

JOHANN (JOHN) L. WILLERS, P.E., R.R.C.

EDUCATION

B.S., Civil Engineering, Iowa State University, 1965

SUMMARY OF EXPERTISE

Mr. Willers has been actively involved as a roofing engineer in the evaluation, design and construction management of roofing systems on a wide range of institutional, commercial, and industrial facilities. He has experience with numerous roof assemblies that have been or are currently on the market to include conducting nondestructive moisture surveys (infrared, capacitance and nuclear), laboratory testing of various built-up and single ply materials, and life-cycle costing. He has also been retained to conduct roof failure investigations.

PROFESSIONAL REGISTRATIONS AND HONORS

Registered Professional Engineer:	Iowa, #6379 New Jersey, #35009 North Carolina, #11102 Pennsylvania, #PE073020 South Carolina, #9892 Tennessee, #103612 Virginia, #14717
Registered Roof Consultant:	RRC #8
Roof Consultants Institute:	Fellow of the Institute - 1995 President's Award - 1995 & 1994
American Society of Civil Engineers	Fellow

PROFESSIONAL MEMBERSHIPS/AFFILIATIONS

- American Society of Civil Engineers - Fellow
- Carolinas Roofing & Sheet Metal Contractors Association
- Construction Professionals Network of North Carolina, Inc.
- National Society of Professional Engineers - Life Member
- National Roofing Contractors Association
- Roof Consultants Institute
Chairman of Registered Roof Consultant Examination Committee - from 1988 through 1995.
- 2004 Secretary; 2005 Treasurer; 2006 2d Vice President, 2007 1st Vice President, 2008 President, 2009 Past President

FIELDS OF COMPETENCE

BUILDING ENVELOPE ENGINEERING

- Roof and wall evaluations
- Nondestructive moisture surveys (infrared, nuclear, and capacitance)
- Design
 - reroofing, new construction, and repairs
 - wind
 - drainage
 - problem identification and resolution
- Construction contract administration and construction monitoring
- Expert testimony
- Forensic engineering

KEY PROJECTS AND ASSIGNMENTS

- Designed the reroofing of the barrel roof portion of the Atlantic City Convention Center, Atlantic City, NJ. The cost to reroof the complex structure (185,000 S.F.) was approximately \$7,000,000. Design dealt with such factors as roof shape, marine environment, costal winds, limited construction access and building age (constructed in 1929).
- Roof evaluation and reroofing design for Bowater Southern Paper Company, Calhoun, TN. In 1984 evaluated all mill site roofs (approximately 700,000 square feet); over 100 separate roof sections. Designed reroofing system to meet the extreme needs of the harsh industrial environment and applied this design to several projects beginning in 1985; construction costs ranged from \$100,000 to approximately \$3 million. Work continues.
- Numerous reroofing evaluations and reroofing designs for the Savannah River Plant, Aiken, South Carolina. Provided services from 1984 through 1989 on several buildings where radioactive materials were produced, requiring a high degree of safety and security during reroofing.
- Performed numerous roof evaluations and moisture surveys for Westinghouse Electric Corporation. The largest roof was on their facility in Raleigh, North Carolina, encompassing in excess of 470,000 square feet.
- Investigated and identified persistent roof leaks and designed the remedial reroofing of the three small roofs at the top of the control tower at the Raleigh/Durham International Airport.

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- Consulted with design architect, recommended an insulation and membrane system, performed wind uplift design calculations, wrote specifications for insulation and membrane systems, and performed construction phase services for the 800,000 s.f. roof of the Atlantic City Convention Center/Rail Terminal.
- Evaluated the roof and designed the reroofing of three major roof areas of the Georgia Pacific paper mill in Monticello, MS. Design involved concrete slab deck replacement, cleaning and painting structural steel, reconstructing equipment curbs, tapered insulation and drainage provisions, and a 20-year membrane and flashing system. Bid at \$1,500,000. Construction phase services will be provided.
- Forensic investigation of single ply membrane failure and metal deck deterioration associated with phenolic insulation on the 1,000,000 s.f. roof of the Army & Air Force Exchange Service warehouse in Newport News, VA.
- Designed the reroofing of 14 buildings on the campus of the Governor Morehead School for the Blind, Raleigh, NC; many buildings were over 70 years old. Roof systems included French tile, slate, & asphalt shingles. Design involved repair of wooden rafters and beams, attic ventilation, and developing improved copper counterflashings for the tile and slate roofs that had the potential of lasting as long as the tile or slate.
- One of nine members of the Roof Consultants Institute who were selected to be a part of teams of professionals to investigate roof damage resulting from hurricane-force winds. Team members represent a cooperative effort among a consortium of contractor, consultant, manufacturer, academic, and insurance groups under the aegis of the Roofing Industry Committee On Wind Issues.
- Designed the reroofing of the historic Chowan County Court House in Edenton, North Carolina. Reroofing involved the removal of the existing wood shingles and the application of new cypress wood shingles incorporating fanned hips, swept valleys and combed ridge construction. Special design and detailing were required for lead sheet interlayments to assure watertight integrity to protect the interior.
- Investigated the asphalt shingle failure for the North Chatham Elementary School, in Chapel Hill, NC, in 1999. Investigation involved shingle splitting and metal deck deterioration due to roof leaks transporting heat activated chemicals in the overlying fire retardant treated plywood nail base to the metal deck causing severe corrosion of the metal deck. Reroofing involved having to close the school while the metal roof deck, fire barrier, nail base and shingles were removed and replaced with new materials.

