HALLIWELL

MICHAEL RICHARDSON, PE

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SPECIALTIES

- Structure & Foundation Damage
- Residential and Commercial Roofing
- Facades and Fenestrations
- Storm Damage: Wind, Hail, Water Infiltration, Flood
- Expert Witness/Litigation
- Construction Defect
- Hurricane & Tornado Damage
- Fire Damage Assessment
- Damage, Deterioration, Wear Determination
- Property Condition Assessment
- Parking Structures
- Capital Reserve Studies
- Non-destructive Testing

BIOGRAPHY

Michael began his career as a structural design engineer. In this role, he provided a variety of designs for commercial, educational, institutional, industrial, and residential structures. The designs ranged from individual structural components for repairs, additions, and modifications to entire facility structural systems for new construction.

Throughout his 25-year career, Michael honed his expertise in forensic investigations, which include structural failures and collapses, construction defects, roofing failures, water infiltration, fires and explosions, and severe weather damage assessments on a wide variety of construction materials and methods. He is well-versed in identifying building component deficiencies and resulting damage and liability. His investigations often result in providing recommendations and designs of unique and effective repairs to correct the deficiencies.

Michael has previous training and certification in determining the origin and cause of fires and explosions. His experience in physics, fire science, and engineering is an asset in the reconstruction of fire scenes to determine the incident's origin and path of growth, which proves instrumental in determining the extent of resulting damage to the structure.

Michael's knowledge of the building life cycle (design to failure) provides an invaluable insight when conducting and managing multi-facility condition assessments and capital reserve studies for private, state, and federal agencies that took him throughout the U.S. and internationally.

Michael's forensic investigation services have been tested repeatedly in litigation proceedings. His technical knowledge, communication skills, and poise have been invaluable during dozens of depositions to expose the truth and close cases. He has also been tested in the courtroom.

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QUALIFICATIONS

Bachelor of Science in Civil Engineering, Purdue University

Master of Science in Structural Engineering, Purdue University

INDUSTRY CERTIFICATIONS, LICENSES AND MEMBERSHIPS

- Licensed Professional Engineer: FL, OH, IN, CO, GA, NV, MO, LA, MS
- Haag Certified Inspector for residential and commercial roofing (inactive)
- Project Management Professional (PMP)® (inactive)
- Certified Fire and Explosion Investigator (CFEI) (inactive)

PROFESSIONAL EXPERIENCE

- Halliwell, Assistant Director, Civil/Structural Engineering Services
- Keystone Experts & Engineers, Senior Managing Engineer
- SDII Global, Principal Engineer
- Salas O'Brien, Structural Department Manager
- Advanced Engineering Consultants, Project Manager
- American Structurepoint, Director of Project Development

REPRESENTATIVE ASSIGNMENTS

Structural Damage

Retail Building Roof Collapse and Emergency Shoring | Columbus, OH
A portion of the roof on this 63,000-sf furniture store collapsed during an intense rainstorm. Retained to determine the cause of the failure and assist with possible subrogation and litigation. Project included coordinating emergency shoring efforts to stabilize the undamaged portion of the structure to prevent further collapse, protect the store contents, and provide a safe environment for the investigation. Forensic investigation included examination of the collapse debris and review of architectural drawings, which revealed that the roof collapse was the result of excessive rainwater ponding on the roof due to inadequate capacity of the roof drains. Roof drain deficiency was the result of a contractor error during an earlier renovation and re-roofing project, in which the sizes of the roof drains were reduced significantly. Deficient roof drains in the low points of the roof allowed water to accumulate and overstress the roof framing members, causing the partial roof collapse. Partial loss of the building and contents was well over $1 million in claims.

Earthquake Damage Evaluation | Philadelphia, PA
Performed the structural damage evaluation of a large historic church in Philadelphia, resulting from a major earthquake that occurred in 2011, which resulted in damage across the east coast. Multi-story structure was primarily constructed of stone masonry and heavy timber framing. Historic structure

displayed widespread visible evidence of permanent movement over its long lifespan. Project's primary task was to determine the extent of damage that was attributed to the 2011 earthquake.

Wood Arch Structural Damage Evaluation | Ohio State University, Columbus, OH
Retained to perform a structural assessment of three recreational buildings at The Ohio State University campus. Buildings were constructed in 1976 and encompassed approximately 23,700-sf each. Visually distinctive buildings were constructed with ten exposed wood arches spanning 130 ft. Wood arches and secondary structural framing components displayed significant deterioration, which limited the remaining expected useful lives of the three buildings. Objective for the project was to assess the general condition of the structural, façade, and roofing systems and estimate the remaining useful life of the buildings. Repair options to extend the remaining useful life of the buildings were also developed.

