

Designed with Dlubal Software...

New Building for Biomass Power Plant

One of the most modern power stations for energy production based on renewable resources can be found in Schwendi, Southern Germany. Following the design of the Milan architect Matteo Thun, an architecturally sophisticated framework consisting of reinforced concrete, steel and timber has been created.

The plant building including storage consists of a transparent structure with suspended casing and revolving balcony planes. It is based on strip foundations. The steel skeleton construction, holding a crane runway additionally, has a grid of 5.40 x 5.40 m and overall dimensions of 21.60 x 21.60 m. The domed roof consists of a glued-laminated timber structure. The building is more than 24 m high and has a radius of approx. 36 m.

The structural framework was planned by the local engineering office Guter which was already participating in the preplanning and the modeling process. The planning work was enormously pressed for time. It started in January 2007, scheduling the completion date in July 2008. The structure was modeled as a spatial RSTAB model. It consists of approx. 1000 nodes, 2000 members, 54



Main walls of biomass power plant in Schwendi

cross-sections and four types of material. The self-weight is approx. 225 tons.

Due to the 3D calculation, the load bearing capacity of the different stiffening shear walls and stiffness conditions (outside balconies as wall, compression and tension rings in roof area, vertical and horizontal bracings as well as horizontal connection to the solid construction by using composite beams) could be determined close to reality.

The framework was calculated according to the second-order analysis

taking into account imperfections. In addition to RSTAB, further Dlubal modules were used: STEEL, RSIMP, LTB, FE-LTB, EL-PL, RSBUCK, TIMBER.

Companies involved:

Building owner
Bio Kraftwerk Schilling GmbH
Schillingstraße 22
D-88477 Schwendi
www.schilling-holz.de

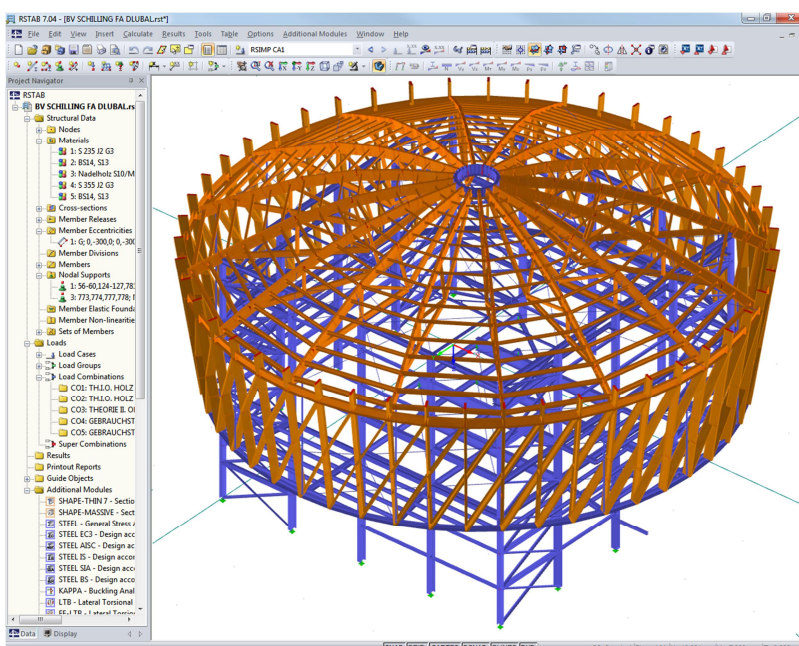
Architect/Design
matteo thun
Via appiani 9
I-20121 Milano
www.matteothun.com

Final planning, structural engineering and construction management
Ingenieurbüro Rudolf Baur
D-88489 Wain
Poststraße 54
www.buerobaur.de

Structural planning for steel and timber construction
Ingenieurbüro Georg Guter
D-88480 Stetten
Uhlandring 22
Georg.Guter@t-online.de

Energy system planning
Gammel Engineering
An den Sandwellen 114
D-93326 Abensberg
www.gammel-engineering.de

Software
Ing.-Software Dlubal
www.dlubal.com



Analysis model in RSTAB