Implementation project
- SIA Phase 52 Execution
- SIA Phase 21 Structural analysis
- SIA Phase 32 Construction project



Flow around the shells in the Dlubal RWind

Client

Urban Assets Zug AG
6302 Zug

Architect

Gramazio Kohler Research
8093 Zurich

Timber Construction Engineer

Timbatec Holzbauingenieure (Schweiz) AG Zurich
8005 Zurich

Timber construction

ERNE AG Timber construction
5080 Laufenburg

GU/TU

ERNE AG Holzbau
5080 Laufenburg