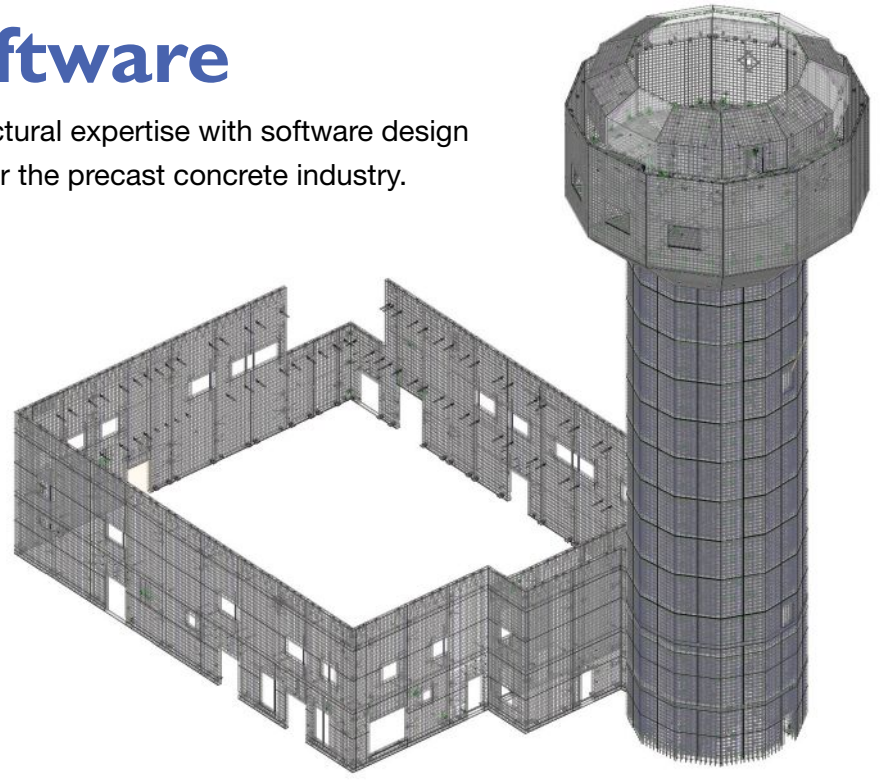
Eriksson Software

Eriksson Software combines structural expertise with software design knowledge to provide solutions for the precast concrete industry.

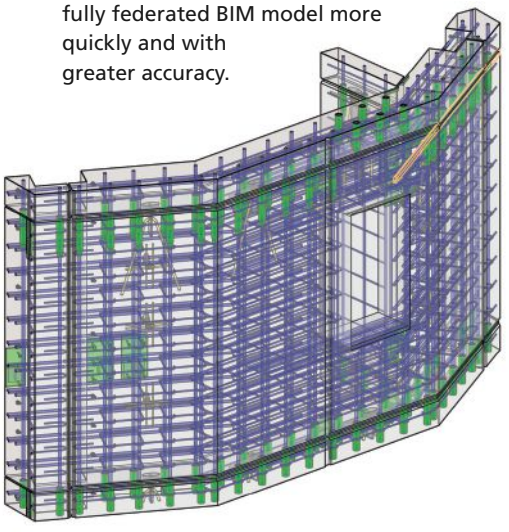
by Monica Schultes



The use of Eriksson Sync Software automation reduces the time it takes to complete a complex project. The Teterboro air traffic control tower project received a 2025 PCI Design Award for the use of building information modeling to perform highly accurate geometrical modeling. All Photos and Figures: Eriksson Software.

