

Professor Paul G. Carr, Ph.D., P.E.

Education:

Doctor of Philosophy (Civil Engineering)

Virginia Polytechnic Institute & State University, Blacksburg, VA
Civil Engineering –Construction Engineering and Management

Master of Engineering (Civil Engineering)

Cornell University, Ithaca, New York
Civil Engineering

Bachelor of Technology (Civil Engineering)

Rochester Institute of Technology, Rochester, New York
Civil Engineering (Summa Cum Laude)

Chairman Emeritus – The Bernier-Carr Group

Architects, Engineers, Surveyors and Construction Managers

Cornell University Faculty

- Civil and Environmental Engineering
Engineering Management
- College of Architecture, Art, and Planning
- and the S. C. Johnson College of Business
- Field Faculty Masters Program in Real Estate

Course Offerings

Cornell University: Fall 2000 - 2017

CEE 5910: Engineering Management Project

Practice Management for the Consulting Professional
Multiple Failures in Building Design and Construction
Multi-Discipline Design of a Community Alternative Energy Project

CEE 5920: Engineering Management Project

Contract Dispute Resolution for Architects and Engineers

CEE 5950: Construction Planning and Operations

CEE 5960: Management Issues in Forensic Engineering

CEE 7860: Special Topics in Structural Engineering

Virginia Tech: 1998- Spring 2000

Chair - Ph.D. Seminar (Fall, 1998)

CEE 2984 Introduction to Civil Engineering: Lecture

CEE 3014 Construction Management: Lecture

CEE 4334 Hydraulic Structures: Lecture

CEE 4014 Estimating, Production and Cost Engineering



Paul G. Carr, Ph.D., P.E.

National Academy of
Forensic Engineers
Board Certified Diplomate
in Forensics

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Registrations and Certifications:

Professional Engineer in New York and Pennsylvania (inactive)
NAFE Board Certified Diplomate in Forensics
American Arbitration Association – Construction Arbitrators’ Panel of Neutrals

Memberships and Awards:

Member - National Society of Professional Engineers [NSPE]
National Allied Member – American Institute of Architects [AIA]
Senior Member - National Academy of Forensic Engineers - Diplomate
Member - American Society of Civil Engineers [ASCE]
Member - Association for the Advancement of Cost Engineering [AACE]
Member - Construction Management Association of America [CMAA]
Member – Water Environment Federation [WEF]
Member at Large – American Society of Professional Estimators [ASPE]
National Science Foundation (NSF) Research Grant Review Panelist
Cornell University - School of Engineering
Excellence in Teaching Award 2003-04
Cornell University - School of Engineering
Excellence in Teaching Award 2014-15
Virginia Tech – Department of Civil Engineering
Myers- Lawson School of Construction Outstanding Alumni Award 2006
Rochester Institute of Technology –
2008 Distinguished Alumni Award - College of Applied Science and Technology
Phi Kappa Phi - National Honor Society
Chi Epsilon - National Civil Engineering Honor Society
Associated General Contractors (AGC) Scholarship Recipient
Northern New York Builders Exchange Scholarship Recipient
Environmental Protection Agency (EPA) Scholar – Cornell University
Past President and 1989 Construction Person of the Year:
Northern New York Builders Exchange
Past - Board Member – Samaritan Medical Center - *Planning Committee Chair*
Licensed Helicopter & Airplane Pilot – *Single/Multi-Engine - Instrument Ratings*

Continuing Education (Partial)

Legal Aspects of Architecture, Engineering and Construction, Drexel University
New York Construction Law, Federal Publications
School of Construction Estimating, Richardson Systems
Planning and Scheduling with Primavera, CTS
Analyzing Construction Delays – Saddlebrook Institute
Myers-Briggs Type - Psychological Administrator & Interpreter
Wind Loads on Structures – ASCE
Design by the Building Code of NYS – AIA
Design in Existing Buildings with New Code – AIA
Design, Construction & Renovation of Masonry Structures – ASCE
Using Experts Effectively in Commercial & Construction Arbitration – AAA
Microsoft Project Scheduling Program Advanced Training – CTS
Alternative Designs for Anchorage to Concrete - ASCE
Failure Analysis of Materials & Structures – NSPE
Conducting Research and Investigations ~ The Arbitrator's Authority -AAA

