

Steve Byron, PE, SE

Forensic Engineering Expertise

Structural Analysis/Design

Review appropriate documents, including project plans and specifications as it relates to the building structure for purposes of failure analysis and extent of resulting damages. In addition, being a licensed professional engineer and structural engineer, replacement designs are provided upon request. Examples of past work includes failure analysis of collapsed structures (concrete, steel, wood, masonry), and various building components (roofing, exterior and interior cladding) as well as damage assessment of building structures after a fire, vehicle impact, explosion, snow overload, tornado, hurricane, and mine subsidence.

Origin & Cause

Determine the source and responsible party or element related to water entry into a building whether it be through the building envelope or caused within the building interior. Examples of past work include failure of roofing and wall cladding causing moisture entry and humidity and condensation related losses.

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.

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, air, vapor, and thermal control layers connect is key to effective moisture management. Examples of past work include storefront window exams, 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.

Qualifications & Training

- Oh Hail! Metal Roofs, Hail Impact, and Long-Term Performance, International Institute of Building Enclosure Consultants (IIBEC), June 2025
- A Deep Dive into Hail-Caused Dents, IIBEC, June 2025
- Initial Use Cases for Artificial Intelligence in Building Enclosure Consulting, IIBEC Annual Conference, March 2025
- Bridging Enclosure Gaps: Creating Continuity Between Roofing and Adjacent Enclosure Systems, IIBEC Annual Conference, March 2025
- Expanding Possibilities: Engineering Design of Masonry Veneer, IIBEC Annual Conference, March 2025
- A Tale of Collaboration: Terra Cotta Restoration of Fort Worth's First Skyscraper, IIBEC Annual Conference, March 2025

- Net Zero/Carbon Neutral Retrofits, 140 Kendrick Case Study: Tactics, Tradeoffs, and Takeaways, IIBEC Annual Conference, March 2025
- Determining Life Expectancy of In-Situ Slate Roofing, IIBEC Annual Conference, March 2025
- Strategies for Improving Air Leakage, Thermal Resistance and Moisture Control in the Building, Enclosure, IIBEC Annual Conference, March 2025
- House of Cards. Blind Connection Failures. Who Knew?, IIBEC Annual Conference, March 2025
- Storm Damage Assessment, IIBEC Annual Conference, March 2025
- Building a Better Roof System with Roof Boards, Laboratory and Testing Lab Tour, Structural Cementitious Panels, USG/ IIBEC Chicago and Wisconsin Chapters, March 2025
- IIBEC Waterproofing Course: Principals for Plaza Decks and Below-Grade Structures, IIBEC, January 2025
- SEI Standards Series ASCE 7 & Building Codes - Part 2 (AWI030923), December 2024
- SEI Standards Series ASCE 7 & Building Codes - Part 1 (AWI020923), December 2024
- Curtainwall Primer for Design Professionals (AWI042514), December 2024
- ASCE's Code of Ethics (AWI112922), December 2024
- Design of Foundations for Coastal Flooding (AWI111910), March 2024
- Construction Vibrations (AWI052319), March 2024
- Rain Loads in ASCE 7-22, What's New and Different (AWI121321), February 2024
- IIBEC Re-roofing Course, International Institute of Building Enclosure Consultants (IIBEC), April 2023
- Learning from Failures of Wood-Framed Structures (AWI022811), ASCE On Demand, February 2023
- Geo-Structural Investigation of Existing Structures (AWI092019), ASCE On Demand, February 2023
- Building Enclosure Commissioning (BECx): What You Need to Know (AWI060619), ASCE On Demand, February 2023
- Lessons From Failures of the Building Envelope (AWI021913), ASCE On Demand, February 2023
- Investigations of Winter Roof Failures – Lessons Learned (AWI020816), ASCE On Demand, February 2023
- Ethics in Sustainable Development for Civil and Structural Engineers (AWI012521), ASCE On Demand, December 2022
- Mine Subsidence Cause Effect and Mitigation (8013IW2023), ASCE Webinar, December 2022
- Shoring and Load Transfer in Renovations of Existing Buildings, National Council of Structural Engineer Associations (NCSEA) Live Webinar, November 2022
- Registered Roof Consultant, IIBEC, May 2022
- Metal Roof Systems, Seminar by the University of Wisconsin at Madison, WI, December 2021
- Waterproofing the Building Envelope and a Peak Behind the Curtain: Understanding Curtain Wall Continuity Issues, International Institute of Building Enclosure Consultants, IIBEC – Chicago Chapter Fall Program, November 2021
- Residences at Water Tower – Marble Façade Restoration, The Structural Engineers Association of Illinois (SEAOI) Forensic Forum, June 2021
- T2D2 Computer Vision for Detection, Classification and Monitoring of Façade Damage Conditions, SEAOI Forensic Forum, June 2021
- Failure stress of glass made easy. Or is it?, SEAOI Forensic Forum, June 2021
- Large Scale Parking Structure Vehicle Fire Damage Evaluation and Restoration, SEAOI Forensic Forum, June 2021