- Evaluation team leader for evaluating 168 roof sections totaling more than 1,000,000 s.f. of roofs for International Paper in Franklin, VA. Work involved obtaining physical data on each roof, visually assessing the condition of each roof, taking record photographs, preparing roof plans and developing a five-year plan for maintenance, repair and reroofing. Roof types included built-up, single ply and metal.
- Design leader and project manager for the emergency remedial work to repair leaks in the granite base and copper cladding of the NC Capitol Dome. Exterior repairs were required at the joints of the granite masonry, repairs to the copper roofing and reconstruction of the skylight at the top of the dome; interior repairs involved major repairs to the ornate plaster and repainting.
- Designed the reroofing of 24 buildings at Duke Homestead, Bennett Place, Aycock Birthplace, Historic Halifax, Historic Edenton, Roanoke Island Festival Park, Historic Bath and in New Bern for the Tryon Palace, Kitchen, Stable, Academy, Stanly House, Jones House, Dixon House and the visitor center. Design dealt with the historic restoration of wood and tile shingled roofs and standing seam metal roofs, and some reroofing of traditional low-sloped roofs.

CONTINUING EDUCATION

- Built-up Roofing Design, 1979, University of Wisconsin
- Single-Ply Roofing Seminar, 1983, Charlotte, NC
- Operators Training Course, 1984, Inframetrics, Inc., Bedford, MA
- Operators Training Course, 1978 and 1997, Troxler Electronic Laboratories
- Carlisle Roofing Seminar, 1984 & 1989, Carlisle, PA
- NRCA Annual Convention, 1984 & 1989
- RIEI - Update Seminar, 1985, Richmond, VA
- CRSMCA Midwinter Meeting, 1985, 1986, 1988, 1989, 1997, 1998, 1999 & 2011 Winston-Salem, NC
- Second International Symposium on Roofing Technology, 1985, Gaithersburg, MD
- Roofing Consultants and Design Engineers Seminar, 1985 & 1987, Dow Chemical Co.
- Various technical sessions, Roof Consultants Institute National Convention, 1986 - 1988, and 1990 - 2011
- AHERA Course for Management Planners, 1987, UNC-OSHERC Refresher Course - 1988
- AHERA Course for Inspectors, 1987, UNC-OSHERC Refresher Course - 1988
- Asbestos Abatement Projects in the Roofing Industry, 1988, Georgia Institute of Technology
- RIEI Seminar on Roofing and Asbestos, 1988
- BURSI Mini-Seminar, October 1990
- SPRI Seminar on Commercial Roofing Systems, November 1990
- RIEI Reroofing Seminar, April 1991
- Masonry Design and Wind Resistance of Sheet Metal, March 1992

- Copper Roofs, November 1992
- Metal Roofing, April 1993
- RCI Mid-Atlantic Building Envelope Conference, February 1994
- ASCE Wind Design Conference, August 1994
- Factory Mutual Update, March 1995
- North Carolina State Construction Conferences 1983 through 2011
- Nuclear Testing Equipment Training, Troxler Laboratories, 1997
- Plant tour, Performance Roof Systems, 1998
- Roofing Conference and Exposition for Historic Buildings, 1999
- Plant tour, Soprema, 2000
- IKO Seminar & Plant Tour, Toronto, 2001
- Radiation Safety Officer Class, Troxler Laboratories, 2002
- Fabral Metal Roofing Seminar, 2002
- Carlisle Roofing Design Conference, 2002
- Sustainable Roofs & Wind Design of Roofs, Styro Systems, 2002
- Attic Ventilation, Air Vent, Inc., 2004
- Managing Mold & Mildew, Padia Center, 2004
- Speaker, Green Roof Symposium, NCSU, 2005
- Building Envelope Symposium, RCI, 2005 and 2008
- SWR Institute, 2008 Fall Technical Meeting
- MBCI, Retrofit Roof Systems, 2008
- SWR Institute, Fundamentals of Structural Sealant Glazing, 2009
- Troxler Electronic Laboratories, Inc., Hazmat Certification, 2010
- BURSI, Photovoltaic Training Certification, 2011

WORK HISTORY

FORCON International - Roof Consultant

Rooftop Systems Engineers, P.C. - Raleigh, NC, Chairman

Robert M. Stafford, Inc. - Raleigh, NC, Senior Project Engineer

S&ME, Inc. - Raleigh, NC, Director, Roof Engineering Services

Shive-Hattery & Associates - Iowa City, Iowa, Civil Engineering designer & project manager

Peterson and Appell Engineers - Des Moines, Iowa, Structural Designer

U. S. Army Corps of Engineers - Korea , Construction Engineer Officer