

Ceco Engineering: Providing Value at Every Step

Ceco Concrete's Engineering is the centerpiece of our pre-construction planning, construction systems design, safety management, constructability analysis and problem-solving brain trust. Engineering is a key component that allows Ceco to "do what we say we'll do," delivering safety, quality and productivity at every step of the cast-in-place concrete construction process.



Ceco engineers' expertise and talents are felt on every project. With more than two dozen engineers located around the country—of which about half are licensed professional engineers (PEs)—and more than a dozen design detailers, Ceco goes above and beyond providing sound formwork by design.

UNMATCHED QUALITY

Having in-house engineering provides a great level of confidence that proven judgement and engineering principles are being applied throughout our projects. With Ceco Engineering, nothing will be overlooked—because we are dedicated to providing heightened coordination and achieving the best project delivery outcome.

Ceco engineers leverage new technology to discover document inconsistencies and provide early resolution of space conflicts between reinforcing and embedded items before they can lead to delays. They utilize Autodesk Revit BIM technology to create highly accurate drawings and virtual models. The detailed 3D models are used in the field with robotic total stations for timely formwork layout. Critical data about site locations are captured by robotic total stations and 3D laser scanners and fed into the BIM tool to enhance field layout and as-built measurement processes.

Our team uses the BIM integrated Autodesk Robot structural design software to conduct structural analysis of construction systems and structure performance. All formwork design software has been created

in-house and is used to maximize the design properties of Ceco's owned formwork equipment in specific project applications. Our engineers' expert use of these technology tools ensures a quality structural concrete outcome for clients.

PRODUCTIVITY BY DESIGN

Field crew productivity is key to performing high-quality concrete construction at reasonably low costs. Ceco's in-house engineers are at the center of our value engineering. They maximize formwork utilization, often improving the structure's effectiveness while developing cost-effective methods to construct it. By balancing the values of formwork reuse, efficient movement of formwork material and pour sequencing, we can optimize hosting and site logistics while staying within crane and site limitations. We strive to achieve assembly line-type construction processes on every project, which increases productivity in the field.

Often working behind the scenes, our engineers are involved in the development of Ceco-created concrete construction equipment and continue to pursue new field methods through innovation. They provide as-needed analysis of construction loading on the structure from equipment like forklifts, concrete pumps and trucks. Additionally, they provide an analysis framework for QC data, and they create 4D BIM models for pre-construction scheduling and planning challenges as they seek to amplify client and Ceco results.

ADVANCED PROBLEM-SOLVING

The Ceco Engineering Team is the information center and problem-solver of the construction process. Our engineers draw upon the data and ideas from field personnel, project management staff and safety officials to provide enhanced solutions for any issue. They have a complete view of the process, which makes them the ideal point persons to bring together all aspects of planning to a project.

ENGINEERED FOR SAFETY

With more than 230 years of experience between them, Ceco engineers serve as subject matter experts not just for our team, but also for the project and our customers who coordinate Ceco's tasks with nonstructural trades. Missteps can endanger lives, so safety and timely problem-solving is critical. Ceco adheres to state and local building codes and ensures that project designs are consistent and buildable. Building codes reference ACI and OSHA documents—safety factors, loads, tolerances and methods are prescribed in these important documents.

Our engineers elevate Ceco's culture of safety by seeking to design field accident exposure "out of" construction processes for the well-being of our valued workforce. Our safety track record provides peace of mind to the client and owner that the structure will be built in a safe and economical manner.