
M. Jeremy Ray, P.E.

Forensic Engineer: Civil/Structural

Building Damage Assessment

Failure Analysis

Structural Engineering Analysis

Construction Defects and Claims

Building Envelope/Water Intrusion Analysis

Roof – Industrial, Commercial, and Residential

Building Codes and Standards

Construction Accounting

Construction Estimating and Scheduling

EDUCATION

2005

Bachelor of Science in Civil Engineering

University of South Carolina, Columbia, South Carolina

EXPERIENCE

**June 2012 to
Present**

Principal Engineer, Apex Forensics, LLC
Columbia, South Carolina

- Conduct technical investigations of construction defects, incidents or losses related to residential, commercial, industrial and historic structures
- Perform assessments of damage resulting from weather events including hurricanes, hail, high winds, tornadoes, flooding and excessive ice build-up
- Inspect various types of construction and materials including, but not limited to sitework/grading, underground utilities, wood framing, load-bearing masonry walls, steel framing, footings and foundations, elevated concrete slabs, concrete slabs-on-grade, retaining walls and miscellaneous proprietary systems
- Additional case related assessments include, but are not limited to: fire damage, moisture intrusion, termite damage, codes and standards research, site drainage, structural tree impacts, and structural automobile impacts
- Provide technical reports with observations, analysis, research, conclusions and recommendation for repair when requested
- Provide estimating and scheduling services for renovation and/or retrofit on a wide range of projects

**January 2011
to June 2012**

Consulting Engineer, The Warren Group, Inc.
Columbia, South Carolina

- Conducted technical investigations of construction defects, incidents or losses related to residential, commercial, industrial and historic structures
- Performed assessments of damage resulting from weather events including hurricanes, hail, high winds, tornadoes, flooding and excessive ice build-up
- Inspected various types of construction and materials including, but not limited to sitework/grading, underground utilities, wood framing, load-bearing masonry walls, steel framing, footings and foundations, elevated concrete slabs, concrete slabs-on-grade, retaining walls and miscellaneous proprietary systems
- Additional case related assessments include, but are not limited to: fire damage, moisture intrusion, termite damage, codes and standards research and site drainage
- Provided technical reports with observations, analysis, research, conclusions and recommendation for repair when requested
- Provided estimating and scheduling services for renovation and/or retrofit on a wide range of projects

EXPERIENCE, (Continued)

**June 2005 to
December 2010**

Project Engineer, Chao & Associates, Inc.
Columbia, South Carolina

- Designed new structures and structural members of most common construction material types, i.e., wood, steel, masonry and concrete
- Designed several modifications and/or additions to existing structures
- Produced Construction Documents including structural drawings, contract documents and technical specifications
- Conducted technical investigations of construction defects, incidents or losses related to residential, commercial, industrial and historic structures
- Provided estimating and scheduling services for renovation, retrofit, and new construction on wide range of projects
- Provided construction accounting services to include deriving a schedule of values, monitoring payments, and analyzing pay applications
- Inspected various types of construction and materials including, but not limited to: sitework/grading, underground utilities, wood framing, load-bearing masonry walls, steel framing, footings and foundations, elevated concrete slabs, concrete slabs-on-grade, retaining walls and miscellaneous proprietary systems
- Additional case related assessments included, but were not limited to: fire damage, moisture intrusion, codes and standards research and site drainage
- Provided technical reports with observations, analysis, research, conclusions and recommendation for repair when requested

PROFESSIONAL ORGANIZATIONS

American Society of Civil Engineers (ASCE)

ASCE Structural Engineers Institute (ASCE-SEI)

Structural Engineers Association of South Carolina (SEA of SC)

National Society of Professional Engineers (NSPE)

Precast/Pre-Stressed Concrete Institute (PCI)

