



TEKLA® Structures



TEKLA STRUCTURES IN PRACTICE:

**BLACH CONSTRUCTION:
BIM BASED HANDOVER
AND FACILITIES**





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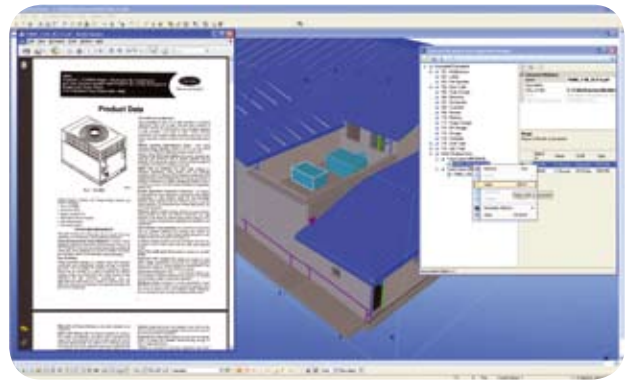
BIM, BLACH, AND FACILITIES MANAGEMENT

Founded in 1970, Blach Construction Co., a California-based general contracting and construction management company, is known for its innovation and initiative in finding new ways to deliver value to its clients. The company is one of the first general contractors to implement building information modeling (BIM) techniques and technology to streamline construction processes and get involved in the U.S. Green Building Council to drive more sustainable project delivery.

More recently, the firm looked to introduce value-added BIM to its clients.

Gino Cecchetto, BIM coordinator for Blach, says, "There's been a lot of press about the value of BIM to save time and money during the design and construction process—and we've realized those benefits. But we feel there's more; our as-built construction models contain virtually all of the relevant data about a given facility. In our industry today, the use of the model database dies at the completion of the project. Yet, this captured data can be used to greatly enhance an owner's ability to efficiently operate and maintain their facilities. Our goal is to make this data rich facilities maintenance and operation tool a reality for our clients."

Blach recognized the potential of providing a data rich model at handover rather than the usual paper documents.



DIGITAL DELIVERABLES

Blach had purchased a license of Tekla Structures BIM software to utilize their Construction Management (CM) solution and was very interested in applying this technology to facilities maintenance and operations. The software includes solutions that cover the entire building process from conceptual design to fabrication, erection and construction management. Blach was most interested in the construction management software as a way to provide clients a powerful facilities maintenance and operations model.

Blach's goal was to import Industry Foundation Class-formatted (IFC) files of all models developed during construction by the entire project team into a single model. Tekla Structures can consolidate models from various disciplines—architectural, structural, mechanical, electrical, etc. Cecchetto's team would then data load that single model with all information that would ordinarily go into traditional paper-based closeout documents.

The CM solution provided the tools necessary to shape this final product. It consolidates models from various disciplines—architectural, structural, mechanical, electrical, etc.—into one single model which can be used to manage a project, or in the case of Blach clients, the operations and maintenance of one or more facilities.

While none of the source models can be edited in order to preserve their integrity, users can explore the properties of the objects in the models as well as attach additional CM-related attributes to them such as cost, phase, RFI number, change order number and so on. One of the most important features of the CM modeling tool is the ability to hyperlink files and documents created in other formats. Objects in the models can be linked to include Word and Excel files, CAD drawings, 3D models, and manufacturer's data, etc. These hyperlinks keep the as-built models light while providing data rich, as-built models.

BUILDING BLOCKS

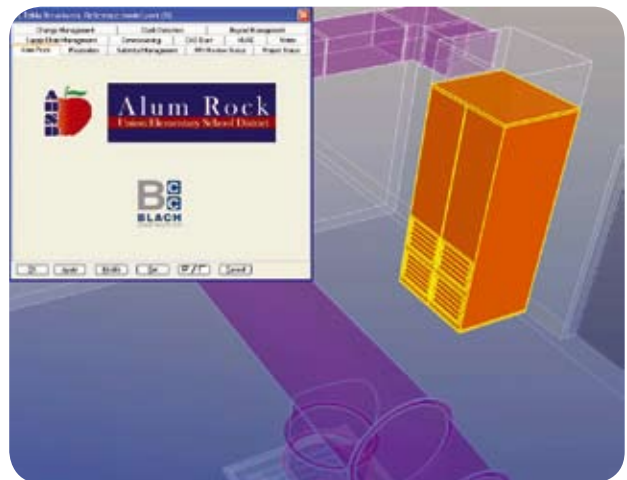
The Alum Rock School District in San Jose, California contracted Blach as part of a 5 year contract to support construction activities on schools throughout the district. The contract called for HVAC upgrades for many of its 26 existing schools and construction of new schools. The key deliverable in the contract award was the electronic as-built models at the completion of every project that could support operations and maintenance activities.

