



#### EDUCATION

- Ain Shams University
  - Bachelor of Science, Civil/Structural Engineering, 2014
- University of Nevada, Reno
  - Master of Science, Civil and Environmental Engineering, 2018
- Florida International University
  - Master of Science, Structural Engineering, 2021
  - Doctor of Philosophy, Structural Engineering, 2022

#### PRACTICE AREAS

- Structural Analysis and Design
- Concrete Repair and Rehabilitation
- Bridges and Civil Infrastructure
- Wind Damage Investigations
- Structural Analysis/Computer Applications
- Failure/Damage Investigations
- Concrete Structures
- Structural Metals

#### PROFESSIONAL AFFILIATIONS

- American Association for Wind Engineering (AAWE)
- American Society of Civil Engineers (ASCE)
- Structural Engineering Association of Hawaii (SEAOH)

#### CONTACT

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#### EXPERIENCE

Karim Mostafa has experience in research, teaching, analysis, and design of structures, with specialized experience in wind tunnel testing. Since joining WJE in 2022, Dr. Mostafa has worked on various projects, including structural evaluation of buildings and bridges, repair and rehabilitation of damaged structures and parking garages, and post-tensioned cable testing. He has expertise in finite element structural analysis, as well as the design and retrofit of concrete, steel, and wood structures.

Before joining WJE, Dr. Mostafa worked as a graduate research assistant, where he conducted aerodynamic testing for numerous wind structure interactions at the NHERI Wall of Wind Experimental Facility at Florida International University.

#### REPRESENTATIVE PROJECTS

##### Structural Analysis and Design

- Waialua Hurricane Shelter - Waialua, HI: Hardening and retrofitting of high school gymnasium to serve as a hurricane shelter
- Waikiki Skyliner Parking Garage - Honolulu, HI: Condition assessment of existing wooden vehicle barrier and design of new steel vehicle barrier
- Meridian East Condo - Kailua, HI: Design of temporary shoring system for pool deck steel element repairs
- Royal Hawaiian Center - Honolulu: Design of temporary shoring system for repairing precast joists
- University of Hawaii at Manoa, Art Building - Honolulu: Feasibility design for new PV panel roofing system

##### Concrete Repair and Rehabilitation

- Greenview Parking Garage - Honolulu, HI: Liftoff testing for post-tensioned slab and tendon replacement and repair
- Halawa Correctional Facility - Aiea, HI: Evaluation and repair of several buildings
- Trump International Hotel at Waikiki - Honolulu, HI: Inspection survey of concrete facade panels and their steel supporting elements with repair recommendations
- University of Hawaii at Manoa, Gyms 1 and 2 - Honolulu: Concrete evaluation of building facades

- Waikiki Shopping Plaza - Honolulu, HI: Assessment and concrete repair of basement retaining walls

##### Bridges and Civil Infrastructure

- Hawaii Department of Transportation Bridge Inspections - Oahu: Routine condition assessments, channel surveys, and repair recommendations
- Indiana Toll Road I-90 - Portage: Expansion joints removal and design of new column bearings

##### Wind Damage Investigations

- Dunes of Naples - Naples, FL: Hurricane damage field investigation
- Experimental Research, National Science Foundation - Miami, FL: Investigation of roof asphalt shingles aerodynamics and destructive testing under high wind loads using the Wall of Wind

#### PUBLICATIONS

- Karim Mostafa, Ioannis Zisis, and Ted Stathopoulos, "Codification of wind loads on hip roof overhangs of low-rise buildings," *Engineering Structures*, v. 288 (2023): 116199, ISSN 0141-0296.
- Karim Mostafa, Ioannis Zisis, and Ted Stathopoulos, "Large-Scale Wind Testing on Roof Overhangs for a Low-Rise Building," *Journal of Structural Engineering*, v. 148, no. 11 (2022): 04022173.
- Karim Mostafa, Ioannis Zisis, and Mohamed A. Moustafa, "Machine Learning Techniques in Structural Wind Engineering: A State-of-the-Art Review," *Applied Sciences*, v. 12, no. 10 (2022): 5232.
- Ameyu B. Tolera, Karim Mostafa, Arindam Gan Chowdhury, Ioannis Zisis, and Peter Irwin, "Study of wind loads on asphalt shingles using full-scale experimentation," *Journal of Wind Engineering and Industrial Aerodynamics*, v. 225 (2022): 105005.

#### TECHNICAL COMMITTEES

- ASCE/SEI 7-28 Main Committee
- ASCE/SEI 7-28 Wind Subcommittee