

TEKLA STRUCTURES – AN OPEN AND INTELLIGENT SOLUTION

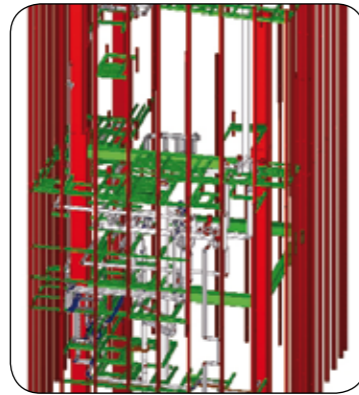
➤ AT ALSTOM, THEY NOW VALUE THE ADVANTAGES OF A CONSISTENT AND INTEGRATED 3D SYSTEM THAT COMBINES REFERENCING, SMOOTH DATA EXCHANGE, AND MULTI-USER OPERABILITY.

OPEN PLATFORM ENABLES INTEROPERABILITY

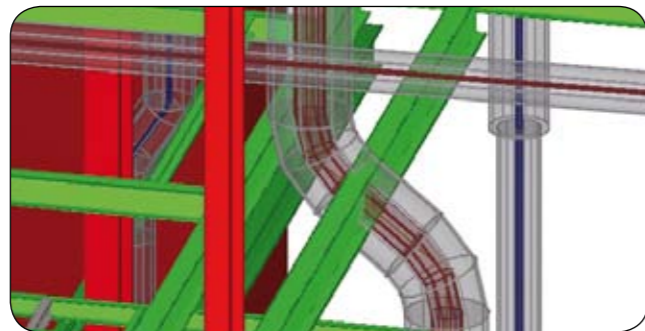
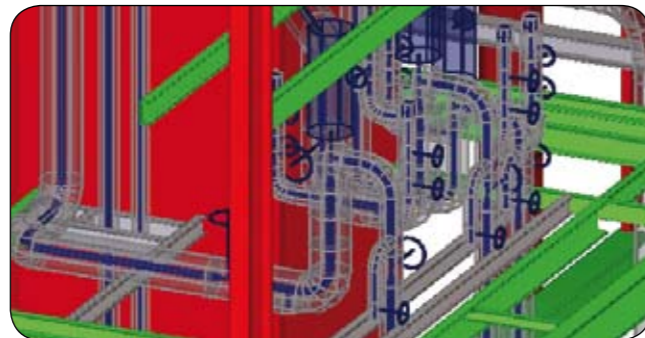
➤ Tekla Structures software is a building information modeling (BIM) tool that streamlines the delivery process of design, detailing, manufacture, and construction organizations. Its ability to process extensive amounts of data enables the creation of detailed 3D models that can be applied to every stage of the design and construction. Thousands of Tekla software users in more than 80 countries have successfully delivered BIM-based projects across the world.

Tekla Structures effectively integrates into any best-of-breed software through Tekla Open API™ (Application Programming Interface) while maintaining the highest levels of data integrity and accuracy. Such collaborative workflows are the key to minimizing errors and maximizing efficiency, resulting in high profitability and on-time project completion. Tekla Open API™ is based on Microsoft® .NET connection software and enables a state-of-the-art interface for collaboration between software systems in the building industry.

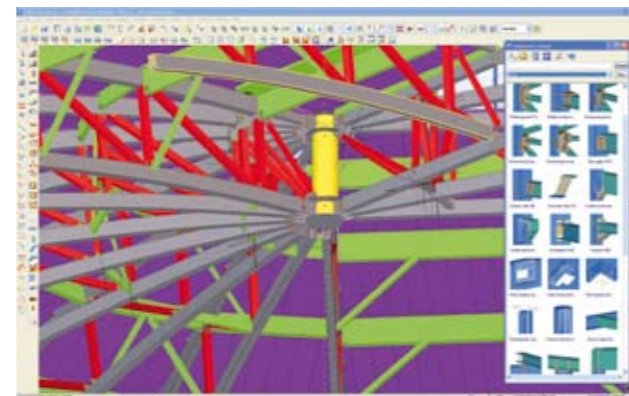
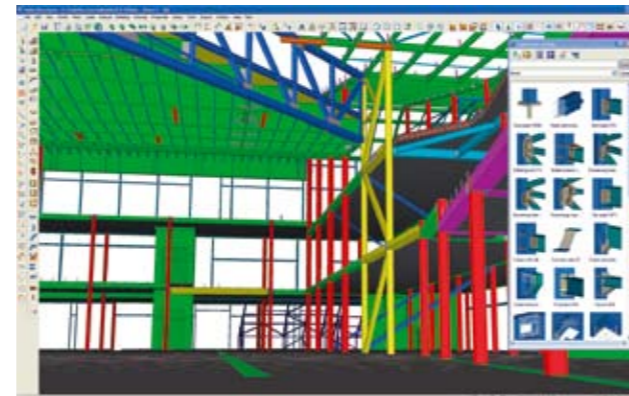
In addition to possibilities with open API, Tekla Structures can share model and drawing information with all major IFC-compliant architectural modeling programs. Other legacy formats, such as DGN and DWG, are supported as well. These formats allow for an effective, two-way link for architects and engineers to share and coordinate project information. In addition, Tekla Structures can interface with all major plant layout and piping design products in the market, such as PDS, PDMS, SmartPlant® and Cadmatic. The benefits of this linking are better layout coordination and structural information that supports leaner construction.



