

RANDALL P. BERNHARDT, P.E., S.E.

Forensic Civil/Structural Engineer

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Mr. Bernhardt's qualifications have been gained through education, over thirty-three years of design and construction experience, and over thirteen years of forensic engineering experience involving litigation or insurance claims regarding:

- Building Structures and Building Envelopes
- Bridge and Industrial Structures
- Design Defects
- Construction Defects
- Building Code Requirements
- Damage from High Winds, Subsidence, Vehicle Impact, Fire Damage

Education

M.S., Civil Engineering, Kansas State University, 1986

B.S., Engineering, Southern Illinois University, 1980

Licensed Professional Engineer (P.E.)

Arkansas, Colorado, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Missouri, Nebraska, Ohio, Oklahoma, Oregon, South Carolina, Texas, Wyoming

Licensed Structural Engineer (S.E.)

Illinois, Oregon, Nebraska, Georgia, Oklahoma

**Professional Affiliations/Honors
Structural Engineering Institute
(ASCE), Fellow**

2020 W. Gene Corley Award

Past Treasurer, Board of Governors

Past Chair, BPAD Executive Com.

Past Chair, Design Practices Com.

Past Chair, Prof. Activities Com.

Past Chair, St. Louis Chapter

Member, SE Licensing Committee

Assoc Member, ASCE 7 Main Comm.

**National Council of Structural
Engineering Associations**

Member, Committee on Licensing

Mr. Bernhardt provides professional forensic engineering consulting for insurance and litigation cases related to buildings and other structures.

Since 2013, Mr. Bernhardt has been active in investigations involving claims of structural damage and/or collapse from high winds and tornadoes; snow, hail, or rain; ponding on low-sloped roofs; explosions and fires; vehicle impact; vibrations; water intrusion through building envelopes; settlement and subsidence; and non-compliance with building code requirements. Additionally, he has investigated allegations of design and construction defects in traditional design-bid-build and design-build projects. His assignments have included investigations and repair design of wood, steel, masonry, and concrete structures.

Prior to 2013, Mr. Bernhardt worked as a structural engineer in the investigation, design, and construction of various buildings and bridges. His project experience included designing and analyzing buildings, multi-span bridges, and other structures constructed of wood, pre-stressed concrete, reinforced concrete, masonry, and structural steel. Additionally, he has experience in the design of wastewater and water treatment structures, including tanks, buildings, foundations, and chambers.

BERNHARDT FORENSIC ENGINEERING

Professional Affiliations/Honors

(Cont'd)

American Society of Civil Engineers,
Fellow, Life Member

Member, Forensic Engineering
Investigations Committee

Chair, Forensic Engineering Division
Executive Committee

**Structural Engineers Association of
Kansas and Missouri,** Member

Greater St. Louis Claims Association
Past President

Southern Illinois University
2011 Outstanding Alumni Award, Civil
Engineering Department
Past Chair and Member, Civil
Engineering Professional Advisory Bd

**National Council of Examiners for
Engineering and Surveying**
Past Member, Structural Exam
Committee, 2007-2023

**Structural Engineering Licensing
Coalition**
Assoc. Member, Past Chair

International Code Council, Building
Safety Professional Member
Member, IBC-S Code Committee, 2022,
2025

American Concrete Institute, Member

The Masonry Society, Member, Veneer
Com., Construction Req Com., Corresp
Member Main Com., Gen Req Com.,
Member, Existing Masonry Guidelines
Comm.

**American Institute of Steel
Construction,** Member

ASTM, Member, Cementitious, Ceramic,
Concrete, and Masonry Materials Comm.

**Fenestration and Glazing Industry
Alliance,** Fenestration Associate
Professional Certification.

Randall P. Bernhardt, P.E., S.E.
June 2026

Positions Held

Bernhardt Forensic Engineering LLC

Founder, Manager, March 2020 to Present

- Provides forensic engineering to determine the extent of damage to structures from wind, tornadoes, water intrusion, vehicular impact, cracking, etc.
- Investigates damage to wood, concrete, steel, and masonry structures.
- Investigates claims of design deficiencies and construction deficiencies.

Engineering Systems Inc., O'Fallon, MO

Senior Consultant, 2013 to 2020

- Investigated damage from wind, tornadoes, hurricanes, vehicular impact, ground subsidence, etc.
- Investigated damage to wood, concrete, steel, and masonry structures.
- Investigated claims of design deficiencies and construction deficiencies.

OCCI, Fulton, MO

Chief Structural Engineer, 2012 to 2013

- Designed structural supports for construction of bridges.
- Evaluated construction methods.

