



#### EDUCATION

- Purdue University
  - Bachelor of Science, Civil Engineering, 2009
  - Master of Science, Civil Engineering, 2010

#### PRACTICE AREAS

- Bridge Engineering
- Testing and Instrumentation
- Failure Investigation
- Structural Analysis/Computer Modeling
- Damage Assessment and Documentation
- Code Compliance Review

#### REGISTRATIONS

- Structural Engineer in IL
- Professional Engineer in IA, IL and IN
- Bridge Inspection Team Leader in IL
- NHI Course 130055 - Safety Inspection of In-Service Bridges
- NHI 130078 - Fracture Critical Inspection Techniques for Steel Bridges
- Society of Professional Rope Access Technicians (SPRAT) - Level I Technician

#### CONTACT

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#### EXPERIENCE

Steven Lauer has gained specialized experience through his involvement with the inspection, instrumentation, retrofit, and design of various steel and concrete bridge structures. To support these efforts, he has performed nondestructive testing in both the laboratory and on in-service bridges. Mr. Lauer is also well-versed in several structural analysis programs and has used his skills to perform reviews of structural adequacy and code-compliance for a variety of steel, wood, concrete, and tensile membrane structures.

Mr. Lauer's previous work experience includes the design of both vehicular and pedestrian bridges, which has strengthened his ability to review in place structures. His work as a graduate teaching assistant focused on steel design, structural analysis, and structural dynamics. Mr. Lauer also performed field inspections and conducted research based on damage assessment of failed structures due to earthquake loadings.

#### REPRESENTATIVE PROJECTS

##### Bridge Engineering

- Cook County, IL: Safety and fracture critical inspection of through-truss, bascule, etc., bridges
- IH 345 - Dallas, TX: Fracture critical inspection, instrumentation, and retrofitting
- Illinois Department of Transportation and AASHTO Bridge Subcommittee T-18: Design Guide development for refined analytical methods to load rate gusset plates
- Illinois Department of Transportation: Gusset plate load rating, instrumentation, and rehabilitation design for trussed bridges
- IA-9 over the Mississippi River, U.S. Route 20 over the Des Moines River, and U.S. Route 20 over the Mississippi River - IA: Fracture critical inspections
- Navy Pier Flyover - Chicago, IL: Design of 1,700-foot-long steel pedestrian bridge
- Oklahoma Department of Transportation: Fracture critical inspection using rope techniques of five off-system truss bridges
- U.S. Route 44 - Ottawa County, OK: Fatigue retrofit installation on deck truss bridge  
S&J Construction Co.: Bridge erection procedure review for Elgin O'Hare Expressway

##### Testing and Instrumentation

- Bridges in TN: Ultrasonic testing of pinned connections
- Cedar Street Bridge - Peoria, IL: Strain gage instrumentation of steel truss bridge for load testing and fatigue study
- Iowa Department of Transportation: Fabrication of slip-formed barrier and laboratory testing of various nondestructive evaluation techniques
- Pleasant Ridge Road Bridge - Fairview Heights, IL: Full-size failure testing of FRP slab panel bridge
- Metropolitan Rapid Transit System: Composite tie assembly testing for material evaluation and failure characterization
- Metropolitan Rapid Transit System: Direct fixation fastener instrumentation to determine rail loads and fastener behavior
- Torrence Avenue Vertical Lift Span and Wells Street Bascule Bridge - Chicago, IL: Balance testing using strain gage method

##### Failure Investigation

- Metropolitan Water Reclamation District - Chicago, IL: Blast investigation of reservoir tunnel and drop shaft

##### Structural Analysis/Computer Modeling

- Cavalia Traveling Circus: Structural evaluation of tent structures
- IA-415 Bridge over Saylorville Reservoir - Polk, IA: Finite element modeling for wind induced model behavior
- Oakland Avenue Viaduct - Mercer County, PA: Review of the design and analysis related to erection and corrective procedures on a slant leg rigid frame bridge
- Ringer Crane Mast Failure - Convent, LA: Analysis of mast and cable assembly to determine cause of failure

##### Damage Assessment and Documentation

- Damage Assessment of Lift Span Railroad Bridge - Burlington, IA: Documentation of unexpected damage due to explosive demolition techniques
- Tornado Damage Inspection and Assessment - Joplin, MO: Inspection and assessment of damaged buildings