# ANDREW TWAREK, PE, SE

Project Manager

## Drew's areas of focus include construction engineering, heavy lift engineering, rigging, erection procedure/stability analysis, industrial steel design and detailing, and steel connection design.

**Drew's industrial design experience includes steel layout and design for the automotive, chemical, and power industries, such as:**

- Layout, Design & Connection Design for Steel Grid to Support 130 Tons of Rooftop Air Handlers Above Operating Factory Roof, Texas
- Design & Fabrication Detailing for Conveyor Support Mezzanine in Automotive Plants Across the Country
- Design & Fabrication Detailing of Structural Steel Exoskeleton System for FRP Absorber & Ductwork, Colorado
- Analyze paint booth structures and industrial risers for robot operating forces, design foundations and reinforcing

**Drew's selected heavy lift projects include:**

- Analysis of Boiler Exhaust Duct Sections Weighing up to 200 kips, Lift Lug Design & Sizing/Verifying Crane for Installation, Kansas
- Design of Various Lift Apparatus for Installing Boiler Equipment in an 850 MW Power Plant & Review of Equipment Capacity During Erection, Missouri
- Analysis of Removal of 238-ton Transformer Using Hydraulic Gantry System, Ohio

**Drew has participated in many connection design jobs, including:**

- Moment, Axial, Bracing, and Other Complex Steel Connections for Buildings Ranging from a 2-story Office to a 50-story High-Rise Tower.
- Connection Design & "Top Down" Erection Engineering for 6 Levels of Steel Framing Inside 60' Diameter Concrete Silo, Missouri
- Managed Team Performing Connection Design for 35 Stories of a 1200' Manhattan High-Rise

**He has also performed erection procedure and stability analysis for aircraft hangars, including sizing of temporary bracing for 250 foot long trusses.**

### EDUCATION

Bachelor of Science, Civil Engineering, Rose-Hulman Institute of Technology, 2005

### RELEVANT EXPERIENCE

Drew has 15 years of experience with Ruby, including extensive work with heavy lifting and rigging, including boiler and refinery applications. He has performed analysis for new construction, duct and equipment changeout, and the replacement of boiler internals. His work has included design of rigging components, analysis of lifted duct sections and vessels (weighing up to 850,000 lbs.), review of supporting structures, and on-site field engineering support.

### PROFESSIONAL AFFILIATIONS

Registered Professional Engineer: Michigan and Ohio

Registered Structural Engineer: Illinois

Structural Engineers Association of Michigan (SEAMi)
Southeast Michigan Director, 2012-2016
Treasurer, 2016-Present

American Society of Civil Engineers

American Institute of Steel Construction