- Preserving the Beauty of Cast Iron During a Forensic Analysis, SEAIO Forensic Forum, June 2021
- Case Study in Service Life Prediction of a Post-Tensioned Concrete Parking Structure, SEAIO Forensic Forum, June 2021
- Precast, Prestressed, and Well Done, SEAIO Forensic Forum, June 2021
- Grain Terminal Silos/ Hopper Collapse and Silo Wall Distress Investigation, SEAIO Forensic Forum, June 2021
- Miami, FL Pedestrian Bridge Collapse Investigation, March 15, 2018, University of Illinois 2021 Illinois Structural Engineering Conference (Virtual), February 2021
- Sexual Harassment Prevention Training, Structural Engineers Association of Illinois, September 2020
- Avoiding Ethical Pitfalls in Failure Investigations (8108W2020E), ASCE Live Webinar, March 2020
- Structural design of Steel Stairs and Rails (8091W2020), ASCE Live Webinar, February 2020
- Practical Assessment of Fire Damaged Structures, SEAIO Forensic Forum, June 2019
- Forensic Investigation of Post Tensioned Slab Blowout, SEAIO Forensic Forum, June 2019
- Bouncing Around – Identifying and Addressing Unacceptable Vibrations, SEAIO Forensic Forum, June 2019
- A Dip in the Bridge: A Leo Frigo Memorial Bridge Case Study, SEAIO Forensic Forum, SEAIO Seminar, June 2019
- The Miller Park Crane Accident, a 20 Year Look Back, SEAIO Forensic Forum, June 2019
- Assessment of Seismic Damage to New Zealand Wine Tanks, SEAIO Forensic Forum, June 2019
- Structural Assessments Guide Hyperbolic Shell Cooling Tower Rehabilitation, SEAIO Forensic Forum, June 2019
- Extending the Life of a Hyperbolic Cooling Tower with Cathodic Protection, SEAIO Forensic Forum, June 2019
- Investigation and Repair of Wood Structures (AWI092611), ASCE On Demand, February 2019
- Engineering Judgment – Structural Renovation of a 100-Year-old Historic Barn (AWI081718), ASCE On-Demand Webinar, February 2019
- Design of Roof Structures – Avoiding Common Errors (AWI080715), ASCE On-Demand Webinar, January 2019
- Tornado and High Wind Shelter Design (AWI0628112), ASCE On-Demand Webinar, January 2019
- Design Loads on Structures During Construction Using ASCE 37 (AWI092512), ASCE On-Demand Webinar, January 2019
- Design, Repair, and Restoration of Building Facades (AWI031715), ASCE On-Demand Webinar, January 2019
- Designing Structures for Tsunami Resilience using New Chapter 6 of ASCE 7-16 (AWI082216), ASCE On-Demand Webinar, January 2019
- Significant Changes to the Wind Load Provisions of ASCE 7-10 and Coordination with the 2015 IBC and 2015 IRC (AWI051712), ASCE On-Demand Webinar, April 2018
- Seismic Design of Curtain Wall Systems (AWI042616), ASCE On-Demand Webinar, March 2018
- Structural Testing of Curtain Wall Systems (AWI060916), ASCE On-Demand Webinar, March 2018
- Water Entry Prevention and Moisture Control in Buildings-Roofing Systems, Exterior Walls, Plaza Decks, Below-Grade Waterproofing, Seminar by University of Wisconsin at Madison, Madison, WI, August 2017

