

Exponent®
Engineering & Scientific Consulting

Cliff Bishop, Ph.D., S.E., P.E.

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Professional Profile

Cliff D. Bishop, Ph.D., P.E., S.E., is a principal engineer in the Civil and Structural Engineering practice at Exponent with over 15 years of experience in structural failure analysis, natural hazard damage assessment, construction defect investigations, and premises liability incidents. He specializes in structural evaluations and building envelope failures for dispute resolution support across the commercial, residential, and infrastructure sectors.

While at Exponent, he has led investigations of concrete, steel, wood, and masonry structural/architectural systems and building envelopes damaged as a result of design/construction deficiencies, construction means and methods, degradation by decay or corrosion, and natural hazards, such as wind, floods, hurricanes, fires, and earthquakes. His engineering expertise and experience provide the basis necessary for owners, insurers, builders, arbitrators, and other stakeholders to make informed decisions.

Dr. Bishop received his Bachelor of Science, Master of Science, and Doctor of Philosophy degrees in civil engineering with an emphasis in structural engineering from the Georgia Institute of Technology. Dr. Bishop's academic background includes the incorporation of probability and risk into the design process for steel and concrete structures. This includes experience in structural reliability, dynamics and adaptive smart-structures, and computer simulations of structural behavior using robust nonlinear finite element analysis (FEA). Dr. Bishop's research at Georgia Tech focused on bracing for stability of metal building systems where he developed novel FEA software to assess the stability of highly nonlinear steel structures.

Structural Failure Analysis

Dr. Bishop's investigations of structural and non-structural damage and collapses often take him to the site to capture the critical, sometimes ephemeral, evidence needed to determine the cause of a failure as well as the nature and extent of damage that may require repair. He employs his knowledge of the performance of structures and common failure modes to determine the most likely causes of collapse. These investigations typically utilize sophisticated engineering analyses, including applications of nonlinear finite element modeling and laboratory testing.

Natural Hazard Damage Assessments

Dr. Bishop has led numerous investigations after natural hazards have damaged communities, including thunderstorms, hailstorms, high winds, hurricanes, floods, and earthquakes. These projects often require site visits on short notice to capture structural conditions shortly after the incidents. Dr. Bishop has led teams of investigators in such assessments to speed up review and ultimately provide conceptual recommendations for restoring the community as quickly as possible.

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Defective Construction Evaluation

Dr. Bishop's investigations include assessing the potential impact of various types of potential defects, including those related to design or construction means and methods. His investigations typically focus on structural concerns, such as cracking, sagging, and leaning of slabs, balconies, beams, columns, and shear walls and building envelope concerns including those related to windows/doors, cladding systems (e.g., brick, stucco, EIFS), roofing systems (e.g., TPO, EPDM, asphalt-composition shingles), moisture intrusion, and building physics such as vapor drive. He has also evaluated how deficiencies in structural components and/or the building envelope resulted in damage to internal components and finishes (e.g., drywall, ceilings, flooring). Dr. Bishop interprets and applies relevant building codes and industry standards in support of his investigations.

Premises Liability Code Compliance Expert

Dr. Bishop has utilized his experience in interpreting and applying building codes and industry standards on several personal injury cases that occurred in and around buildings and commercial spaces including slip, trip, and fall incidents and pedestrian-vehicle accidents. These investigations often include site visits to document conditions, 3D scanning for digital preservation of the scene, analysis of local codes and ordinances, and robust analyses toward defensible conclusions. Dr. Bishop also works closely with Exponent's consultants in the Human Factors and Biomechanics practices to provide a comprehensive assessment of the specific site conditions and human interactions that may have contributed to the incident.

Academic Credentials & Professional Honors

Ph.D., Civil Engineering, Georgia Institute of Technology, 2013

M.S., Civil Engineering, Georgia Institute of Technology, 2008

B.S., Civil Engineering, Georgia Institute of Technology, 2007

Licenses and Certifications

Professional Engineer, Alabama, #PE38586

Professional Engineer Civil, California, #86843

Professional Engineer, Colorado, #PE.0065618

Professional Engineer, Florida, #83097

Professional Engineer, Georgia, #PE040101

Professional Structural Engineer, Georgia, #SE000979

Professional Structural Engineer, Hawaii, #PE-21199

Professional Engineer, Idaho, #P-22501

Professional Structural Engineer, Illinois, #081007711

Professional Engineer, Mississippi, #31688

Professional Structural Engineer, Nevada, #028554

Professional Engineer, New Jersey, #24GE05711200

Professional Engineer, North Carolina, #045757

Professional Engineer, North Dakota, #PE-29003

Professional Engineer, South Carolina, #33859

Professional Engineer, Tennessee, #129011

Prior Experience

Before joining Exponent, Dr. Bishop worked for a structural design firm in Atlanta, Georgia, where he designed buildings constructed using structural steel, wood framing, conventionally reinforced concrete, and post-tensioned concrete. He consulted on several projects to develop systems and components to protect buildings from blast effects and reduce the risk of progressive collapse.

