



TEKLA® Structures



*Structures that
Do Business*

Impressive Commercial Buildings – Modeled with Tekla Structures



TEKLA Structures



Structures that *Do Business*

World Financial Center, Shanghai, China

The World Financial Center is centrally located in the Lujiazui Finance and Trade Zone of Shanghai, the largest international finance and trade center in Asia in the 21st century. Construction began in August 1997 and the project is scheduled for completion in 2008. Offering high-quality offices along with extensive first-class facilities, the building will undoubtedly herald a new era of business in Asia and become a new major landmark for Shanghai. Glass and metal were covered on simple geometric bodies to create mysterious sight effects. Two sightseeing bridges were set on the upper part of the mansion, the top of which is in the form of a trapezium. This will be the highest outdoor observation deck in the world. Design changes after September 11th resulted in an extra spending of more than \$200 million USD and include structural system re-design, foundation re-design, and increased safety features. The height of the building has changed from its original plan, 94 stories at 460m, to the current plan of 101 stories at 492 meters. A 6-star hotel will be located near the top, becoming the second highest hotel in the world. Tekla Structures user SHTK is responsible for all of the truss floor in the project. As the designation of the building has changed a lot during the detailing work, Tekla Structures has been helpful in offering quick changes through the 3D model and updated drawings at once.



Building facts:

- > Project owner: Mori Building Corporation et al.
- > Design: Kohn Pedersen Fox Architects
- > Steel structure contractor: Komai Tekko Construction Engineering Co. Ltd.
- > Detailer: Shanghai Tongqing Technology Development Co. Ltd.
- > Fabricators: Shanghai Grandtower Steel Structure Co. Ltd, Zhejiang Jinggong Steel Structure Co. Ltd, Shanghai COSCO Kawasaki Heavy Industries Co. Ltd.



Hearst Tower, New York, US

Building facts:

- > Project owner: Hearst Corporation
- > Construction manager: Turner Construction
- > Detailer: Mountain Enterprises, Inc.
- > Steel supplier: Cives Steel Company

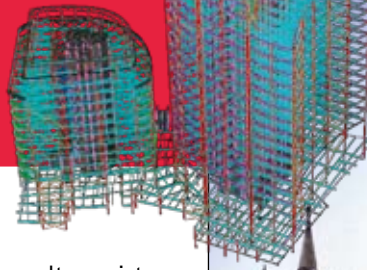


Moving forward in the fall of 2001 to build a 46-story iconic headquarters tower above its historic six-story base, the Hearst Corporation made a bold commitment to produce the most environmentally friendly office tower in New York City history – from design through to construction, furnishing and occupancy. The tower is the first occupied office building in NYC to earn a Gold Rating under the U.S. Green Building Council. About 85% of the original steel structure was recycled for use in future construction projects. Hearst settled upon an innovative “diagrid” (diagonal grid) structure that creates a series of four-story triangles on the façade. No vertical steel beams were used, which is a first for North American office towers. In addition to giving the tower a bold architectural distinctiveness, the diagrid provides Hearst with superior structural efficiency. As a result, the need for approximately 2,000 tons of steel was eliminated; a 20% savings over a typical office building. Mountain Enterprises Inc. was awarded the steel detailing contract in June 2003. They used Tekla Structures to detail 11th thru 42nd floors and the roof steel, including 5–8 floor phases, each phase containing eight different jobs. The modeling encompassed 7338 tons of steel and produced 2680 drawings plus a base model for the steel mill order.

