PERSONNEL QUALIFICATIONS

Robert D. Devine | Associate III

EDUCATION

- University of Notre Dame
  - Bachelor of Science, Civil Engineering, 2015
  - Doctor of Philosophy, Civil and Environmental Engineering and Earth Sciences, Structural Engineering, 2021

PRACTICE AREAS

- Structural Evaluation
- Concrete Structures
- Structural Analysis/ Computer Applications
- Construction Materials
- Litigation Consulting
- Failure/Damage Investigation
- Instrumentation/Monitoring/ Load Testing

REGISTRATIONS

- PE in AZ, LA, NJ, OK, and TX

PROFESSIONAL AFFILIATIONS

- American Concrete Institute
- American Society of Civ Eng.
- Earthquake Eng. Research Inst.
- Structural Eng. Institute

TECHNICAL COMMITTEES

- ACI 349 - Concrete Nuclear Structures
- ACI 363 - High-Strength Concrete
- ACI 445 - Shear and Torsion
- ACI 445B - Shear and Torsion

CONTACT

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EXPERIENCE

Since joining WJE in 2020, Robert Devine has worked on various assessments for new and existing structures. His project experience includes the design, analysis, and evaluation of concrete, wood, and steel structures.

Before joining WJE, Dr. Devine worked on providing novel experimental and analytical evidence promoting the use of high-strength reinforcement, high-strength concrete, and prefabricated rebar assemblies for the accelerated construction of nuclear shear walls. His experimental and numerical modeling work demonstrated the structural and economic benefits and limits of using these high-performance materials in heavily reinforced squat walls. He has extensive experience in instrumentation, dense data analysis, and damage analysis. Additionally, Dr. Devine worked at Sandia National Laboratories, where he developed numerical models of multiple impact scenarios of radioactive material-carrying vessels.

REPRESENTATIVE PROJECTS

Structural Evaluation

- Nueces County Courthouse - Corpus Christi, TX: Condition and structural assessment of c. 1914 historic courthouse
- Water Treatment Plant - NC: Floatation stability analysis of new wastewater treatment structure
- Liquefied Natural Gas (LNG) Tank Foundations - Cameron, LA: Investigation of reinforced concrete damage to tank pile and pile cap due to cryogenic LNG exposure

Concrete Structures

- Wolf Creek Generating Station - Burlington, KS: Concrete repair evaluation and development for proprietary spent fuel cast storage system
- Palo Verde Generating Station, Water Resources - Tonopah, AZ: Construction administration services during concrete rebuild of valve pit structures at water reclamation facility

Structural Analysis/Computer Applications

- Concrete Thermal Energy Storage - CO: Design of main lateral load resisting system for concrete thermal energy storage units; design of structural members and connections using finite element analyses
- Apartment Building - FL: Development of repair plan to address fire damage
- Prefabricated High-Strength Rebar Systems with High-Performance Concrete for Accelerated Construction of Nuclear Concrete Structures: Experimental and numerical modeling investigations of the interaction and compatibility of high-strength rebar and high-strength concrete in heavily reinforced squat concrete walls; funded by the U.S. Department of Energy *
- Radioisotope Power Systems Launch Safety Program Risk assessment of potential release of radioactive materials from a space exploration rover generator during an accident scenario; finite element analyses of impact scenarios; analysis of nonlinear behavior and failure of structural materials like steel, aluminum, and other metals; supported by the U.S. Department of Energy and NASA **

Construction Materials

- Storage Facility - Bryan, TX: Concrete pavement assessment and litigation support
- Investigation of the Use of Recycled Concrete Aggregates in Prestressed Concrete Applications: Research and testing of material properties (e.g., compressive strength and modulus of elasticity) of concrete with recycled concrete aggregates; funded by the National Science Foundation *

Litigation Consulting

- Condominiums - Austin, TX: Litigation support for structural design defects
- County Jail - TX: Evaluation of crawlspace-related distress and litigation support
- High School - Southern TX: Investigation of building foundation slab and litigation support

** Indicates projects with University of Notre Dame*

*** Indicates projects with previous employer*