Processing one week after work commenced at Scholven. The existing structures are shown in green and red, the imported pipelines as a 3D DGN reference model, including newly constructed pipeline mounts created with Tekla Structures that are visible in gray.



The model revealed possible future conflicts at the early processing stage, without any need for additional display software (Scholven).



Tekla's model-based software products make customers' core processes more effective in building and construction and infrastructure management. Tekla Corporation has area offices and partner organizations worldwide. International operations account for 85% of net sales. Founded in 1966, Tekla is one of the most established companies in its field. Tekla Structures BIM (Building Information Modeling) software encompasses specialized configurations for structural engineers, steel detailers and fabricators, precast concrete detailers and manufacturers, reinforced concrete detailers, and construction companies.

CONTACT:
Tekla Corporation HQ
 Metsänpojankuja 1, P.O. Box 1
 FI-02131 Espoo, FINLAND
 Tel. +358 30 661 10
 Fax +358 30 661 1500

Check your local Tekla contact at
www.tekla.com



TEKLA STRUCTURES IN PRACTICE:

➤ **ALSTOM**
POWER BOILER GMBH



POWERED BY INTEROPERABLE SOFTWARE

> As far as data compatibility is concerned, Tekla Structures software represents one of the most flexible design and construction solutions currently used in the industry. For companies operating at an international level in particular, it is essential to be able to import data from any source and transfer it to in-house systems and vice versa. This also applies to the Alstom Group, whose subsidiary has been using Tekla Structures for some time now.



Wai GaoQiao coal power station near completion

> "WE HAD ABSOLUTELY NO PROBLEMS MAKING FULL USE OF ALL THE EXISTING 2D AND 3D REFERENCING OPTIONS."
– ALSTOM Power Boiler GmbH

The portfolio of the German company **Alstom Power Boiler GmbH** includes turnkey power stations that use various types of energy and technology, creating the perfect scenario for using Tekla's software.

MODELING IN TUNE WITH OTHER SOFTWARE

> Alstom became familiar with Tekla during the Wai GaoQiao coal power station project. Until then, the company had been using another plant design and engineering software and knew little about the finer details of modeling with Tekla Structures. A subcontractor involved in this project had been among Tekla's customers for some time. As a result of this collaboration, it became necessary to confront the issue of data compatibility between Tekla Structures and the software that Alstom used. The flexibility of Tekla Structures was used to maximum effect, ensuring seamless cooperation, which led to the entire project being concluded successfully and on time.

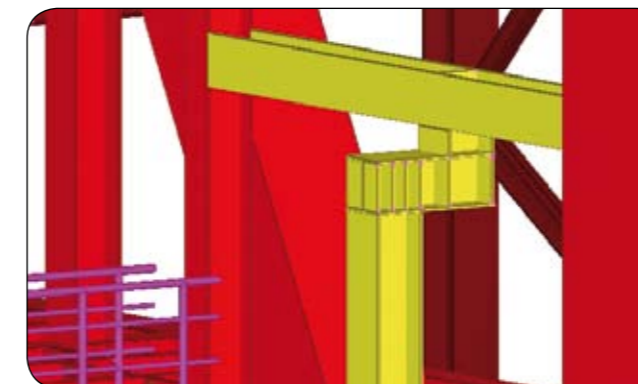
The collaboration using the two different software was so impressive that Alstom decided to purchase Tekla Structures licenses from Tekla's subsidiary in Shanghai. This kind of unmatched data compatibility guarantees success in international projects. After the work on the Chinese coal power station project was successfully completed, the modeling licenses were transferred to Germany and have since been used by the company in Stuttgart.

FULL USE OF ALL EXISTING REFERENCE OPTIONS

> Intergraph software was used to plan the systems, and external 2D software was used to handle the parts for the basic engineering. Workflow inconsistencies initially led to the parts being rejected in the planning process, which Tekla Structures managed to deal with later on. In this project, the ability to import Microstation format (DGN) reference models and to carry out high-quality importing and exporting of object-oriented SDNF files was of great help. This was a decisive advantage for planning and modeling extensions of the existing construction.



Alstom Group is a global leader in equipment and services for power generation and rail transport, which strives to benchmark innovative and environmentally friendly technologies. The Group is present in more than 70 countries worldwide and employs 65,000 people. Alstom designs, manufactures and supplies products and systems for power generation: for gas, coal, and hydro-power plants, as well as for industrial markets. In addition, Alstom provides conventional islands for nuclear power plants. More information can be found at www.alstom.com



A small section of the overall Wai GaoQiao model. The existing construction (imported as an SDNF file) is shown in red, the extension planning with Tekla Structures in yellow. The object in question is an additional pipeline support.

