



DEREK A. HODGIN, P.E., RRO, RRC, RWC, REWC, RBEC, CDT, CCCA

Forensic Engineer and Roof Consultant

Derek A. Hodgin has more than 20 years experience as an engineering consultant and is responsible for facility condition inspections, failure analysis, damage assessments, and forensic engineering investigations of all types of structures. Mr. Hodgin's experience includes failure analysis of a wide variety of building envelopes and roof systems. Mr. Hodgin has investigated and testified regarding the performance of various building products including fire retardant treated (FRT) wood, exterior insulation and finish systems (EIFS), hardboard siding and trim. Mr. Hodgin has also designed, permitted and investigated failures of civil and coastal projects such as residential and commercial developments, marinas, docks, shoreline stabilization and retaining systems, basin and channel dredging. A large part of Mr. Hodgin's projects have included analysis of deficient construction cases including roofs, exterior walls, windows, doors, structural framing, civil site work and building code review. Mr. Hodgin, has investigated and testified regarding various types of personal injury cases including slip/trip and fall, railing failures, swing collapse and ladder accidents. Mr. Hodgin has performed engineering assessments of hurricane, tornado, hail, wind, ice and fire related damages for a wide variety of commercial and residential structures.

Education

- Bachelor of Science – Civil Engineering, NC State University, 1989
- Numerous Building Envelope, Roofing, Structural, Materials and Construction Seminars and Conferences
- Forestry 641: Properties of Wood Products, Clemson University
- Approved Instructor for Continuing Education – SC Department of Insurance and SC Real Estate Commission

Registration / Certifications

- Registered Professional Engineer: North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Virginia, Maryland, Illinois, Indiana, Pennsylvania, Tennessee, Missouri, Ohio, New York, Iowa, and Arkansas

Registration / Certifications (continued)

- Registered Roof Observer (RRO), Registered Roof Consultant (RRC), Registered Waterproofing Consultant (RWC), Registered Exterior Wall Consultant (REWC), and Registered Building Envelope Consultant (RBEC) RCI, Inc.
- Construction Documents Technologist (CDT), Certified Construction Contract Administrator (CCCA), Construction Specifications Institute
- Certified Third Party EIFS Inspector, Certified Moisture Analyst and Certified Building Envelope Inspector, Exterior Design Institute
- Certified Roof Inspector, HAAG Engineering Company
- Certified WIND Umpire, Windstorm Insurance Network

Professional Organizations

- National Society of Professional Engineers (NSPE)
- National Academy of Forensic Engineers (NAFE)-Senior Member
- American Society of Civil Engineers (ASCE)
- International Code Council (ICC)
- National Roofing Contractors Association (NRCA)
- Roof Consultants Institute (RCI)
- Roofing Industry Committee on Weather Issues, Inc. (RICOWI)
- Exterior Design Institute (EDI)
- APA Engineered Wood Association
- American Society for Testing and Materials (ASTM)

Previous Experience

- Senior Engineer, Campbell, Schneider and Associates, LLC, 1997 to 2003
- Engineering Consultant, 1994 to 1997
- Staff Engineer, Coastal Engineering Consultants, Naples, FL, 1990 to 1994

PRINCIPAL AREAS OF PRACTICE

- Building Envelopes
- Structural
- Roof Systems
- Deficient Construction
- Marine / Environmental

Building Envelopes

- Exterior Insulation and Finish System (EIFS) failure investigations, hundreds of residential and commercial structures, NC, SC, VA and AL
- Conventional stucco investigations, numerous residential and commercial structures, NC, SC and GA

Building Envelopes (continued)