Commercial Roof Collapse | Columbus, OH
An approximately 1,200-sf partial roof collapse occurred in a single-story building constructed with structural steel open-web roof joists. Structure was being remodeled to add two 14-foot overhead doors to a load-bearing masonry wall. Partial roof collapse was determined to have initiated due to the improper shoring techniques used to temporarily shore the roof joists while the new openings were cut into the load-bearing masonry wall.

Vehicle Impact Assessment | Whiting, IN
Project started as a stolen vehicle chase that ended in its collision with a historic building resulting in the partial collapse of the structure. Scope included the structural evaluation and emergency shoring design of the damaged structure, as well as the structural design of the reconstruction of the structure. Reconstruction design had to meet local building codes as well as historical preservation requirements.

University Coal Storage Building Collapse | West Lafayette, IN
Conducted an investigation to determine the cause of the collapse of a coal storage building under construction at the Purdue University campus. Intended to hold coal fuel in preparation for combustion at the university's power plant, the structure consisted of an open timber frame with metal siding and roofing. Determined that the partially erected structure was not adequately braced to resist the moderately high winds.

Residential Deck Collapse | Peru, IN
Conducted a forensic investigation of a second-story residential wood balcony deck collapse. The 250-sf deck collapsed with seven occupants on it, resulting in personal injuries. Scope was to determine the cause of the collapse and any possible building code violations for liability purposes. Investigation revealed deterioration of structural components and inadequate attachment of the deck to the primary structural system of the house, which led to the complete collapse of the deck. Key evidence forming the collapse theory included deteriorated wood members, the orientation of the bent nails, post-collapse location of structural members, and eyewitness information.

Facades and Fenestrations

Building Envelope Study | Ohio State University, Columbus, OH
Since its construction, the prominent 570,000-sf recreational facility at The Ohio State University has experienced chronic issues with water infiltration as well as visibly aging façade components. Heavily

used concrete walkways and plaza that surround the building have experienced unusual settlement and cracking. Retained by the university to develop a long-term approach to correct all reported and discovered deficiencies at the building and the surrounding concrete paving, as well as providing a recommended timeline of repairs for the preservation of the building façade and roofing. Building envelope included glass curtain walls, metal façade and roofing panels, pre-cast concrete panels, and cast-in-place walls.

Lifestyle Center Façade Evaluation | Beavercreek, OH

Within a year of the construction of this four-story apartment building in a lifestyle center, the building was exhibiting widespread leaking windows and exterior balcony doors. Retained to investigate the cause of water infiltration and act as a mediator between the numerous parties involved, including the property owner, contractor, architect, product manufacturers, material suppliers, attorneys, and insurance carriers. Façade evaluation and water infiltration investigation revealed nearly all the windows and exterior doors were defective, in addition to façade flashing installation errors. Services also included designing repair procedures to correct the known issues discovered when conducting façade tests. Involvement in the project contributed to the settlement of the liability issue, which averted pending lawsuits.

Moisture Infiltration Investigation | New Albany, OH

Conducted a water infiltration investigation and study to determine the cause and origin of extensive water and mold discovered in several exterior walls of a luxury residential building. Investigation found a large amount of condensation forming inside the wall cavity. Destructive testing and computer model analysis indicated the water formed from moisture vapor transmission through the exterior wall and façade assembly due to improper construction methods.

Property Condition Assessment

Damage/Condition Assessment | Chisinau, Moldova

Project for the US Department of State was intended to assist the government of the eastern European country of Moldova in re-purposing an aged 22-building facility into a modern campus for military and domestic law enforcement training. Existing facility suffered from decades of neglect, major damage, and substandard/antiquated construction methods. Conducted the structural assessment of each building and determined which buildings should be reused, rehabilitated, or demolished to meet the future needs of the campus.

Parking Structure Assessments and Repairs | Ohio State University, Columbus, OH

Managed the parking structure lease program at The Ohio State University for several years. Assets included 16 parking structures with over 4.5 million sf. Engineering services included the physical assessment of each garage, development of capital improvement needs and budgets, and monitoring the major repairs of several of the garages.

Airport Facilities Condition Assessments | Central Ohio

Conducted multiple facility condition assessments for the Columbus Regional Airport Authority, including the physical condition assessments of nearly 40 individual structures, with more than a combined 2.6 million sf located at Port Columbus International Airport, Rickenbacker International

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Airport, and Bolton Field Airport. In addition, a capital reserve study was performed to assist the Authority in developing maintenance and repair budgets for each of the inspected buildings over 10 years. Comprehensive analysis and assessment of building systems included engineering, architectural, and structural analysis, energy conservation opportunities, deferred maintenance items, code compliance items, building envelope deficiencies, and other facility infrastructure improvements. Sizes of the facilities range from the 835,000 sf Port Columbus terminal to smaller operational support structures of less than 500 sf.