- Wind Design for Non-Residential Wood Structures (AWI0307112), ASCE On-Demand Webinar, February 2017
- Connection Solutions for Wood Frames Structures (AWI120312), ASCE On-Demand Webinar, February 2017
- Engineering Investigations of Hurricane Damage: Wind versus Water, (7089W2016), ASCE Live Webinar, American Society of Civil Engineers, February 2016
- Snow Loading for Non-Standard Roof Shapes (AWI080513), ASCE On-Demand Webinar, January 2016
- Design Snow Loads for Complex Residential Roofs (AWI102615), ASCE On-Demand Webinar, January 2016
- Forensic Engineering: What is it?, Investigations, Failures and Repairs of Existing Structures, SEAIO Seminar, May 2015
- Investigation and Repairs of Wood Bowstring Trusses, Investigations, Failures and Repairs of Existing Structures, SEAIO Seminar, May 2015
- Repair of the Walter Payton Center, Investigations, Failures and Repairs of Existing Structures, SEAIO Seminar, May 2015
- Replacement of Trunnion Bearing – 92nd St. Bridge, Investigations, Failures and Repairs of Existing Structures, SEAIO Seminar, May 2015
- I-43 Leo Frigo Bridge Pier Settlement and Emergency Repairs, Investigations, Failures and Repairs of Existing Structures, SEAIO Seminar, May 2015
- Bloomingdale Trail Project – Repurposing the Milwaukee Avenue Bridge, Investigations, Failures and Repairs of Existing Structures, SEAIO Seminar, May 2015
- Structural Metal Roofing Failures, Investigations, Failures and Repairs of Existing Structures, SEAIO Seminar, May 2015
- Passive Fireproofing Systems for Industrial Structures: Maintenance Risk Assessment
- Indiana State Fair Collapse Incident: Investigations, Failures and Repairs of Existing Structures, SEAIO Seminar, May 2015
- Significant Changes to the Wind Load Design Procedures of ASCE 7-10 (AWI100112), ASCE On-Demand Webinar, September 2014
- Evaluating Damage and Repairing Metal Plate Connected Wood Trusses, American Society of Civil Engineers, April 2014
- Design and Construction of Low-Rise Buildings for High Wind and Hurricanes (AWI52113), ASCE On-Demand Webinar, February 2014
- Roof Failure Due to Snow Loading- 2010-2011 Southern New England Case Study (AWI041513), ASCE On-Demand Webinar, February 2014
- Underpinning and Strengthening of Foundations (AWI010111), ASCE On-Demand Webinar, January 2014
- Structural Building Condition Surveys: Looking for Trouble (AWI012612), ASCE On-Demand Webinar, January 2014
- Certified Roof Inspector – Residential, HAAG Engineering, December 2013
- Roofing 101 – Module 1: The Basics, National Roofing Contractors Association, May 2013
- Roofing 101 – Module 2: Roof System Basics, National Roofing Contractors Association, May 2013
- Roofing 101 – Module 3: Low-slope Roof Systems, National Roofing Contractors Association, May 2013
- Roofing 101 – Module 4: Steep-slope Roof Systems, National Roofing Contractors Association, May 2013
- Roofing 101 – Module 5: Roof Flashing Systems and Accessories, National Roofing Contractors Association, May 2013
- Roadway Worker Safety Training, Niemeyer & Associates, P.C., latest January 2013
- e-RAILSAFE, 2012
- Contractor Safety Refresher Course & CITGO Petroleum-Lemont Site Specific, Three Rivers Safety Center, June 2009