- Glass curtain wall investigations, commercial high rise structures, NC and SC
- Investigation of brick veneer cladding failures on residential and commercial structures, NC, SC and GA
- Investigation of wood siding failures on residential structures, NC and SC
- Investigation of vinyl siding installation deficiencies on numerous residential structures, NC and SC
- Investigation of medium density fiberboard (MDF) siding and trim products on residential and commercial structures, NC, SC, NY, NJ, IA and FL
- Investigation of wood, extruded aluminum, and vinyl clad window and door failures on residential and commercial structures, NC, SC, IL and MO
- Condition assessment of multiple residential buildings consisting of wood framing, T1-11 siding, and composition shingle wall cladding, NC and SC
- Condition assessment of high and mid-rise multi-family residential structures consisting of concrete and steel framing, metal stud curtain walls, and EIFS cladding, SC
- Investigation of exterior wall systems on multiple high-rise commercial buildings consisting on concrete framing, metal stud curtain walls, and conventional stucco cladding, SC
- Investigation of water intrusion, numerous pre-engineered commercial buildings, NC, SC and TX
- Design and construction administration of multi-million dollar building envelope repair project for 77 condominium buildings that were deficiently constructed. Repairs included roofing, exterior walls, windows and structural framing. Murrell's Inlet, SC

Structural

- Investigation of concrete pier distress in Hilton Head, SC
- Investigation of wood truss roof systems which were deteriorated due to Fire Retardant Treatment (FRT), numerous commercial structures, NC and SC
- Investigation of light-gauge metal truss collapse on a commercial building, Charleston, SC
- Investigation of balcony railing failures and deficient railing construction on single and multi-family residential buildings in South Carolina
- Investigation of asphalt pavement failures at residential and commercial developments, NC and SC
- Investigation of foundation failures on residential structures including timber piles, CMU piers, concrete slab on grade, and masonry footing and wall systems, NC and SC
- Investigation of blasting / vibration claims on residential structures, NC and SC
- Investigation of concrete failures on commercial structures including mid and high-rise residential buildings and parking garages, NC and SC
- Investigation and preliminary structural analysis of large-scale pre-engineered metal building including standing seam metal roof, steel bar joists, steel girders, and steel columns, IL
- Investigation of residential and commercial structures damaged by Hurricanes Bertha, Fran, Danny, Bonnie, Dennis, Floyd, Gaston, Charley, Francis, Jeanne, Katrina; VA, NC, SC, AL, FL, Grand Cayman, BWI, and MS
- Investigation of a timber and concrete foundation elements of an over water commercial structure, Elizabeth City, NC

Structural (continued)

- Investigation of fire damage to various residential and commercial structures, NC, SC and GA
- Investigation of residential wood deck collapses, NC and SC
- Investigation of numerous residential and commercial structures damaged by termite infestation, NC and SC
- Investigation of numerous brick chimney failures on residential structures, NC, SC, TN and GA
- Structural analysis and design of various residential structures in NC, SC and FL

Roof Systems

- Investigation of numerous hail damaged residential roof systems including asphalt shingles, slate, wood, standing seam and panel rib metal, modified bitumen, EPDM, and PVC; VA, NC, SC, GA and TX
- Investigation of numerous hail damaged commercial roof systems including modified bitumen, EPDM, PVC and structural standing seam and ribbed metal roof panels, SC, NC and GA
- Investigation of numerous tornado damaged commercial and residential roof systems including asphalt shingles, EPDM, BUR, and standing seam metal, VA, NC, and IN
- Investigation of numerous hurricane damaged commercial and residential roof systems including asphalt shingles, slate, wood, EPDM, BUR, modified bitumen, standing seam metal, corrugated metal, and Polyurethane Foam (PUF), NC, SC and AL
- Investigation of a roof collapse on a commercial warehouse facility, GA
- Investigation of ice and snow related roof failures on commercial and industrial facilities, NC

Roof Systems (continued)

- Investigation of a roof collapse on a commercial warehouse facility, PA
- Investigation of a coating failure on multiple standing seam metal roof areas, SC
- Investigation of coating failure on a 4-ply built-up roof on an industrial facility, SC
- Investigation of a coating failure on a low-slope structural metal roof on an industrial facility, TX
- Investigation of single-ply roof conditions related to deficient construction litigation on three large scale commercial buildings, Rockmart, GA
- Investigation of gravel-surfaced built-up roof conditions related to deficient construction litigation on a large scale commercial building, Baltimore, MD
- Investigation of gravel ballasted single-ply roof conditions related to litigation on a large scale commercial building, Lake Charles, LA
- Investigation of roof installation on a large scale residential development including concrete tile and low slope EPDM roof areas, Hilton Head Island, SC
- Investigation of roof installation on a residential structure including clay tile and low slope copper roof areas, Isle of Palms, SC
- Investigation of roof conditions of a slate roof and structural analysis of wood roof framing on a historic residential structure, Wilmington, NC
- Investigation of water intrusion on commercial roof systems consisting of panel rib metal roof panels, NC and SC
- Investigation of premature failure of synthetic slate tiles on a residential structure, Greensboro and Wilmington NC
- Assessment of roof conditions of a large scale BUR roof for purposes of potential litigation, Eden, NC

