



**West Virginia State Capitol
Masonry Repair and Cleaning
18 July 2006**

GSD066429

Expression of Interest

Prepared for

Ms. Krista Ferrell
Purchasing Division
2019 Washington Street East
P.O. Box 50130
Charleston, WV 25305-0130

Prepared by

Simpson Gumpertz & Heger Inc.
19 W. 34th Street
New York, NY 10001

1355 Piccard Drive
Rockville, MD 20850

41 Seyon Street
Waltham, MA 02453



Simpson Gumpertz & Heger Inc.
Consulting Engineers

17 July 2006

Ms. Krista Ferrell, Buyer
Purchasing Division
P.O. Box 50130
Charleston, WV 25305-0130

Boston
Los Angeles
New York
San Francisco
Washington, DC

Re: Masonry Repair and Cleaning of the State Capitol, 1900 Kanawha Boulevard East
Charleston, WV

Dear Ms. Ferrell:

We are pleased to submit our qualifications for the above-noted project at the historic State Capitol. Simpson Gumpertz & Heger Inc. (SGH) is a national design and consulting engineering firm with fifty years experience in a broad range of building exterior repair and preservation projects on some of the nation's most significant buildings.

Background

We understand the Capitol was built in three major phases: the west wing in 1924-25, the east wing in 1926-27, and the rotunda connecting the wings completed in 1930-32. The building was designed by Cass Gilbert and is clad in Indiana limestone over a steel structural system. The dome recently underwent restoration, but no major masonry restoration work has been undertaken in recent years.

Our Team

We have assembled an in-house team of engineers and architects knowledgeable in all aspects of historic building investigation, repair and design. SGH team members have been recognized for their historic preservation work by the New York State Preservation League, Historic Albany Foundation, Building Design & Construction Magazine, Preservation Maine, Preservation Massachusetts, and the International Masonry Institute. Our preservation projects have ranged from traditional, load-bearing masonry buildings of the 18th and 19th centuries, to stone and terra cotta-clad steel framed buildings of the 20th century.

Our team of highly qualified staff brings a depth of technical experience, sensitivity to architecturally significant structures, a proven track record of meeting the demands of schedule and budget, and the diligence necessary to carry design concepts into successful construction.

Our Senior Project Manager for the project, Michael F. Lynch, is a preservation engineer and restoration architect with over 30 years experience in the investigation, repair and preservation of historic structures. Mr. Lynch will coordinate the team from our New York City office. Attached are resumes of key staff and examples of projects of similar scope and scale.

Our Approach

Our approach to masonry repair and cleaning work is to develop an understanding of the underlying cause of problems through a combination of document review, physical inspection, and materials testing, then to work with the General Services Division (GSD) to develop

solutions that balance effective treatments, preservation issues, and project budgets. Our goal is to determine the appropriate level of repair and cleaning that preserves architecturally significant features and design, and oversee a project that meets the schedule and budget agreed to by GSD.

Schedule

Because of our size and the depth of experience at SGH, we are poised to initiate work quickly. We have prepared a proposed work schedule assuming an approximate award date of 14 August 2006. We estimate the earliest date of awarding a construction contract is mid-October. Depending on the extent of masonry repair we identify, it may be possible to complete repairs, pointing and cleaning by the end of November. However, if the scope and extent of work is large, bidding the project in the fall enables contractors to secure their first projects for the following spring, and assures sufficient time to complete the work during the 2007 construction season.

Thank you for the opportunity to be considered for this contract. We look forward to having an opportunity to interview with GSD, and the possibility of working on the architecturally significant West Virginia State Capitol.

Sincerely yours,



Michael F. Lynch, P.E., AIA
Consulting Preservation Engineer/Architect



Kevin B. Cash, P.E., Senior Principal

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Masonry Repair and Cleaning of the State Capitol, Charleston, WV

1. COMPANY HISTORY AND BACKGROUND

Simpson Gumpertz & Heger Inc. (SGH) is a national consulting firm serving private, institutional and government clients nationwide. Since 1956, we have designed, investigated, and retrofitted buildings and structures of all types. Our practice encompasses a wide range of building envelope and structural problems, the performance of materials, and construction-related activities.

SGH staff includes engineers and architects with a breadth of expertise in preserving heritage structures. Responding to the requirements of this specialized area of design, we bring in-depth experience in repairing buildings composed of traditional materials such as limestone, terra cotta and wood, as well as more contemporary materials and systems such as steel, concrete and glass curtain walls. Our repair and new design work is informed by our extensive knowledge gained from investigation how these materials behave under conditions such as water infiltration, seismic loading, wind, and other weathering conditions. SGH combines practical design and field expertise in the following areas:

Historic Preservation

- Restoration and conservation of historic building materials
- Cladding, facade and glazing investigation and repair
- Water intrusion evaluation and repair
- Roofing and waterproofing investigation and repair design

Structural Engineering

- Structural design for rehabilitation
- Seismic analysis, design and retrofit (including base isolation)
- Engineering and design of unique structures

SGH develops appropriate solutions to the often complex issues inherent in historic preservation through the innovative use of technology and the application of established standards such as the Secretary of the Interiors Standards for the Treatment of Historic Properties.

Materials Testing and Analysis

SGH has the in-house capability to test stone and mortar materials at our petrography, structural, material testing and characterization labs to help identify the cause of material degradation or to better understand the stone and mortar condition issues. Identifying material issues, conducting tests with proper controls and in the appropriate environment, and drawing conclusions about expected material performance are critical to successful problem solving.

We are committed to serving the client's needs through the development of creative, efficient, and cost-effective design solutions. Some of the services we provide are:

- Condition assessment surveys
- Conservation treatment programs
- Historic structure reports
- Conservation management plans
- Nondestructive investigation
- In situ and laboratory material testing and analysis
- Water intrusion, condensation, and moisture evaluation and repair
- Structural and seismic evaluations
- Final façade repair drawings/structural design
- Contract documents
- Construction administration

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2. SIMILAR PROJECTS

Our experience with historic stone and mortar restoration projects, such as the masonry repair and cleaning project of the West Virginia State Capitol building, includes repair and rehabilitation of similar heritage structures, many of which are National Register-listed and national historic landmarks. Examples of project involving limestone facade investigation and repair design include:



New York State Capitol Building, Comprehensive Exterior Envelope Rehabilitation, Albany, NY

The New York State Capitol building, designed in various stages by a succession of architects including Leopold Eidlitz and H.H. Richardson, was built over a period of 30 years between 1869 and 1899. Illustrating both Second Empire and Richardsonian Romanesque elements, the building includes granite ashlar walls, slate, granite and clay tile roofs, granite dormers, and ornamental terra cotta tower elements at the roof line. SGH investigated recurrent and stubborn leaks believed to originate in the roof, provided a condition assessment, and budgeted repairs. We subsequently designed comprehensive exterior envelope repairs. The total projected construction cost of the five reconstruction phases was more than \$50 million. We performed construction administration work

for the first phase. The project included restoration of ornamental terra cotta and stone, replacement of copper, tile, and slate roofing, and the restoration of the monumental skylight over the Capitol's famous Great Western Staircase.



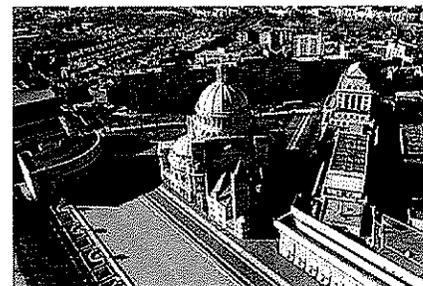
G. Fox Building Restoration, Hartford, CT

The historic G. Fox building, constructed circa 1917, and designed by Cass Gilbert, was the first of six buildings rehabilitated and redeveloped under the state of Connecticut's "Six Pillars of Progress" plan for the revitalization of downtown Hartford. As part of this effort, SGH completed an investigation of the exterior envelope of this 11-story, 850,000 square foot building, which included the original building as well as additions dating to 1938 and 1960. Façade materials include limestone, brick, and terra cotta on the main facade. Windows range from double-hung wood units to single-hung galvanized steel sheet units to aluminum center-pivot units. SGH conducted interior and exterior surveys of roofs, walls, and windows,

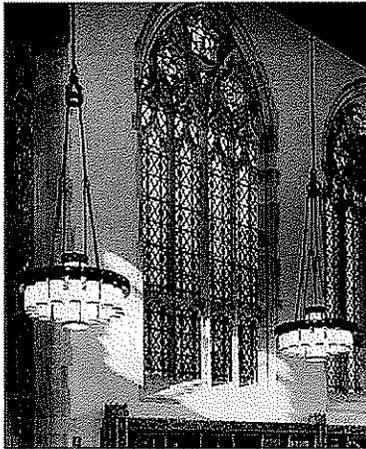
made sample openings, and conducted water tests. We used industrial rope access techniques to conduct a hands-on survey of all the facades, and we used swing staging to conduct water tests and make exploratory openings in the masonry on three different exposures. We finalized a report to the client of our findings and recommendations.

First Church of Christ Scientist, Boston, MA

SGH provided structural and building engineering services on several buildings at the campus and headquarters of the First Church of Christ, Scientist, including the original Mother Church building, the turn-of-the-century extension, the 1930 Publishing House building, and the I.M. Pei buildings. For the Publishing House building, which now houses the Mary Baker Eddy Library, SGH provided exterior restoration design consulting. SGH's scope included the limestone façade, tile and roofing, and window restoration. SGH provided moisture and thermal analysis necessary to accommodate the humidified archival storage in the 70 year-old Publishing House, window restoration design for the entire building, and new interior steel storm windows to accommodate the controlled humidity environment.

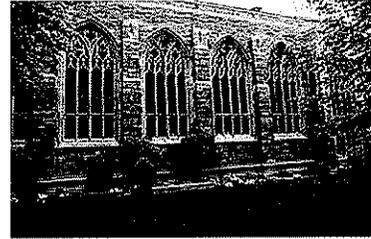


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Yale University, Sterling Memorial Library, New Haven, CT

The Sterling Memorial Library was constructed in 1930 and is Yale's central research library and the repository for a collection of books, historic documents and artifacts, coins, sound recordings, photographs, and other scholarly items valued at \$1 billion. Low interior humidity, large seasonal temperature swings, along with wall and window leakage caused a detrimental environment. Widespread water leakage through walls, roofs, and windows was also damaging the building's masonry and steel structure. Plaster and stone finishes in the library's Main Reading Room, one of the university's signature spaces, had been damaged by longtime water leakage. SGH conducted a condition assessment of the building's exterior envelope, identified repair priorities, developed restoration strategies, and designed the repairs. Our work included the restoration of the stone facing of the load bearing walls, leaded glass windows, and built-up slate and copper roofs.



One of SGH's key contributions was identifying the weaknesses in the original waterproofing design and installing flashing to correct these weaknesses. The Main Reading Room had suffered from water damage for decades. SGH developed a comprehensive repair and restoration program for roofs, walls, and windows. The exterior work included installation of a weep cavity and metal flashing to stop leakage through the granite and limestone window arches, the installation of new copper gutters, and the rehabilitation of the slate roof. On the interior, careful restoration and repair to the stained glass windows and the limestone window tracery restored the natural brightness of the spectacular space.



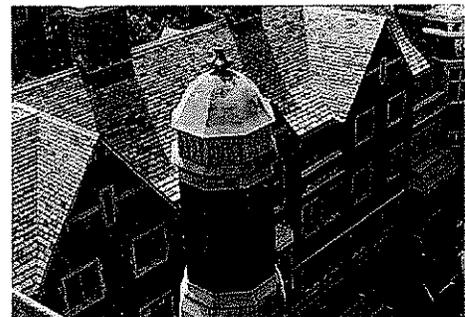
Old Chicago Post Office, Chicago, IL

SGH performed a condition survey and due diligence investigation of the three-million sq. ft historic structure built in the 1920s by Graham, Anderson, Probst, and White. The exterior features limestone, brick masonry, ornamental terra cotta banding and cornices, and granite at grade. SGH's work included a survey of the facade, trim elements, and masonry walls as well as the underlying structure, using industrial rope access techniques. SGH evaluated water leakage sources. We reviewed three different types of window systems, including monumental bronze windows, vertical aluminum strip windows, and steel windows. SGH developed a protocol for emergency stabilization of the building facade and

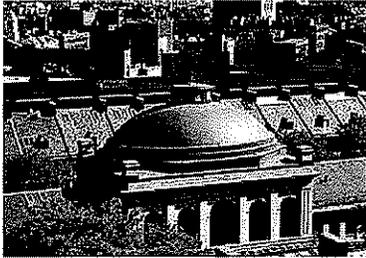
developed repairs for the several facade systems. We also performed a condition assessment of the various roofs. The results of our review were presented in the form of an assessment report, which included recommendations for phased repairs to the building with various options and cost estimates.