The first project was to replace the aging heat only mechanical system at the District's Mathson Lee Middle School with an efficient heating and cooling system controlled by an energy management system.

Using Tekla Structures the Blach team created a simple 3D model of the Mathson campus, and imported the HVAC and electrical systems. As the engineering team completed various mechanical, structural and electrical upgrades,

"We wanted to hand over a living BIM model, a complete electronic as-built representation of the client's project that really helped manage the facility—not just geometry that looks pretty."

*- Gino Cecchetto , BIM Coordinator,
Blach Construction*



they added details to the model which included: location, type and operational properties of the air conditioning units, and associated connections to electrical panels and circuits. Using the Tekla Structures hyperlink tool they linked the associated HVAC maintenance manuals, warranty data and information to the related pieces of equipment in the model.

Cecchetto says, "When maintenance personnel log into the Mathson model, they can visually locate a specific piece of equipment and with a couple mouse clicks retrieve any relevant data such as heating capacities, track warranty periods, periodic maintenance schedules and much more."

Blach also scanned and catalogued all the paper drawings stored in the District's archive room and made those available in the model database for easy access.

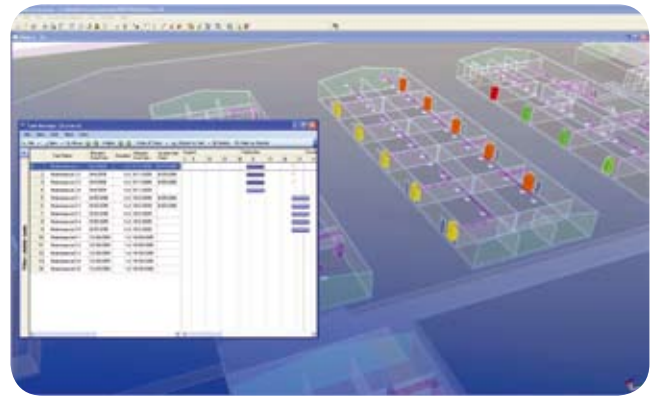
TEKLA STRUCTURES – INTELLIGENT 3D MODELING

OPENING NEW DOORS

Blach believes its use of Tekla's Construction Management solution is just the beginning of a new era in facility management.

"The possibilities are endless for our clients. With our facilities maintenance and operations model as a foundation, we provide our clients with a powerful resource that can grow and evolve to meet their needs through the life of that structure, as well as be used as the bases for design for future construction projects at the site" concludes Cecchetto.

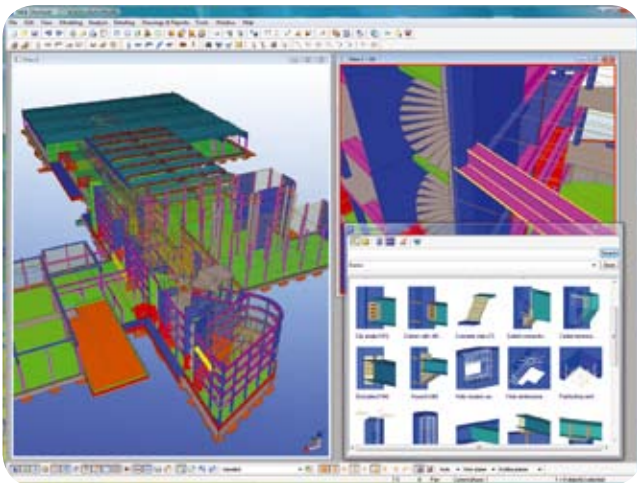
Blach is actively marketing its BIM construction management modeling capabilities to all existing and new clients.



ABOUT TEKLA

> 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 more than 80% of net sales. Founded in 1966, Tekla is one of the longest operating software companies in Finland.

Tekla Structures for Construction Management is a Building Information Modeling (BIM)-based project management solution that supports contractors, sub-contractors, project and construction management professionals by helping them to centralize, visualize and manage project information. Tekla Structures for Construction Management can process large amounts of BIM and non-BIM information regardless of the source. The solution uniquely enables streamlined communication and decision-making throughout all phases of the construction process from design, detailing, construction to project handover.



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