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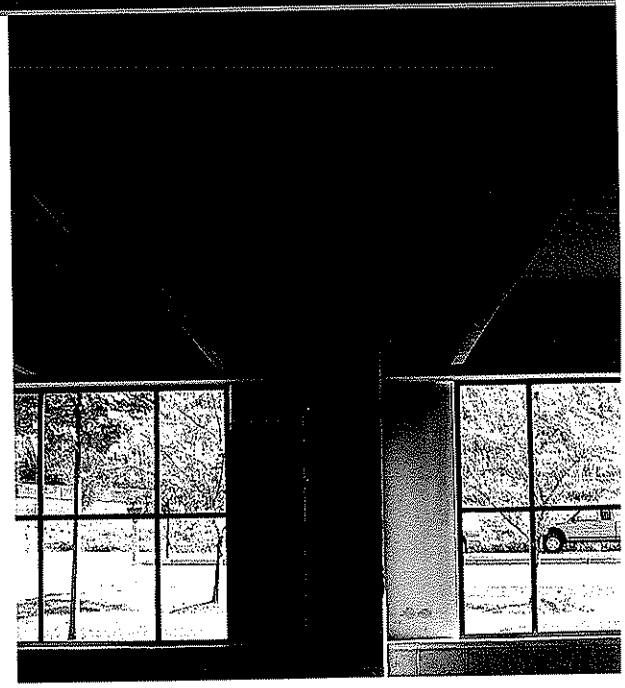
Engineering Solutions
Environmental Stewardship
Community Enhancement

# Capitol Campus Parking Garage

## Expression of Interest

GSD076403



## Architectural and Engineering Services

**Design and Provide Project Management Services for Condition Survey**

**Repair/Refurbishment Specifications and Contract Management**

August 2006

Prepared For:
State of West Virginia,
Department of Administration

Prepared By:
GAI Consultants, Inc.
Homestead, Pennsylvania

Project Number:
C060571

STATE OF WEST VIRGINIA
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# Expression of Interest

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August 25, 2006

Project C060571

Ms. Krista Ferrell
State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street, East
Charleston, West Virginia 25305-0130

**Expression of Interest**
**Architectural and Engineering Services**
**Repair/Refurbishment Specifications**
**For the Capitol Campus Parking Garage**
**Charleston, West Virginia**

Dear Ms. Ferrell:

GAI Consultants, Inc. (GAI) is pleased to submit this Expression of Interest (EOI) to the State of West Virginia Department of Administration for the performance of a condition survey, repair design and construction monitoring/administration for the Capitol Campus Parking Garage. This EOI is in response to your request for quotation (RFQ) No. GSD076403 dated August 3, 2006. The contents of this EOI are in accordance with the information requested in the RFQ.

## Brief Description of Design Team

GAI with assistance from the Allen & Shariff Corporation (ASC) propose to team together to perform the inspection, design and construction monitoring/administration services required for this project. GAI will be responsible for all structural aspects of the project, and ASC will be responsible for all mechanical, electrical, plumbing and fire protection (MEP/FP) aspects of the project. Descriptions of both firms are provided in the following paragraphs.

GAI is a full-service consulting firm with over 450 employees at seven (7) office locations. The work performed by GAI on this project will primarily be performed by our Pittsburgh office, which has approximately 250 employees, with assistance from our Charleston office. The Corporate Profile Section contains our corporate profile, which describes GAI's primary market sectors and service areas, along with the No Debt Affidavit.

GAI was established in 1958. GAI originally specialized in geotechnical engineering and later developed expertise in other civil engineering disciplines including structural engineering with specialization in structural rehabilitation. GAI has been performing work in the area of structural rehabilitation for over 25 years, and GAI's first involvement with a parking garage rehabilitation was in 1981. A Structural Investigations & Rehabilitation Service Brief that provides more information on our capabilities is also contained in the Corporate Profile Section. It should also be mentioned that GAI is an approved vendor in the State of West Virginia.

ASC is an 80 person firm that specializes in the design of MEP/FP. ASC is headquartered in Columbia, Maryland with offices in Pittsburgh, Pennsylvania and Salisbury, Maryland. GAI will work with ASC's Pittsburgh Office. ASC's Firm Overview is also contained in the Corporate Profile Section.

## Relevant Garage Experience

The Similar Projects Section contains a partial list of the parking garage inspection and restoration projects that GAI has worked on over the years. GAI's services on these projects have included engineering evaluations, both cursory and in-depth; preparation of inspection reports with repair recommendations and estimated costs; development of plans and specifications for garage repairs; development of construction schedules and phasing; bid period services; construction monitoring/administration; and preparation of maintenance plans.

Profiles for several projects that have been performed by GAI and ASC are also included in the Similar Projects Section. One project is the Charleston No. 1 Parking Garage, which is a precast concrete garage structure very similar to the Capitol Campus Garage. This garage had ponding, joint leaking and spalling issues as well as cracked column corbels and parapet walls. GAI performed a condition survey, repair design and construction monitoring/administration for this project.