REGISTRATIONS

Professional Engineer in South Carolina, #28252

Professional Engineer in North Carolina, #38453

SAMPLE PROJECT LIST

- *Mainstay Suites Hotel* – Responsible for the design of a 4-story, wood framed hotel in Columbia, SC. Project included design of all structural elements, modeling the structure in RISA-3D Structural Engineering Software to determine the governing lateral load combinations and the production of structural design drawings.
- *Woodcreek Fire Station* – Responsible for the design of a 2-story, reinforced concrete masonry unit (CMU) fire and police station in Columbia, SC. Project included design of all structural elements and the production of structural design drawings.
- *Walgreen's Condominiums* – Responsible for the design of the 3-story, wood framed condominium portion of a combined, 6-story, garage/condominium structure in Columbia, SC. Project included design of all structural elements and the production of structural design drawings.
- *Edisto Beach Contact Station* – Responsible for the design of a single story, wood framed structure at Edisto Beach, SC. Project included design of all structural elements, with special design considerations given for the high wind zone, and the production of structural design drawings.
- *Columbia College Sports Facility* – Responsible for the design of a two story, wood framed locker-room/observation deck structure in Columbia, SC. Project included design of all structural elements, with special design considerations given for the twelve cantilevered wood columns supporting the roof of the observation deck, and the production of structural design drawings and technical specifications.
- *Monteith Pole Building Prototypical Design* – Responsible for the design of a prototypical, single story pole building for mass production in SC. Project included design of all structural elements and the production of structural design drawings.
- *Dr. Ghandi Dentist Office* – Responsible for the design of a two story, wood framed office structure in Columbia, SC. Project included design of all structural elements and the production of structural design drawings.
- *Wade Hampton Building Parapet Reinforcement* – Responsible for determining the adequacy of, and subsequently designing steel bracing to reinforce, the 5 ft. - 7 ft. unreinforced masonry roof parapet at the historic Wade Hampton Building on the State House Grounds in Columbia, SC. Project included determination of lateral forces, design of steel members to reinforce the parapet, and production of structural design drawings and technical specifications.
- *Merchant Bank Building* – Responsible for the design of structural members for the renovation of a two story historic masonry structure in Eastover, SC. Project included design of wood roof framing members to reconstruct the collapsed roof, the design of several structural members to accommodate architectural renovations, providing technical reports and construction sketches, and assisting client in verification that new roof construction is adequate and adherent to engineer's recommendations, prior to final payment and project closeout.

SAMPLE PROJECT LIST (Continued)

- *Crooked Creek Park Ceiling Collapse* – Responsible for determining the cause of the partial collapse of the drop ceiling at a recreation center in Chapin, SC. Project included field investigations to determine the cause of the partial collapse, the stability of the remaining, non-collapsed ceiling, designing a repair to stabilize the remaining, non-collapsed ceiling, providing technical reports of findings, providing construction administration to assist client in: bidding, contractor selection, construction observation, pay application processing, determination of substantial completion, project closeout and conducting the 1-year warranty walk-through.
- *Gervais Street Stone Culvert Collapse* – Responsible for designing the repair for collapsed portion of a 100+ year old, unreinforced, stone culvert structure passing below Highway 1 in downtown Columbia, SC, and reinforcing the non-collapsed portion. Project included designing the repair and reinforcement, providing construction documentation, providing construction administration to assist client in: bidding, contractor selection, construction observation, pay application processing, determination of substantial completion and project closeout.
- *Lower Pine Lake Emergency Spillway Collapse* – Responsible for determining the cause of the failure of a sloped slab-on-grade emergency spillway structure. Project included field investigations to determine the cause of the collapse, providing technical reports of findings, providing construction documentation, providing construction administration to assist client in: bidding, contractor selection, construction observation, pay application processing, determination of substantial completion and project closeout.
- *Residential #1 (Construction Defect)* – In the interest of privacy, the homeowner's name and address is not provided. Responsible for providing structural evaluation of single story, wood framed Master Suite addition in Columbia, SC, after the local building official expressed concerns regarding the construction. Project included field investigations to determine the adequacy of the roof and floor framing and to provide a technical report with recommendations.
- *Residential #2 (Water Intrusion)* – In the interest of privacy, the homeowner's name and address is not provided. Responsible for providing storm water intrusion evaluation for insurer after claim was filed by homeowner. Project included field investigation to determine the cause of the water intrusion, if any structural damage had occurred due to the water intrusion, and to provide a technical report with recommendations for repair.
- *Residential #3 (Brick Cracking)* – In the interest of privacy, the homeowner's name and address is not provided. Responsible for brick crack evaluation for insurer after claim was filed by homeowner. Project included field investigation to determine the cause of the brick cracking and to provide a technical report with recommendations for repair.

CONTINUING EDUCATION

December 2006

Completed 3-day “Structure Scan Optical” training course in the theory and practice of applying subsurface interface radar in non-destructive engineering and geophysical investigation

November 2010

Completed 3-day Federal Highway Administration, National Highway Institute training course FHWA-NHI 130053 “Bridge Inspection Refresher Course,” Jackson, MS

June 2011

Completed 3-day “Haag Certified Residential Roof Inspector” training course, Charlotte, NC

July 2012

Completed 1-hour “Forensic Structural Inspections: Examination, Diagnosis, and Remedy for Building Structures” Training Webinar

August 2012

Completed 4-hour “Introduction to Roofing Systems” Training Course

December 2012

Completed 4-hour “Coastal Construction – Constructing the Building” Training Course

June 2013

Completed 5-hour “Disaster Assistance Program: Building Evaluator Training” Course at the SC Engineering Conference and Trade Show, N Charleston, SC