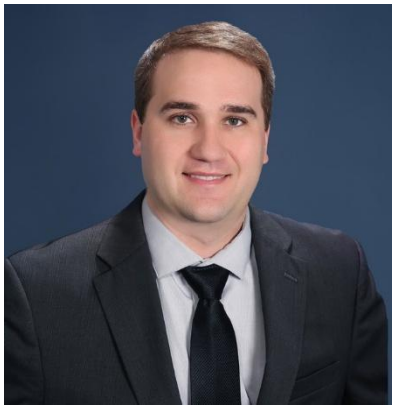
PERSONNEL QUALIFICATIONS

Curtis J. Schroeder | Associate Principal

EDUCATION



- Michigan Technological University
  - Bachelor of Science, Civil Engineering, 2009
- Purdue University
  - Master of Science, Civil Engineering, 2011
  - Doctor of Philosophy, Civil Engineering, 2018

PRACTICE AREAS

- Nondestructive Testing
- Bridge Engineering
- Field Inspection
- Structural Evaluation
- Steel Structures
- Weld Quality Assessment
- Research and Testing

REGISTRATIONS

- ASNT NDT Ultrasonic Testing - Level III
- AWS Certified Welding Inspector
- Level II UT and MT
- IDOT and INDOT Certified Bridge Inspection Team Leader
- NHI Course 130055 - Safety Inspection of In-Service Bridges
- NHI Course 130078 - Fracture Critical Inspection of Steel Bridges
- PE in IN, KY, NM, ND, and WI
- Structural Engineer in IL

PROFESSIONAL AFFILIATIONS

- AWS D1J SC10 Bridge Welding
- SMDI Steel Bridge Task Force
- SMDI Welding Advisory Group
- TRB AKC70 Committee

CONTACT

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EXPERIENCE

Curtis Schroeder joined WJE in 2019 with a background in inspection and evaluation of steel bridges. Dr. Schroeder is skilled in advanced inspection techniques for the fabrication of new welded steel structures and the evaluation of existing steel structures using fitness for service (FFS) assessments. He completed his PhD with research on the use of phased array ultrasonic testing (PAUT) of steel bridge welds.

REPRESENTATIVE PROJECTS

Nondestructive Testing

- North Dakota DOT Pin and Link Inspections: Phased array ultrasonic testing (PAUT) of 344 bridge pins on seventeen bridges with both pin and hanger and pinned hinge connections
- Whirlpool Rapids Bridge - Niagara Falls, ON: Conventional ultrasonic (UT) and PAUT of bridge pins with known indications
- Indiana DOT Pinned Hinge Special Inspections: UT of bridge pins; magnetic particle testing (MT) of pin plate welds
- USFS Bridge Pins: In-depth evaluation of highly attenuative bridge pins; development of improved UT procedure
- US 34 over Missouri River - Omaha, NE: Ultrasonic inspection of anchor bolts and visual inspection of bridge
- Delaware River Bridge - Philadelphia, PA: Development of PAUT inspection plan; technician performance testing; investigation of fracture *
- Jefferson Barracks Bridge over the Mississippi River - Mehlville, MO: PAUT of cracked welds to determine crack extents; welding inspection of field welded repairs; fracture critical inspection
- Dock Bridge - Newark, NJ: Ultrasonic inspection of vertical lift bridge trunnions
- Eagle's Nest Bridge Repair - Hebron, ND: Development and MT inspection of weld repair for cracked pin plate at pinned hinge
- Lebanon HS and Major Taylor Velodrome - Lebanon and Indianapolis, IN: UT inspections of light pole anchor bolts
- Burlington-Bristol Bridge - Burlington, NJ: Visual and MT inspection of vertical lift bridge cast sheaves
- Purdue-Fort Wayne Pedestrian Bridge - Fort Wayne, IN: UT and PAUT inspection of bridge welds; Visual and MT inspection of repairs
- 106th Street Bascule Bridge - Chicago, IL: MT inspection of brake hub
- Hoan Bridge Over Milwaukee Harbor - Milwaukee, WI: Visual and PAUT inspection of intersecting welds; evaluation of cracks *
- International Bridge - Sault Ste. Marie, MI: Fracture critical inspection; ultrasonic and MT of link bars and pins *
- Washington Avenue Bridge Over the Mississippi River - Minneapolis, MN: PAUT inspection of girders with hydrogen cracks *

Bridge Engineering

- Lake Shore Drive Girder Fracture - Chicago, IL: Investigation, ultrasonic assessment, and repair; bridge girder jacking under live loads
- Oregon DOT Load Rating Refinements: Load rating refinements for numerous bridges and culverts with deficient rating factors
- Poplar Street Bridge - St. Louis, MO: Load rating; retrofit design
- Julien Dubuque Bridge - Dubuque, IA: Fracture critical inspection of two-girder approach spans

Research and Testing

- NCHRP Project 14-35: Development of revised acceptance criteria for PAUT of bridge welds; investigation of bridge steel acoustic properties; FFS parametric studies *
- NCHRP Project 10-72: Performance testing of bridge deck wearing surfaces; investigation of load distribution and fatigue resistance of modular bridge decks *
- NCHRP Synthesis 489: Synthesis to evaluate use of field welding repairs and retrofits on highway bridges *
- Procedures for Ultrasonic Phased Array on USACE Bridges: PAUT on bridge welds, pins, and gusset plates; comparison of PAUT to UT, radiographic, and other techniques *

Training

- USACE Fracture Critical Bridge Inspection: Development of 4.5-day training course; course instructor *
- Purdue University, S-BRITE Center - West Lafayette, IN: Instructor for "Inspection of Steel Bridges for Fatigue" and "Welding in an Infrastructure System" training courses *

** Project work performed prior to working with WJE*