Yale University, Sterling Law School, New Haven CT

The Sterling Law School covers an entire city block and contains classrooms, auditoriums, and the law library, as well as a law student dormitory and cafeteria. The school was built in the 1930s and features an attractive neo-Gothic exterior built of limestone, granite and brick, surrounding a series of courtyards. The buildings were experiencing severe deterioration and failure of building envelope components including slate roofs, masonry, and leaded glass windows. As part of the design team, SGH assisted in the project formulation and investigated and designed repairs of the envelope and its structural support.



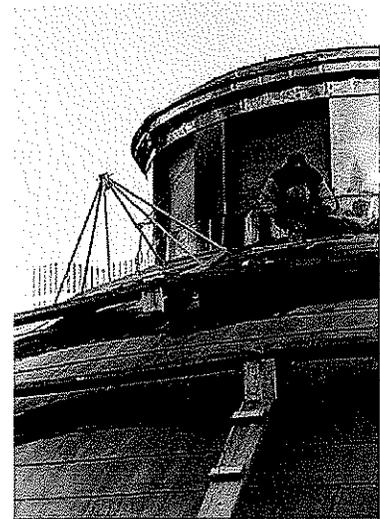
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Quincy Market, Boston, MA

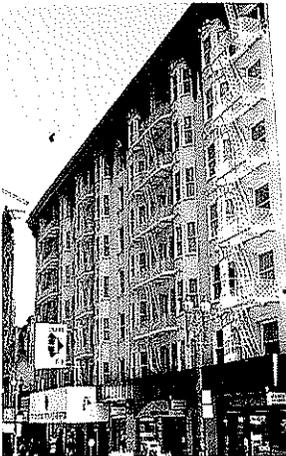
Opened to the public in 1826, the Quincy Market Building is a recognized historic emblem of Boston and has evolved into an active tourist center. The Greek Revival marketplace, designed by Alexander Parris, is post and lintel construction formed with granite from the local Quincy quarry. Entrance porticos with Doric columns supporting gable end pediments. A

rectangular block rises above the roofs and is capped by a wood-framed elliptical dome clad in copper. An interior lath and plaster elliptical ceiling is suspended from the outer dome's wood frame. SGH has had ongoing involvement in the rehabilitation of this landmark. Our work has included conducting a building assessment, designing structural repairs, developing masonry restoration procedures, and restoration of the signature central dome, which utilized the talents of both our building technology and structural divisions.



John Adams Courthouse, Boston, MA

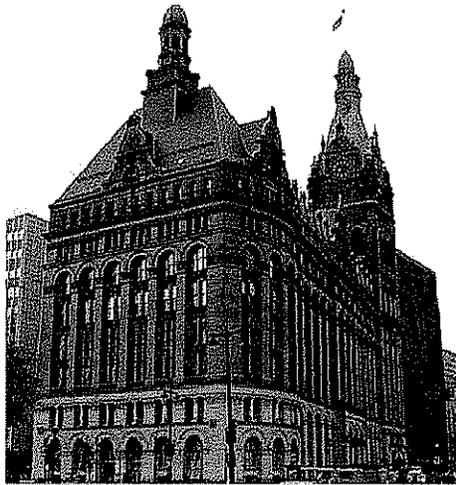
The John Adams Courthouse includes an ornamental granite facade, monumental windows, and a prominent slate mansard roof with copper clad dormers. The building was designed by George A. Clough and was constructed in two campaigns, 1895 and 1906-1909. In the latter campaign, the top two floors were added and are denoted by the slate mansard roof. The courthouse was undergoing renovations to the facade involving replacement of the face brick with a brick veneer wall system, including new waterproofing and flashing. Decorative plaster and wood finishes throughout the building had been damaged by chronic water leakage. SGH conducted a facade and roof survey using industrial rope access techniques. Our work included water testing the masonry, wood windows, mansard roof, and copper clad dormers. SGH designed repairs and provided construction administration.



Handlery Union Square Hotel, San Francisco, CA

The 377-room Handlery Union Square Hotel was built during the 1920s and 1930s. The oldest portions of the hotel were unreinforced masonry walls with wood floors. The exterior walls are clad with limestone or sheet metal on some facades and constructed of various materials, including brick, concrete, and wood. Water infiltration through the concrete and limestone walls was causing spalls and cracks from corroding steel. The brick walls were deteriorating from excessive moisture migration and corroding steel as well. SGH provided the investigation, design and engineering, and construction administration services for this project.

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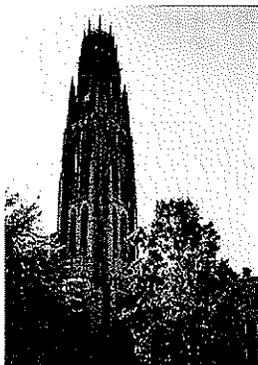


Milwaukee City Hall, Milwaukee, WI

The Milwaukee City Hall, built in 1893, was designed by the architects H.G. Kogh & Company in the Flemish revival style. The nine-story building is clad with sandstone, brick, and architectural terra cotta and is topped by a slate mansard roof punctuated by step-gabled dormers. At the south end of the building, the masonry clock tower rises an additional four stories and is capped with a copper clad spire. A large skylight in the main roof fills the building atrium with natural light. Over the years, Milwaukee City Hall experienced numerous problems including structural through-cracks at the clock tower and north elevation, persistent leakage, corrosion of embedded steel framing, cracking and deterioration of terra cotta, efflorescence, and spalls in the brick masonry. SGH conducted a comprehensive investigation to identify the sources of cracking, leakage, and general deterioration. We installed remotely monitored



thermocouples and vibrating strain gauges to identify causes of cracking on the south tower; performed finite element analysis to identify and analyze structural load paths and stresses on the south tower; and performed an investigation of the timber pile foundations to determine the cause of settlement on the north elevation of the building. SGH prepared stabilization and restoration documents with a local architect to rehabilitate and repair brick and terra cotta elements, windows, and slate, copper, and membrane roofing.



Yale University, Harkness Tower and Wrexham Tower, New Haven, CT

The Harkness Tower (at left) is the tallest Gothic spire on the Yale campus (over 200 ft) and contains an active carillon. The tower is faced with granite, limestone and sandstone on a brick substructure. Wrexham Tower is a 120 ft tall, brick structure faced with limestone and granite. Both towers were built in 1919 as part of Memorial Quadrangle, which was subsequently divided into Branford and Saybrook Colleges. SGH investigated both towers and designed the restoration of the masonry, which was deteriorated due to long-term water infiltration. The projects also involved investigating and replacing the existing built-up roofs covered with quarry tile.



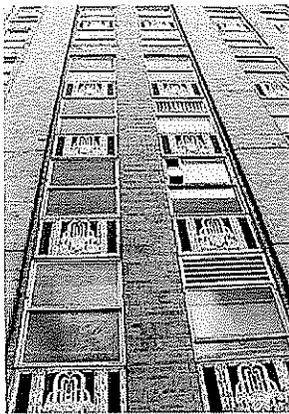
Beverly Public Library, Beverly, MA

The Beverly Public Library was designed in a Neo-Classical style by Cass Gilbert, architect of the Woolworth Building in New York City, one of the first skyscrapers built in the United States. The library building features a granite exterior and a marble interior. SGH investigated localized spalling of a masonry half dome over the entry apse and conducted a condition assessment of the masonry and stone facades. The work included a detailed investigation, recommendations for repair, and cost estimating.

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Harvard University, Fogg Art Museum, Werner Otto Hall, Cambridge, MA

The three-story steel-framed museum building was constructed as an addition to the Fogg Art Museum in 1991 over a two-level underground concrete structure. It includes an art museum, art storage areas, offices, study rooms, and a library. The underground areas are used primarily as art storage for the Fogg Art Museum, offices and book stacks. Many areas of the building are climate controlled with elevated humidity levels. The exterior wall systems include limestone veneer panels with concrete block back-up walls, and porcelain-coated steel panels with steel stud back-up walls. The parapet is clad with steel panels, and a portion of the curved wall at a stairway near the main entrance to the library is made with glass block. Soon after the construction, leakage occurred through the plaza deck into the art storage room below, and signs of exfiltration of the humidified interior air were occurring, including wet stains on the limestone facade, white stains emitting from the glass block windows, icicles forming at the bottom of the parapet, moisture accumulating in the roof, and rust spots along the edges of the porcelain-enameled metal wall panels. Remaining respectful of the original design, SGH investigated the building's moisture migration problems and leakage of the plaza waterproofing. The investigation included infrared scanned the building exterior to identify heat flow; measurement of relative air pressure between interior building areas, wall cavities, and the exterior; review of sample openings in exterior walls and roof; water testing and review of sample openings in plaza; and plans and specifications for waterproofing repairs.



441 Stuart Street, Boston, MA

SGH performed a condition survey of this 1926 limestone, brick, and cast stone clad building and conducted tests to determine the sources of persistent leakage problems. Work included a condition assessment of the art deco metal window spandrel covers, double hung windows, and glass storefronts. SGH determined that the leaks were caused by poor perimeter seals at the windows and at spandrel panels, and that portions of the masonry were in deteriorated condition. We recommended repairs and provided the owner with construction cost estimates.

Additional relevant project examples include:

- Massachusetts State House, Boston, MA (exterior wall condition assessment, development of cleaning methods, and structural and building envelope repairs)
- National Park Service, Old State House, Boston, MA (structural and building envelope restoration)
- Utah State Capitol, Salt Lake City, UT (structural and building envelope repairs to a c. 1916 building)
- Hawaii State Capitol, Honolulu, HI (building envelope investigation and repair)
- James Madison Memorial Library, Library of Congress, Washington, DC (investigation of stone veneer system and determination of cause of structural movement and leakage)
- United States Chamber of Commerce, Chanin Building, Washington, DC (investigation and comprehensive repair of cracking, distress, structural inadequacy, leakage, and deterioration of brick masonry and marble clad walls)
- Smithsonian Institution, National Air and Space Museum, Washington, DC (stone and glass curtain walls, roofing, skylights, and plaza waterproofing)
- National Park Service, David Wills House, Gettysburg National Military Park, PA (comprehensive structural renovations for the restoration of the c. 1863 building)
- Boston Athenaeum, Boston, MA (building envelope investigation and repair of the nation's

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- oldest private library)
- Boston Public Library, Boston, MA (investigation and evaluation of stone systems, roofing, waterproofing, the plaza, and the redesign of major components)
- Griffith Observatory, Los Angeles, CA (investigation and design of repairs of domed copper-clad roofs and roof deck, and restoration of travertine walls)
- Grand Central Terminal, New York, NY (repair of roof and skylight leakage and general material degradation problems, including ornamental rooftop frieze)
- Plymouth Rock Building, Boston, MA (condition assessment, stabilization, repair design, and long-term maintenance program for c. 1899 building)
- National Archive and Records Administration, John F. Kennedy Presidential Library and Museum, Boston, MA (investigation and restoration of I.M. Pei building exterior envelope including plaza roofing and wall systems)
- Clayton City Hall and Civic Center, Clayton, CA (adaptive reuse and design of repairs of a c. 1885 building that subsequently won the 1997 Design Award from California Preservation Foundation and the 1998 Governor's Historic Preservation Award)
- National Center for the Preservation of Democracy, Los Angeles, CA (surveys of the exterior facade, roof, and the interior exhibit hall and repair, and conservation recommendations)
- San Buenaventura City Hall, Ventura, CA (investigation and emergency and long-term repairs of the c. 1912 building)
- Wadsworth Atheneum, Hartford, CT (comprehensive master plan and renovation of stone building exteriors c. 1842-1950)
- Grover Cronin's Department Store, Waltham, MA (preservation of c.1920s Art Deco limestone facade preserved as part of a large-scale adaptive reuse)

References are as follows:

1. New York State Capitol, Albany, NY (Comprehensive Exterior Envelope Repairs)

State of New York
Office of General Services
Mr. James Jamieson, Architect of the Capitol
Tel: (518) 474-6184

- 2) Yale University Beinecke Rare Book Library, New Haven CT (Comprehensive Exterior Envelope and Plaza Repairs)

Yale University
Mr. Lawrence L. Reagan
Ms. Maria Kerbel, ALA
Tel: (203) 432-6711

- 3) Bowdoin College, Brunswick, ME (Chapel Restoration; Walker Art Museum, Renovations and Additions; Library Addition)

Bowdoin College
Mr. Don Borkoski, Head of Facilities
Tel: (207) 725-3947

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- 4) Milwaukee City Hall, Milwaukee, WI (Comprehensive Building Exterior Restoration)

City of Milwaukee
Mr. Gary Kulwicki, Facilities Manager
Tel: (414) 286-3409

- 5) John Adams Courthouse, Boston, MA (Facade and Roof Investigation and Restoration)

Commonwealth of Massachusetts
Division of Capital Asset Management
Mr. Steve Needham
Tel: (617) 727-4030 X213

- 6) First Church of Christ, Scientist, Boston, MA (Various Exterior Restoration Projects)

First Church of Christ, Scientist
Mr. Alan, Spence
Tel: (617) 450-3903

SGH has a reputation for completing projects on time, within budget, and to the complete satisfaction of our clients. We take pride in developing timely and economical solutions to engineering challenges and encourage you to call our references and discuss our performance on their projects.

