FALK PLI
Innovative Solutions. Measurable Results.

St. Mary's Cement Kiln, Charlevoix, Michigan

Project Description:

Falk PLI was contracted to perform laser scans of the plant's preheater building in order to generate a multifaceted model of the building structure. This model was to serve as the basis for structural analysis as well as an as found condition of the building for future design. Standing 300 feet tall with a 6600 square foot foot-print, 126 scans were taken and registered to create the point cloud that would be used for modeling. The building's construction was essentially all steel consisting of: built of plate girders, rolled wide flange and channel shapes, double angle bring typical throughout the entire building's exterior, horizontal bracing, and corrugated sheeting as walls and roofs. The reason for the myriad of bracing can be attributed to the strong dynamic forces from the cement making process, as well as strong winds loading compounding just off the shore of the great lake. In conjunction with the original blueprints, the 3-D Revit model was generated and verified to point cloud, however, original blueprints would not be required on exposed structure or anything that could have been caught with the laser scanner. The point cloud was invaluable in determined what changes and additions have been made to the structure since the original construction. Using the latest in BIM technology, the point cloud was imported into Revit to serve as a live feed check and allowed for rapid generation of the model. Using this method resulted in 60% time savings compared to traditional COE methods. BIM software allows for multiple parameters and updates making a dynamic model with intelligent engineering information, meeting an exceeding all client requirements.

Deliverables:

- 3D Revit Model of as found/as-built conditions for future renovation.
- Analytical steel export files and models for structural analysis.