



## PERSONNEL QUALIFICATIONS

### Lucas A. Malm | Senior Associate



#### EDUCATION

- Purdue University
  - Bachelor of Science, Civil Engineering, 2006
- University of Michigan
  - Master of Engineering Structural Engineering, 2008

#### PRACTICE AREAS

- Structural Evaluation
- Fire Damage Investigation
- Failure Investigation
- Difficult Access Inspection
- Testing and Instrumentation

#### REGISTRATIONS

- FAA Licensed Remote Pilot
- Professional Engineer in IA, MN, and WI
- Society of Professional Rope Access Technicians, supervisor
- Wayzata Fire Department Firefighter

#### PROFESSIONAL AFFILIATIONS

- American Institute of Steel Construction
- Minnesota Concrete Council

#### CONTACT

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#### EXPERIENCE

Lucas Malm joined WJE in 2009 and has performed various investigations involving steel, concrete, wood, and masonry structures. He has worked on several structure types, including commercial, industrial, and residential buildings, as well as transportation structures. Mr. Malm's experience also includes the structural evaluation of deteriorated and damaged concrete and steel, as well as load testing and instrumentation to characterize both dynamic and pseudo-static ground and structural movements. He has also performed numerous investigations of performance problems related to brick and stone masonry facades.

Mr. Malm has more than ten years of experience in using rope access and is a senior member of WJE's Difficult Access Team. He has assisted in developing internal safety standards for conducting industrial rope access inspections.

#### REPRESENTATIVE PROJECTS

##### Structural Evaluation

- Union Depot - St. Paul, MN: Elevated train deck restoration utilizing visual and nondestructive evaluation techniques
- Port of Houston - TX: Evaluation of concrete structures utilizing visual and nondestructive evaluation techniques
- Walnut Towers - Mankato, MN: Investigation into the cause of observed cracking in precast concrete structure
- Third Avenue Bridge - Minneapolis, MN: Condition assessment of historic concrete arch bridge

##### Fire Damage Investigation

- Minneapolis Third Precinct Building - MN: Investigation and stabilization design of fire-damaged masonry, steel, and precast concrete planks
- GMT Corporation - Nashua, IA: Investigation of fire-damaged, pre-engineered building
- Historic Building - Hutchinson, MN: Investigation of fire-damaged wood and masonry structure

##### Failure Investigation

- Woodbury Lakes Retaining Wall - Investigation of forty-foot-tall modular retaining wall collapse
- 95 Storage - Republic, MI: Investigation of roof collapse of pre-engineered building
- Thumper Park - Ottertail, MN: Investigation of wood truss roof collapse
- Crane Collapse - St. Paul, MN: Investigation
- Sporting KC - Kansas City, MO: Investigation of aluminum handrail collapse
- Construction Sites - MN: Investigation of damage claims related to pseudo-static and dynamic ground movements

##### Difficult Access Inspections

Projects performed using rope access techniques (i.e., rappelling):

- Gateway Arch - St. Louis MO: Characterization of discoloration observed on stainless steel exterior
- Municipal Building Clocktower - Minneapolis, MN: Field observation using visual and nondestructive evaluation techniques for restoration of historic clock armature
- Luau Condominiums - Destin, FL: Identification of reinforced concrete masonry unit cells using nondestructive evaluation techniques
- U.S. Institute of Peace - Washington, D.C.: Sealant inspection on 16,000-square-foot curved skylight
- Fabric Buildings - College Station, TX: Access of internal steel structure utilizing nondestructive evaluation techniques

##### Testing and Instrumentation

- Stinson Building - Minneapolis, MN: Structural analysis and installation of snow load monitoring system
- Institutional Client - U.S. Midwest: Installation, monitoring, and periodic reporting of ground movements during construction
- University of Minnesota - Minneapolis: Documentation and testing of rooftop fall arrest and rope access anchor systems