in practice

LOE BETONGELEMENTER

Solutions

Tekla®

Tekla Structures
Tekla BIMsight

At Loe, Tekla is not just for design and detailing: the company has integrated Tekla Structures with their Manufacturing Execution Systems (MES) which plan production and construction site shipments and logistics and control storage

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overview

"Loe Betongelementer has used Tekla since version 10.2," tells project manager **Jan Børge Loe**. That version was published in 2004. The Norwegian precast concrete manufacturer started up with 2-3 Tekla users and have since expanded tenfold: today Tekla is integrated to Loe's design, detailing, production, delivery and stock.

LOCATION
Steinberg, Norway

CUSTOMIZED, INTEGRATED USE OF TEKLA

At Loe, Tekla is not just for design and detailing: the company has integrated Tekla Structures with their Manufacturing Execution Systems (MES) which plan production and construction site shipments and logistics and control storage. Thanks to this integration, Loe has speeded up manufacturing and prevented mistakes. Tekla software allows integration of systems like precast production planning, resource planning, machine automation systems and company-specific solutions.

Loe wanted to customize Tekla software although it is ready to use when installed. The company developed an in-house application in order to generate production drawings that exactly match their needs from automatically Tekla model. Tekla Open API™ (Application Programming Interface) enables users to create third party applications that integrate and communicate within the same modeling environment.
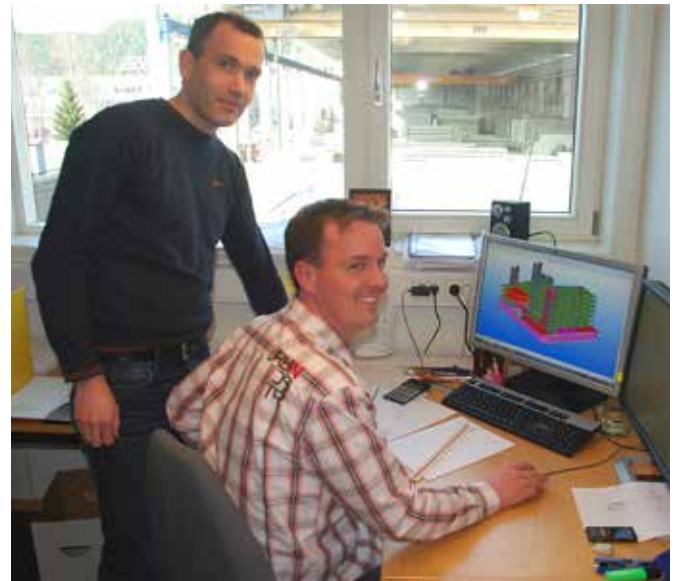
"One of the most positive and enthusiastic users was the architect. He imported the IFC files to Revit Architecture, which put him in full control of columns and beams."

– Jan Børge Loe, project manager,
Loe Betongelementer AS
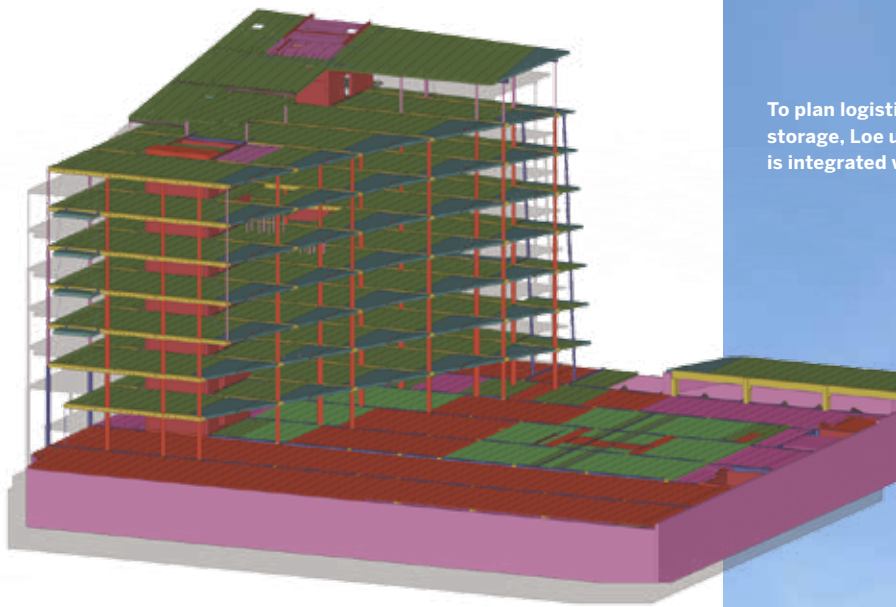
To plan logistics and control storage, Loe uses their MES that is integrated with Tekla.