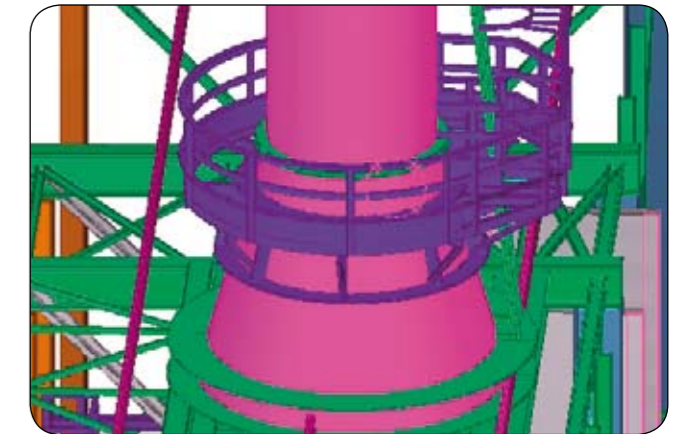
MODELING EXISTING STRUCTURES

> Another example that would have defied an efficient solution without the flexibility described above was the conversion of a central turbine system at **Voest Alpine** in Linz, Germany. This was a project to convert an existing turbine system dating from the 1970s, which was used to generate steam for furnaces on site. The extensions included two boilers: one that was rebuilt, and one completely new.

There was no existing CAD data in the Voest Alpine project, so Tekla Structures was used to record (remodel) the existing structures. Following this, existing CAD data for the new boiler equipment was imported into the model, partly as a DWG and partly as a DGN reference model. Only a few missing equipment additions had to be replicated as retaining elements in the steel construction model.

The Tekla Structures model was then exported and passed to the systems construction department for checking. "We had absolutely no problems making full use of all the existing 2D and 3D referencing options in this project", said a leading member of the staff involved.

Another instance where Tekla Structures really came to the fore was the project to convert the Scholven power station for testing new materials in pipeline construction.

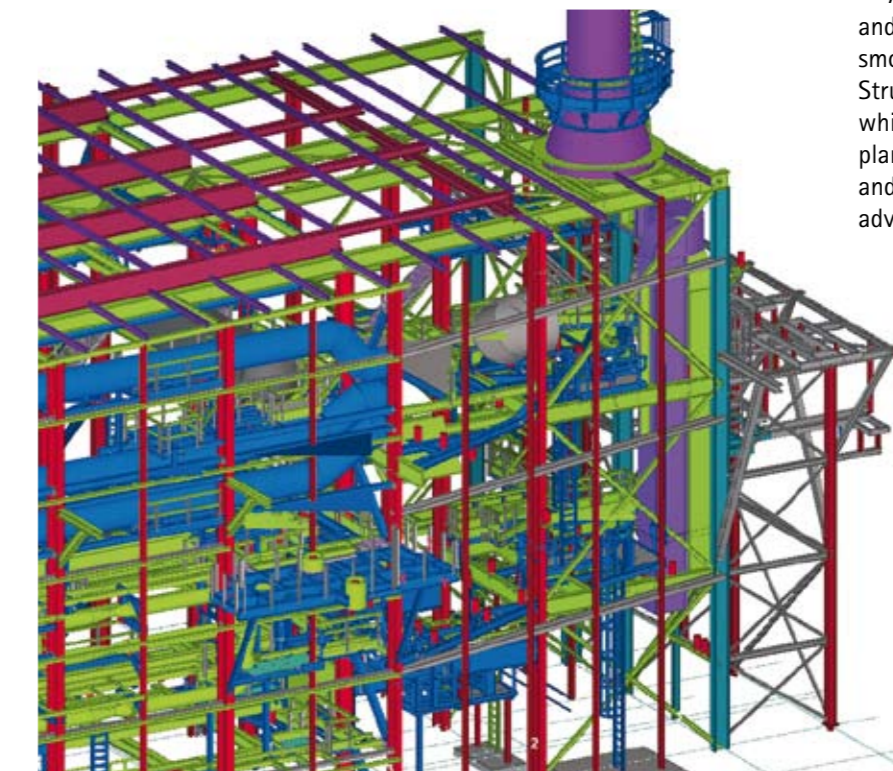


A ring-shaped platform in the chimney (Voest Alpine)

AVOIDING ERRORS BEFORE THEY OCCUR

> Traditionally, different software exchange data several times to deal with various work phases. During this process, errors would occur which would be frequently carried through to the end of the project workflow. The later they were discovered, the more difficult it became to correct them.

At Alstom, they now value the advantages of a consistent and integrated 3D system that combines referencing, smooth data exchange, and multi-user operability. Tekla Structures enables an integrated, homogeneous workflow which encompasses the various sectors involved in complex planning processes, resulting in more security, efficiency and considerable financial savings – in other words, obvious advantages in a difficult and globally contested market.



The parts in green and red are existing components in the Voest Alpine project; everything else was newly constructed inside the modeling area, with existing structures taken into account.