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3. PROJECT UNDERSTANDING AND APPROACH

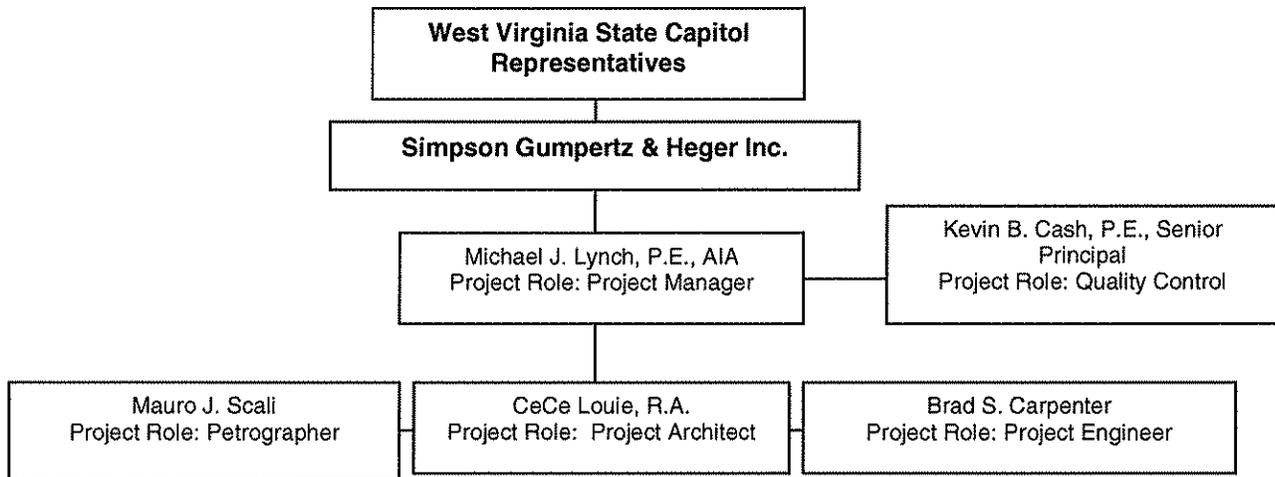
Our approach to this project is to develop an understanding of the conditions of the stone facade, and any underlying problems that are exhibited, through a combination of document review, physical inspection, and materials testing. Once we are authorized to proceed, we will immediately mobilize the SGH team to meet on site with the GSD and other stakeholders to outline our scope and review the schedule. We will conduct a visual survey of the building exterior and collect mortar and stone samples for laboratory analysis. At our in-house lab, our staff petrographer will analyze mortar samples from all three sections of the building to determine the original composition so we can specify an appropriate mortar for pointing. We will also analyze areas of discolored stone to determine if it is surface soiling or if air-borne pollutants have combined physically or chemically with minerals in the stone. We will use this information to establish the basis for cleaning tests. We will test a range of cleaning methods to determine the gentlest means necessary to achieve an agreed-upon standard of "clean," and will establish this as the basis for bidding by contractors. We will consult with the GSD on the range of options for masonry repair, then develop bid documents for the selected treatments. Due to our extensive forensic investigation work, we develop construction documents that are thoroughly detailed and prescriptive, not performance-based. Our experience is that this results in more accurate cost estimates, reduces change orders, and keeps final project costs on budget. In addition, we will include in our design documents qualifications and quality control measures to ensure project craftsmanship of the highest caliber.

Our involvement on projects does not end with the creation of documents; design team members will be active participants in the construction phase to ensure design documents are followed and the utmost quality maintained. Construction administration will be shared by staff in our New York and Maryland offices. We are poised to initiate work quickly. Our goal is to develop solutions that balance effective treatments, preservation issues, and project budgets. Our preliminary timeline, including design and construction is as follows:

West Virginia State Capitol, Charleston, WV Building Exterior Masonry Restoration	14-Aug-06	21-Aug-06	28-Aug-06	04-Sep-06	11-Sep-06	18-Sep-06	25-Sep-06	02-Oct-06	09-Oct-06	16-Oct-06	23-Oct-06	30-Oct-06	6-Nov-06	13-Nov-06	20-Nov-06	27-Nov-06	15-Apr-07	15-Oct-07
Award of Consulting Contract	█																	
Document Review	█	█																
On site meeting		█																
Remove stone and mortar samples for testing		█																
Laboratory testing		█	█															
Facade inspection			█	█														
Conduct cleaning tests				█	█													
Write cleaning and pointing specs				█	█	█												
Pre-bid on-site meeting					█													
Public Bidding						█	█	█										
GSD Review of Bids										█								
Award of Restoration Contract											█							
Mobilization												█	█	█	█	█	█	█
Masonry Pointing and Cleaning												█	█	█	█	█	█	█
End of construction season																█		

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4. TEAM AND ORGANIZATIONAL CHART



SGH will use an in-house team experienced in all facets of historic masonry building repair and cleaning. Resumes of the following team members are attached.

Kevin B. Cash, P.E., Senior Principal
Project Role: Principal-in-Charge
Waltham, MA

Kevin Cash, P.E., will provide quality assurance and quality control review throughout the project. He is a Senior Principal with SGH and leads our Heritage Structures Services Group. Mr. Cash has over 25 years of experience diagnosing and repairing problems with the building envelope and has written and lectured extensively on subjects concerning the building envelope and roofing. He is an active member of the Single Ply Roofing Institute, ASTM's Committee on Roofing and Bituminous Materials, ASTM's Sub-Committee E06.24 on Standards for Historic Preservation, the Association for Preservation Technology, and the National Trust for Historic Preservation. He can be reached at kbcash@sgh.com and 781-907-9208.

Michael F. Lynch, P.E., AIA, Consulting Preservation Engineer/Architect
Project Role: Senior Project Manager
New York, NY

Michael F. Lynch is a national leader in preservation technology with over thirty years experience with a broad range of projects involving building materials conservation, adaptive reuse of large-scale structures, preservation of historic religious buildings and rehabilitation of historic transportation systems. Prior to working at SGH Michael was Vice President for Property Care at the Society for the Preservation of New England Antiquities, and Senior Restoration Coordinator for the New York State Office of Parks, Recreation and Historic Preservation. Michael has contributed to several publications on historic masonry, served as guest lecturer at Columbia University, Rensselaer, and the Harvard GSD. He has taught at the Boston Architectural Center and Pratt Institute. He was President of APT International for four years, and was elected to the College of Fellows of APT International in 1999. In 2005 he was appointed to the GSA National Register of Peer Reviewers. He is certified by the National Park Service as meeting the criteria for Historical Architect as defined in 36 CFR 61. He can be reached at mflynch@sgh.com and 212-271-6932.

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CeCe Louie, Senior Staff Architect
Project Role: Architectural Conservator
New York, NY

CeCe Louie, RA, has over 15 years experience in the restoration of historic masonry buildings including the New York State Capitol (granite), Rockefeller Center (Indiana limestone), Fred French Building (terra cotta), and the Sacramento Train Depot (brick and terra cotta). She has presented papers and published articles on masonry restoration, and is an active member of professional organizations. She can be reached at clouis@sgh.com and 212-271-6930.

Bradford Carpenter, Senior Engineer
Project Role: Project Engineer and Construction Administration
Rockville, MD

Brad Carpenter is trained as an engineer and architect. He worked two years in the Office of the Architect of the Capitol (DC). He has worked on a variety of historic buildings including the New York State Capitol, Leigh Street Armory in Richmond VA, and the Old City Jail in Charleston, SC. He is active in professional organizations including The Association for Preservation Technology, The National Trust for Historic Preservation, and the National Institute of Building Science – Guideline 3-2005 Building Exterior Committee. He can be reached at bscarpenter@sgh.com and 301-825-0507.

Mauro J. Scali, Staff Consultant-Petrographer
Project Role: Petrographer

Mauro Scali has 30 years of experience as a petrographer. He will be responsible for laboratory testing and evaluation of stone and mortar materials using microscopy and chemical analytical techniques. His projects include analysis of limestone, slate roofing, and brownstone. He has written and lectured frequently on the topic of concrete petrography and the long-term durability performance of concrete structures. Mr. Scali is a member of the American Concrete Institute and serves on numerous subcommittees of ASTM International, including as Chairman of C09.65 – Concrete Petrography. He can be reached at mjscali@sgh.com and 781-907-9342.

SGH will tackle all facets of this project—from condition assessment, design, and preparation of repair cost estimates through the design development and repair phase, including preparation of specifications and contract documents for rehabilitation and construction administration. We know from experience that thorough and well-detailed design documents help to reduce project costs, allow an efficient construction phase, and avoid disputes. We will provide efficient and cost effective service while holding firm to the following defining tenets:

- Responsive Client Service
- Commitment to Quality
- Real World Application of Engineering and Architecture Principles
- Innovative and Creative Problem Solving
- Professional Leadership

Our team members are experts in stone and concrete evaluation, identification of sources of deterioration, and development of repairs to correct damage and to minimize future deterioration. By providing you with high-level principals and project managers, we ensure quality of service and the ability to manage the requirements of this historic restoration even under the most aggressive schedule.

Thank you for the opportunity to work together on this important project.

The SGH Team



Simpson Gumpertz & Heger Inc.
Consulting Engineers

Boston

Los Angeles

New York

San Francisco

Washington, DC

Michael F. Lynch

Consulting Preservation Engineer/Architect

212-271-6932

mflynch@sgh.com

Experience

Thirty years of experience in the investigation, evaluation, documentation, and treatment of historic buildings, structures, landscapes, and transportation systems. Mr. Lynch is recognized nationally as a leader in preservation through his projects, writing, lecturing, and teaching. He has overseen hundreds of restoration projects and several hundred million dollars' worth of certified rehabilitations. Michael is active in several professional organizations and has served many leadership roles, including as President of the Association for Preservation Technology, International.

Simpson Gumpertz & Heger Inc. from Feb. 2004 to present

Vice-President for Properties and Preservation, The Society for the Preservation of New England Antiquities, 1999 to 2003

Senior Restoration Coordinator (1987-1999), Restoration Coordinator (1977-1987), New York State Office of Parks, Recreation and Historic Preservation-Bureau of Field Services, 1977 to 1999

Partner, American Revival, Ltd., 1976 to 1977

Draftsman/Designer, John Milner Associates, 1974 to 1976

Designer/Surveyor, Alex Diachishin & Associates, 1972 to 1974

Investigation

- Building 24, Charlestown Navy Yard, Boston, MA (evaluation of replacement slate roof)
- Building 38, Charlestown Navy Yard, Boston, MA (evaluation of existing ca. 1895 slate roof)
- Chapman School, South Boston, MA (evaluation and repair recommendations, 1904 slate roof)
- St. Mark's School, Southborough, MA (evaluation of new slate roof)
- MIT Museum, Cambridge, MA (building envelope evaluation, 1924-46 concrete frame structure)
- Metropolitan Warehouse, Cambridge, MA (building envelope evaluation, masonry load-bearing structure)
- Rivers Technology Park, Columbia, MD (standing-seam metal roof assessments, 4 buildings)
- St. Joseph's Memorial Chapel, College of the Holy Cross, Worcester, MA (stained glass window assessment)
- 300 Summer Street, Boston, MA (building envelope evaluation, masonry load-bearing structure)
- Mallory Building, Boston, MA (building envelope assessment, transitional masonry structure)
- Davis Museum and Cultural Center, Wellesley College, Wellesley, MA (building envelope assessment)
- Peirce House, Dorchester, MA (National Register listed; structural evaluation of 1683-1765 timber frame house for conversion to museum; conducted for SPNEA)
- Private Residence, Commonwealth Avenue, Boston, MA (structural evaluation of stained glass windows with obvious buckling; conducted for Cummings Stained Glass Studios, North Adams, MA)
- "Santinoni," Adirondacks, NY (conditions assessment and repair recommendations for abandoned Adirondack Great Camp; conducted for New York State Department of Environmental Conservation)
- Schuyler Mansion State Historic Site, Albany, NY (investigation of moisture migration and efflorescence in eighteenth-century brick walls; prepared for Bureau of Historic Sites, Office of Parks, Recreation and Historic Preservation (OPRHP))
- Gansevoort Dutch Reformed Church, Gansevoort, NY (structural evaluation of timber-frame/brick veneer building after start of unauthorized demolition; provided expert testimony in resulting court case)
- Palisades Interstate Park, New York section (National Historic Landmark; conditions assessment of over one hundred rustic "camp" buildings, with recommendations for stabilization, repair, and removal; conducted for Palisades Regional Office, OPRHP)

