

Mitch Hansen, PE

Forensic Engineering Expertise

Structural Analysis/Design

Review appropriate documents, including project plans and specifications, as they relate to the building structure for purposes of failure analysis and extent of resulting damages. In addition, being a licensed professional engineer, replacement designs are provided upon request. Examples of past work includes failure analysis of compromised structures (concrete, steel, wood, masonry) and various building components (windows, doors, glass, piping, roofing, exterior and interior cladding), as well as damage assessment of building structures after a fire.

Origin & Cause

Determine the source and responsible party or element related to the failure of a structural or architectural element or water damage in a building. Examples of past work include failure of roofing and wall cladding causing moisture entry, humidity and condensation related losses, and groundwater entry.

Building Fenestration/Building Envelope

The building envelope is a building's first line of defense to moisture entry. Identifying the type of system (single versus multiple barrier) and how the various adjoining materials' water and air barriers connect is key to effective moisture management. Examples of past work include residential window installations, exterior cladding specification and installation, and roofing materials and installation.

Building Pathology/Construction Defects

The building pathologist relies on an in-depth knowledge of building design, construction, use, and changes, as well as assessing the environment of use and the materials and how these interrelate to systematically identify, investigate, and diagnose defects in a building. Past work includes repairs as a structural design engineer.

Inspection and Evaluation of Roofing Systems

This includes steep and low-slope roofs as well as various types of roofing materials, including both common and unique roofing applications. Past work involved offering opinions and repairs related to installation deficiencies and storm-related damages, including for hail and wind.

Qualifications & Training

- Post-Installed Concrete Anchor Installation Inspector (May 2024) & Adhesive Anchor Installer (March 2023), American Concrete Institute (ACI)
- Repair of Concrete, University of Wisconsin-Madison, April 2024
- Water and Wood in Mass Timber, International Institute of Building Enclosure Consultants - Wisconsin (IIBEC-WI), March 2024
- Forensics and Windows, Insulated Glazing Unit Design, and Window Sealants and Desiccants, Winter Conference, Nederveld, Inc, February 2024
- Resilience: It's a Matter of Choice Not Luck, International Institute of Building Enclosure Consultants (IIBEC)/Architectural Engineering Institute (AEI) Building Enclosure Symposium, November 2022
- Material Considerations in the Changing Sustainability Designs in Building Envelopes, IIBEC/AEI Building Enclosure Symposium, November 2022

- The Sky is Falling: Cladding System Failures, IIBEC/AEI Building Enclosure Symposium, November 2022
- Innovative Prefabricated Masonry Solutions, IIBEC/AEI Building Enclosure Symposium, November 2022
- Masonry Interior Insulation Retrofit Thermal Performance and Freeze Thaw Risk, IIBEC/AEI Building Enclosure Symposium, November 2022
- Moisture Accumulation: Multiple Contributing Factors, IIBEC/AEI Building Enclosure Symposium, November 2022
- Underlayment and Understanding Moisture Effects on Shingles and Fasteners, IIBEC/AEI Building Enclosure Symposium, November 2022
- StuccoMetrics: Considerations for Stucco Cladding and Continuous Insulation, IIBEC/AEI Building Enclosure Symposium, November 2022
- The Price of an Ocean View: the Deleterious Conditions at the Balcony Edge, IIBEC/AEI Building Enclosure Symposium, November 2022
- Steep and Low-Slope Roofing, Winter Conference, Nederveld, Inc., February 2022
- Building Envelope Performance, Winter Conference, Nederveld, Inc., February 2022
- Detailing of Durable Wood Buildings, The Wood Institute, January 2022
- High-Performance Building Envelope Designs with Insulating Concrete Forms, by Quad-Lock, January 2022
- Re-roofing Commercial Buildings: 2015 IECC Requirements, by Polyisocyanurate Insulation Manufacturers Association, December 2021

Education

Bachelor of Science in Civil Engineering
Marquette University, Milwaukee, Wisconsin
May 2012

Educational Presentations

- Presenter, March 2018 Technical Conference for ASCE, Wisconsin
- Mentor, 2018-2021, Marquette University, Civil Engineering Senior Capstone Design

Licenses & Certifications

PE - Professional Engineer

- Licensed by the State of Illinois – Number 062067738
- Licensed by the State of Iowa – Number P27615
- Licensed by the State of Michigan – Number 6201311525
- Licensed by the State of Minnesota – Number 60834
- Licensed by the State of Wisconsin – Number 44501-6

ACI (American Concrete Institute) Post-Installed Concrete Anchor Installation Inspector and Adhesive Anchor Installer – Number 02218906

Employment History

Forensic Engineer
Nederveld, Inc., Schaumburg, IL
June 2021 - Present
Duties include forensic engineering analysis relating to building pathology, structural damage due to fire, structural damage from vehicle impacts, storm-related damage (wind, snow, hail), water loss events, calculations, and plan of repair design.

Structural Engineer
HGA Architects & Engineers, Milwaukee, WI
September 2013 - June 2021

Duties included performing structural analysis and design of steel, concrete, and masonry structures. Coordinate structural design with architectural, mechanical, and other disciplines daily. Develop complete construction documents and specifications. Produce efficient structural designs on projects with aggressive schedules. Collaborate to resolve project budget challenges as they arise. Lead structural design for projects ranging from \$25K to \$250M construction cost. Manage teams of up to four junior staff working on a project. Support department innovation initiatives through technical advancements.

Design Engineer, June 2012 - September 2013
Engineering Co-op Student, January 2010 - August 2011
WBK Engineering, St. Charles, IL

Duties included performing design calculations for concrete and steel as needed for structural engineers. Prepared engineering drawings and specifications. Served as resident engineer on several roadway construction projects.

Professional Affiliations

Board of Directors – Wisconsin Chapter – International Institute of Building Enclosure Consultants (IIBEC) – 2023-Present
Consultant Affiliate Member: International Institute of Building Enclosure Consultants (IIBEC) – 2022-Present

Expert Witness Experience

Depositions

June 2025

Mission Lakes Condo Association, Inc. v Auto-Owners Insurance
Expert Witness for Spencer Fane on behalf of Auto-Owners Insurance
United States District Court Eastern District of Wisconsin, Case No. 24-CV-808

September 2024

Charles Hartman v Secura Insurance Company
Expert Witness for Secura Insurance Company on behalf of Dentons LLP
State of Wisconsin Circuit Court, Case No: 2023-CV-1432

December 2023

Riverside Automotive Service and Parts, Inc. v West Bend Mutual Insurance
Expert Witness for West Bend Mutual Insurance on behalf of Leavell & Borton, S.C.
State of Wisconsin Circuit Court, Case No: 2023-CV-1627