Roofing System Evaluations

Roof Storm Damage Studies | Nationwide
Conducted or managed teams that assessed storm damage to thousands of roofing systems for residential and commercial structures. Damage assessments were performed on a wide variety of roofing materials, including asphalt composition shingles, concrete tiles, cedar shakes and shingles, slate, cement fiber board shingles, EPDM, modified bitumen, TPO, etc. Studies determined the cause and extent of suspected storm damage as well as identified deferred maintenance, improper installation, and age-related deterioration. Weather events included isolated severe storms, tornados, and hurricanes.

Hurricane Damage Assessment | Venice, FL
Conducted a damage evaluation of a commercial building that included approximately 15,000-sf of clay tile and modified bitumen roofing. Intent of the evaluation was to determine the extent of direct and indirect wind damage to the roof and façade related to different recent hurricanes as well as the cause and origin of interior water damage.

Fire Investigations

House Explosion Investigation and Assessment | Evansville, IN
Scope of this project included the cause and origin determination of a single-story wood frame house explosion resulting in two fatalities. Determined that a recent water supply line repair caused a natural gas leak outside the house. Natural gas entered the house through the masonry foundation walls and the foundation drainage system. Explosion occurred during the relighting of a gas water heater pilot light. Explosion rendered the house completely destroyed and not salvageable.

Structure Fire Assessment | Greenwood, IN
Conducted a structural evaluation of a fire-damaged steel fabrication facility. Multi-story structure was constructed of steel, concrete, masonry, and timber materials. Fire-damaged structure exhibited masonry cracks, steel truss warping, concrete spalls, and timber char. Scope included the recommendation of required structural repairs.

PUBLICATIONS

- Barn Collapse: When Experience Is Not on Your Side. Subrogator: A publication dedicated to the art of recovery by National Association of Subrogation Professionals, Spring/Summer 2013

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RECENT SPEAKING ENGAGEMENTS

- *Residential Roof Damage & Hail*; Keystone Educational Series; March 2025
- *Evaluating Structural Damage After a Hurricane*; Keystone Educational Series; July 2024
- *Identifying Wind vs. Surge Damage*; Keystone Educational Series; March 2024
- Structural Evaluation of Wood & Concrete Following a Fire; Keystone Educational Series; November 2023

RECENT TESTIMONY

- Jean v. Florida Insurance Guaranty Association; Circuit Court of the 12th Judicial Circuit in and for Sarasota County, Florida; No: 2022-CA-004907-NC; Date of deposition: September 25, 2025; Provide expert witness testimony regarding wind damage to the roof and interior water damage to a residential building.
- Patel v. Florida Insurance Guaranty Association; Circuit Court of the 10th Judicial Circuit in and for Highlands County, Florida; No: 2022-CA-000549; Date of deposition: March 11, 2025; Provide expert witness testimony regarding wind and hail damage to the roof and interior water damage to a residential building.
- Cardenas & Delgado v. Citizens Property Insurance; 6th Judicial Circuit in and for Pinellas County, Florida; No: 22-002284-CO; Provide expert witness testimony regarding wind damage to the roof and interior water damage to a residential building.
- Roman & Palma v. First Protective Insurance Company dba Frontline Insurance; Circuit Court of the 9th Judicial Circuit in and for Orange County, Florida; No 2022-CA-004672-O; Date of deposition: July 17, 2024; Provide expert witness testimony regarding interior water damage near the kitchen sink of a residential building.
- Roman & Palma v. First Protective Insurance Company dba Frontline Insurance; Circuit Court of the 9th Judicial Circuit in and for Orange County, Florida; No 2022-CA-004663-O; Date of deposition: July 17, 2024; Provide expert witness testimony regarding wind damage to the roof and interior water damage to a residential building.
- Madero-Lindsey v. Security First Insurance Co.; Circuit Court of the 12th Judicial Circuit in and for Manatee County, Florida; No: 2021CA001487AX; Date of deposition: December 7, 2023: Provide expert witness testimony regarding wind damage to the roof and interior water damage to a residential building.
- Tielves v. Citizens Property Insurance Corporation; Circuit Court of the 10th Judicial Circuit in and for Highlands County, Florida; Date of deposition: November 21, 2023; Provide expert witness testimony regarding wind damage to the roof and interior water damage to a residential building.