- Copake Iron Furnace, Taconic State Park, Copake Falls, NY (conditions assessment of furnace ruins, recommendations for masonry stabilization, and schematic design of protective roof structure; prepared for Bureau of Historic Sites, OPRHP)
- Ellis Island National Historic Site, NY and NJ (condition assessments and preliminary cost estimates for stabilization of unused/unrestored structures; conducted for OPRHP and the Executive Office of the Governor)
- Drayton Hall, Columbia, SC (National Historic Landmark; member of team conducting structural analysis and live-load testing of second-floor structure for the National Trust for Historic Preservation; won Harley J. McKee Award from APT International)
- Private Residence, 333 State Street, Albany, NY (National Register and local historic district; evaluation of advanced sandstone deterioration on highly carved/ornamented facade)

Design

- 16 Pelham Street, Arlington, MA (design of historically appropriate copper gutter system for residence in local historic district)
- Carriage Barn Reconstruction, Spencer Pierce Little Farm, Newbury, MA (National Historic Landmark; oversaw consultants' research, archeology, design, and building of a reconstructed five-bay section connected to four surviving bays of a nineteenth-century carriage barn; SPNEA)
- Gobrecht Residence, Valatie, NY (structural design for new 2,500 sq ft residence)
- "The Bleachery," Peebles Island, Waterford, NY (National Register listed; renovation and adaptive reuse of 10,000 sq ft of offices in the former Cluett-Peabody factory as offices for the State Historic Preservation Office; client was OPRHP)
- St. Paul's Lutheran Church, Albany, NY (design of isothermal steel frames to install historic Lamb Studios stained glass windows in contemporary church structure; client was Cummings Stained Glass Studios, North Adams, MA)
- Jacob Snyder Home, Cottekill, NY (restoration of ca. 1756 stone house with ca. 1790 stone kitchen wing; interior finishes including extensive interior plaster repair, installation of new mechanical systems, and reconstruction of masonry chimney and bake oven; private client)
- Blacksmith Shop, Washington Crossing, PA (reconstruction of stone blacksmith shop based on historical evidence and similar extant examples for Pennsylvania Museum and Historical Commission)
- Grist Mill, Washington Crossing, PA (restoration of headrace from dam to sluice, for Pennsylvania Museum and Historical Commission)

Peer Review

Public Buildings

- Rensselaer County Courthouse, Troy, NY (National Register historic district; review of plans to upgrade court facilities, add ADA-complying access, and restore courtroom)
- Visitors' Center, FDR Homestead, Hyde Park, NY (National Historic Site; reviewed designs of proposed new Visitors' Center for compatibility with historic buildings and landscape; conducted for National Park Service)
- Putnam County Courthouse, Brewster, NY (National Register listed; review of plans to renovate jail wing, upgrade court facilities, add ADA-complying access, and restore courtroom)
- Otsego County Courthouse, Cooperstown, NY (National Register historic district; review of plans to restore courtroom and exterior, upgrade court facilities, and add ADA-complying access)
- Schenectady City Hall, Schenectady, NY (National Register historic district; review plans for the reconstruction of fire-destroyed tower, based on photographic evidence and original McKim, Mead and White drawings)
- Kingston City Hall, Kingston, NY (National Register listed; reviewed plans to rehabilitate former City Hall abandoned for twenty years for use as new City Hall, including extensive exterior masonry and roof restoration, and complete reconstruction of interior finishes)

Commercial Buildings

- U.S. General Post Office, 8th Ave. between 31st and 33rd Streets, New York, NY (National Register listed; review of substantial rehabilitation of 1910–13 McKim, Mead & White–designed building being converted to new AMTRAK railroad station to replace demolished Penn Station)
- Metropolitan Life Home Office, Madison Avenue between 23rd and 25th Streets, New York, NY (National Historic Landmark and National Register–listed structures; review of substantial exterior restoration and interior rehabilitation by Met Life for continued use as offices; certified for Federal Investment Tax Credit)
- Rhinelander Mansion (Ralph Lauren Store), 867 Madison Avenue, New York, NY (National Register and local historic district; review of plans for exterior restoration and substantial interior rehabilitation; certified for Federal Investment Tax Credit)
- Woolworth Building, 233 Broadway, New York, NY (National Historic Landmark; review of exterior terra cotta repair and replacement)
- Roycroft Inn, Main & Grove Streets, East Aurora, NY (National Historic Landmark; interior and exterior rehabilitation for continued use as inn; certified for Federal Investment Tax Credit)
- Life Savers Building, Port Chester, NY (National Register listed; review of 1920s industrial complex converted to office and residential use; certified for Federal Investment Tax Credit)
- Gage and Tollner Restaurant, Brooklyn, NY (National Register listed; review of substantial rehabilitation of 1875–92 restaurant for continued use as a restaurant; certified for Federal Investment Tax Credit)
- Hamilton White House, Syracuse, NY (National Register listed; review of conversion of ca. 1875 urban residence to offices; certified for Federal Investment Tax Credit)
- Hydro-electric Plant, Mechanicville, NY (National Register eligible; early twentieth century power plant; review of structural stabilization plan for FERC license)
- Daisy Flour Mill, Rochester, NY (National Register listed; mid-to-late nineteenth-century mill; review of rehabilitation for conversion to restaurant; certified for Federal investment Tax Credit)
- The Puck Building, Lafayette Street, New York, NY (National Register listed; 1885-1892; review of exterior masonry restoration and interior rehabilitation; certified for Federal Investment Tax Credit)
- Rockwood Chocolate Factory, Brooklyn, NY (National Register listed; large brick complex of structures built 1891–1928; reviewed exterior masonry restoration and interior rehabilitation; certified for Federal Investment Tax Credit)
- Lake Mohonk Mountain House, New Paltz, NY (National Historic Landmark; built 1870–1902; review of fire code and life safety improvements and exterior balcony structural repairs)
- Claremont Riding Academy, West 89th Street, New York, NY (National Register listed; ca. 1892 multistory urban stable; review of exterior masonry repairs for continued use as stable; certified for Federal Investment Tax Credit)

Institutional Buildings

- Francis Family YMCA, Temperance MI (building envelope design review for new construction; indoor swimming pool, gymnasium and related recreational and office facilities)
- Boys and Girls Club of Greenwich, Greenwich, CT (building envelope design review for addition to existing building; indoor pool, ice rink and related support facilities)
- Loew's State Theater, Syracuse, NY (National Register listed; extensive interior restoration of movie palace designed by Thomas W. Lamb, 1927–28)
- Kleinhans Music Hall, Buffalo, NY (National Historic Landmark; built 1938–40 by Eliel Saarinen; review of exterior masonry restoration)
- Shea's Buffalo Theatre, Buffalo, NY (National Register listed; movie palace built by C.W. Rapp in 1925; review of exterior terra cotta repair and substantial interior restoration)

Historic Religious Buildings

- Church of St. Ann and the Holy Trinity, Brooklyn, NY (National Historic Landmark built 1844–47 by Minard Lefever; review of brownstone repair testing and repairs; review of stained glass conservation for the first large-scale stained glass “conservation” program in the country)
- St. Mark's-in-the-Bowery, NY (National Historic Landmark built 1795-99; review of reconstruction after fire destroyed the roof and interior)

- St. Paul's Chapel, NY (National Historic Landmark built 1764-66; conducted financial evaluation of reroofing options; reviewed construction documents for replacement standing-seam metal roof)
- Eldridge Street Synagogue, NY (National Historic Landmark built 1886; review of historical research and restoration plans for Congregation K'hal Adath Jeshrun with Anshe Lubz)
- Jay Gould Memorial Church, Roxbury, NY (National Register historic district; reviewed documentation, disassembly, structural repair, and reassembly of stone tower)
- St. Peter's Church (Episcopal), Albany, NY (National Historic Landmark built 1850 by Richard Upjohn, enlarged 1874 by Richard M. Upjohn; reviewed annual structural monitoring reports required by construction of adjacent commercial development; conducted for the Episcopal Diocese of Albany)
- Chautauqua Amphitheatre, Chautauqua, NY (National Historic Landmark; review of structural and code upgrade for large outdoor amphitheatre)
- Great Stone Barn, Mt. Lebanon Shaker Society, New Lebanon, NY (National Historic Landmark; reviewed drawings for structural stabilization of stone wall ruins and monitored condition over fifteen-year period)
- Church of the Holy Apostles, NY (National Register listed, built 1846-48 by Minard Lefever; reviewed instrumented structural monitoring of timber-frame steeple during construction of large Post Office mail facility adjacent to property)
- Genesee Wesleyan Seminary, Lima, NY (National Register listed, built 1842 by William Anderson; reviewed structural repairs of collapsed timber roof trusses)

Transportation

- Historic Parkways of Massachusetts (review of design guidelines for Department of Conservation and Recreation)
- Palisades Interstate Parkway, NY (review of rehabilitation plans prepared by New York State Department of Transportation; review of National Register nomination and HAER-prepared documentation)
- Taconic State Parkway, NY (review of rehabilitation plans prepared by New York State Department of Transportation; review of HAER-prepared documentation)
- Rexleigh Covered Bridge, Salem, NY (National Register listed; review of plans to increase load capacity of a unique Howe truss timber-frame bridge)
- Eagleville Covered Bridge, Shushan, NY (National Register listed; review of plans to increase load capacity of Towne lattice truss bridge)
- Old Erie Canal Locks, Waterford, NY (National Register listed; review of plans to stabilize masonry walls)
- Delaware Aqueduct, Lackawaxen, NY (National Historic Landmark built in 1847; review of plans to restore the John Roebling-designed suspension aqueduct on the former Delaware & Hudson Canal; reviewed for the National Park Service)
- Plum Island Airfield, Newbury and Newburyport, MA (National Register-eligible ca. 1938 airfield; commissioned and reviewed airport safety assessment and environmental assessment reports for SPNEA)

Historic Houses

- Yin Yu Tang Chinese House, Salem, MA (member of Preservation Philosophy Advisory Committee appointed by Peabody Essex Museum to guide the reconstruction of a late Qing dynasty merchants' house relocated from southeastern China)
- Alexander House, Springfield, MA (National Register and local historic district; review of plans to relocate ca. 1812 mansion from the site of a new Federal courthouse for the General Services Administration)
- Aluminaire House, Long Island, NY (review of documentation, disassembly, and re-erection of a threatened icon of "The International Style" built by Koch & Frey in 1931; project reviewed for the School of Architecture, New York Institute of Technology)
- Lefever House, New Paltz, NY (National Historic Landmark district; review of structural underpinning and reconstruction of collapsing eighteenth-century rubble stone gable-end wall; conducted for Huguenot Historical Society)

Objects and Other Structures

- Casey Family Cemetery, Saunderstown, RI (commissioned and reviewed conditions assessment and repair plans and observed restoration of twenty cemetery monuments, including structural support and resetting of the Thomas Casey sarcophagus, for SPNEA)
- Codman Italian Garden, Lincoln, MA (National Register listed; commissioned and oversaw work of consultants and contractor rebuilding collapsed sections of rubble stone wall in ca. 1905 Italian Garden for SPNEA)
- Old Croton Aqueduct, Ossining, NY (National Register listed, State Park; reviewed structural stabilization plan of underground brick tunnel to support hiking trail on overburden)
- Kensico Dam, Middle Branch Reservoir and Titicus Dam, Croton Water Supply system, NY (National Register listed and eligible; reviewed geological and hydrological engineering reports, plans for upgrading dams to meet new seismic requirements, and renovation of ancillary buildings)
- New York State Barge Canal Lift Gates, NY (National Register eligible canal; reviewed plans to replace mechanical vertical lift gates with air-inflated underwater lift gates)
- "Lettie G. Howard," South Street Seaport, NY (National Historic Landmark; reviewed plans and observed restoration of Gloucester schooner built 1893; review conducted for South Street Seaport Museum)
- Saugerties Lighthouse, Saugerties, NY (National Register listed; reviewed plans for structural underpinning, tower repair, and light reconstruction; conducted for U.S. Coast Guard and Saugerties Lighthouse Conservancy)
- "Neptune" fountain, Sailors' Snug Harbor, Staten Island, NY (National Historic Landmark district; reviewed conservation plan for original zinc sculpture, replication of a new bronze statue, and reconstruction of fountain, including basin, water supply, and lighting; conducted for New York City Parks Department)

