

Omar Abdelrahman | Associate II



EDUCATION

- Helwan University
 - Bachelor of Science, Structural Engineering, 2017
- University of Illinois at Urbana-Champaign
 - Master of Science, Civil Engineering, 2023

PRACTICE AREAS

- Structural Analysis
- Structural Evaluation and Condition Assessment
- Repair and Rehabilitation
- Failure Investigation
- Reinforced Concrete Structures
- Nondestructive Evaluation
- Vibration Monitoring

PROFESSIONAL AFFILIATIONS

- American Concrete Institute (ACI)
- Structural Engineers Association of Illinois (SEAOI)
- International Concrete Repair Institute (ICRI)

TECHNICAL COMMITTEES

- ACI 362 - Parking Structures

REGISTRATIONS

- FAA Licensed Remote Pilot

CONTACT

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EXPERIENCE

Omar Abdelrahman is engaged in projects involving structural investigation, analysis, and repair of existing structures. His expertise includes nondestructive testing and field assessment of structural conditions, failure damage investigations, computer and structural analyses of existing and new structures, repair design, and vibration monitoring.

Before joining WJE, Mr. Abdelrahman worked on projects at the University of Illinois at Urbana-Champaign, including research in material testing of sustainable cementitious materials and analysis of nondestructive evaluation data of highway bridges. He also possesses experience as a structural design engineer, where he worked on the design and construction observation of new reinforced concrete structures.

REPRESENTATIVE PROJECTS

Structural Analysis

- 2911 W. Grand Boulevard - Detroit, MI: Structural analysis and modeling of post-tensioned (PT), concrete slab with excessive cracking
- Lake and Austin Chicago Transit Authority Station - IL: Design and preparation of drawings for new temporary timber platform
- Waterford Condominiums - Chicago, IL: Analysis of two-way concrete slabs for increased mechanical loads
- Oak Brook Reserve - Oak Brook, IL: Analysis of concrete, PT, two-way slab for increased live loads due to adaptive reuse
- North Arizona University - Flagstaff: Analysis and modeling of cracked PT, slab-on-ground bearing on expansive soil
- Honolulu Authority for Rapid Transportation Stations - HI: Analysis of cracked hammerhead concrete piers

Structural Evaluation and Condition Assessment

- Amazon BARA - Fifteen US States: Evaluation and recommendation of best available refuge areas for extreme weather conditions at numerous Amazon facilities

- Plainfield Elementary Schools - Plainfield, IL: Condition assessment and construction observation for rehabilitation of settled slab-on-ground and repair of settlement distress
- US Naval Academy, Nimitz Library - Annapolis, MD: Structural evaluation of foundations
- O'Hare International Airport, Terminals 1-3 - Chicago, IL: Condition assessment of precast concrete elevated parking structure

Failure Investigation

- Champlain Tower South - Surfside, FL: Material sampling and nondestructive testing of salvaged concrete members from collapsed building
- Timber Structure for Condominium Building - Chicago, IL: Investigation of root cause of timber column failure and condition assessment of remaining timber columns
- Buena Vista Tower - Elgin, IL: Structural investigation of punching shear failure of concrete, two-way slab in parking garage
- Southwest Florida International Airport - Fort Myers: Structural evaluation of precast soffit beams and investigation of observed torsional cracking
- Modera Gulch - Nashville, TN: Root cause investigation of cracked and spalled precast concrete balconies at newly constructed residential building
- Ecolab Laboratories - Naperville, IL: Investigation of cracked glass fiber reinforced polymer concrete facade panels

Vibration Monitoring

- Art Institute of Chicago - IL: Monitoring of vibration and sound transmission to museum during Chicago NASCAR race
- Country Music Hall of Fame and Museum - Nashville, TN: Field testing of sound and vibration propagation in preparation for potential IndyCar Grand Prix event
- Baltimore Museum of Arts - MD: Testing and monitoring of vibrations from ongoing museum construction work
- Chase Tower - Chicago, IL: Instrumentation of freight tunnel below Clark Street to monitor construction vibrations