Loe Betongelementer AS
PÅ LAG MED BRUKERNE

WEALTH OF INFORMATION

For the advantage of Loe Betongelementer, Tekla models contain a wealth of information to utilize for example for calculating materials and production and erection status information, and also Tekla's quickly and easily produced cast-unit lists benefits Loe.

SAVING TIME, MONEY AND MATERIAL

Building Information Modeling with Tekla can save time, money and material and other resources, as Loe knows from experience. The company has benefited from a significantly lower amount of errors in design and detailing as project parties have used less time to correcting errors and reproducing elements in later phases of construction.

Thanks to BIM, the company finds possible errors already with the model which saves plenty of time and money compared to recognizing errors in production phase.

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HOW LOE WORKS: CASE PAPIRBREDDEN 2

As Loe chooses Tekla for 80% of their projects and 100% of big projects, Tekla was a natural choice for the complex Papirbredden 2. The project started in 2010, the building was opened in August 2012, and selected as the Building of the Year 2012 in Norway. The eight-story building has a two-story garage basement and is situated in an old industry area which is under revitalization.

Papirbredden 2 is built according to passive house principles. The building uses minimal energy in Drammen where the average temperature of December and January is about -2C (28F).
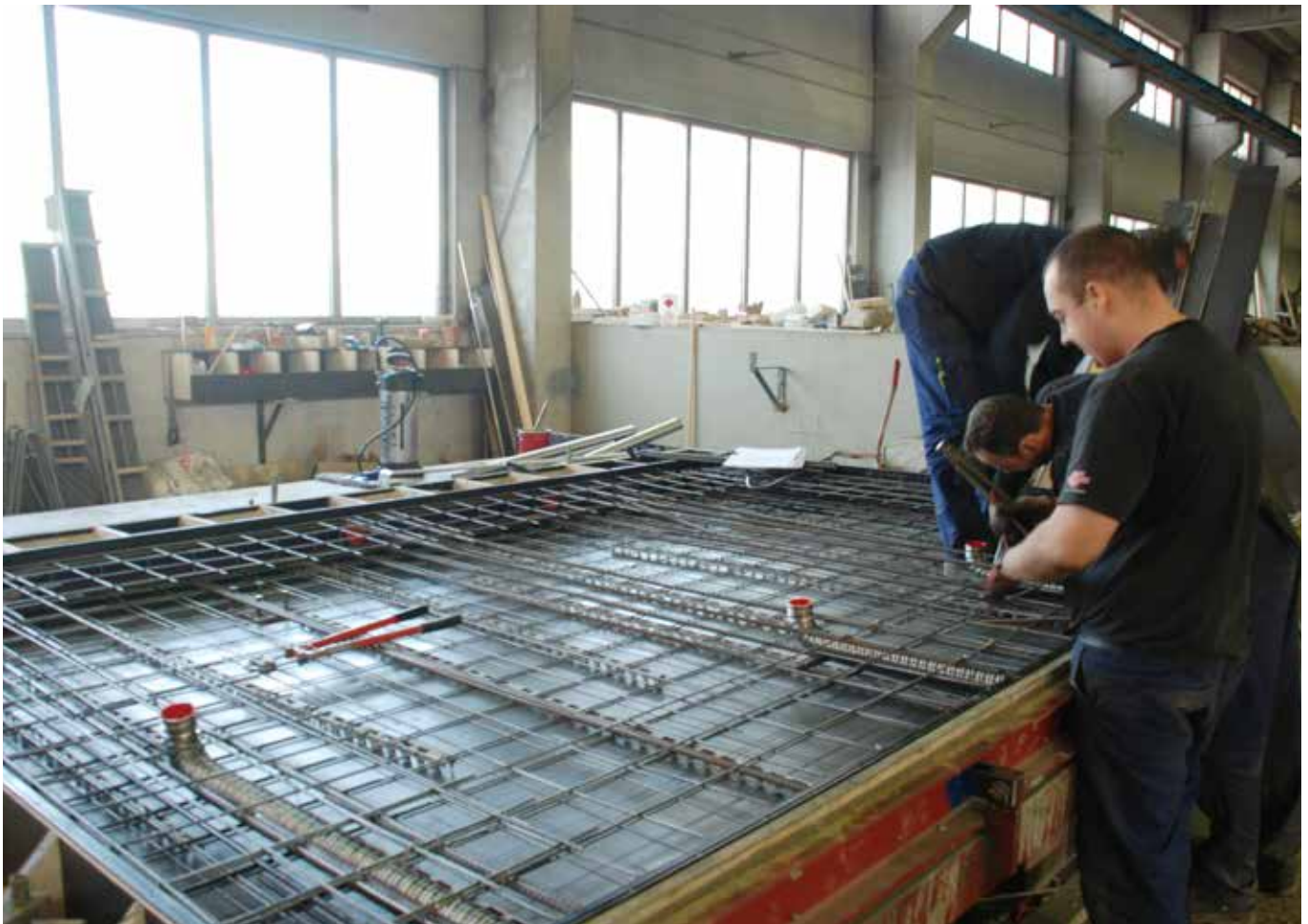
Depending on stage of design and construction, two to three Loe employees worked on detailing and drawing Papirbredden2. Loe delivered precast concrete walls, columns, decks, hollow decks and beams, and also a small amount of steel beams and columns. Outer walls of basement were made of cast-in-place concrete.