- FHWA Safety Inspection of In-Service Bridges 80-Hr. Course 13055, September 2008
- Contractor Safety Orientation & CITGO Petroleum-Lemont Site Specific", Three Rivers Safety Center, June 2008
- Securing Buildings Against Chemical & Biological Agents Workshop, North Carolina A&T State University, October 2006
- Seismic Braced Frames-Design Concepts and Connections, AISC, April 2006
- The New 2005 AISC Specification for Structural Steel Buildings and the New AISC Manual of Steel Construction-13th Edition, AISC, December 2005
- Advanced Technology Using Bonded Post-Tensioning, Structural Group, July 2005
- National Highway Institute Bridge Inspection Refresher Course (Course #130053), January 2003

Education

Master of Science Degree in Civil Engineering – Structural Engineering
University of Illinois at Urbana-Champaign, Urbana, IL
May 2000

Bachelor of Science in Civil Engineering
University of Illinois at Urbana-Champaign, Urbana, IL
May 1999

Licenses & Certifications

PE - Professional Engineer

Licensed by the State of Illinois – Number 062-057469

Licensed Civil Engineer by the State of Nebraska – Number E14277

Licensed by the State of Indiana – Number PE12100563

Licensed by the State of Iowa – Number P26897

Licensed by the State of Minnesota – Number 59466

SE – Structural Engineer

Licensed by the State of Illinois – Number 081006749

RRC – Registered Roof Consultant, International Institute of Building Enclosure Consultants Registration #0927, May 2022

Employment History

Forensic Engineer

Nederveld, Inc.

2013 – Present

Duties include forensic analysis relating to building pathology issues, fire loss damage, structural damage from vehicle impacts, explosions, storm damage (wind, snow, and hail), seismic, and water loss events.

Senior Structural Engineer

Niemeyer and Associates, P.C., Ringwood, IL

August 2009 – April 2013

Responsible for all aspects of railroad bridge projects from the complete engineering design to project management and construction observation, including proposal creation, client meetings, budget maintenance, and field observation.

Structural Engineer

Collins Engineering, Chicago, IL

May 2008 – July 2009

Responsible for providing onsite structural engineering technical support at a petroleum refinery including inspecting aged and damaged infrastructure and developing, budgeting, and prioritizing a structural repair program.

Steven Byron 5

Last Modified: 6/23/25

Structural Engineer
 Southerland Associates, Inc., Charlotte, NC
 August 2006 – April 2008
 Responsibilities included designing and detailing complete construction documents for new industrial facilities and expansion of existing facilities.

Structural Engineer
 Laurene & Rickher, P.C., Charlotte, NC
 August 2004 – July 2006
 Responsibilities included designing and detailing complete construction documents for new residential, commercial, and institutional buildings. Project Manager for small/mid-scale projects. Served as Project Engineer for large-scale projects. Provided design of structural systems, including reinforced concrete, structural steel, masonry, and timber.

Structural Engineer
 Bowman, Barrett, & Associates, Inc.
 June 2000 – August 2004
 Project Engineer for large-scale highway reconstruction projects, medium and high-rise condominiums, and building and facade inspections.