Like many successful entrepreneurs, Roy Eriksson, founder and principal of Eriksson Technologies and Eriksson Software, started his business from his home. In October 1998, he incorporated Eriksson Technologies, a firm that leverages his expertise in both structural and software design. Before starting his own enterprise, Eriksson worked for a large consulting firm, but it was his 10 years at LEAP Associates that he credits for igniting his passion to create software that improves engineering processes. He chose to name his firm Eriksson Technologies to signify the combination of both engineering and information technology in one company. The firm's first software product was a Windows-based program used to design precast, prestressed concrete highway bridge girders. "That was a significant undertaking at the time," Eriksson recalls. "It sold well, so I expanded into design and consulting work. As the company grew, we started doing more software and more engineering."

The use of Eriksson Sync Software places the necessary reinforcement directly into the model, eliminating the need for the BIM modeler to create them within the model. As a result, the team can create a fully federated BIM model more quickly and with greater accuracy.



In October 2012, Eriksson Software was spun off from Eriksson Technologies to become a separate company. Eriksson Technologies now employs 25 people, and Eriksson Software has 10 employees. Their headquarters are in Tampa, Fla., with a satellite office in Denver, Colo., and a half-dozen fully remote employees scattered across the United States.

Synergies

While Eriksson Software and Eriksson Technologies maintain separate offices and separate staff, the two companies work closely together. Roy Eriksson and his business partner, Brian Barngrover, are the common denominators. They oversee both operations, and, when necessary, employees of one firm will share their time and talent with the other company, which is invoiced for the work performed.

"The engineering services firm [Eriksson Technologies] is a power user of Eriksson Software products and tools. They assess the functionality and performance of the software and are early users of new products and generate a wellspring of ideas," explains Eriksson. "The strength of our operation stems from the symbiosis between the two firms. The engineering group benefits with the best tools available, and software developers get an inside look at the design process, so the two sister companies exist in harmony."

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A panel is erected on the Teterboro Airport air traffic control tower project. Eriksson Technologies used building information modeling (BIM) to perform construction engineering and prepare the detailed fabrication drawings for the project.

Industry Associations

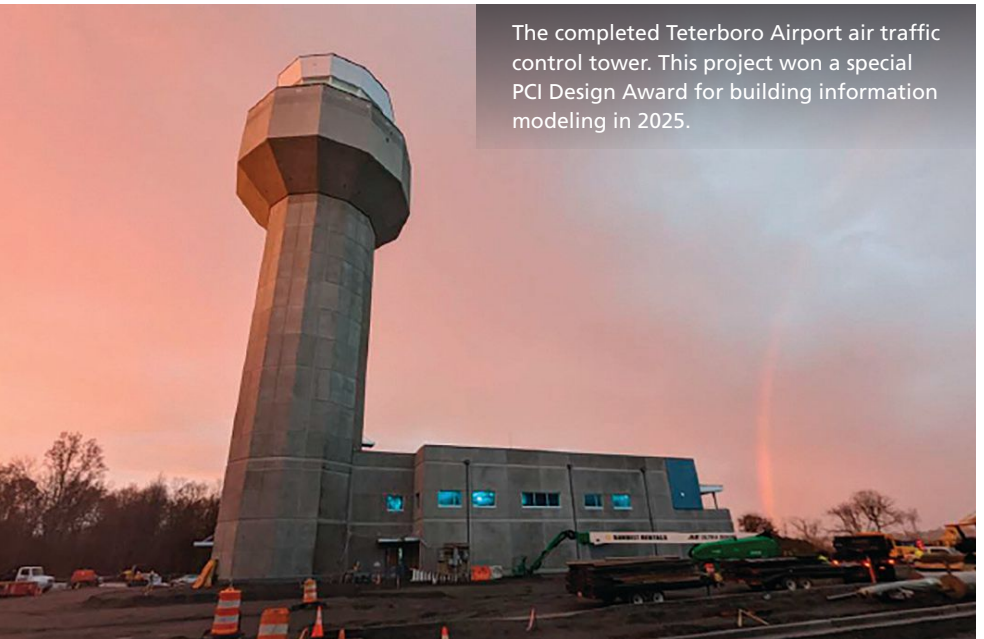
Eriksson has been a contributor and supporter of PCI for his entire career, and his team has followed suit by participating in PCI technical committee work and other volunteer efforts. This collaboration has been beneficial for PCI, the industry, and Eriksson personally. "PCI is particularly important to us, to our work, to our careers," he says. "Some of the best engineers and academicians serve on and contribute to technical committees alongside the precasters, consulting engineers, and public agencies." Eriksson employees also contribute to the industry by monitoring code-writing bodies such as the American Concrete Institute (ACI) and the American Association of State Highway and Transportation Officials (AASHTO).