Overview

Dr. Carr was the founder, CEO and Chairman of the Board of an Architectural and Engineering Practice with a staff of over 100 in upstate New York. He has personally managed large, complex projects involving various Architectural and Engineering disciplines. These projects often integrate other technical specialists, as well as the practice of construction management. In his current Forensic Engineering practice his experience encompasses architect and engineer errors and omissions claims, design and construction review, construction delay claims and disputes, as well as code compliance matters. Dr. Carr is well versed in construction mediation, arbitration and litigation, and practices as both an arbitrator and expert in these forums.

Experience and Services:

Dr. Carr graduated summa cum laude from Rochester Institute of Technology, in the honor society of Phi Kappa Phi, and as an Associated General Contractor's scholarship recipient. He then became an EPA Scholar at Cornell University's Graduate School of Civil and Environmental Engineering, where he was awarded his Master of Engineering degree. Professor Carr earned his Doctorate from the Charles E. Via School of Civil Engineering at Virginia Tech in Construction Engineering and Management. Dr. Carr's doctoral research focused on enhancing teamwork among Design and Construction Professionals. This area of study focused on a systems approach to engineering management problems. This systems approach may be described as a complex search for patterns in organized data structures.

In his early career Dr. Carr worked as a field engineer and office executive for construction contractors in New Jersey and Pennsylvania. While in Pennsylvania he was promoted to vice president of corporate planning, supervising the estimating and bidding work of the firm. This work primarily involved general construction of both public and private facilities. Dr. Carr returned to New York to work as a project engineer within consulting engineering firms. Again, this work primarily involved public works although design commissions began to focus on all aspects of municipal and institutional projects.

His private practice as a Professional Engineer was opened in 1980 and headquartered in Northern New York where he remained for the next 18 years. While there he grew his practice from a small engineering practice to a large Architectural and Engineering Practice of over one hundred staff members and multiple offices providing the planning, design and construction management of hundreds of millions of dollars in capital improvement projects. The major projects that define the scope of his career include a number institutional and municipal building programs. These projects focused on the planning, design and construction management of primary and secondary schools, water treatment plants and distribution works, sewage collection and treatment systems, bridges, municipal buildings, public housing projects, hospitals and libraries.

Paul Carr, a founder of Bernier-Carr and Associates, was the firm's Chief Executive until his retirement in 1998. In that time period he was the Chairman of the Board of the Bernier-Carr Group of Companies; a group of firms which provided architectural design, engineering design, construction management, as well as an "at risk" construction division which performed design-build services. During his tenure within the Bernier-Carr Group, Dr. Carr was responsible for all of the estimating, scheduling and cost and quality controls for the

firm's work. Professor Carr later served on the faculty at Virginia Tech, where he taught and conducted research on engineering and architectural professional behaviors.

In addition to his Forensic Engineering consulting practice, Dr. Carr is on the graduate faculty of the School of Civil and Environmental Engineering, and the Graduate Real Estate Field at Cornell University, teaching from 2000 – 2017. He specializes in program risk assessment, dispute resolution and the Architectural/Engineering Design process and Construction Management, primarily within the public construction industry.

Professor Carr is widely published, lectures and provides consulting on management techniques to troubled projects. Recently Dr. Carr has been engaged on such high profile projects as the \$500 million Highly Enriched Uranium Materials Facility (HEUMF) constructed in Oak Ridge TN, and the CDC (Center for Disease Control) new emerging infectious diseases laboratory facility in Atlanta which includes the vivarium and BSL-4 laboratories.