Research, Documentation and Evaluation

- Delaware & Hudson Canal, New York section (conducted inventory of canal resources for possible nomination to National Register of Historic Places)
- Bridges of the Erie/Barge Canal, New York (conducted inventory of bridges crossing the Erie/Barge Canal system for evaluation as part of Determination of Eligibility; co-wrote, with NYS DOT, the Memorandum of Understanding/Management Plan for historic iron, steel, concrete and stone bridges)
- Palisades Interstate Parkway, NY (evaluated significance of bridges for National Register nomination)
- High Falls on the Rondout, High Falls, NY (researched and wrote text for interpretive panels on the history of water-powered grist, fulling and cement mills)
- Snyder Estate/Rosendale Cement Works, Rosendale NY (evaluated significance of engineering-related resources, ca 1828-1971. Resources evaluated included mines, refining facilities, ancillary structures, and rail and canal transportation links)

Materials Testing and Analysis

- ASTM F2170 – Determining Relative Humidity in Concrete Floor Slabs Using In Situ Probes
- Dendrochronology (commissioned and oversaw multiyear project to develop a Master Tree-Ring Chronology for *Quercus Alba* and *Quercus Rubra* (white and red oak) in New England, and the application of dendrochronology to dating two dozen "first-period" timber-frame structures in Maine, New Hampshire, Massachusetts, and Rhode Island for SPNEA)
- Acid rain (peer review team-member for *Acidic Deposition: State of Science and Technology Report 21: Distribution of Materials Potentially at Risk from Acidic Deposition*; reviewed for National Acid Precipitation Assessment Program)
- Brick stain (designed and implemented test of materials to replicate brick stains used on nineteenth-century common brick; conducted ten-year evaluation in the field)
- Sandstone (commissioned, observed laboratory and field testing, and reviewed final lab report of the "Sandstone Restoration Study" undertaken by the Columbia University Historic Preservation Program for the New York City Landmarks Conservancy)

Registration

Professional Engineer: New York (Lic. No. 062645-1)
Registered Architect: New York (Lic. No. 021917-1)

Education

Clarkson University, Potsdam, NY
B.S. in Mechanical Engineering, 1971

Professional Activities

American Institute of Architects (Member #30323922)
Boston Society of Architects, Historic Resources Committee, member 1999 to 2005
Association for Preservation Technology International
President (1991 – 1995), Board (1985 – 1997), Member (1979 – present)
Society of Architectural Historians, New England Chapter,
Treasurer (2000 – 2005)
Society of Architectural Historians, Turpin Bannister Chapter,
Board (1980 – 1984)
Advisory Committee, Historic Parkways Initiative in Massachusetts (2002 – present)
American Institute for Conservation of Historic and Artistic Works, Advisory Council (1991 – 1995)
National Institute for the Conservation of Cultural Property, Board (1991 – 1994)
Census of Stained Glass Windows in America, Board of Governors (1984 – 1989)
Delaware & Hudson Canal Historical Society, Board of Directors (1972 – 1974)

Honors and Awards

Appointed to GSA National Register of Peer Reviewers, 2005
Clarkson University Alumni Chapter Service Award, 2003
Elected Fellow, College of Fellows, APT International, 1999
Citation for "leadership and innovative vision", President's Award, APT International, 1997
Certified by the National Park Service as Historical Architect under 36CFR61, 1992
Profile: "Michael Lynch: Tales of a Master Juggler," published in *Traditional Building Magazine*, 1992
Harley J. McKee Award, APT International, as co-organizer of the Drayton Hall Colloquium on Structural Analysis, 1990
Preservation Merit Award, Historic Albany Foundation, 1987
Pi Tau Sigma, National Mechanical Engineering Honor Society, 1970

Teaching Experience

Faculty, Boston Architectural Center, "TM573 --Traditional Materials and Construction"
Dean's Advisory Committee, M.S. Building Conservation Program, Rensselaer Polytechnic Institute, Troy, NY
Guest Lecturer: Columbia University, New York, NY; Cornell University, Ithaca, NY, Rensselaer Polytechnic Institute, Troy, NY; Cooperstown Graduate Program, Cooperstown, NY
Adjunct Instructor: Union College, Schenectady, NY
Certificate Project Advisor: Norwich University/Preservation Education Institute, Windsor VT

Presentations and Publications

Lynch, M.F., "The Ups and Downs of Historic Window Hardware" Historic Wood Window Restoration Workshop, Old North Church & North Bennet Street School, Boston, MA, 9 July 2005.

Lynch, M.F., "Developing a Career in Preservation," Harvard Design School, Career Discovery Program, Cambridge, MA, 30 June 2005.

Lynch, M.F., "Repair vs. Replacement: How to Evaluate Windows for Historic Buildings," Boston Architectural Center, Professional Development Weekend, Boston, MA, 25 June 2005.

Lynch, M.F., "Planning Projects to Prevent Damage during Construction: A Property Owner's Primer," *APT Bulletin*, Volume XXXIV, No. 4, 2003.

Lynch, M.F. and Adams, R., "Craft in Context: Between the Wars, 1865-1915," SPNEA/North Bennet Street School, Boston, MA, 2003.

Lynch, M.F. and Barlow, W.L., "Masonry Preservation," *The Old House Fair*, Boston Preservation Alliance, 2000 – 2003.

Lynch, M.F., "How to Read your Old House," SPNEA, Boston, MA, 1999 – 2003.

Lynch, M.F. and Adams, R., "Craft in Context: The Federal Period," SPNEA/North Bennet Street School, Boston, MA, 2002.

Lynch, M.F., *White House Stone Carving: Builders and Restorers*, by Lee Nelson, *APT Bulletin*, Vol. XXVII, Nos. 1 – 2, 1996 (book review).

Lynch, M.F., "Preservation Standards: A 30 year review," *Restoration and Renovation*, Boston, MA, 1998.

Lynch, M.F., "Dating Historic Window Hardware," *The 2nd Conference on Windows in Historic Buildings*, Washington DC, 1997.

Lynch, M.F., "Demolition is a Dirty Word," *DEMOLITION*, Conference of the Landmarks Society of Central New York, Syracuse, NY, 1993 (keynote address).

Lynch, M.F., "Preserving Modernism," *National AIA, International UIA Convention*, Chicago, IL, 1993.

Lynch, M.F., "The Stonecutter's Art," chapter in *Albany Architecture*, Diana Waite, ed., Mt. Ida Press, Albany, NY, 1993.

Lynch, M.F., "Who Says 'They don't make it anymore'?", *Annual Meeting of the Historic Landmarks Foundation of Indiana*, Vincennes, IN, 1993 (keynote address).

Lynch, M.F., "Trends in Maintenance," Historic Preservation Maintenance Skills class of the Williamsport Preservation Training Center (NPS), Harper's Ferry, WV, 1991 (graduation address).

Lynch, M.F., "What Are We Going To Do With The Recent Past In The Not Too Distant Future?," *APT Bulletin*, Volume XXIII, No. 2, 1991.

Kelly, S.J. and Lynch, M.F., "A Forum on Conservation Engineering," *APT Bulletin*, Volume XXIII, No. 1, 1991.

Lynch, M.F., "Protecting Stained Glass Windows," *Inspired*, Vol. IV, No. 3, 1989 (newsletter of the Philadelphia Historic Preservation Corporation).

Feminella, A., Lynch, M.F., Sloan, J.L., et.al., *Conservation and Preservation of Stained Glass: An Owner's Guide*, The Census of Stained Glass Windows in America, 1988.

London, M., *Masonry: How to Care for Old and Historic Brick and Stone*, National Trust for Historic Preservation, Washington DC, 1988 (photos by M.F. Lynch).

Lynch, M.F., "Protecting Historic Interiors During Construction Work," *The Interiors Conference for Historic Buildings*, Philadelphia, PA, 1988.

Lynch, M.F., "Getting through the Administrative Maze: Federal and State Programs," *The Interiors Conference for Historic Buildings*, Philadelphia, PA, 1988.

Lynch, M.F., "Preventing Fire during a Rehabilitation Project," *The Second Vermont Conference on Fire Safety and Historic Preservation*, Windsor, VT, 1988.

Lynch, M.F. and Caron, P., "Specifications: Making Mud Plaster," *APT Bulletin*, Vol. XX, No. 4, 1988.

Lynch, M.F., "What Are We Going to Do with the Recent Past in the Not-Too-Distant Future?," *Wood and Water*, The Association for Preservation Technology, Victoria, BC, Canada, 1987.

Lynch, M.F., *Sculptural Monuments in an Outdoor Environment*, Virginia Norton Naude, ed., *APT Bulletin*, Vol. XIX, No. 4, 1987 (book review).

Lynch, M.F., "Specifications: Photographic Documentation," *APT Bulletin*, Vol. XIX, No.4, 1987.

Lynch, M.F., "Identifying Window Hardware," *The Window Conference for Historic Buildings*, Boston, MA, 1986.

Lynch, M.F., "Specifications: Protection of Historic Buildings during Construction" *APT Bulletin*, Vol. XVIII, No. 3, 1986.

Lynch, M.F., "Specifications: Stained Glass Restoration," *APT Bulletin*, Vol. XVIII, No.4, 1986.

Lynch, M.F., "Preventing Fire during Construction Projects," *Common Bond*, Vol. 2, No. 4, 1986 (newsletter of New York Landmarks Conservancy).

Grimmer, Anne, *A Glossary of Historic Masonry Deterioration Problems and Preservation Treatments*, National Park Service, Washington DC, 1984 (contributor).

Lynch, M.F., "How to Care for Religious Buildings," Preservation League of New York State, 1982.

Lynch, M.F. and Higgins, W.J., "The Maintenance and Repair of Architectural Sandstone," New York Landmarks Conservancy, 1982.

Sloan, J.L. and Lynch, M.F., "Restoration of Stained Glass at the Church of St. Ann and the Holy Trinity, Brooklyn, NY," The Association for Preservation Technology, Banff, AB, Canada, 1982.

Lynch, M.F., "The Historic Structures Report—A Preservation Planning Tool," *Newsletter of The Preservation League of New York State*, 1980.

Lynch, M.F., "The Stone Carvers' Art in Architectural Ornament," Turpin Bannister Chapter of the Society of Architectural Historians, Albany, NY, 1979.

Peer Review

Mohr & Seradin, "Cultural Landscape Report: Gropius House" (commissioned and reviewed report for recreation of nineteenth-century apple orchard and restoration of ca. 1954 Japanese Garden for SPNEA;

Gropius House is a National Historic Landmark and was selected as a Save America's Treasures grant recipient)

Mohr & Seradin, "Cultural Landscape Report: Codman Italian Garden" (commissioned and reviewed report for restoration and ADA compliance of early twentieth-century Italian Garden)

Ehrenkrantz Eckstut & Kuhn Architects, "Master Plan for New York-Presbyterian Hospital-Westchester Division" (reviewed drafts and final Master Plan of consultant's report for 165-acre National Register-listed mental health facility on a campus of nineteenth- and early twentieth-century buildings on grounds laid out by F.L. Olmsted & Co.; reviewed for New York Hospital)

National Park Service, Technical Preservation Services Division, "The Secretary of the Interior's Standards for Historic Vessel Preservation Projects with Guidelines for Applying the Standards" (reviewed drafts and beta tested on the *Lettie G. Howard* project)

National Park Service, Technical Preservation Services Division, "The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes" (supervisor of co-author; reviewed drafts and beta tested on New York State historic parkways projects)

MFL (11/05)



Simpson Gumpertz & Heger Inc.
Consulting Engineers

Boston

Los Angeles

New York

San Francisco

Washington, DC

Kevin B. Cash, P.E.

Senior Principal

781-907-9208

kbcash@sg.com

Experience

Simpson Gumpertz & Heger Inc. from 1974-1978; 1981 to present.