Burns & McDonnell Engineering Co., St. Louis, MO

Department Manager/Technical Lead and Chief Regional
Structural Engineer, 2001 to 2012

- Designed industrial, transportation, and defense structures.
- Collaborated with architects, civil engineers, mechanical engineers, electrical engineers, and construction engineers.
- Led team of structural engineers on various projects.
- Provided structural inspection of bridges for Corps of Engineers.

Hurst-Rosche Engineers, Inc., Marion, IL

Lead Structural and Civil Engineer, 1998 to 2001

- Designed industrial, transportation and education structures.
- Collaborated with architects, civil engineers, mechanical engineers, electrical engineers, and construction engineers.
- Led team of structural engineers on various projects.

Bernhardt Structural Engineering, Inc., Carbondale, IL

Founder, Chief Executive Officer, 1993 to 1998

- Designed industrial, transportation, water/wastewater and education structures.
- Provided design, plans, and specifications.
- Led team of structural engineers on various projects.
- Collaborated with architects on various building projects.

Positions Held (Continued)

Bucher, Willis & Ratliff Consulting Engineering, Kansas City, MO

Project Engineer and Project Manager, 1980 to 1993

- Designed industrial, transportation, and water/wastewater treatment plant structures.
- Provided biennial structural inspection of bridges in Kansas, Missouri, and Texas.
- Provided resident engineering during construction of a 1200-foot-long curved bridge over a railroad yard.

Areas of Specialization

Investigations:

- Building and Bridge Collapse and Structural Failure
- Structural Damage from Tornadoes, High Winds, Explosions, Rain, Snow, and Fires
- Collision Damage of Buildings and Bridges
- Construction and Demolition Defects
- Design Defects in Structural Projects involving Steel, Concrete, Masonry, or Wood
- Fire Damage to Structures
- Vibration Damage
- Building Code Investigations
- Evaluation of Deteriorated Concrete, Wood, and Masonry
- Evaluation of Corroded Structural Steel
- Building Envelope, Building Veneers, Water Intrusion
- Slips, Trips, and Falls related to stairs or sidewalks

Design:

- Building Rehabilitation Investigation and Design
- Evaluation, Analysis, and Design of Steel, Concrete, Wood, and Masonry Structures
- Reinforced Concrete Foundation Analysis and Design
- Bridge Analysis and Design
- Seismic Analysis
- Fatigue Analysis

Examples of Forensic Engineering Experience

The following examples include insurance claim investigations or litigation investigations for the plaintiff or the defense.

Wind Damage

- Wind Damage to Water Tower with Aluminum Geodesic Dome Roof, Wyoming
- Tornado Damage at Building Products Manufacturing Plant, Illinois
- Tornado Damage to Tilt-Up Concrete Building – Construction Defects, Illinois
- Tornado Damage to Government Building, Arkansas
- Derecho Wind Damage to Six Multi-Story Wood-framed Apartment Buildings, Iowa
- Derecho Wind Damage to Additional Residential and Commercial Buildings, Iowa
- Hurricane Damage to Various Multi-Story Residential Buildings, Cabo San Lucas, Mexico
- Evaluation and Repair of Wood Trusses from a Fallen Tree Branch, Missouri
- Wind-caused Failure of Timber-framed Church Steep and Resultant Damage to Sanctuary Building, Illinois
- Tornado Damage to Multiple Masonry Buildings at an Auto Dealership, Illinois

- Tornado Damage to Single-Family Residences, Missouri

Design/Construction Defects

- Failure of HSS Supports of Sign Structures at a Major Airport, Michigan
- Cracking in Wastewater Treatment Plant Concrete Containment Structure, Missouri
- Photographic Documentation of Cracks in Welded Plate Steel Girder Supporting Transit Center, California
- Failure of Adhered Masonry Thin Brick Veneer attached to Concrete Walls, Missouri
- Design Build Dispute regarding Highway Bridge Designs, South Carolina
- Claimed Residential Vibration Damage resulting from Vehicles Hitting a Depression in the Street, Missouri
- Cracking of Welds in a Multi-Story Structural Steel Industrial Frame with Vibrating Equipment, Iowa
- Cracking and Settlement of Concrete Floor Slab in Industrial Building, Iowa
- Claimed Vibration Damage of Masonry Building Walls from Construction, Illinois
- Collapse of Prestressed Hollow Concrete Beams in Parking Lot, Illinois
- Construction Deficiencies of a Wood-Framed Strip Mall, Missouri
- Construction Deficiencies of an Addition to Houses, Missouri
- Failed Mortise and Tenon Joints in Historic Timber Farm Building Turned into a Home, Missouri
- Failed Heavy Timber Truss in Historic Government Building, Illinois
- Construction Defects of PVC Roofing at Commercial Building, Missouri
- Multiple Construction Defects in a Two-story Residential Building, Missouri
- Defects Related to Residential Foundation Wall Repair, Missouri
- Construction Defects Related to Concrete Foundation and Slab for Grain Bins, Nebraska
- Failure of Metal Plate Connected Wood Trusses during Erection Causing Injuries (Three Instances), Missouri
- Construction Defects Related to the Underpinning of a Residential Building Foundation, Missouri
- Construction Defects of Structural Steel Framing in Multi-Residential, Multi-Story Building, Missouri