In addition, Professor Carr participated in the special lecture series for the Government of Kuwait Executive Architect / Engineer / Construction Management training program focusing on effective project teams and the management of changing conditions to maintain project scope, quality, budget and schedule.

In addition to his other duties Professor Carr has served on a number of public and private Boards. This work included twelve-years on the Samaritan Medical Center Board where he served as member and Chair of the Finance Committee, Audit and Compliance Committee and Planning Committee. During this tenure as Chair of the Planning Committee the Medical Center completed the construction of a new \$65,000,000 acute care hospital expansion along with a new 400 space parking garage, using 'bridging documents' and Design Build as a project delivery method. In addition, using a Construction Manager At-Risk GMP project delivery method the Medical Center built a new \$70,000,000 senior living complex and over \$30,000,000 in renovation work within the existing hospital. This Board position allowed Dr. Carr to gain firsthand the experience and perspective of design and construction from the owners' viewpoint.

As a Board Certified Diplomate of the National Academy of Forensic Engineers, Dr. Carr focuses his current practice on failure assessment and prevention in public building projects and infrastructure capital programs. Dr. Carr's service to project owners is in program management risk assessment, and dispute avoidance and resolution.

Dr. Carr provides Expert Testimony services to attorneys, serving as the designated expert witness to testify and communicate findings to the mediators, arbitrators or juries. Services to the legal community include testimony on focused topics and the coordination of experts with diverse skills related to building damage or construction disputes. He also assists with the preparation for the deposition and trial cross-examination of engineering and architectural experts. The challenge in this high-technology age is to explain in understandable terms within an adjudication forum, sophisticated analyses and scientific field studies, and why they are essential to support proper conclusions.

EXAMPLES of PUBLICATIONS and REPORTS

Professor Carr's publications and reports have primarily consisted of confidential studies for both public and private clients, and are therefore not open to public review. Dr. Carr has completed hundreds of forensic investigations, along with reports, primarily consisting of design practice and construction failures.

Below is a list including peer-reviewed or juried articles by Dr. Carr:

Carr, P. G., (2009) Forensic Engineering Investigation of Pyrite's Expansive Forces and Impact on Long-Term Building Failure, *Journal of the National Academy of Forensic Engineers*, December 2009

Vaziri, Kabeh, Carr, P. G., Nozick, Linda (2007) "Project Planning for Construction under Uncertainty with Limited Resources" *Journal of Construction Engineering and Management* Vol. 133, No. 4, April 2007

Carr, P.G., Thesier, J.T., Kimball, M.S. (2006) "An 'Invisible Menace' – The Impact of Pyrite Induced Expansive Forces on Long-Term Building Failure – A Case Study" *ASCE Technical Committee on Forensic Engineering*, Cleveland OH, October 2006

Carr, P.G., Thesier, J.T., Kimball, M.S. (2006) "The difficult role of the Forensic Engineer in Complex Building Failures" *National Academy of Forensic Engineers* Boston MA., July 2006

Carr, P. G., Beyor, Pamela S. (2006) "Behind the Curve – Design Fees and a Case for Corrective Action " *American Council of Engineering Companies (ACEC) 2006 Annual Convention*, Washington, D.C. May 1, 2006

Carr, P. G., Beyor, Pamela S. (2006) "Design Fees, the State of the Profession and a Time for Corrective Action " *American Council of Engineering Companies (ACEC) Online Seminar On New Business Models For Design Firms*, February 1, 2006

Carr, P. G., Beyor, Pamela S. (2005) "Design Fees, the State of the Profession and a Time for Corrective Action" *Journal of Management in Engineering* Vol. 21, No. 3, July 2005

Carr, P. G., (2005) "An Investigation of the Level of Competition, Pre-Bid Project Estimates and Actual Bid Prices, in the Public Building Sector for the Institutional Construction Market" *Journal of Construction Engineering and Management* Vol. 131, No. 11, November 2005 p. 1165-1172

Carr, P. G., (2004) "Engineers and the Betterment of Human Welfare", *The National Society of Professional Engineers' Engineering Times*, November 2004

Carr, P. G., de la Garza, Jesus M., and Vorster, Michael C. (2002) "The Relationship between Personality Traits and Performance for Engineering and Architectural Professionals Providing Design Services" *Journal of Management in Engineering* Vol. 18, No. 4, October, 2002.