Historic Buildings

- St. James Church (circa 1928), Albany, NY (water leakage, roof deterioration, and masonry distress for gothic church building)
- St. Paul's Church (circa 1928), Providence, RI (water leakage, roof deterioration, and masonry distress for gothic church building)
- St. Paul's College (circa 1910), Washington, DC (water leakage and tile roof deterioration)
- Rockland County Psychiatric Center (circa 1925), Orangeburg, NY (survey and condition assessment of historic clay tile roof)
- Newcomer Barn, Antietam National Battlefield (ca. 1800), Sharpsburg, MD (survey and condition assessment of historic wood-framed barn)
- L'Hermitage, Monocacy National Battlefield (ca. 1795), Frederick, MD (survey, condition assessment, and stabilization design for historic masonry farmhouse)
- Leigh Street Armory and W. L. Taylor House, Richmond, VA (exterior envelope and structural condition assessment of late 1800s masonry structures in Jackson Ward Historic District, official project of the White House Millennium Council's Save America's Treasures program)
- Champaign County Courthouse (circa 1901), Urbana, IL (building envelope investigation and condition assessment of deteriorated brick masonry bell tower)
- Sherman Burbank Memorial Chapel, Williamstown, MA (exterior masonry, roofing, re-pinning and restoring quartzite stone)
- John Adams Courthouse, Boston, MA (envelope restoration to granite, slate and copper roof cladding, and copper dormers)
- 68 Beacon Street, Boston, MA (facade condition survey, cast stone, masonry)
- 695 Atlantic Avenue, Boston, MA (facade condition survey and repair, masonry, cast stone, stucco on oldest steel-framed structure in Boston)
- The Ritz-Carlton, Boston, MA (facade condition survey, masonry, cast stone)
- Old Chicago Post Office, Chicago, IL (facade and roof condition survey and repair, limestone, masonry, built-up and single ply roofing)
- Chapel, Bowdoin College, Brunswick, ME (copper roof replacement, granite tower investigation and repair)
- Harrison Gray Otis House (National Register of Historic Places – circa 1796), Boston, MA (condition assessment, laboratory analysis of slate roof, redesign, and repair of slate roof)
- New York State Capitol Building, Albany, NY (comprehensive investigation and restoration of Great Western Stair and exterior including roofs [slate, tile, copper, and single ply roofing], stone walls, plazas, dormers, skylights, and laylights)
- 29, 31, 33 Newbury Street, Boston, MA (investigation/restoration of three building facades; slate and metal roofing, brownstone repair, sandstone repair)
- Old Polytechnic High School, Baltimore, MD (investigation of slate roofing and wood framing)
- 77 Newbury Street, Boston, MA (investigation/remedial options for cast stone facade)
- One Winthrop Square, Boston, MA (condition assessment of slate roofing, copper mansard, sandstone and granite facade)
- Majestic Theater, Boston, MA (condition assessment of terra cotta facade)

- Exeter Street Theater, Boston, MA (restoration of slate roofing and stone facades, replacement of windows on certified historic structure)
- Quincy Market Building, Boston, MA (condition assessment and remedial design of slate roofing, granite facade)
- State House, Boston, MA (condition assessment of marble, brick walls; structural repair of marble columns and beams)
- Harry Elkins Widener Library (circa 1912), Harvard University, Cambridge, MA (condition assessment of exterior brick and limestone)
- 50 Commonwealth Avenue (circa 1920), Boston, MA (window leakage and condition assessment of brick and cast stone walls)
- Wadsworth Atheneum (National Register of Historic Places - 1850-1969), Hartford, CT (foundation waterproofing and building envelope consulting)

Museums and Libraries

- Museum of Fine Arts, Master Plan Phase One Implementation, Boston, MA (building envelope design and curtain wall consulting)
- Wichita Museum of Science, Wichita, KS (curtain walls, hyperparabolic roof)
- Mead Art Museum (circa 1940), Amherst College, Amherst, MA (building envelope investigation and feasibility study for humidification of archival and museum spaces)
- Wexner Center for the Arts, The Ohio State University, Columbus, OH (leakage, HVAC and programming study)
- Walker Art Museum, Bowdoin College, Brunswick, ME (masonry and copper roof restoration)
- John and Mable Ringling Museum of Art, Ca' d'Zan, Sarasota, FL (window materials consulting)
- Clark Art Institute, Williamstown, MA (waterproofing and roofing review)
- Sterling Memorial Library (circa 1927), Yale University, New Haven, CT (condition assessment and remedial option assessment of slate, metal and built-up roofing, sandstone and limestone walls; wall leakage)
- Worcester Art Museum, Worcester, MA (condensation/humidification; roof, window and wall leakage; and structural defects)
- DuSable Museum of African American History (circa 1910), Chicago, IL (building envelope investigation and feasibility study for humidification of museum spaces for Chicago Parks Administration Building designed by Daniel Burnham)
- Peabody Museum, Harvard University, Cambridge, MA (interior plaster deterioration)
- Peterborough Museum (circa 1916), Peterborough NH (clay tile roof investigation, repair recommendations)

Investigations

Roof Leakage and Condition Reports

- Multiple condominium complexes, Boca Raton, FL (modified bitumen roofing)
- Security Square Mall, Baltimore, MD (built-up bituminous roofs)
- Montgomery Ward, multiple stores, Chicago, IL (built-up bituminous roofs)
- Emery Airfreight, multiple facilities, Wilton, CT (built-up bituminous and metal roofing)
- County of Rockland, NY, multiple facilities (built-up bituminous, single ply, shingles, slate, metal roofing)
- Big Y Supermarkets, Northampton, MA (metal roofing)
- IBM Corporate Technical Facilities, Fishkill, NY (metal roofing)
- Oakbrook Terrace Tower, Oakbrook, IL (metal roofing)
- II, VI Inc., Pittsburgh, PA (tornado damage)
- Memphis Airport, Memphis, TN (ballasted EPDM roof)
- Harbour Square Cooperative, Washington, DC (liquid applied membrane)
- City Hall, Poughkeepsie, NY (plaza waterproofing)
- Colovis Building, Chicago, IL (modified bituminous roofing)

- Hyde School, Woodstock, CT (modified bituminous roofing)

Wall Leakage, Structural Movement, Glazing Problems

- Patient Tower, Duke University Medical Center, Durham, NC (investigation of water penetration through precast concrete facade on large hospital building)
- Ten Eyck State Office Building, Albany, NY (water penetration through brick facade on 16-story building)
- Altid Industries, Boston, MA (masonry wall/strip window leakage)
- Wang Laboratories, Lowell, MA (window breakage)
- Watertown Housing Authority, Watertown, MA (stucco cracking)
- Wellesley Office Park, Wellesley, MA (glazing/sealant study)
- 80 Park West Office Building, Saddlebrook, NJ (window mullion spall)
- Temple Beth Shalom, Framingham, MA (precast concrete rotation and spall)
- Voyager Condominiums, Pompano Beach, FL (stucco, window leakage, steel stud deteriorations)

Design

Structural Review and Design

- Gund Hall, Harvard University, Cambridge MA (truss adequacy analysis)
- Harbour Square Cooperative, Washington, DC (beam/outrigger analysis)
- Aga Kahn Hospital and College, Pakistan (foundation/column analysis).

New Construction, Project Management and Cost Estimates

- Procter & Gamble Paper Products Plant & Warehouse, Albany, GA (builtup roofing)
- Emery HUB Facility, Dayton, OH (built-up bituminous roofing).

Remedial Design, Project Management, Bid Evaluation and Cost Estimates

- United Technologies, Sikorsky Aircraft, Bridgeport, CT (structural reconfiguration, wall flashings, windows, metal and built-up bituminous roofing)
- Town of Stoneham Schools, MA (elastomeric and built-up bituminous roofing, wall reconstruction)
- Montgomery Ward and Jewel/OSCO, multiple stores (built-up roofing)
- Emery Airfreight, multiple facilities (elastomeric, thermoplastic, metal and built-up bituminous roofing)
- Harbour Square Cooperative, Washington, DC (elastomeric roofing)
- Main Library, City of Philadelphia, PA (plaza waterproofing)
- Center Plaza, Boston, MA (plaza/garden waterproofing)
- County of Rockland, NY, multiple buildings (thermoplastic, built-up, elastomeric roofing/waterproofing)
- 800 Superior Avenue, Cleveland, OH (thermoplastic roofing)
- 470 Atlantic Avenue, Boston, MA (stucco panel system)
- JMB Retail Property Co., Multiple Regional Malls: FL, DE, NJ, NV, VA, IL

Project Consulting

- Arvin Gymnasium, United States Military Academy, West Point, NY (renovation of the building envelope)
- Malden Mills Processing Facility, Methuen, MA (built-up roofing, curtain wall)
- Columbus Convention Center, Columbus, OH (thermoplastic roofing)
- Hilltop State Office Complex, Columbus, OH (weather tightness of building envelope)
- New Terminal Building, Ronald Reagan National Airport, Washington, DC (thermoplastic roofing, waterproofing, curtain wall)
- Society Center, Cleveland, OH (thermoplastic roofing, elastomeric waterproofing)
- Copley Place, Boston, MA (built-up roofing, skylights)
- 900 N. Michigan Avenue, Chicago, IL (elastomeric and metal roofing, skylights)
- Oakbrook Mall Expansion III, Oak Brook, IL (built-up roofing, thermoplastic waterproofing)
- United Technologies, Sikorsky Aircraft Plant, Stratford, CT (built-up roofing)

Other Experience

System, structural, and mechanical design of high technology optical systems, including telescopes and satellite cameras, both ocular and infrared, and laser transmission technology.

Registration

Professional Engineer: Delaware (Lic. No. 9761)
Kentucky (Lic. No. 20744)
Massachusetts (Lic. No. 33678)
New Jersey (Lic. No. GE40191)
New York (Lic. No. 073926)

Education

Cornell University
B.S. in Civil Engineering, 1977
Northeastern University
M.S. in Structural Engineering, 1990 (Chi Epsilon)
Massachusetts Institute of Technology
Postgraduate Studies in Dynamics and Optimization, 1979
Babson College
Postgraduate Studies in Accounting and Management, 1980

Professional Activities

ASTM Committee C15 – Clay & Concrete Brick
D08 – Roofing and Bituminous Materials
E06.24 – Historic Preservation
Association for Preservation Technology: Member
National Trust for Historic Preservation: Member
Single Ply Roofing Institute: Member

Publications and Lectures

Cash, K. B., Gabby, B. Bronski, M.B., "Building Facade Practices: History, Investigation, and Repair," Restoration & Renovation, Fairmont Hotel, New Orleans, 6-8 September 2001.

Cash, K.B., "Preservation & Care of Brownstone Buildings & Structures," Sponsored by Technology and Conservation, Building and Monument Conservation, and the Historic Resources Committee, BSA/AIA, Providence, RI, 31 March – 1 April 2001.

Cash, K.B., "Evaluation and Rehabilitation of Roofing Materials," and "Rehabilitation of Transitional Masonry Facades" Late 19th/Early 20th Century Masonry Buildings: Evaluation through Remediation, The Palmer House Hilton, Chicago, IL, 10 and 11 May 2001.

Cash, K.B., "Building Facade Construction Practices for the Late 19th Century to the Middle 20th Century: History, Investigation, and Repair," Restoration & Renovation, Hilton & Towers, Washington, DC, 14 January 2001.

Cash, K.B., "Building Facade Construction Practices from the Late 19th to the Mid 20th Century: History, Investigation, and Repair," presentation at *Restoration and Renovation 2000*, Boston, Feb. 2000.

Cash, K.B., "Evaluation and Rehabilitation of Roofing Materials," and "Rehabilitation of Transitional Masonry Facades," presentation at *Late 19th/Early 20th Century Masonry Buildings: Evaluation through Remediation*, The Renaissance Mayflower Hotel, Washington, DC, 19-20 Oct. 2000.

LaBonté, M.K., and Cash, K.B., "Evaluation of Clay Tile and Terra Cotta Roofing Systems," *The Roofing Handbook for Historic Buildings*, Historic Preservation Education Foundation and The National Park Service, Washington, DC, 1999.

Vigener, N.W., and Cash, K.B., "Restoring Historic Terra Cotta Decorative Roofing Elements on the New York State Capitol - Balancing Preservation Needs and Durability Concerns - A Case Study" presentation at the Association for Preservation Technology's 31st Conference, Banff, Alberta, Canada, Oct. 1999.

Cash, K.B., "Sheet Metal in Preservation Projects," Sheet Metal and Air Conditioning Contractors National Association Annual Convention, Nashville, TN, Oct. 1998.

Cash, K.B., "The Building Envelope of Museums," *Museums Planning and Design*, Harvard Graduate School of Design, Cambridge, MA, Aug. 1998.

Adler, D.L., Cash, K.B., and Gabby, B.A., "A Chip Off the Old Slate," interview by Michael J. Crosbie, Ph.D., *The Construction Specifier*, Nov. 1997.

Cash, K.B., "Response to Disaster: The Exeter Street Theater," presented at the Annual Conference for the Association for Preservation Technology, Chicago, IL, Sept. 1997.

Cash, K.B., "Museums & Building Envelope," Harvard Graduate School of Design, Cambridge, MA, July 1997.

Brouillard, J.J., and Cash, K.B., "Renovation and the Building Envelope," *FMJ: Facilities Management Journal*, Mar./Apr. 1997.

