SUCCESS STORY

Forming Raised to an Art Form

The concrete retaining wall was designed with a 25˚ twist that posed some unusual forming challenges.

Symons Soldier was used as walers to carry the Taper Tie loads for the Aluminum Beam Gang system.

When the Milwaukee Art Museum announced their largest expansion project ever, Steven G. Chamberlin, President of CG Schmidt, wanted to build it. Eager to work with Santiago Calatrava, whose fluid, dynamic designs and engineering talent commands worldwide attention, he also wanted the company to be involved in a project to enrich the community.

CG Schmidt is Milwaukee's largest General Contractor and construction management company. They were chosen for this project because of their extensive experience and their innovative approach to unusual construction situations. "This is a unique construction challenge. Our part is to manage the delicate balance between cost, quality, function and aesthetics as they're all interrelated" said Chamberlin.

The Milwaukee Art Museum expansion, opened in 2001, was the first Calatrava building in the United States. His design consists of a grand, translucent pavilion structure enclosed by light-controlling louvers which can be raised or lowered, creating a sculptural effect that has been likened to a bird in flight. The project also includes a single-story galleria containing exhibition space and lecture hall, and a suspended pedestrian bridge with a 200-foot-tall angled mast and cables that reflect the architect's experience in bridge design. Cast-in-place concrete is used extensively throughout the project, usually in unique curving configurations that create many forming challenges.

One of the forming challenges that CG Schmidt encountered was creating the retaining walls that lead to the underground parking structure. The walls were designed with a distinctive vertical twist that made bracing and support a concern.

Symons suggested that the contractor use the Aluminum Beam Gang forming system in conjunction with Symons Soldier Beams. A plan was devised to use the beams as walers to gather the load and to provide the substantial bracing necessary for these walls.

The contractor reported that the forming solution worked great, and that breaking down the setup after the first pour and reassembling it in reverse for the second pour went smoothly.

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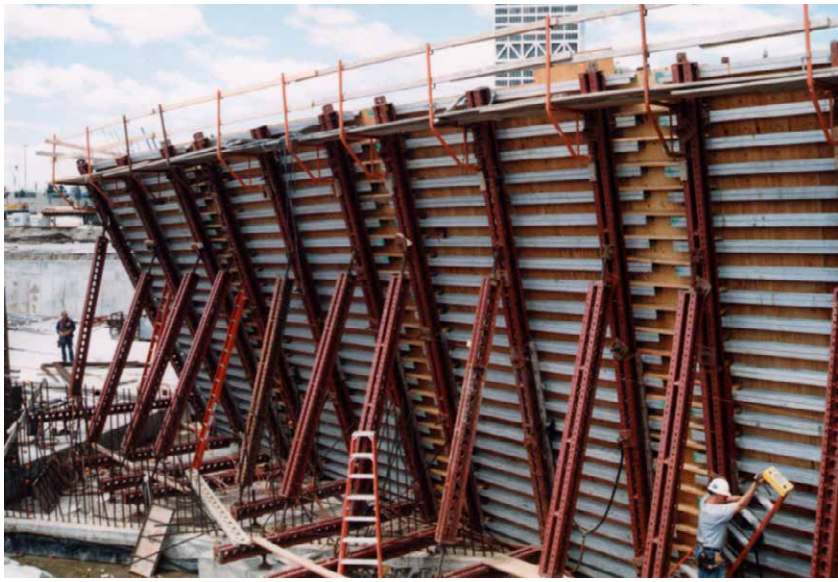
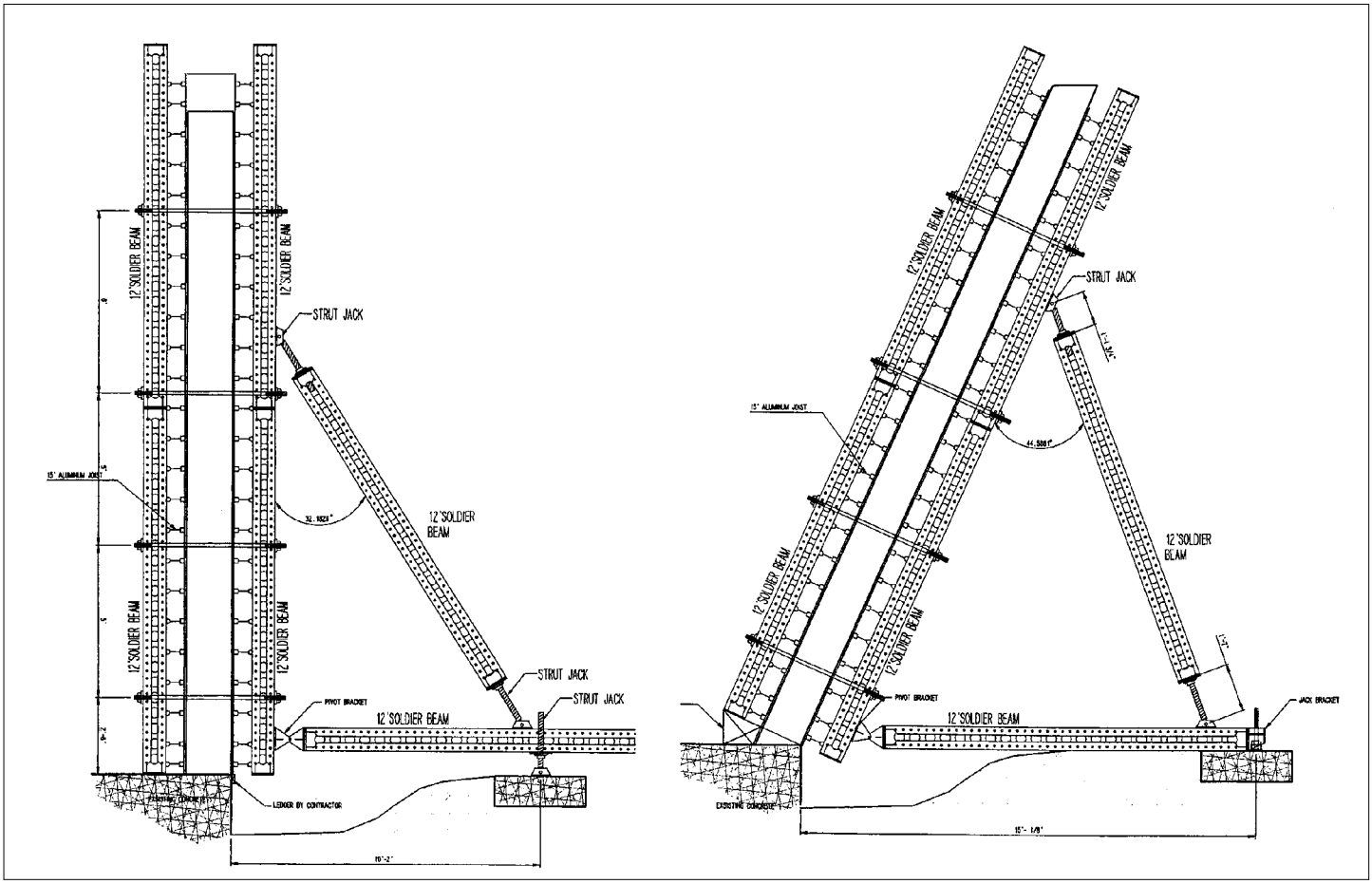


Pivot brackets and screw jacks allowed the contractor to make fine adjustments to the form angle and to strip the forms.



Symons provided plans and equipment to form the unique twisting wall.