Kannan, Govindan and Carr, P. G., (2001) Discussion Paper on “Simplified Program Evaluation and Review Techniques” *Journal of Construction Engineering and Management*, Vol. 127, No. 1, Jan./Feb. 2001

EXAMPLES of TECHNICAL REPORTS

In addition to the peer-reviewed articles, illustrations of the investigation documents prepared by Professor Carr are listed below. While Dr. Carr will prepare numerous reports on cases in any given year, to limit the listing, these examples through 2012 are provided to give the interested reviewer a sense for the extent and the nature of the work undertaken in varied adjudication forums.

Numerous additional Studies have been performed between 2012 and present, with a listing of those concluded cases available upon request.

Carr, P. G. (2012) Analysis of the Design Professional Performance Hannibal Central School District document and testimony prepared for NYS Supreme Court adjudication (successful negotiated settlement at trial).

Carr, P. G. (2011) “Analysis of the HVAC System Failure at the Elmira Central School District” analysis and document prepared for NYS Supreme Court adjudication (successful Mediation of the matter).

Carr, P. G. (2011) “Analysis of the Production Efficiency relating to the Electrical Contractor’s Claim for Lost Labor Productivity, Monroe Community College” document prepared for Mediation (successful settlement of suit).

Carr, P. G. (2011) “Analysis of the Production Efficiency relating to the Electrical Contractor’s Claim for Lost Labor Productivity – Essex County Jail” document prepared for NYS Supreme Court adjudication (successful Mediation of the suit).

Carr, P. G. (2011) “Analysis of the Sitework Contractor’s Claim for Lost Equipment and Labor Productivity, Carthage Central School” document prepared for NYS Supreme Court adjudication (successful Mediation of suit).

Carr, P. G. (2010) “Analysis of the Alleged Contract Performance Failures on the Erie County CSO Capital Project” document prepared for NYS Supreme Court adjudication (successful Mediation of suit).

Carr, P. G. (2010) “Analysis of the Subsurface Failures at the Forest Resource Building - Pennsylvania State University” analysis and documents prepared for multi-party negotiations of a the root cause of the failure (successfully negotiated).

Carr, P. G. (2010) “Analysis of the NYS Building Code Compliance for an Exit Stairway in a Slip and Fall Event” document prepared for NYS Supreme Court adjudication (successful Mediation of suit).

Carr, P. G. (2010) “Analysis of the Production Efficiency relating to the Electrical Contractor’s Claim for Lost Labor Productivity, Schalmont Central School” document prepared for NYS Supreme Court adjudication (successful negotiation of the suit).

Carr, P. G. (2010) “Analysis of the Contract Requirements for Hazardous Materials Containment and Removal, Penfield Central School” document prepared for NYS Supreme Court adjudication (successful Mediation of the suit).

Carr, P. G. (2010) “Analysis of the Sitework Contractor’s Equipment Selection and Performance on the Franklin County Landfill” analysis and documents prepared for negotiation (successfully negotiated).

Carr, P. G. (2009) “Analysis of the Running Track Failures, Lake Placid Central School District” analysis and documents prepared for multi-party negotiations of the root cause of the failure (successfully negotiated).

Carr, P. G. (2009) “Analysis of the Structural Failures of multiple [14] buildings, Greece Central School District” analysis and documents prepared for multi-party negotiations of the root cause of the failure (successfully negotiated).

