



#### 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 IA, IL, IN, and NE
- Bridge Load Rating Engineer in IN
- 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

Steve Lauer has gained specialized experience through his involvement with the inspection, instrumentation, retrofit, load rating, and design of various steel, concrete, and timber 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, concrete, timber, and tensile membrane structures.

#### 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, load testing, 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, IA-136 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
- Oklahoma Department of Transportation: Fracture critical inspection using rope techniques of five off-system truss bridges
- Sunshine Bridge - St. James Parish, LA: Jacking frame design and monitoring of members through instrumentation during removal and replacement of damaged lower chord member
- Timber and Complex Bridges - Various Counties, MS: Load rating of more than two hundred bridges and NBIS inspection of a select subset
- 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

- Bridge Balance Testing: Seven bascule bridges and one vertical lift bridge - Chicago, IL; Bascule bridge - Joliet, IL; Vertical lift bridge - Hardin, IL
- Bridges throughout TN: Ultrasonic testing of pinned connections
- Cedar Street Bridge - Peoria, IL: Strain gage instrumentation and load testing of steel truss bridge for load rating
- I-74 over the Illinois River - Peoria, IL: Rivet hardness testing for load rating
- Iowa Department of Transportation: Fabrication of slip-formed barrier and laboratory testing of various nondestructive evaluation techniques
- Pleasant Ridge Road Bridge - Fairview Heights, IL: Design of test frame and procedure, erecting of test components, full-size failure testing of FRP slab panel bridge with instrumentation
- Private Class 1 Railroad Bridges – Tower Leg Instrumentation and Hanger Instrumentation, Western U.S. – Instrumentation to characterize behavior during train and environmental loading
- Rail Rapid Transit System: Composite tie assembly testing for material evaluation and failure characterization
- Rail Rapid Transit System: Direct fixation fastener instrumentation to determine rail loads and fastener behavior

#### Failure Investigation

- Metropolitan Water Reclamation District - Chicago, IL: Blast investigation of reservoir tunnel and drop shaft
- Rail Rapid Transit System: Cause of failure determination for slope and earth retention structure; field documentation, instrumentation and monitoring, structural analysis, comprehensive documentation

#### 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
- Ringer Crane Mast Failure - Convent, LA: Analysis of mast and cable assembly to determine cause of failure