Water Intrusion/Building Envelope

- Manufacturing and Construction Defects of Windows and Doors in a Multi-Story Mixed-Use Residential Building, Missouri
- Construction Sequencing Leading to Water Intrusion of a Commercial Building, Missouri
- Construction Excavation Leading to Residential Building Settlement, Missouri
- Construction Deficiencies Leading to Water Intrusion Damage at Multiple Residential Wood-framed Buildings, Missouri
- Construction Deficiencies Leading to Water Damage of Fenestrations and Balconies of a Wood-framed House, Missouri
- Water Intrusion Damage of Stucco Veneer on Multi-Story Residential/Mixed Use Building, Missouri
- Window Installation Issues Leading to Water and Air Intrusion, Missouri
- Water Intrusion through Stone Rubble Basement Wall at a Restaurant, Missouri
- Failed Masonry Wall of Homes due to Hydrostatic and Soil Pressure, Illinois

Building Code Requirements

- Lighting and Stair Requirements as a Result of a Fall with Injuries, Missouri
- Entry Details as a Result of a Fall with Injuries, Missouri
- Lighting and Entry Stair Details as a Result of a Fall with Injuries, Missouri
- Uneven Sidewalk Leading to Injury Near a Hospital, Missouri

Structural Fire Damage

- Structural Fire Damage to Timber Framed Roof and Floors and Evaluation of Masonry Wall Stability, Missouri
- Structural Fire Damage to a Multi-Story Wood-framed Multi-Family Residential Building, Ohio
- Structural Fire Damage to the Metal Framing of an Industrial Plant, Illinois
- Structural Fire Damage to the Metal Framing of a Pre-Engineered Metal Church Building, Kentucky
- Structural Fire Damage to the Metal Framing of an Industrial Plant, Missouri
- Structural Fire Damage to Wood-Framed Garage, Illinois
- Structural Fire Damage at Wood-framed Grain Building, Missouri
- Evaluation and Repair of Damage due to an Explosion at a Chemical Plant Off-Loading Facility, Illinois
- Evaluation and Repair of Structural Damage from Explosion at an Ammunition Plant, Arkansas

Other Damage

- Deterioration in Historic Timber Framed Building at Religious Facility, Illinois
- Failure of Wood Guard Rail Causing Injury, Missouri
- Failure of Wood Stairway Causing Injury, Missouri
- Failure of Wood Deck Stairway Causing Injury, Missouri
- Evaluation of a Marine Port Wood Dock Damage Leading to Injury, Missouri
- Residential Building Damage Related to Train Derailment, Missouri
- Roof Collapse of Two-Story Commercial Building due to Wood Deterioration and Ponding, Missouri
- Evaluation of Damage to Floor Slabs and Concrete Foundations from the Rupture of a Water Main Under a School Building, Missouri
- Evaluation of Damage to Floor Slabs and Concrete Foundations from the Rupture of a Water Main Under an Enclosed Mall Structure, Ohio
- Evaluation of Damage to Floor Slabs and Concrete Foundations from the Rupture of a Water Main Under a Manufacturing Plant, Ohio
- Evaluation of Thermal Movements of Steel Framing in a Large Tilt-up Building, Texas
- Damage to Wood-Framed Residence Due to Vehicular Impact, Missouri
- Damage to Masonry Residence Due to Vehicular Impact, Missouri
- Damage to Wood-Framed Residence, including Concrete Basement Walls, Due to Vehicular Impact, Missouri
- Roof Collapse of Metal-Framed Horse Arena due to Snow Loads, Missouri
- Roof Collapse of Metal-Framed Storage Facility due to Snow and Ice Loads, Missouri
- Cracked Concrete Walls at Grain Storage Building, Missouri
- Concrete Stave Silo Failure, Illinois
- Roof Collapse of Wood-framed Grain Building due to excessive Asphalt Shingle Load, Missouri
- Roof Collapse of Wood-framed Residential Building due to excessive Asphalt Shingle Load, Missouri
- Damage to Multiple Buildings due to Ground Subsidence from a Mine Collapse, Missouri
- Evaluation of Damage to Aluminum Sculptures due to Water Freezing Inside the Sculpture, Missouri
- Collapse of Multiple Storage Racks at Cold-Storage Facility, Illinois
- Collapse from Snow Load of Pre-engineered Metal Building housing an Auto Dealer, New Mexico
- Chemical Damage to Concrete at Chlorine Production Plant, Iowa

Design experience descriptions available upon request.