Consulting Engineer, Pruitt Eberly Stone, 2011-2012

Project Engineer, Pruitt Eberly Stone, 2008-2009

Intern, Pruitt Eberly Stone, 2006-2008

Professional Affiliations

Dr. Bishop is an active member of the Structural Stability Research Council (SSRC) where he serves on the Executive Committee and task committees TG02 - Stability of Members and TG06 - Extreme Loads. He is also a member of the American Society of Civil Engineers' (ASCE/SEI) Committee on Structural Members.

American Institute of Steel Construction – AISC (Professional Member)

American Society of Civil Engineers – ASCE (Member)

Structural Engineering Institute of ASCE – SEI (Member)

Construction Institute of ASCE – CI (Member)

Structural Stability Research Council – SSRC (Member-at-Large)

Publications

Moncarz PD, Bishop CD. Construction in the Era of Rapidly Developing Digital Technologies. 32nd Conference on Structural Failures, Szczecin-Miedzyzdroje, Poland, May 2026.

Locke WR, Shetty G, Anderson D, Bishop CD. Unraveling Project Pitfalls: A Forensic Exploration of Communication, Coordination, and Collaboration Breakdowns in Construction. ASCE Forensic Engineering 10th Congress, Seattle, WA, November 1-4, 2024.

Bishop CD, Locke WR. When Small Cracks Can Lead to Big Problems: Investigation of Cracking in Subterranean Concrete Lift Stations. ASCE Forensic Engineering 10th Congress, Seattle, WA, November 1-4, 2024.

Bishop CD, Locke WR. Risk, You Can't Handle the Risk!Georgia Defense Lawyer Magazine, Volume XVIII, Issue II, pp. 50, 66-68, Winter 2022.

Moncarz PD, Bishop CD. Defect, damage, and who should pay. 30th Conference on Structural Failures, Szczecin-Miedzyzdroje, Poland, May 2022.

Vose R, Bishop C, Peraza D. Determining Water Damage from Storm-Created Openings after Hurricane Florence. ASCE Forensic Engineering 9th Congress, Denver, CO, November 5-8, 2021.

Moncarz PD, Bishop CD. Anatomy of Failures: Stability Requirements in All Stages of Operations. 29th Conference on Structural Failures, Szczecin-Miedzyzdroje, Poland, May 2019.

Bishop, CD, Griffith, M, McDonald BM, Wolf JM. Stability of Tapered Wood Utility Poles under Extreme Loading. Proceedings, Annual Stability Conference, Structural Stability Research Council, St. Louis, MO, April 2-5, 2019.

Bishop CD, Griffith M, Saraf VK. Wind-induced Failures of Gound-mounted Solar Panels. ASCE Forensic Engineering 8th Congress, Austin, TX, November 29-December 2, 2018.

Bishop CD, Trono W, Griffith M. Stability Considerations for Concrete Forming Support Systems. Proceedings, Annual Stability Conference, Structural Stability Research Council, Baltimore, MD, April 10-13, 2018.

Swensen S, Bishop CD, Moncarz PD. Risk-based analysis for life-safety decisions. 28th Conference on Structural Failures, Szczecin-Miedzyzdroje, Poland, May 22-26, 2017.

Bishop CD, Uriz P. The effects of accurate boundary condition modeling on column stability. Proceedings, Annual Stability Conference, Structural Stability Research Council, San Antonio, TX, March 21-24, 2017.

Bishop CD, Griffith M, McDonald BM. Instability of solar power tower structures during construction. Proceedings, Annual Stability Conference, Structural Stability Research Council, Orlando, FL, April 12-15, 2016.

Bishop CD, Uriz P, McDonald BM. Stability of column rebar cages for buildings under construction. Proceedings, Annual Stability Conference, Structural Stability Research Council, Nashville, TN, March 24-27, 2015.

Togay O, Jeong, WY, Bishop CD, White DW. Toward a More Comprehensive Approach for Design Using Buckling Analysis. Proceedings of the Annual Stability Conference, Structural Stability Research Council, Nashville, TN, March 24-27, 2015.