Cash, K.B., "Sandstone/brownstone Repair: Presentation and Panel Discussion on Repair Options and Techniques," program sponsored by the Society for the Preservation of New England Antiquities, Mar. 1997.

Cash, K.B., "Roofing 2000 and Beyond; Trends in the Roofing Industry, Selection of Roofing Systems, Life Cycle Costs, Maintenance, Construction Administration of Roofing Projects," seminar series, Feb. and Mar. 1997.

Cash, K.B., "Metal Roofing Options," presentation at CSI Meeting, Boston Chapter, Feb. 1997.

Shiple, S.F., and Cash, K.B., "Repair of Marble Columns and Beams by Epoxy Pressure Injection," *Standards for Preservation and Rehabilitation*, ASTM STP 1258, American Society for Testing and Materials, West Conshohocken, PA, 1996.

Cash, K.B., and Schwartz, T.A., "Stone Repair Options," *The Construction Specifier*, July 1994, pp. 72-85.

Cash, K.B., "Keep a Lid on It – A Design Guide on How to Prevent Roof Blowoffs," *Techniques Feature, Progressive Architecture*, Mar. 1994.

Cash, K.B., "Where Roofs Meet Walls," *Techniques Feature, Progressive Architecture*, Feb. 1993.

Cash, K.B., with Shiple, S.F., "Epoxy Repair of Marble Beams/Columns", ASTM Symposium, Oct. 1993.

Cash, K.B., "Roofing High Rise Structures," *The Construction Specifier*, Sept. 1992.

Cash, K.B., "The Pains of Aging: The Whys and Hows of Restoration," Course 1.9621 – *Failures: A Perspective for Assessing the Design and Construction Process*, graduate program created by Simpson Gumpertz & Heger Inc. for the Department of Civil Engineering, MIT Cambridge, MA, 1989.

Cash, K.B., "Basic Roof Design," Graduate School of Design, Harvard University, Cambridge, MA, Apr. 1989, 1990.

(KBC 10/2005)



Simpson Gumpertz & Heger Inc.
Consulting Engineers

Boston

Los Angeles

New York

San Francisco

Washington, DC

Mauro J. Scali

Staff Consultant/Petrographer

781-907-9342

mjscali@sg.com

Experience

Simpson Gumpertz & Heger Inc. from 1997 to present

W.R. Grace Company, Cambridge, MA: Senior Research Petrographer from 1987 to 1997; Senior Petrographer from 1983 to 1987

Wiss Janney Elstner Associates, Inc., Chicago, IL: Engineer/Petrographer from 1975 to 1983

Investigation

Concrete:

- Ford Island Bridge Structure, Long-Term Durability Performance of Precast Concrete Piles, Honolulu, HI
- Gillette Stadium, Long-Term Freeze-Thaw Durability of Precast Concrete Elements, Foxboro, MA
- San Francisco International Airport, Parking Garage Slab Repairs, San Francisco, CA
- Simplex Headquarters-linoleum failure analysis, Westminister, MA
- Kaiser Building Precast Concrete Wall Panels Surface Popouts, San Francisco, CA
- Resurrection Lutheran Church Renovations, Concrete Cracking and Durability, West Roxbury, MA
- Jaworski Geotech, Raven Industries Floor Slab Cracking, Highgate, VT
- Irving Schoolhouse Parking Garage Floor Slab Condition and Durability, Salt Lake City, UT
- Casle Corporation Floor Slab Surface Delamination, Farmington, CT
- Essroc, Pumping Station Concrete Low Strength, Philadelphia, PA
- Konover Construction Floor Slab Surface Delamination, Stamford, CT
- Home Depot Floor Slab Cracking, Leominster, MA
- Manchester Ready Mix, I-93 Bridge Repairs Low Strength, Derry, NH
- Cozy Harbor Seafood Plant Floor Slab Pitting, Portland, ME
- Portsmouth Naval Shipyard Concrete Durability, Portsmouth, NH
- Upper Saucon Wastewater Treatment Plant, Concrete Durability and Cracking, Saucon, PA
- MacLellan Concrete Low Strength Problem, Lunenburg, MA
- School Street Bridge Durability and Compressive Strength Investigation – Lowell, MA
- Washington Street Bridge Durability Assessment – Providence, RI (97948.02)
- Blue Circle Cement, Southern Ready Mix Concrete Bridge-Deck Low Strength, Winston County, AL
- Logan International Airport Parking Garage Concrete Durability, Boston, MA
- World Trade Center, Elevated Slab Durability, Boston, MA
- University of New Hampshire Precast Concrete panels, Cracking and Long-Term Durability of Building Facade, Dover, NH
- Hartford County Waste Water Treatment Plant Cracking and Finish Defects, Perryman, MD
- Monroc Ready Mix/Precast Concrete Hardened Air Analysis, Eagle, ID
- Amtrak Electrification Project Concrete Pile Cracking, Northeast Corridor
- Keeler Parking Garage Slab Cracking and Surface Finish, Rochester, NY
- Metropolitan District Commission Concrete Seawall Cracking, Lynn, MA
- VA Hospital, Low Strength, Interior Concrete Wall, Boston, MA
- Vanguard Group Northsight Office Campus – Slate tile debonding. Scottsdale, AZ
- IBM Parking Garage – Cambridge, MA (96070)
- Anne Arundel Mall, Maryland – Investigation of concrete anchor bolt failure

- Freightliner Truck Plant Floor Slab Cracking, Cleveland, NC
- Railroad Tie Failure Investigation (petrography, delayed ettringite formation)
- O'Hare Airport Renovation and Expansion, Chicago, IL (deterioration and repair assessment, including petrography, corrosion potentials, cracking and delamination surveys)
- Skating Oval, 1980 Winter Olympics, Lake Placid, NY (petrography, surface scaling)
- Byron and Braidwood Nuclear Power Plants, IL (mix design, material evaluation, long-term creep and shrinkage study)
- Willow Island Cooling Tower Collapse, WV (field investigation and petrography)

Research and Investigation

- Bureau of Mines study to evaluate intensity and impact of ground vibration and noise levels of strip mine blasting operations (geology of rock strata, measurement and analysis of ground vibration)
- Laboratory Research (long-term creep and shrinkage, NCHRP study of surface sealers, masonry block efflorescence, temporary mine tunnel shoring as an alternative to pillar and post mining techniques, shrinkage and concrete curling reduction)
- Gillette Stadium Investigation of freeze-thaw durability of high strength concrete
- Cemwood cement based, fiber reinforced roofing tile failure – Characterization and determination of failure mechanisms
- Physical Testing (concrete and concrete aggregates, compressive strength, flexural strength, freeze-thaw, creep and shrinkage, sieve analysis, absorption, unit weight)
- Cement and Clinker Analysis (petrography, comparative analysis of microstructure vs. performance)
- Masonry Units (petrography, clay brick, concrete masonry block and pavers, stone, terra cotta)
- Deterioration Assessment (pre-construction surveys, corrosion potentials, delamination and cracking surveys)
- Commercial Parking Deck Structures (petrography, deterioration and repair assessment)
- Mine Construction and Repair Projects (petrography and inspection, gypsum and coal mine shaft deterioration and repair assessment)
- Residential Concrete Problems (petrography, cracking, surface scaling and discoloration)
- Industrial Floor Slabs (petrography, cracking and surface delamination)
- Concrete Fire Investigations (petrography, damage assessment vs. specification requirements).

Registration

Professional Geologist: Washington (Lic. No. 1539)

Education

Youngstown State University, OH

B.A. in Geology

W.R. Grace Company

Quality Management Program, 1995

Executive Development Program, 1992

McCrone Research Institute, 1982

Portland Cement Association

Cement and Clinker Microscopy Course, 1981

Professional Activities

American Concrete Institute: Member

ACI Committees: 201 – Durability of Concrete

232 – Fly Ash and Natural Pozzolans in Concrete

233 – Ground Slag in Concrete

American Society for Testing and Materials: Member
ASTM Subcommittees: C9.20 – Normal Weight Aggregates
C9.26 – Chemical Reactions
C9.45 – Roller-Compacted Concrete
C9.62 – Abrasion Testing
C9.65 – Petrography (Committee Chairman)
C9.67 – Resistance to the Environment
C9.69 – Miscellaneous Tests
International Cement Microscopy Association: Member
Society of Concrete Petrographers: Founding Member

Publications

Scali, M.J., Scheiner, P., Aquino, W., Ojdrovic, R., and Zarghamee, M.S., "Analysis and Performance of Prestressed Concrete Cylinder Pipe (PCCP) Mortar," Proceedings of the ASCE International Conference on Pipeline Engineering and Construction, July 2003, Baltimore, MD, Volume II, pp. 972-982.

Scali, M. J., Suprenant, B., "Do Pan Floats Cause Blisters or Delaminations" Concrete Perspectives, Concrete Construction, December 2001, 3 pp.

Olson, E.K., and Scali, M.J., "Problems in Precast Concrete Facades: Looking Past the Obvious," *Concrete Repair Bulletin*, May/June 1999, pp. 10-13.

Brainerd, M.L., Scali, M.J., and Kelley, P.L., "Specifying Air Entrainment," *The Construction Specifier*, Dec. 1998, pp. 45-49.

Scali, M.J., "Troubleshooting Concrete Problems: The Role of Petrography," Section 3, *Proceedings, Michigan State University Concrete Technology Seminar VI: Diagnosis and Cure of Concrete Problems*, Mar. 1992, 7 pp.

Scali, M.J., Chin, D, and Berke, N.S., "Effect of Microsilica and Fly Ash upon the Microstructure and Permeability of Concrete," *Proceedings of the Ninth International Conference on Cement Microscopy*, International Cement Microscopy Association, Apr. 1987, pp. 375-397.

Roberts, L.R., and Scali, M.J., "Factors Affecting Image Analysis for Measurement of Air Content in Hardened Concrete," *Proceedings of the Sixth International Conference on Cement Microscopy*, International Cement Microscopy Association, 1984, pp. 402-419.

Pfeifer, D.W., Marusin, S., and Scali, M.J., "Laboratory Testing Support," Seminar on the Critical Examination of Building Exterior Walls & Enclosures as Required in Subsections 78-3 (e), 78-3 (f) & 78-3 (g), Building Exterior Walls and Enclosures, Published in *Journal City Council – Chicago*, 13 Sept. 1978, pp. 8357-8358.

Pfeifer, D.W., Marusin, S., and Scali, M.J., "Laboratory Support During the Evaluation of Building Facades," Seminar on the Critical Examination of Building Exterior Walls & Enclosures as Required in Subsections 78-3 (e), 78-3 (f) & 78-3 (g), Building Exterior Walls and Enclosures, Published in *Journal City Council – Chicago*, 13 Sept. 1978, pp. 8357-8358.

MJS (01/04)



Simpson Gumpertz & Heger Inc.
Consulting Engineers

Boston

Los Angeles

New York

San Francisco

Washington, DC

CeCe Louie, R.A.

Senior Staff Architect
212-271-6930

clouie@sgh.com

Experience

Representative Projects

- The Heritage or "The Ladies Protection and Relief Society" (Historic) – Project architect for the investigation, preparation and administration of contract documents for the replacement of the slate tile roof. This concrete reinforced, brick and terra cotta structure was designed by Julia Morgan in 1924-25.
- Sacramento Train Depot (Landmark) – Project architect for the investigation and development of repair recommendations. The terra cotta and brick train depot also included the REA Building (Landmark), both of which were designed by Bliss and Faville. They are also part of a greater train facility that was once one of the principal railway equipment building cities in the United States.
- Columbia State Historic Park (Historic) – Project architect for Historic Structures Report for 22 brick buildings.
- Saint Dominic's Church, San Francisco, CA (Historic) – Project architect during the investigation, preparation and administration of contract documents for the restoration of the 1927 terra cotta church designed in the gothic revival style. Restoration included repairs to the terra cotta cladding, and stained glass windows designed by Max Ingrand.
- Russ Building, San Francisco, CA* (Historic) – Project architect during the construction phase for restoring the terra cotta and brick facades of the 32-story office building, which was San Francisco's tallest building from its completion in 1927 until the mid-1960s.
- One Market Street, San Francisco, CA* (Historic) – Project architect during condition survey, contract documents and construction observation phases for restoring the terra cotta and brick facades of the 12-story office building built in 1917.
- San Francisco City Hall, San Francisco, CA* (Landmark) – Project architect during condition survey and preparation of contract documents for restoring the building's gilded copper-clad dome.
- Rockefeller Center, New York (Landmark) – Architect during preparation of a Master Preservation Plan.
- New Amsterdam Theater, New York, NY* (Landmark) – Conservator during the condition survey and preparation of contract documents for the complete interior and exterior restoration of materials including terra cotta, bluestone, cast iron, marble, plaster and wood.
- City Center, New York, NY* (Landmark) – Conservator during investigation and preparation of contract documents for restoring the terra cotta, brick, sandstone, and bluestone performance hall.
- New York State Capitol, Albany, NY* (Landmark) – Architect during masonry investigation and testing report and long-term maintenance report.
- Fred French Building, New York, NY* (Landmark) – Architect for exterior restoration of the terra cotta, brick and limestone high-rise office building.

