# WJE

# PERSONNEL QUALIFICATIONS

# Kenneth P. Marley | Senior Associate



# **EDUCATION**

- University of Illinois at Urbana-Champaign
  - Bachelor of Science, Civil Engineering, 2005
  - Master of Science, Civil Engineering, 2007

# **PRACTICE AREAS**

- Structural Analysis
- Failure/Damage Investigations
- Concrete Structures
- Parking Structures
- Bridge Engineering
- Foundations and Retaining Walls
- Soil Structure Evaluation and Design
- Tension Membrane Structures
- Repair and Rehabilitation Design

# **PROFESSIONAL AFFILIATIONS**

American Concrete Institute

# CONTACT

kmarley@wje.com 847.272.7400 www.wje.com

# EXPERIENCE

Kenneth Marley specializes in structural analysis and repair. He has experience with conventionally reinforced, prestressed, and post-tensioned concrete structures, including parking garages, plazas, and high-rise towers. Mr. Marley performs condition evaluations and failure investigations, including the use of nondestructive test methods. He also conducts assessments of tensile membrane structures.

Mr. Marley possesses expertise in the investigation and repair of structural building settlement, as well as soil-structure interaction analysis for condition assessment and design. This work often includes collaboration with geotechnical engineering professionals.

# **REPRESENTATIVE PROJECTS** Structural Analysis

- Great River Bridge Burlington, IA: Finite element modeling of cable-stayed bridge for assessment of performance under observed concrete distress
- Rogers Place Arena Edmonton, AB: Stability analysis of erection procedure for construction of steel-framed arena roof
- Cavalia Traveling Circus North America: Structural evaluation using nonlinear tensile membrane analysis software to evaluate performance of tents under site wind conditions

# Failure/Damage Investigations

- Haymarket Pedestrian Bridge Lincoln, NE: Determination of cause of failure of prestressed, post-tensioned concrete girder during erection and development of repair procedure
- LaCygne Station Bridge KS: Determination of cause of failure of highly skewed, steel structural plate arch bridge during construction through 3D finite element analysis with soil-structure interaction effects

# **Concrete Structures**

 Ward Parkway Shopping Center - Kansas City, MO: Condition assessment of commercial property, including conventional reinforced concrete, precast concrete, and concrete deck on steel joists

- Loews Santa Monica CA: Structural evaluation and repair of observed distress in post-tensioned, reinforced concrete structure
- Crossroads YMCA Crown Point, IN: Investigation of cracking in tilt-up precast concrete wall panels, including evaluation of thermal, creep, and shrinkage effects

#### **Parking Structures**

- US Bank Center Milwaukee, WI: Assessment of structural performance and investigation of failure of welded flange connectors of precast, prestressed parking garage
- Washington University in St. Louis MO: Periodic assessment and repair of nine campus parking garages, including precast, prestressed, post-tensioned, and conventionally reinforced structures
- Corners of Brookfield WI: Condition assessment of parking and plaza areas, including post-tensioned and prestressed concrete structures

# Foundations and Retaining Walls

- The Moorings of Arlington Heights -Arlington Heights, IL: Foundation underpinning and soil stabilization design for existing structure during adjacent expansion
- Shakespeare Townhomes Chicago, IL: Settlement investigation of fourteen buildings and underpinning design for stabilization of four buildings
- Hawthorn Surgery Center Vernon Hills, IL: Building settlement investigation, including continued site monitoring, soil profile evaluation, and conceptual repair design

# Soil Structure Evaluation and Design

- South Dakota Department of Transportation (SDDOT): Load rating of six corrugated steel railroad tunnels (culverts) per AASHTO Manual of Bridge Evaluation and additional SDDOT legal load vehicles
- Virginia Avenue Parking Garage Columbia, MO: Condition assessment and structural analysis of precast parking garage for settlement, thermal, and shrinkage effects
- Amtrak Chicago Yard IL: Design of new engine maintenance track slab, including structural analysis incorporating AREMA loading and soil-structure interaction