Bishop CD, Uriz P. Column reinforcing cage stability and construction safety. ASCE Forensic Engineering 7th Congress - Performance of the Built Environment, Miami, FL, November 15-18, 2015.

Moncarz PD, Bishop CD. The San Francisco-Oakland Bay Bridge: Innovation or blunder? 27th Conference on Structural Failures, Miedzyzdroje, Poland, May 20-23, 2015.

Bishop C, McInerney E. Disproportionate collapse design considerations — A comprehensive approach. Structural Engineering Institute of American Society of Civil Engineers, Structures Congress 2014, Boston, MA, pp. 2221-2232, April 3-5, 2014.

Bishop CD, White DW. Practical design of complex stability bracing configurations. Proceedings, Annual Stability Conference, Structural Stability Research Council, St. Louis, MO, April 16-20, 2013.

Bishop CD, White DW, Sharma A, and Kim YD. Flange bracing requirements for metal building systems. Proceedings, Annual Stability Conference, Structural Stability Research Council, Pittsburgh, PA, May 10-

14, 2011.

Presentations

Bishop CD. Anatomy of Construction Failures. FDLA Construction Defect Seminar, Tampa, FL, January 2025.

Bishop CD. Moisture-Resistant Buildings. HalfMoon Education Inc. Online, June 2024.

Bishop CD. Reinforced Concrete Building Design and Construction. HalfMoon Education Inc. Online, December 2023.

Peraza DB, Bishop CD, Barzyk MF, Morrison J. Engineering Investigations of Hurricane Damage: Wind versus Water. 2022 Florida Insurance Network Symposium, Tampa, FL, August 2022.

Vose R, Bailey JR, Ghahremani K, Bishop CD. What Could Possibly Go Wrong? DRI Construction Conference, January 2022.

Hall KA, Bishop CD. Temporary, Storm-Created Openings – The New Achilles Heel of Storm-Affected Buildings? 2021 Florida Insurance Network Symposium, Tampa, FL, August 2021.

Powell L, Bishop CD, Zion D, Ambler H, Cahalan S. Extrapolation Evidence: Presenting and Challenging It. Presentation to the Construction Law Section of the Atlanta Bar Association, Atlanta, GA, May 2021.

Bankoff J, Edes B, Bishop C, Zilber Y. Infrastructure: how radical changes in water, energy, transportation and communications systems impact your organization. Presentation at the 3rd Annual World Trade Day, World Trade Center, Atlanta, GA, May 2019.

Ziemian R, Clayton P, Hooper JD, Bishop CD, Griffis L. The Structural Stability Gameshow. Presentation at the 2019 SSRC Annual Stability Conference, St Louis, MO, April 2019.

Ziemian R, Clayton P, Hooper JD, Bishop CD. The Structural Stability Gameshow. Presentation at the 2018 Structures Congress, Fort Worth, TX, April 2018.

Bishop CD, White DW. Bracing for stability: a forensic analysis case study. Presentation to the Georgia chapter of the Structural Engineering Institute, Atlanta, GA, November 2012.

Bishop CD. The direct analysis method. Presentation to the engineering staff of Pruitt Eberly Stone, Atlanta, GA, June 2012.

Bishop CD. Flange bracing requirements for stability of metal building systems: A Synopsis of Current and Proposed Work. Presentation at the MBMA Researcher Symposium, Houston, TX, February 2011.

Bishop CD. Load distribution in lateral systems. Presentation to the engineering staff of Pruitt Eberly Stone, Atlanta, GA, April 2009.

Bishop CD. Introduction to the Direct Analysis (DM) method. Presentation to the engineering staff of Pruitt Eberly Stone, Atlanta, GA, November 2008.

Project Experience

Structural Failure Analysis

- Industrial Facility (Southeast US) – Failure analysis of crane rails supported by braced frames in an industrial facility. Analysis included modeling of steel braced frames using OpenSees. The base connection moment-rotation capacity was derived from high-end finite element analyses incorporating both nonlinear material and geometries. The connection model was then implemented in the complete structural model as a nonlinear spring and was able to accurately predict the collapse mechanism that was observed.
- Solar Power Systems (Texas, Nevada) – Design review and analysis for several solar power systems. Analyses included wind load determination from both code-based sources and computational fluid dynamics as an input for the analysis performed in commercially available structural analysis software. Structural components (connections, splices, etc.) and members were reviewed for compliance with the applicable building code and specifications.
- Parking Deck Collapse (California) – Inspection of a cast-in-place parking deck that collapsed during construction. Performed on-site investigations where data was compiled and later evaluated to pinpoint the root cause of the collapse. Reviewed shoring design documents and performed independent calculations to determine its role in the collapse.
- Partial Floor Collapse (Southeast US) – Investigation of a partial floor collapse at a historic building. Reviewed construction documents and timing to assess the cause of the structural failure.
- Partial Deck Collapse (Southeast US) – Assessment of a partial collapse of a parking garage during a fire. Performed site reconnaissance and directed a literature review and analysis of the performance of concrete subjected to elevated temperatures.
- Impact in Concrete Structures (Nevada, Caribbean) – Investigated impacts of cars and boats on concrete structures (barriers and piers). Performed energy-based calculations to determine extents of damage and any concerns with anchorage.
- Property Condition Assessments (Tennessee, South Carolina) – Evaluated the condition of structural and building envelope components for changes in tenancy.