Software for the Precast Concrete Industry

Eriksson Software focuses primarily on the development of engineering software for the analysis and design of precast concrete elements. End users of their software include fabricators, engineering firms, transportation agencies, and other owners. Clients who use Eriksson Software products can store their data anywhere; some clients have local servers, while others use cloud-based systems

Other Eriksson Software offerings in the bridge engineering market include Eriksson Pile, a program for the analysis and design of precast prestressed concrete piles; ETPier, software for the analysis and design of bridge substructures; and Eriksson Culvert, which is used for precast concrete or cast-in-place concrete culvert design. Future releases of all these programs will be compatible with building information modeling (BIM).

While the precast concrete industry encompasses both buildings and bridges, commercial clients tend to embrace new software technology more readily than those in the transportation sector. That latitude enabled Eriksson Software to develop a suite of software products for commercial structures, which includes products for beams, columns, wall panels, connections, and everything that goes into a precast concrete building. These products share a common data structure, which accelerates product development.



The completed Teterboro Airport air traffic control tower. This project won a special PCI Design Award for building information modeling in 2025.

Evolution from PSBeam to Eriksson Girder

Roy Eriksson has been involved in software since the start of his career and has witnessed the transformation of computers from programmable calculators to laptops with high-resolution monitors and graphics packages. When he founded Eriksson Technologies, his first brainchild was PSBeam, a Windows-based program for the design and analysis of simple- or continuous-span pretensioned or post-tensioned precast concrete bridge girders. Fast forward to 2025: Eriksson Girder, a state-of-the-art Windows-based program, has been released and PSBeam is on its way to retirement.

Eriksson Girder sets a new standard for plant-cast prestressed concrete bridge girder design with a new architecture and data structure that supports current engineering workflows while paving the way for expanded use of building information modeling. Eriksson Girder will also support precast concrete plant automation and project delivery. "This is a bittersweet moment, because I wrote PSBeam but it's time for a new generation of software," says Eriksson.

Customer Support

Software firms use a metric called the "churn" rate, which measures attrition or lost subscriptions when users switch to different software products. Eriksson Software enjoys little churn, which indicates that their customers are satisfied with the products and the support that Eriksson offers.

In addition to offering standardized training, tutorials, and a video library, Eriksson Software stays in touch with customers through an efficient tech support team. "We listen very carefully to

our users and have developed an internal knowledge base. If a feature needs improvement to make it more intuitive, we work with the end user to improve it and provide the best customer support we can," Eriksson says.

The firm maintains a high level of quality control for their software and is up to date with the recently published 10th edition of *AASHTO LRFD Bridge Design Specifications* and other codes. A test suite of problems is routinely performed to evaluate every version and revision. "With complex software, something frequently arises that you do not foresee, like a structural design code interpretation, but we pride ourselves on our quick response," says Eriksson.

