



WARREN

THE WARREN GROUP, INC. FORENSIC ENGINEERS & CONSULTANTS
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Carlos Zarraga, E.I.

Consultant

Building Envelope/Water Intrusion

Building Codes and Standards

Construction Defects & Claims

Foundation Settlement/Cracking

Roof Damage

Steel, Concrete, Masonry & Timber Structures

Structural Failure

EDUCATION

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| 2010 | Bachelor of Science in Civil Engineering
The University of New Orleans |
| 2009 | Civil Engineering Coursework
The University of Illinois at Urbana Champaign |
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EXPERIENCE

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| April 2019 to Present | <p>Consultant, The Warren Group, Inc., Irmo, South Carolina</p> <p>Conduct technical investigations of construction defects, incidents or losses related to residential, commercial, industrial and historic structures.</p> <p>Determine cause of building envelope failures, water intrusion and excessive moisture.</p> <p>Determine scope of loss and cost to repair damage caused by fire, water, and weather events.</p> <p>Conduct building code and construction standard evaluations.</p> <p>Inspect concrete systems with cracks, settlements and failures in foundations, retaining walls, floor slabs and other concrete installations.</p> <p>Assess damage to residential and commercial roofs due to age, weather, fire and installation defects.</p> <p>Evaluate structural failures involving steel, masonry and timber.</p> |
| 2018 to 2019 | <p>Structural Engineer, Fortified Engineering, Garland, TX</p> <p>Key member of an interdisciplinary team who specializes in foundation inspections, underpinning, forensic investigations, and geotechnical engineering services. Responsible for designing foundations of residential and commercial structures with emphasis on assessment, refurbishment, and strengthening.</p> |
| 2016 to 2018 | <p>Structural Engineer, RMS Engineers, Richardson, TX</p> <p>Provided detailed assessments and designs of steel structures for material handling. Reviewed buildings and industrial structures and created refurbishment and strengthening plans. Increased efficiency by implementing MS OneNote to streamline the exchange of information between team members and project stakeholders.</p> |

EXPERIENCE (Continued)

- 2012 to 2016** Design Engineer, Pelican Energy Consultants, LLC, Metairie, LA
- Successfully handled the design of both civil and structural components including tank foundations, pipe racks, site layouts, grading and drainage, water and sewage design. Handled RISA structural analysis, blast design, roadway design, building and roofing design, and various other industrial projects. Created estimates for proposals and prepared bids. Served as Engineer Representative during construction phase.
- 2008 to 2009** Research Assistant, University of Illinois at Urbana-Champaign, Champaign, IL
- Conducted research on materials commonly used in structural engineering. Tested permeability and durability properties of cementitious materials using the AutoClam Permeability System. Assembled and tested equipment for Rapid Chloride Penetration Tests of concrete cylinders per ASTM guidelines.
- 2004 to 2008** Resident Inspector, Professional Service Industries, New Orleans, LA
- Served as the company's Site Inspector for Lowe's Home Improvement Stores. Completed a variety of tests utilizing pressure and volumetric measurements - concrete sampling, slump, temperature measurement, density yield, gravimetric air content, and air content. Logged piles and performed subgrade compaction tests.
- 2002 to 2004** Engineering Technician, Eustis Engineering, New Orleans, La
- Conducted soil tests consisting of moisture content, plasticity index, density, specific gravity, particle size analysis and unconfined compression tests.

CERTIFICATIONS

RISA 3D
RISA Foundation
RISA Connection

REGISTRATIONS

State of Louisiana Engineer in Training (#0031911)

PROFESSIONAL ORGANIZATIONS

American Concrete Institute (ACI)

American Institute of Steel Construction (AISC)

American Society for Testing and Materials (ASTM)

International Code Council (ICC)