51 Lime Street, London, UK

Building facts:

- > Project owner: British Land / Stanhope
- > Architect: Foster & Partners
- > Main Contractor: Mace
- > Consultant: Whitbybird
- > Steelwork: William Hare



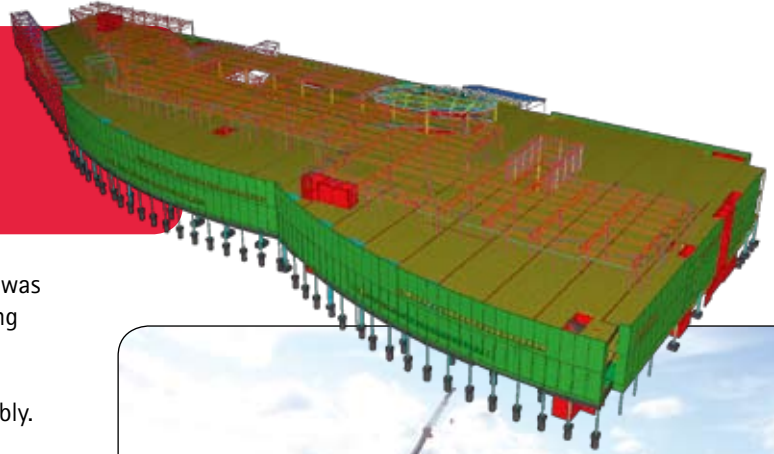
The office development is in the heart of the city of London, right next to St. Paul's Cathedral and directly opposite Lloyd's Insurance. It consists of two towers, one 28 stories above ground (the Tower), one 11 stories (the Fenchurch Avenue Building), and a double level basement covering the whole site. The existing basement has been refurbished and houses an auditorium and gymnasium as well as plant and car-parking. Each tower is a steel frame structure with a central concrete core. The structural design satisfies the specific requirements of the tenant. The concrete cores are sufficiently robust to provide for interior space that is completely column free throughout both buildings. Working collaboratively, with significant input from trade contractors, Whitbybird and steelwork contractor William Hare were part of a team that deliver the successful design and construction to a tight schedule using Tekla Structures.



Jumbo shopping center, Vantaa, Finland

Building facts:

- > Project owner: IVG Polar Ltd and Pension Fennia
- > General contractor: Lemcon Ltd
- > Structural engineering: Finnmap Consulting
- > Steel supplier and frame constructor: PPTH Solutions



The extension of mega-sized shopping center Jumbo was an important pilot project to utilize product modeling in Finland. The structural 3D model was created using Tekla Structures. The model was also used to fabricate the building frame and to manage and schedule assembly. It was clearly beneficial in transmitting structural data between the project participants involved in the design, fabrication and assembly, and when examining the erection procedure sequence and schedule – particularly during the time-critical and technically challenging phase of combining the two meeting ends of the building frame. The model also helped advance the project schedule allowing stores to open on time in October 2005 for the busy Christmas shopping season.