Summer Technician
 Illinois Department of Transportation
 Summer 1997, Summer 1998

Professional Affiliations

International Institute of Building Enclosure Consultants (2023-present)
 American Society of Civil Engineers (ASCE) (2014-2019, 2022-present)
 Structural Engineering Institute (SEI) (2014-2019, 2022-present)
 Structural Engineers Association of Illinois (SEAIO) (2019-2021)
 American Railway Engineering and Maintenance-of-Way (AREMA) Technical Committee 15- Steel Structures (2010-2013)

Expert Witness Experience

Courtroom Testimony

April 2021
 Michael Nitekman vs Fifield Construction & Realty
 Expert Witness for Fifield Construction & Realty on behalf of Bryce Downey & Lenkov LLC
 Cook County Circuit Court #2017 L 001737

October 2020
 Schreiter vs American Family Insurance Co.
 Expert Witness for American Family Insurance on behalf of The Everson Law Firm
 Outagamie County Case # 20 SC 1892.SC

January 2019
 Acuity aso Mark and Colleen Vogtmann versus George R. Arvanitis
 Expert Witness for Acuity
 Kane County (Illinois) Circuit Court #16L-158

August 2018
 Phuong Huynh and Laura Camoletto vs Michael's of Palatine Construction Co and

Michael P. McLenaghan, individually
Expert Witness for Phuong Huynh and Laura Camoletto on behalf of Nigro, Westfall & Gryska, P.C.
Cook County Circuit Court # 2016 L 001737

Arbitration

May 2021

Steven Haislet and Karen Strehle vs State Farm Fire & Casualty Company
Expert Witness for State Farm Insurance Company on behalf of Bruce Farrel Dorn & Associates
Case No. 01-21-0000-1870

February 2016

Anderson vs State Farm Insurance Company
Expert Witness for State Farm Insurance Company on behalf of Sudekum Cassidy & Shulruff
Arbitration Number 01-15-0005-5165

Depositions

June 2025

Joseph Ritter and Angela Ritter vs. Secura Supreme Insurance Company
Expert Witness for Secura Supreme Insurance Company on behalf of Freeman Mattis & Gary LLP
The United States District Court for the Central District of Illinois Peoria Division, Case No. 1:24-cv-01187-JEH

March 2024

New Life Celebration Church of God, Inc. vs. Church Mutual Insurance Company
Expert Witness for Church Mutual Insurance Company
United States District Court for the Northern District of Illinois No. 1:22-cv-03192

September 2023

Town of Silver Cliff vs. Rural Mutal Insurance Company
Expert Witness for Rural Mutal Insurance Company on behalf of Borgelt, Powell, Peterson & Frauen, S.C.
State of Wisconsin Circuit Court, Marinette County, Case No. 23-CV-25

October 2022

Josephine Pangilinan vs. 1528 North Hudson Condominium Association, Chris Peterson, Justin Walsh, and Ray Pelelas
Expert Witness for 1528 North Hudson Condominium Association on behalf of McKnight and Kinzinger LLC
Cook County Circuit Court Case # 2020 L 5611

March 2022

Nancy Coleman vs. West Bend Mutual Insurance
Expert Witness for Foran Glennon on behalf of West Bend Mutual Insurance
United States District Court, Northern District of Indiana, Hammond Division
Case No. 2:21-cv-00180-JVB-JPK

November 2020

Michael Nitekman vs. Fifield Construction & Realty
Expert Witness for Fifield Construction & Realty on behalf of Bryce Downey & Lenkov LLC

Steven Byron 7

Last Modified: 6/23/25

Cook County Circuit Court #2017 L 001737

June 2020

Steve Gosha vs Erie Insurance Company

Expert Witness for Erie Insurance Company on behalf of Borgelt, Powell, Peterson & Frauen, S.C.

United States District Court Eastern District of Wisconsin #19-CV-1373

February 2020

The Mazzeo Baking Co. vs Country Mutual Insurance

Expert witness for Country Mutual Insurance Company on behalf of McKnight & Kitzinger, LLC.

Cook County Circuit Court #2018 L 022165

February 2018

Phuong Huynh and Laura Camoletto vs Michael's of Palatine Construction Co and

Michael P. McLenaghan, individually

Expert Witness for Phuong Huynh and Laura Camoletto on behalf of Nigro, Westfall & Gyska, P.C.

Cook County Circuit Court # 2016 L 001737

FOR REFERENCE ONLY NOT RETAINED