Publications/Presentations

Professional Engineers' Refresher Course: Missouri Society of Professional Engineers, **R.P. Bernhardt**, presented at St. Charles Community College, St. Peters, MO 2007-2018

"Silver Lake Dam Retaining Wall Failure and Repair," **R.P. Bernhardt**, Burns & McDonnell, Chesterfield, MO 2011

"Introduction to Concrete Repair," **R.P. Bernhardt**, presented at Southern Illinois University, Carbondale, IL, 2011

Structural Basics Seminar, **R.P. Bernhardt**, presented at OCCI Engineering and Construction, Fulton, MO, June – August 2012

"Investigations and Recommendations based on the May 22, 2011, Joplin, Missouri Tornado", **R.P. Bernhardt**, as Contributor, Structural Engineers Association of Kansas and Missouri, May 2012

"Investigations and Recommendations based on the May 22, 2011, Joplin, Missouri Tornado", **R.P. Bernhardt**, Co-Presented at the National Council of Structural Engineers Association, Annual Conference in St. Louis, October 2012. Also, presented at the Structural Engineering Institute Day in St. Louis, October 2012

"Task Management Tools for the Structural Engineer," **R.P. Bernhardt**, presented at ASCE/SEI, 2014

"Structural Damage and Repair Requirements and their Effect on Claims and Litigation," **R.P. Bernhardt**, presented at Western Loss Association, Chicago, IL, April 2015

"Analysis of Design Standards and Recommended Practices for Agricultural Storage Bins," **R.P. Bernhardt**, Co-Authored and Co-Presented at 7th ASCE Forensic Engineering Congress, Miami, FL, November 2015

"Hyatt Regency Skywalk Collapse Remembered," **R.P. Bernhardt**, Structure Magazine, August 2016

"Hyatt Regency Skywalk Collapse Remembered," **R.P. Bernhardt**, presented at Geo-Structures Confluence, St. Louis, MO, November 2016, Structural Engineers Association of Idaho, Boise, May 2017; Central Fabricators Association, Kansas City, MO, October 2017; 8th ASCE Forensic Congress, Austin, TX, November 2018

"Examining the Role of the Forensic Structural Engineer," **R.P. Bernhardt**, presented at Shelter Insurance, Columbia, Missouri, January 2018

"Understanding the Causes of Structural Failures," **R.P. Bernhardt**, presented at Shelter Insurance, January 2018; presented at Sandberg- Phoenix, September 2019; presented at Indiana Defense Council, November 2019

"Understanding the Structural Forensic Engineering Process," **R. P. Bernhardt**, presented at Shelter Insurance, January 2018

"Guidelines for Failure Investigations," Second Edition, **R.P. Bernhardt**, Chapter Author, American Society of Civil Engineers, 2018; presented workshop at 9th ASCE Forensic Congress, 2021.

"Failure of Three Retaining Walls," **R.P. Bernhardt**, presented at ASCE Forensic Congress, Austin, TX, November 2019

"Vision for the Future of SE Licensure," **R.P. Bernhardt**, contributor, Structural Engineering Licensure Coalition, 2020

Presentation on the Guidelines for Failure Investigation, Second Edition, Volume 2, **R.P. Bernhardt**, chapter author, editor. 2022 Structures Congress in Atlanta, April 2022

"Florida International University Pedestrian Bridge Collapse – Analysis of the NTSB Report Recommendations," **R.P. Bernhardt**, committee member, ASCE Task Committee on the Investigation of the Florida International University Bridge Collapse, ASCE, 2023

"Has Anybody Checked Your Work? Quality Reviews in Structural Design". **R.P. Bernhardt**, presenter and moderator. 2023 Structures Congress in New Orleans, May 2023.

"Immerse Yourself in Forensic Expert Investigations and Testimony." **R.P. Bernhardt**, presenter. 2023 Structures Congress in New Orleans, May 2023.

"Evaluation of the Failure of Adhered Thin-Brick Veneer," **R.P. Bernhardt** presented at the 10th ASCE Forensic Congress, Seattle, WA. November 2024.

"Static Load Test of a Baluster-supported Wood Guardrail," **R.P. Bernhardt** presented at the 10th ASCE Forensic Congress, Seattle, WA. November 2024.

"The Vulnerability of Tilt-up Buildings", **R.P. Bernhardt** presented at the 10th ASCE Forensic Congress, Seattle, WA. November 2024.

"The Importance of Licensing Mobility for Structural Engineers", **R.P. Bernhardt** presented at the NCEES Annual Conference Structural Caucus, New Orleans, LA. August 2025.

"Structural Forensics Case Studies", **R.P. Bernhardt** presented at the Structural and Geo-Confluence, St. Louis, Missouri. November 2025.