Natural Hazards Damage Assessment

- Hail Damage to Asphalt Roofs (Mississippi, Georgia) – Investigated reported hail damage at multi-building apartment complexes and large commercial properties. Determined likelihood of damage associated with hail, flying debris, and/or preexisting conditions.
- Hail Damage to Polymeric Roofs (Colorado) – Investigated several reports of hail damage at a large residential building covered with an EPDM roofing membrane. Determined likely timing of the various damages observed.
- Tree/Structure Impact (Southeast US) – Investigated numerous incidents of tree impacts to structures. Determined the severity and extents of damage as well as a reasonable repair scope.
- Hurricane Damage (Southeast US) – Assessment of wind versus water versus flood damage resulting from many named hurricane events. Often weeks required on-site to evaluate multiple properties. Assessments were used to determine the scope of repairs.
- Earthquake Damage (California) – Investigated structural and non-structural damage to buildings around Napa, California, after the 2014 South Napa Earthquake. Evaluated masonry and concrete structures, including the assessment of a hotel with post-tensioned concrete slabs. Rapid and detailed assessment allowed the hotel to partially reopen for a holiday weekend.

Construction Defects

- Mixed-Use Project (California) – Complete design review/analysis and project management for a 7-story, mixed-use building in California. Analyses included review/retrofit of special concentrically braced frames using computer modeling and AISC seismic detailing requirements, design review/retrofit for light-frames shear walls, and the investigation of cracking (including mapping and both destructive and non-destructive methods) for concrete, flat-plate parking slabs and designs to mitigate those deficiencies.
- Multiple Apartment Complexes (Florida, Georgia) – Assessment of multiple buildings concerning failures of their building envelopes and the resulting effect on water intrusion and material degradation. Performed structural evaluation of load path and used understanding of the complete building system to determine whether the water intrusion resulted in significant structural damage.
- Student Housing (Southeast US) – Large construction defect where reported water intrusion had led to severe degradation of the structural wood framing. Coordinated and participated in multiple site visits. Performed and directed engineering analyses to determine the extents of damage as a result of the water ingress.
- Performance of Slabs-on-Ground (Southeast US) – Various investigations of concrete slab-on-ground performance issues (cracking, shrinkage, etc.). Directed sampling of the concrete and interpreted results from load tests and petrographic examinations. Determined reasonableness of repairs given the information gleaned from the investigation.
- Post-Tensioned Slab Cracking (Southeast US) – Assessment of slab cracking in a post-tensioned parking garage. Investigated concerns related to reinforcement detailing at cold joints.
- Water Intrusion through Fenestrations (Texas) – Assessment of reported water intrusion through balcony sliding doors and full-height windows along the Texas Gulf coast. Analysis provided information to property owners as to the potential sources of water intrusion so reasonable preventative measures could be taken.
- Roofing Systems (Florida, South Carolina) – Evaluation of the performance of polymeric roofing systems (e.g., EPDM, TPO). Analyzed installation details/practices and integration of the roofing materials with other trades.

Premises Liability Code Compliance

- Vehicle-Store Incidents (Northeast US, Florida) – Investigated various incidents of unintended acceleration of cars into adjacent storefronts. Reviewed and analyzed local codes and ordinances governing the requirements for safety barriers.
- Various Slip and Falls (Florida) – Various projects related to trip and fall incidents, where the code compliance of components of the surfaces (e.g., sidewalks, curbs, parking lots, speed bumps) was in question.
- Assessment of Stair Geometry (South Carolina) – Investigated a slip and fall incident related to requirements for stair dimensions and associated railings.
- Handrails and Guardrails (Caribbean) – Investigated dimensional requirements for handrails/guardrails for accessible pathways. Reviewed local code requirements and industry standards to determine compliance of these components.