Roof Systems (continued)

- Assessment of roof conditions of a high rise commercial building with a polyurethane foam roof on a concrete deck, Garden City, SC
- Design of copper roof system for a dome roof exposed to high wind conditions, Myrtle Beach, SC
- Design of metal shingle roof systems located in high wind conditions, SC and Grand Cayman, BWI
- Investigation of premature failure of a large-scale fleece-back EPDM roof system, Florence, SC
- Investigation of paint failure on steep slope, standing seam metal roof panels, Lugoff, SC
- Investigation of pool enclosure roof collapse consisting of metal skin panels, Hilton Head Island, SC

Deficient Construction

- Investigation of various structural, building envelope, pavement, storm water management, fire protection, and life safety related deficiencies at residential developments, NC and SC
- Investigation of various structural, building envelope, fire protection, and life safety related deficiencies at a residential development, Hilton Head, SC
- Investigation of various structural, building envelope, and waterproofing related deficiencies at a residential development, Little River, SC
- Investigation of various building envelope and waterproofing related deficiencies at residential developments, Wilmington, NC
- Investigation of various structural, building envelope, site development and waterproofing related deficiencies at numerous residential developments, Myrtle Beach, SC

Deficient Construction (continued)

- Investigation of structural and operational issues with large airport hangar doors, Myrtle Beach, SC
- Investigation of various personal injury incidents related to deficient construction, improper maintenance and/or product defects, SC, GA and NJ.

Marine / Environmental

- Investigation of damages to a reinforced concrete pier at a small craft marina operation, Hilton Head Island, SC
- Above and below water inspection of reinforced concrete dock providing 150 slips and associated concrete breakwater system, Sarasota, FL
- Investigation of damages to a 150 slip marina due to Hurricane Bertha, New Bern, NC
- Investigation of above and below water damages to a 300 slip marina due to Hurricane Fran, Kerr Lake, NC
- Investigation of damages to approximately 500 feet of reinforced concrete and composite "transite" seawall at a large marine research facility after Hurricane Fran, Beaufort, NC
- Investigation of multiple coastal structures damaged by Hurricanes Dennis and Floyd, coastal NC
- Investigation of above and below water damages to approximately 3000 feet of fixed and floating docks at a private marina due to Hurricane Earl, Port Royal, SC
- Investigation of above and below water damages to a 75 slip marina due to Hurricane Floyd, Lake Gaston, NC
- Investigation, design and permitting of shoreline stabilization projects including seawalls, rock revetments,

Marine / Environmental (continued)

- terminal groins, rock jetties, offshore breakwaters, and beach nourishment in the State of Florida
- Investigation, design and permitting of numerous single and multi-slip docking facilities consisting of both fixed and floating structures, NC, SC and FL
- Design and permitting of 32 slip marina with floating concrete docks and full utilities, Naples, FL
- Design and permitting of reinforced concrete piers for a 35 ton travel lift and related basin improvements for a full service marina, Naples, FL
- Nearshore hydrographic survey of coastal Collier County, Collier County beach nourishment project, Collier County, FL
- Coastal Construction Control Line permitting and critical design review for residential and commercial structures in the State of Florida
- Dredge and Fill permitting for various coastal projects in the State of Florida
- Participated in boundary, topographic, and Mean High Water (MHW) surveys for the State of Florida, Collier and Monroe Counties, FL
- Prepared numerous Phase I and Phase II environmental audits for residential, commercial and industrial properties, Lee and Collier Counties, FL