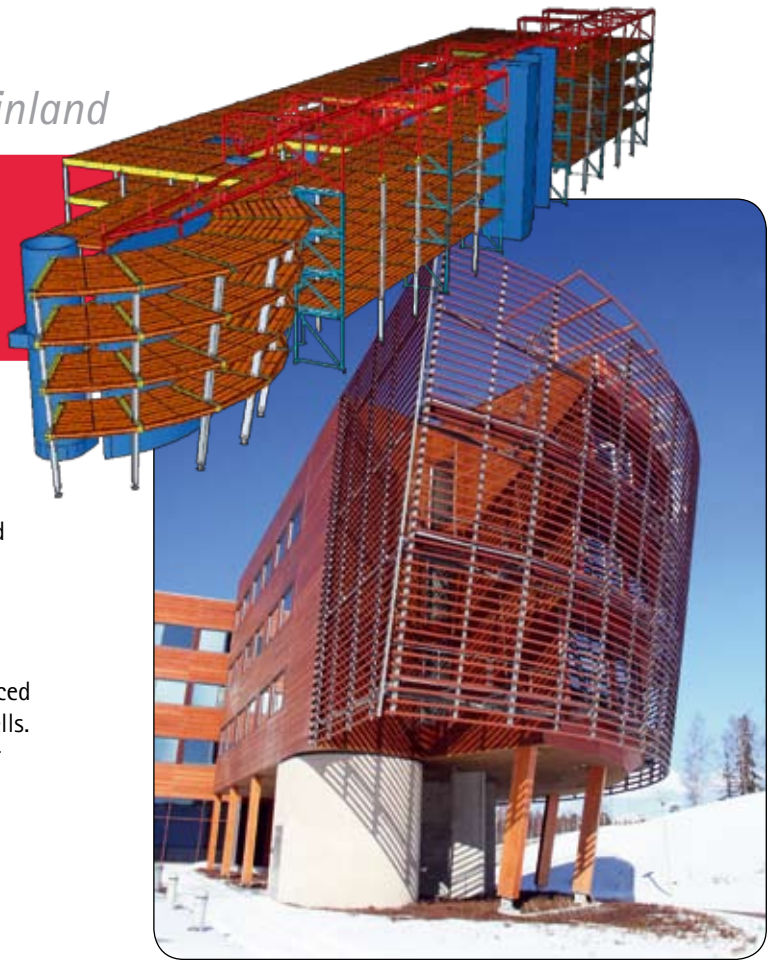


Finnforest Headquarters, Espoo, Finland

Building facts:

- > Project owner: Finnforest plc (Metsäliitto Group).
- > Design: Helin & Co Architects
- > Constructor: PEAB Seicon
- > Structural engineering: WSP ConsultingKORTES Ltd

Finnforest Modular Office (FMO) in Espoo, Finland, was detailed and built utilizing Tekla's advanced 3D planning and modeling technique. The unique 5-story and 13,000 square meter building is the tallest wooden office building in Europe, consisting of thousands of both prefabricated and separately worked wooden parts as well as stiffening steel wire nets and precast concrete elements. Its wooden frame and facade were assembled on site from more than 1,200 pre-fabricated wood product sections. There are 17,000 individually machined wood parts. The building was reinforced with eight steel trellises and concrete lift shafts and stairwells. Split glulam panels and thermowood cladding were used for the facade, and the building's intermediate floors feature stressed-skin panels made from laminated veneer lumber.

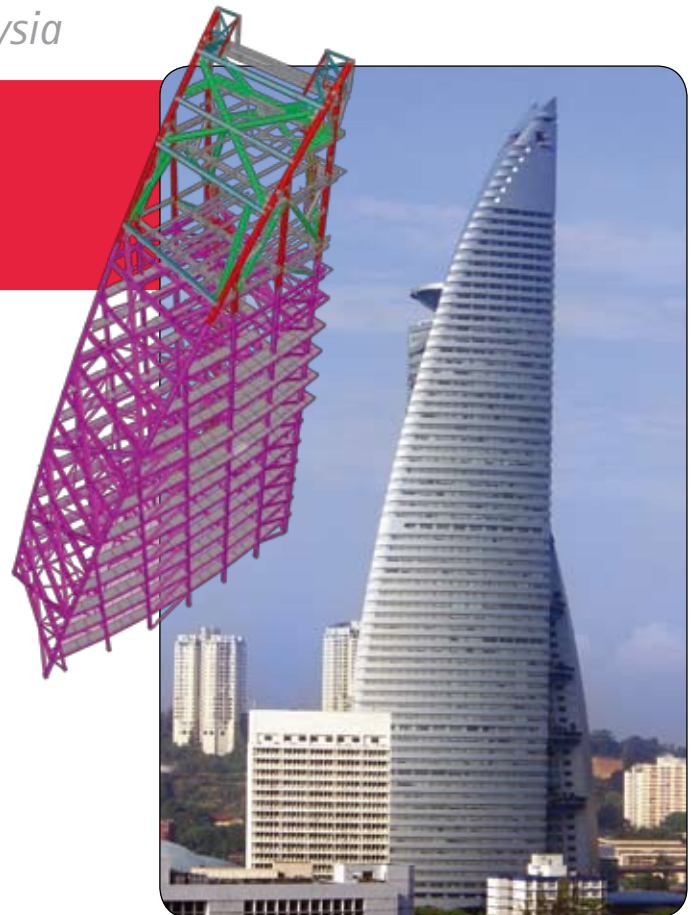


Menara Telekom, Kuala Lumpur, Malaysia

Building facts:

- > Design: Hijjas Kasturi Associates
- > Project owner: Telekom Malaysia Bhd
- > Steel fabricator: Victor Buyck Steel Construction
- > Steel detailer: Seacad (M) Sdn Bhd

Malaysia's third tallest skyscraper was completed in 2001 and opened in 2003. This state-of-the-art intelligent office building is 1.6mn sq ft, 55-story high, and shaped to represent a sprouting bamboo shoot. Standing 310 meters, the unique new landmark, Telekom Malaysia's Corporate Head Office, cannot be mistaken for just another high-rise in the city of Kuala Lumpur. It is one of the city's most impressive buildings and the 19th tallest building in the world. The total amount of steel used in the project was approximately 630 tons. Tekla Structures was used for the top part, which has a steel structure. The complex geometry created by the curved and twisted outer face was a three dimensional structure that would have been very difficult to resolve in a purely two dimensional drafting environment. With the aid of Tekla Structures, Seacad was able to model the critical interface of the continuous vertical braces with the split horizontal compound girders that made up the curved cladding face. The software offered a remarkably user-friendly and cost efficient 3D modeling environment for steel detailing.



TEKLA STRUCTURES – INTELLIGENT 3D MODELING



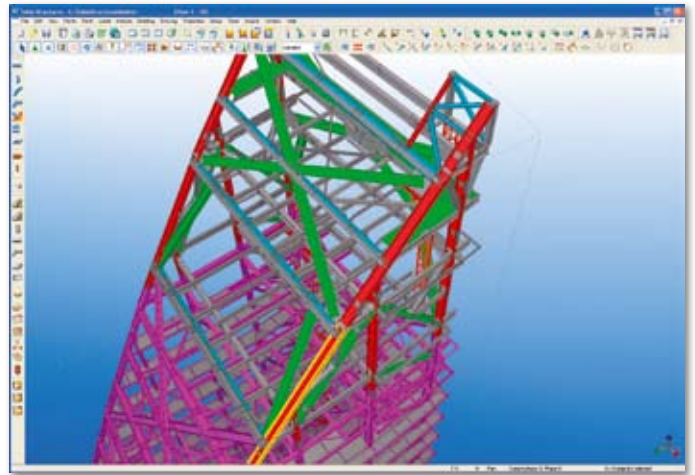
TEKLA CORPORATION

Tekla is a leading international software company whose innovative software solutions make customers' core businesses more effective. Tekla's software products and related services are used mostly in building and construction, but also in energy distribution and by municipalities. Tekla Corporation has area offices and partner organizations worldwide. International operations account for 75% of net sales. Founded in 1966, Tekla is one of the oldest software companies in Finland.

TEKLA Structures

Tekla Structures software is a BIM (building information modeling) tool that streamlines the delivery process of design, detailing, manufacture, and construction organizations. While integrating openly with architectural models, the strength of this single-model environment lies in the contractor end of the process. Thousands of Tekla Structures software users in more than 80 countries have successfully delivered BIM-based projects across the world.

Tekla Structures' ability to process extensive amounts of data enables the creation of detailed 3D models that apply to every stage of design and construction. From planning and design development thru to fabrication and installation, Tekla models naturally develop in parallel, representing the "as-built" condition of a building. Tekla Structures effectively integrates into any best-of-breed software driven workflow, while maintaining the highest levels of data integrity and accuracy. Such collaborative workflows are the cornerstone to minimizing errors and maximizing efficiency, resulting in high profitability and on-time project completion. Tekla Structures encompasses specialized configurations for structural engineers, steel detailers and fabricators, precast concrete detailers and manufacturers, as well as contractors.



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