Carr, P. G. (2008) “Analysis of the Production Efficiency relating to the Electrical Contractor’s Claim for Lost Labor Productivity, Mount Morris Central School District” document prepared for Mediation (successful settlement of suit).

Carr, P. G. (2008) “Analysis of the Production Efficiency relating to the Electrical Contractor’s Claim for Lost Labor Productivity, Pittsfield Central School District” ” document prepared for NYS Supreme Court adjudication (successful negotiation of the suit).

Carr, P. G. (2008) “Analysis of the Stormwater Drainage System Failure, Norwich Central School District” analysis and documents prepared for multi-party negotiations of the root cause of the failure (successfully negotiated).

Carr, P. G. (2007) “HVAC System Failure Analysis and Corrective Action Plan [confidential client]” for multi-party negotiations (successfully negotiated).

Carr, P. G. (2007) “Analysis of the Structural Failure of an Industrial Wastewater Treatment Plant Concrete Tank, [confidential client]” (settlement successfully negotiated).

Carr, P. G. (2007) “Analysis of the NYS Building Code Compliance for Public Space Illumination Requirements in a Slip and Fall Event” document prepared for NYS Supreme Court adjudication (successful negotiation of suit).

Carr, P. G. (2006) “Analysis of the Production Efficiency relating to the Electrical Contractor’s Claim for Lost Labor Productivity, Livonia Central School” document prepared for NYS Supreme Court adjudication (successful post-trial withdrawal of suit).

Carr, P. G. (2005) “Analysis of the Pavement System and Subsurface Failures at the Owego Apalachin Central School” document prepared for negotiations of a contract dispute (successfully negotiated).

Carr, P. G. (2005) “Analysis of the Contract Performance relating to the Electrical Contractor’s Claim for Lost Labor Productivity, Apalachin Central School District” document prepared negotiations (successfully negotiated).

Carr, P. G. (2004) “Foundation Failure and Remediation Plan” Fonda-Fultonville Central School District (repairs complete – American Arbitration Association case with successful settlement negotiations)

Carr, P. G. (2003) “Evaluation of Design Standards for Sewage Works – Professional Standard of Care” Jody Filiatrault vs. Rist-Frost Consulting Engineers (successful motion for summary judgment to dismiss)

Carr, P. G. (2002) “Analysis of the Structural System Failure resulting from the Paper Machine Explosion – Knowlton Bros. Paper” private document prepared for insurance recovery and settlement (successfully negotiated).

Carr, P.G. (2001) “Various Building Failures at the Peru Central School District – Structural, Heating, Building Envelope and Sitework” presented before the American Arbitration Association Mediation hearing.

Carr, P. G. (2000) “Analysis of the Impacts on the Jefferson County Courthouse Complex through Project Labor Considerations”; for The Jefferson County Board of Legislators.

Carr, P. G. (1999) “Analysis of the Wall System Failure at the Willow Point Nursing Home,” prepared for the Broome County Attorney for contract dispute settlement negotiations (successfully negotiated).

Carr, P. G. (1998) “Analysis of the Pavement System and Subsurface Failures at the Summersville Wal-Mart” private document prepared for Frontier Insurance Company for the mediation negotiations of a contract dispute (successfully negotiated).

Carr, P.G. (1997) “Essential Seismic Reinforcing – Response to Request for Equitable Adjustment for Contract Interpretation and Lost Labor Productivity” presented before the American Arbitration Association hearing on the matter.

Carr, P. G. (1995) “Investigation of Contract Failures at the Municipal Fire Station Capital Improvement Program in Watertown, New York” presented before the American Arbitration Association hearing on the matter.

Below is a partial list of *Journals* that have called upon Dr. Carr to provide peer-reviews of technical articles considered for publication:

Journal of Construction Engineering and Management

Journal of Management in Engineering

Journal of Legal Affairs and Dispute Resolution in Engineering and Construction

Journal of Performance for Constructed Facilities

Journal of National Academy of Forensic Engineers

Journal of Civil Engineering and Management