MATERIAL CALCULATIONS FOR ENVIRONMENTAL EVALUATION

For precast concrete fabricators, material calculations made with Tekla are often useful for writing bids, but for Papirbredden2, Loe utilized material and other information to prove the environmental impact of their products.

For Papirbredden 2, the client wanted Loe to deliver national environmental EPD certificates of their produce. The certificate includes specification of materials, energy use, and environmental footprint during the whole lifecycle. Tonnage and volume information from the Tekla model helped with the environmental calculations.

COLLABORATION AND
SEVERAL SOFTWARE SOLUTIONS

One software solution was not enough for Papirbredden 2: During designing and building of the project, parties used Tekla BIMsight, Revit Architecture and Tekla Structures PCD. Loe Betongelementer exported Tekla BIMsight models for Elementmontasje AS, who installed the elements. The engineering company and project architect received IFC files throughout the project.

"One of the most positive and enthusiastic users was the architect. He imported the IFC files to Revit Architecture, which put him in full control of columns and beams," tells Jan Børge Loe.

MINIMIZING PROBLEMS

A characteristic feature of Papirbredden 2 was its complex geometry. Loe faced the challenge in the design phase when they decided to solve the issue with Tekla software, which is capable of handling complexity well.

"BIM helped during construction, when several temporary steel struts supported CIP concrete walls in the basement," says Jan Børge Loe. The team modeled all these structures made of different materials in Tekla to prevent conflicts. As some of the temporary struts passed through precast concrete walls, they naturally had to take this into account in design and production.

However, Loe experienced even greater benefit of Tekla when they modeled the complex geometry of the sloped walls, tilted in two directions.
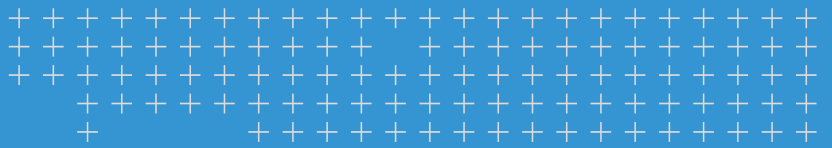
Together we are shaping a smarter future for construction

TEKLA SOFTWARE BY TRIMBLE

Trimble is a technology company with a vision of transforming the way the world works. Trimble's construction offering ranges from total stations to advanced software, giving the industry tools to transform planning, design, construction and operation of buildings. The company also has products for trades like logistics and agriculture.

TRIMBLE BUILDINGS

In addition to Tekla, Trimble Buildings brands include names like SketchUp and Manhattan Software, targeting architects, engineers, fabricators, MEP contractors, general contractors and construction managers, and building owners. The software solutions promote constructible models and collaboration. Trimble Buildings offering blend groundbreaking innovations and practical features, helping the industry achieve transformative results.

TEKLA SOLUTIONS

Tekla software is at the heart of the design and construction workflow, building on the free flow of information, constructible models and collaboration. It is the people who make the difference, while Tekla gives tools for realizing projects around the world from housing and bridges to factories and skyscrapers. Good communication and elimination of waste make the industry more sustainable and cost effective, improve your projects and in the end your customers' happiness.

- **Tekla Structures** is the most developed Building Information Modeling software on the market. It makes accurate, constructible modeling of any structure possible.

- **Tekla Structural Designer** gives engineers the power to analyze and design buildings efficiently and profitably.

- **Tekla Tedds** automates repetitive structural calculations.

- **Tekla BIMsight** is a free professional tool for construction project collaboration allowing anyone combine models, check for clashes and share information.

- **Tekla Field3D** is an easy-to-use 3D tool for utilizing Building Information Models on mobile devices.

- **Tekla Civil** is a comprehensive, model-based solution for heavy civil engineering design needs.

TRANSFORMING THE WAY THE WORLD WORKS

Trimble.