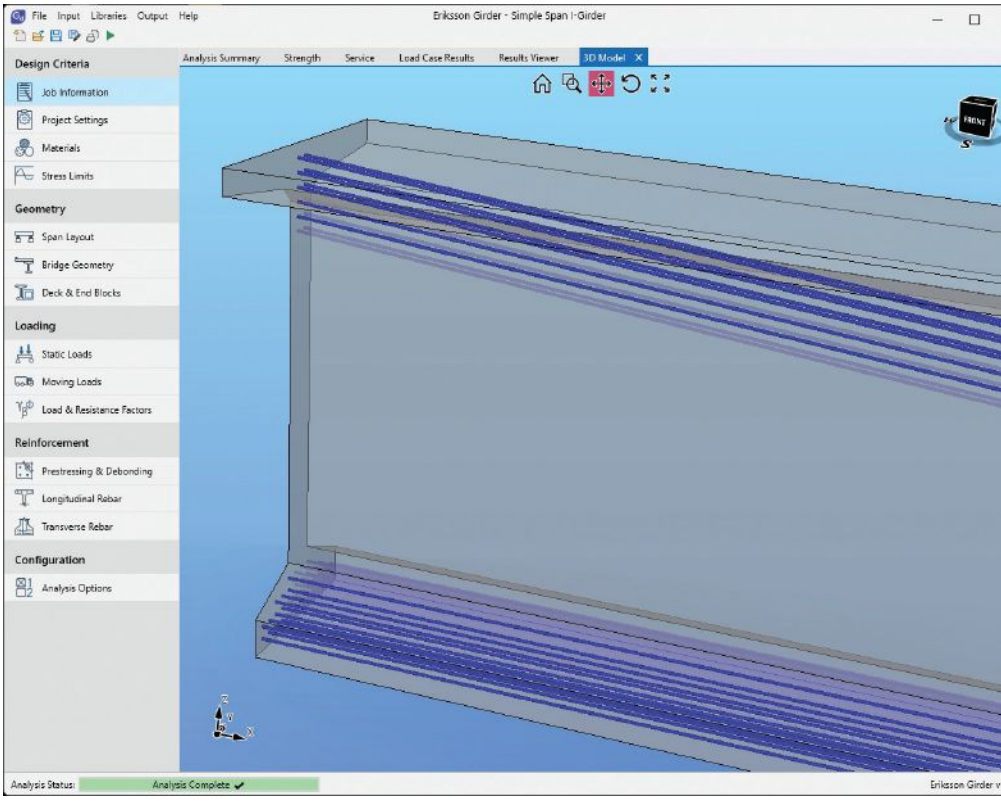
Building Information Modeling

Recently, the Eriksson teams of professional programmers and engineers have focused on developing and leveraging BIM. Using BIM software developed by Eriksson Software, Eriksson Technologies has improved accuracy and reduced the time to design and produce fabrication drawings by 25% to 50%. Many U.S. precast concrete producers also use the Eriksson commercial software platform for shop drawings. "We anticipate that they will be on board with BIM," predicts Eriksson.

Eriksson Sync software establishes two-way connectivity between design software and BIM models. This software generates the reinforcing objects from a design and places them within a BIM model. The reinforcement in a BIM model can be edited directly within the model or within the design software. Separate from Sync is BIMpak, software that runs within a BIM platform and provides tools to detail precast, prestressed concrete structural elements within a BIM model. BIMpak also provides the capability to output the design of the structural elements in the form of piece tickets.

Teterboro Air Traffic Control Tower Project

In 2025, Eriksson Technologies was part of the team that won a PCI Design Award in the BIM category for the Teterboro Airport air traffic control tower (ATCT). Eriksson Technologies performed construction engineering and prepared the detailed fabrication drawings. The total–precast concrete ATCT features precast concrete panels that form a cylinder at the base and a sphere at the top level of the tower. As the Eriksson team generated the construction drawings, BIM modeling helped them meet tight tolerances in the field and carefully check for clashes and alignment of reinforcing bar couplers. "For complex projects like this one, BIM is excellent at 3-D [three-dimensional] geometry and modeling accuracy," says Eriksson. "This project was a great fit for BIM, where we maximized the capabilities of the computer to perform highly accurate geometrical modeling."



Rendering of the strand pattern for a prestressed concrete girder from Eriksson Girder, a new Eriksson Software program to facilitate the design and analysis of precast, pretensioned concrete bridge girders.