Presentations and Publications

- "How Not to Build a Roof", CSE Seminar – Understanding Building Envelope Failures, Clemson, SC; June 14, 2013
- "What About the Trim?" CSE Seminar – Understanding Building Envelope Failures, Clemson, SC; June 14, 2013

Presentations and Publications (continued)

- "Top 10 Stucco Issues" CSE/Turner Padgett Seminar – Understanding Exterior Wall Failures, Charleston, SC; December 3, 2013
- "Problems With Brick Veneer" CSE/Turner Padgett Seminar – Understanding Exterior Wall Failures, Charleston, SC; December 3, 2013
- "What About the Trim?" Interface. RCI, September 2012.
- Expert Witness 101: Balancing Professional Ethics with Client Desires. ASCE 6th Congress on Forensic Engineering, San Francisco, CA, October 2012 and SC Engineering Conference & Trade Show, Hilton Head Island, SC, June 2011
- Top 20 Stucco Issues: Things That You Should Know To Avoid Litigation. Carolina Lath And Plaster Association (CLAPCA) Fall Conference, Charleston, SC, October, 2009.
- "Problems With Code-Compliant Brick Veneer in Residential Construction." Interface. RCI, September 2008 and presented at 24th International RCI Convention and Trade Show, Dallas, Texas, March 2009.
- "Top 10 Building Code Problems." RCI, Inc. Carolinas Chapter Meeting, July, 2008.
- "Whom do I hire? – Knowing the types of experts you need to consider when faced with claims of construction defects and codes violations." presented at More than Nuts & Bolts: How to Construct and Deconstruct Expert Testimony sponsored by Navigant Consulting, Inc., and Thelen Reid Brown Raysman & Steiner LLP, February 2007.
- "EIFS: Practical Solutions For Addressing Damages To Existing Buildings" 2005 Building Envelope Symposium, Roof Consultants Institute.

Presentations and Publications (continued)

- "Metal Roof Failures" Roof Consultants Institute Carolinas Chapter Meeting, November 17, 2004.
- "Architects and Contractors: Up Against the Wall" Construction Specification Institute Seminar, June 2004.
- "Why Buildings Leak" Solving Water Intrusion and Mold Issues in SC, Lorman Education Services, March 2004 and Roof Consultants Institute Carolinas Chapter Meeting, September, 2005.
- "Spontaneous Combustion of Roofer's Mops – A Review," *Interface*. Roof Consultants Institute, August 2003.
- "It's Not EIFS – It's the Details," *Interface*. Roof Consultants Institute, March 2003.
- "Contractor's Instructions: A Forensic Engineering and Legal Perspective," presented at 18th International RCI Convention and Trade Show, Tampa, Florida, March 2003.
- "Comparison of Strength Properties and Failure Characteristics Between Fire Retardant-Treated and Untreated Roof Framing Lumber After Long-Term Exposure: A SC Case Study," *Forest Products Journal*. June 2002.
- "Forensic Engineering 101," presented to Westminster, SC Chamber of Commerce, June 2002.
- "Selecting the Right Finish For Metal Roofing, Part I: Metallic Coatings," *Metal Roofing*. August 2001.
- "How Not To Build a Roof" 2001 Spring Conference, Waterproofing Contractors Association, Inc.
- "Sealing Lap Seams of Metal Roof Panels: An Inexpensive Form of Insurance That Should Not Be Ignored," *Metal Roofing*. May 2001.

Presentations and Publications (continued)

- "Problems with Fire-Retardant Treated (FRT) Wood Extend Below the Roof Deck," *Interface*. Roof Consultants Institute, March 2001; presented at 17th International RCI Convention and Trade Show, Galveston, Texas, May 2002.
- "Designing with Metal: Caribbean Roofing 101," *Metal Roofing*. February 2001.
- "Why Buildings Leak" Building Envelope Seminar presented by Protec Finishes, 2000.
- "Steep Roofing" 1999 Fall Conference, NC Licensed Home Inspector Association.
- "Wind Failures - Avoiding a Roof Failure Requires an Understanding of Many Factors Other Than Wind Speed," *Interface*. Roof Consultants Institute, June 1999 and *Metal Architecture*, June 2000.