* experience prior to joining SGH.

Published Papers

- Fong, Kecia and Louie, CeCe "Facade Ordinances and Historic Structures – Theoretical and Practical Conservation Issues in Inspection and Repair," *ASTM STP 1444*, Building Facade Maintenance, Repair, and Inspection, J. L. Erdly and T. A. Schwartz, Eds., ASTM International, West Conshohocken, PA, 2003.
- Searls, Carolyn and Louie, CeCe "The Good, The Bad, and The Ugly: Twenty Years of Terra-Cotta Repairs Reexamined," *APT Bulletin*, Vol. 32, No. 4, 2001.
- Louie, CeCe "Historic High-Rise Revitalized," *Masonry Construction*, May 2000.

Presentations

- "Facade Ordinances and Historic Structures – Theoretical and Practical Conservation Issues in Inspection and Repair," ASTM Seminar, Virginia, October 2002.
- "Taking on Terra Cotta for 20 Years: Successes and Failures," Association for Preservation Technology Conference, Monterey, California, 3-10 October 2001.
- "Overview of Late 19th/Early 20th Century Masonry Construction Practices" and "Rehabilitation of Transitional Masonry Facades", Late 19th/Early 20th Century Masonry Building Symposium, San Francisco, California, 4-5 June 2001.
- "Russ Building – Case Study in Terra Cotta Restoration," RESTORE Workshop in the Conservation of Architectural Terra Cotta, Stanford University, 16-18 September 1999.

Registration

- Registered Architect: New York (License No. 030518)

Professional Activities

Association for Preservation Technology International, Member
Association for Preservation Technology Western Chapter, Vice-President
Association for Preservation Technology, 2001 Conference, Treasurer and Executive Committee, Oct. 2001

Honors and Awards

- Oliver Torrey Fuller Award for Outstanding Article, Honorable Mention, from The Association for Preservation Technology International, 2002
- 1992 Outstanding Thesis Award for "An Evaluation of Gladding McBean Terra Cotta" from Columbia University

Education

Columbia University, New York
M.S. Historic Preservation, June 1992
University of California, Berkeley
B.A. Architecture, June 1986

Continuing Education

- "Tesserae Mosaic", Urban Glass, Brooklyn, NY, Fall 2004
- "Cabinet Making", Laney College, Oakland California, Spring 2003
- "Introduction to Welding", The Crucible Studios, July/August 2000
- Advanced Black and White Photography, California College of Arts and Crafts, San Francisco, CA, Summer 1996
- Color Photography, International Center for Photography, New York, NY, Winter 1994
- "Plaster Workshop", APT Short Course, Philadelphia, Pennsylvania, October 1992

(07/06)



Simpson Gumpertz & Heger Inc.
Consulting Engineers

Boston

Los Angeles

New York

San Francisco

Washington, DC

Bradford S. Carpenter

Senior Engineer

301-825-0507

bscarpenter@sg.com

Experience

Simpson Gumpertz & Heger Inc. from Mar. 2001 to present

Mechanical Engineer, Office of the Architect of the Capitol, Washington DC from Jun. 1999 to Mar. 2001

Assistant to the Dean, Office of the Dean, College of Architecture and Urban Studies, Virginia Polytechnic Institute and State University, Blacksburg, VA from Aug. 1998 to May 1999

Assistant Engineer, Newport News Shipbuilding, Newport News, VA from Jan. 1995 to Aug. 1996

Investigation and Analysis

Historic Buildings

- Old Medical School Building, University of Virginia Medical School, Charlottesville, VA (investigation of water leakage through monumental portico and stairs of the historic medical school building)
- Renwick Gallery, Washington DC (condition assessment and investigation of stone, precast, and masonry leakage at the historic museum)
- St. Paul's College (circa 1910), Washington DC (investigation of water leakage through stone masonry walls and tile roof deterioration)
- Leigh Street Armory and W. L. Taylor House, Richmond, VA (exterior envelope and structural condition assessment of late-1800s masonry structures in Jackson Ward Historic District, official project of the White House Millennium Council's Save America's Treasures program)
- Old City Jail (circa 1750-1805), Charleston, SC (exterior envelope and structural condition assessment of brick masonry structure, official project of the White House Millennium Council's Save America's Treasures program)
- New York State Capitol Building (circa 1870-1899), Albany, NY (interior and exterior condition survey, historic document research, historic consultation as part of a multiyear building restoration program)
- U.S. Capitol Complex, Washington DC (inspection and evaluation of the condition of existing mechanical systems)
- U.S. Capitol Complex, Washington DC (campus-wide condition assessment and project development coordination for HVAC system)
- Rivermont House, Lynchburg, VA (historical investigation and documentation of locally significant historic house)

Natatoriums/Museums/Plants

- Asbury Solomon's Island, Solomon's Island, MD (investigation of condensation in the building envelope construction of a natatorium adjoining an assisted-living facility)
- National Museum of the American Indian – Cultural Resources Center, Suitland, MD (investigation of building envelope leakage and condensation issues on glazing elements, installation and monitoring of heat-trace mock-up on glazing system in Conservation Suite, design of heat-trace system for building-wide implementation)
- Maryland Historical Society, Baltimore, MD (investigation and design of remedial repairs for building envelope leakage at the recently constructed addition to the MHS museum)
- Griffith Water Treatment Plant, Lorton, VA (peer review and investigation of failed waterproofing membrane in green roof assembly over clearwell facility)
- O'Neil Sports Center, Malvern Preparatory School, Malvern, PA (investigation of leakage and condensation in metal-clad roof-assembly wall systems at natatorium and sports complex facility)

- Brandywine Conservancy, Chadds Ford, PA (investigation and evaluation of options for controlling water penetration into the historic museum building during flooding events)
- U.S. Capitol Power Plant, Washington DC (investigation and evaluation of waterproofing in the cooling tower of the West Refrigeration Plant)

Glass/Window/Curtain Wall

- Shaw Park Plaza, St. Louis, MO (roofing, curtain wall, and brick masonry flashing leakage and construction defect investigation, repair, and litigation support resolution)
- Clover Wildewood, California, MD (investigation of glazing leakage at precast concrete panels, remedial repair design, monitoring and testing of repair installation)
- Millennium Center One at Scott Station, Pittsburgh, PA (investigation and repair design addressing leakage associated with strip window and curtain wall systems, monitoring and testing of repair installation)

Masonry/Stucco

- Longview Office Building, Hunt Valley, MD (investigation of leakage through masonry veneer system)
- Parkview Apartments, Collingswood, NJ (investigation of masonry cladding leakage)
- Building 950, Trident Technical College, North Charleston, SC (condition assessment and investigation of existing building envelope systems)
- Bacara Resort and Spa, Santa Barbara, CA (investigation of building envelope leakage through stucco cladding system and resulting damage, litigation support)
- Private Residence, Washington DC (investigation of leakage through stucco cladding system and wall condensation issues, remedial repair design)

Exterior Insulation Finish Systems (EIFS)

- Dolphin Run Condominiums, Virginia Beach, VA (investigation of hurricane damage to stucco cladding on oceanfront high-rise condominium building)
- Park Crescent Apartments, Norfolk, VA (investigation of leakage and moisture entrapment associated with the existing EIFS barrier wall system and resulting premature deterioration of wood framing and sheathing)
- Park Plaza Condominium, Everett, MA (EIFS cladding leakage and deterioration)

Waterproofing

- North Hospital Complex, Duke University Medical Center, Durham, NC (complete building envelope condition assessment of the North Hospital Complex)
- Patient Tower, Duke University Medical Center, Durham, NC (investigation of water penetration through precast concrete facade on large hospital building)
- Green Haven Condominiums, Bel Air, MD (investigation of water penetration through brick and wood facade on 250-unit condominium complex)
- 180 Admiral Cochrane Drive, Annapolis, MD (investigation of water penetration through windows and brick facade on large corporate office building)

Roof Leakage, Structural Movement, and Material Failures

- Lesner Point Condominiums, Virginia Beach, VA (investigation into rusting of stainless steel nails in reclad of oceanfront condominium buildings)

Other

- Virginia Polytechnic Institute and State University, Blacksburg, VA (research urbanization statistics and trends for Dean of the College of Architecture and Urban Studies)
- Newport News Shipbuilding, Newport News, VA (analysis and resolution of design, construction, and repair problems for nuclear attack submarines)
- Newport News Shipbuilding, Newport News, VA (evaluation and research of material use, condition of in-service components, and recommendation of substitute materials to improve performance and extend component life span on submarines)

- Newport News Shipbuilding, Newport News, VA (research of engineering techniques for troubleshooting, repair, and testing of radar, weapons, and display systems on aircraft carriers, destroyers, and submarines)

Design

- Kenyon Square, Washington DC (building envelope; new design consulting and peer review for multiuse condominium structure)
- Longview Office Building, Hunt Valley, MD (design of remedial repairs to resolve leakage through masonry veneer, balcony waterproofing, curtain wall glazing, and skylight glazing)
- Patient Tower, Duke University Medical Center, Durham, NC (design of EIFS overcladding system to resolve stucco and flashing leakage issues)
- North Hospital Complex, Duke University Medical Center, Durham, NC (design of remedial repair options for evaluation by owner)
- Shaw Park Plaza, St. Louis, MO (roof replacement, masonry flashing repairs, glazed curtain wall and skylight repairs)
- O'Neil Sports Center, Malvern Preparatory School, Malvern, PA (design of roof reconstruction and repairs for natatorium and sports complex)
- Leigh Street Armory, Richmond, VA (structural stabilization and exterior envelope restoration for historic brick masonry structure)
- St. Paul's College, Washington DC (design of masonry and roof rehabilitation work)
- New York State Capitol Building, Albany, NY (design of new roofing and flashing work, skylight and glass laylight reconstruction)
- US Capitol Complex, Washington DC (design and layout of mechanical equipment and systems for renovation, modernization, and new construction)
- Virginia Polytechnic Institute and State University, Blacksburg, VA (design of administrative offices)
- Virginia Polytechnic Institute and State University, Blacksburg, VA (design and construction of a smoke generator for use in air flow analysis)
- Virginia Polytechnic Institute and State University, Blacksburg, VA (design of ergonomically-efficient rowing rigger for multiperson competition crew shells)

Construction Management and Monitoring

- Leigh Street Armory, Richmond, VA (construction management, project engineer, and technical support for stabilization of historically significant nineteenth-century armory)
- Patient Tower, Duke University Medical Center, Durham, NC (project engineer, monitor, and technical support for recladding project at patient-tower complex)
- Solo Piazza, Washington DC (monitor installation of remedial repairs to the building envelope)
- Janelia Farm Research Campus, Howard Hughes Medical Institute, Ashburn, VA (monitor and technical support for mock-up construction and testing of archetype roof, curtain wall, and skylight assemblies)
- Shaw Park Plaza, St. Louis, MO (project engineer, monitor, and technical support for envelope repair work)
- Bay Point Condominiums, Norfolk, VA (construction monitoring, quality control testing for recladding project of waterfront condominium complex)
- Abramson Research Center, Children's Hospital of Philadelphia, Philadelphia, PA (monitoring of curtain wall assembly and installation)
- US Capitol Complex, Washington DC (management and coordination of multidisciplinary design teams)

Registration

Engineer-in-Training: Virginia

Education

Virginia Polytechnic Institute and State University, Blacksburg, VA
B.S. in Mechanical Engineering, 1997
M.S. in Architecture, 2005 (candidate)

Professional Activities

American Institute of Architecture and National Institute of Building Science Washington DC Building Envelope Council (BEC): Participant
The Association for Preservation Technology: Member
American Society of Mechanical Engineers: Member
American Society of Heating, Refrigeration, and Air-Conditioning Engineers: Member
National Institute of Building Science – Guideline 3-2005 Committee – Commissioning Process for the Building Exterior Enclosure: Committee Member
The National Trust for Historic Preservation: Member

Presentations

Carpenter, B.S., "Building Green is not Always Sustainable Design," lecture at the Department of Civil Engineering, The Johns Hopkins University, Baltimore, MD, 16 Nov. 2004.

Vigener, N.W. and Carpenter, B.S., "Planning, Design, and Project Delivery for Restoration Projects," guest lecturer for graduate level Practices of Preservation Class, Virginia Polytechnic Institute and State University, College of Architecture and Urban Studies, 2 Oct. 2001.

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