The use of Eriksson Sync played a key role in the successs of this project because it precisely placed the reinforcement from the structural design directly into the BIM model, eliminating human error. The wall panels in the Teterboro model had a great deal of reinforcement that was interrupted at the joints of the tower. Continuity of the reinforcement across the joints was established with the help of reinforcing bar couplers, which required meticulous alignment for proper fit-up. The use of Sync ensured that bars were placed exactly as required so that when the panels were stacked upon each other the protruding reinforcing bars aligned precisely with the reinforcing bar couplers.

Eriksson Sync is an innovative technology that provides a critical two-way interface between engineering design software and BIM models. Its use profoundly changes the normal design workflow for detailing precast, prestressed concrete structures, as it allows the BIM modeler and the structural engineer to work together as a team. The BIM modeler breaks the project into discrete precast concrete elements, and then the structural engineer interfaces with the model to analyze, design, and generate the reinforcement and structural embedments for each precast concrete element in the model. The design software places the necessary reinforcement directly into the model via Sync, eliminating the need for the BIM modeler to create them within the model. As a result, the team can create a fully federated BIM model more quickly and with greater accuracy.

BIM for Bridges

BIM is slowly being adopted by the transportation industry, and the technology for BIM modeling that Eriksson Software has developed for use in the commercial sector is directly applicable to the bridge sector. To accommodate the use of BIM in transportation projects, Eriksson Software's bridge engineering library has undergone a complete rewrite. After two years of development and beta testing, Eriksson Software launched a new product called Eriksson Girder in March 2025. This new product for the bridge market is a Windows-based program for the design and analysis of simple- or continuous-span precast, pretensioned concrete bridge girders. Eriksson Girder will soon be ready to connect to BIM and is expected to be widely adopted by the bridge market.

A powerful feature of Girder is its load rating capability. It computes inventory and operating load ratings for flexure, shear, and concrete stresses. A future release will permit the user to transfer load rating data for a girder to the National Bridge Inventory database.

The stability of girders during lifting, handling, and hauling is addressed within Girder. The methods used within the program are consistent with those recommended by PCI. However, some of the methods used within Girder are capable of more accurate calculations. Currently, stability is checked up to the point of placement of a girder on the bridge.

"Eriksson Girder replaces PSBeam, and the license extends to our current PSBeam users. They will be able to use both products and eventually we will sunset PSBeam," says Eriksson. He believes that "if we could consolidate the disjointed design-bid-build project delivery method used in the bridge market, the BIM workflow would be more efficient." Design-build projects have the greatest potential for early adoption of BIM for bridges.

Transportation agencies are trending toward using BIM models for project delivery. As state agencies and the industry become more familiar with BIM and its capabilities, two-dimensional drawings will become a thing of the past.

Artificial Intelligence

Eriksson Software builds the capability to fully analyze seismic, wind, and other loads into their software products. "If you have the design criteria, materials, and applied loads, we try to make the applications intuitive for the end user. We incorporate the required load combinations and load factors and so forth into the software," says Eriksson.

One current and future priority in software development is the appropriate use of artificial intelligence (AI) in the analysis of given loads and constraints to produce the optimal design. Large language models are capable of scanning the web for every usable data source. However, to determine the optimal design of a structure, the value of the data captured by these models is limited because some projects do not comply with current specifications or code.

Instead of scanning copious amounts of data, the Eriksson platform synthesizes only the data that are relevant. "We believe this concept has the potential to help designers accelerate the process even further. That is our version of AI," says Eriksson. "Our algorithms that design precast concrete elements save time by creating a concept plan that is very close to a final design without too much trial and error."

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From its early days as a pioneer in precast concrete software through the recent introduction of Eriksson Sync and Eriksson Girder, Eriksson Software has led the precast concrete industry toward a digital future in which BIM, AI, and other technologies help teams design, build, and maintain bridges more efficiently.

Screen capture of PSBeam output for the design of a sample precast prestressed concrete bridge. The new Eriksson Girder software generates similar data analysis.