TEKLA STRUCTURES – INTELLIGENT 3D MODELING

TEKLA CORPORATION

>Tekla is a leading international software company whose model-based software products make customers' core businesses more effective in building and construction, energy distribution, infrastructure management, and water supply. 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

> Tekla Structures software is the building information modeling (BIM) solution that can take any building project all the way from sales and conceptual design to detailing, fabrication, erection and beyond. Its innovative tools provide new possibilities to create an intelligent model of any size or complexity and to coordinate different materials with ease and precision. Tekla 3D models contain all the information required for the different construction phases of a project. Tekla Structures encompasses specialized configurations for structural engineers, steel detailers and fabricators, precast concrete detailers and manufacturers, as well as contractors. The software is used by industry leaders in more than 80 countries.

www.tekla.com/us

CONTACT INFORMATION
Tekla, Inc.
114 Town Park Drive - Suite 500
Kennesaw, GA 30144
Tel. 770.426.5105
Toll-free 1.877.835.5265
Fax 770.919.0574

TEKLA STRUCTURES IN PRACTICE: ORSOLINI WELDING & FABRICATING

TEKLA Structures

LOCAL WELDING COMPANY FORGES REGIONAL RELATIONSHIPS WITH 3D EDGE

> Orsolini's Welding & Fabricating Inc. custom structural steel fabrication company is one of Chicago's most successful small businesses. Established more than 50 years ago, this family-owned and operated shop designs and fabricates steel components and assemblies for a wide range of industrial, commercial and residential customers.

Since 2003, the company with a staff of 15 people has increased its annual revenues from about $1.3 million to over $2 million in sales, and expanded its customer base from Illinois to much of the upper Midwest.

Robert (Bob) Orsolini, partner and detailer for the firm, attributes much of that growth to technology, specifically his shift to 3D detailing and fabrication.

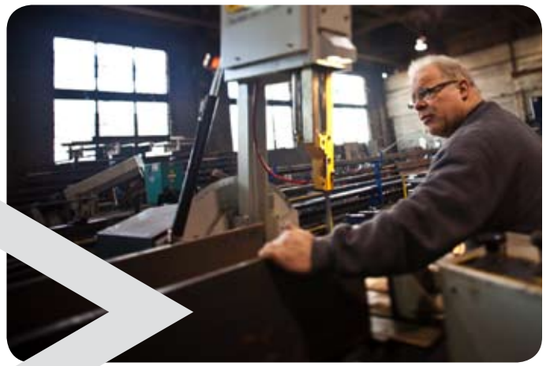
3D PERSPECTIVE

> About five years ago, Orsolini swapped his 2D CAD system for Tekla Structures, Limited, Steel Detailing building information modeling (BIM) software, a tool designed to facilitate the design and detailing of structural steel models in 3D.

Orsolini recalls, "I'd used 2D CAD software for 20 years. After the first demonstration of the software, I knew this 3D detailing environment is what I needed to make my job easier, in terms of speed, accuracy and communication with clients."

Typically, an owner, architect or contractor will send Orsolini 2D PDF files at the beginning of a job. He will model those engineering designs within the Tekla Structures, detail the steel assemblies and connections, and then send the resulting 3D model and detailed drawings back to the architect or contractor for review.

"The completed model knocks their socks off because they instantly get a clear visual picture of the assembly," says Orsolini. "We can easily root out conflicts prior to fabrication. I've signed a lot of deals with this software. Better yet, I am able to do all detailing and fabrication in about one-tenth the time it used to take me with 2D CAD solution with greater accuracy."



> *"I've signed a lot of deals with this software. Better yet, I am able to do all detailing and fabrication in about one-tenth the time it used to take me with 2D CAD solution with greater accuracy."*

Orsolini believes Tekla helped push his firm to invest in a new generation of automated steel fabrication equipment. Not long ago, the firm invested in its first computer numeric controlled (CNC) drill for the fabrication shop. Since the CNC drill works hand-in-hand with Tekla, Orsolini can use his detailed 3D models to automatically produce CNC data for shop machinery. Data output comes directly from the 3D model, thus eliminating human error. Tekla Structures includes an optimal nesting function for sheet metal production, maximizing stock usage while minimizing waste. Orsolini plans to invest in two more CNC tools in 2009.

The combination of 3D detailing and automated fabrication has helped Orsolini expand his business well beyond the Illinois area. Since the mid-1990s, about 50% of Orsolini's custom fabrication business has been with the rapidly expanding cellular phone industry in the Midwest.

CELLULAR CONNECTIONS

> On one recent job, Orsolini's 3D edge proved invaluable to a cellular phone carrier looking to expand into the Chicago, Illinois market. A key part of this carrier's rapidly expanding cell phone service area is the construction of 60 customized 10 ft x 15 ft rooftop tower platforms. Five contractors were awarded contracts to construct the platforms and subsequently looked to Orsolini to fabricate and install the platform components. Ironically, all 60 permits for construction were approved in September 2008.

Orsolini recalls, "All of the sudden, I had 60 of platforms to fabricate and install before the end of the year."

Each structure averages about $8,000 to $12,000. The platforms are simple beam structures like mezzanines that might include stairs, ladders, handrails, balustrades, sheet metal or other components to support the radio cabinet.

"At first, the prospect of getting these complete in such a short timeframe was nearly overwhelming," says Orsolini. "But, after completing the first site model and with the help of a couple of custom components, I knew we were going to be fine. Starting from a PDF file, I created the first 3D platform model, detailed it and created a material list – all in about one hour."

> THE STEEL DETAILING SOFTWARE INCLUDES BUILT-IN CHECKS DURING THE ACTUAL DETAILING OF THE PROJECT SO THAT THE DRAWINGS AND DATA USED TO MANUFACTURE AND ERECT THE STEELWORK ARE 100% ACCURATE.

Every model includes platform geometry, dimensions, member properties, connection types and materials. Drawings and material lists are produced automatically. Any modifications to the structure's geometry are transferred to the connections. For example, if a member's length or position is changed the relevant connections are modified automatically together with the detail drawings and material lists. Using a common model, designers, detailers and fabricators can collaborate, improving accuracy and eliminating fabrication shop and erection errors. Automated clash checking tools expose conflicts in the model.

The steel detailing software includes built-in checks during the actual detailing of the project so that the drawings and data used to manufacture and erect the steelwork are 100% accurate.

"We finished the fabrication and installation of all 60 platforms by December with the highest regard from the project manager involved with the build out," says Orsolini. "The contractors were thrilled because our speedy turnaround and accurate final products made them look great in the eyes of the cell phone company owner."

For 2009, Orsolini is in line to fabricate and install another 200 cell tower platform sites.

Orsolini says, "Thanks to Tekla, we're one of the top cell phone fabricators in the area."

ALWAYS CURRENT

> Orsolini takes advantage of the Tekla maintenance program that guarantees includes annual version updates, online and telephone technical support, and the availability of skilled consultants to help resolve problems related specifically to Tekla Structures software or a project.

"I've had other software for the same period of time and given up on the maintenance program because there were no upgrades," concludes Orsolini. "With Tekla, I'm guaranteed a full version upgrade every year, and therefore have the most current functionality and ease-of-use improvements. That's critical if I'm going to continue to impress my clients with detailing and fabrication quality, speed and accuracy."