Another similar project is the Brittany Apartments Parking Garage, which primarily is a precast structure with cast-in-place concrete columns. This garage was severely neglected and as a result, significant repairs were required to both the precast double and inverted tee beams. GAI performed a condition survey and prepared repair plans for this project.

ASC designed the mechanical, electrical, plumbing and fire protection (MEP/FP) system for the John Marshall III Building and Parking Garage. Wet and dry sprinkler systems were designed for this project. In addition, an ADA compliant fire alarm system was installed.

A list of GAI's client references is also included in the Similar Projects Section. As shown, these references are for GAI's prior parking garage work with Grubb & Ellis Management Services, Oxford Development Company and the Pittsburgh Parking Authority.

## Approach

The Capitol Campus Parking Garage is a 4-level precast concrete parking structure with an approximately 250 foot square building footprint. It is our understanding that this garage was constructed in 1999 as part of a design-build between a Contractor and the State of West Virginia. It is uncertain whether project closeout services were completed during the original construction. In addition, there has been little or no garage maintenance performed since the original construction was completed.

GAI visited the garage on August 23 to observe the current conditions of the garage and the extent of the deterioration. Based on this field visit, it is our opinion that the following repairs need to be performed as part of the current rehabilitation project (Note: Additional items may need to be repaired based on findings from a detailed condition survey of the garage.):

1. All of the caulked slab and wall joints need to be replaced. Cant strips should be installed at intersections between horizontal and vertical surfaces. In addition, as a minimum an approximately one (1) foot wide strip of traffic-bearing waterproof membrane should be installed over all of the horizontal joints in the elevated portions of the garage. (Note: Extensive leaking was observed beneath the roof level of the garage and to lesser extents in the lower levels. We are recommending that all of the joints be treated to extend the life of the garage and to minimize the occurrence of future leaking and subsequent concrete spalling at the existing joints in the lower levels of the garage.)

2. Install additional floor drains at the four (4) corners and at other locations within the garage where ponding occurs.

3. Replace prior repair areas that are cracked and/or delaminated/spalled.

4. Possibly replace portions of the slab that were improperly placed, consolidated or finished. Alternatively, waterproof these areas to prevent further concrete damage as a result of carbonation of the concrete. Carbonation of the concrete reduces the pH and therefore effectively reduces the concrete cover over the rebar, which in turn could result in premature rebar corrosion.

5. Install expansion joints around the perimeters of the stairwell and elevator towers to allow movement between the two (2) isolated structural elements while preventing water penetration.

6. Possibly install additional anchors through the architectural precast panels which exhibit horizontal cracking at approximately the mid-height of the panel.

7. Repair spalled stair treads and replace the grout in the stairwells that contains shrinkage cracking.

8. Remove and replace cracked grout at the bases of the interior ramp walls with a suitable sealant with weeps to prevent water collection.

9. Replace the corroded conduit and fire extinguisher boxes.

10. Repair the corroded stairwell door frames and elevator doors.

11. Inspect and reweld all of the shear connectors between the adjacent double tee beams.

12. Repaint parking space lines and directional arrows.

13. Install a fire suppression system and freeze proof faucets.

In order to prepare Contract Documents for the repairs outlined above, GAI will first review the available drawings for the garage and the prior inspection reports. Upon completion of this review we will perform a condition assessment, which shall include, but not be limited to, performing the following items:

1. Chain drag survey of the top surface of the floor slabs (topping slabs over the double tees).

2. Visual inspections of the columns, inverted tee beams and double tees to document any existing cracking or spall/delaminations.

3. Visual inspections of the ramp and perimeter walls to document failed joints and spall/delamination.

4. Visual inspections of the stairwells to document failed grout joints and spall/delamination on steps and landings.

5. Documentation of the corroded elements in the garage, including, but not limited to, the stairwell door frames, the elevator doors, fire extinguisher boxes, and electrical conduit.

6. Documentation of the locations of the cracked exterior architectural precast members. The amount of cracking at each location will also be documented.

7. Documentation of areas within the garage where ponding is occurring.

8. Visual inspections of all of the accessible precast connections.

9. Documentation of the conditions at the garage to stairwell joints.

Upon completion of the condition survey of the garage, GAI will compile the data and prepare the Contract Documents for performing the repairs outlined above and any additional repairs that are required based on the survey. ASC will also design a fire suppression system for the garage, as required, and assist in other MEP/FP related garage repairs.

GAI will perform bid period services and construction monitoring/administration of the repair work. The bid period services will include attending a prebid meeting, answering questions during the bid period and preparing a bid tabulation and recommendation for award. The construction monitoring/administration services will include full-time inspection during the repair work, the review and processing of submittals, and preparation of the final punchlist to closeout the project. ASC will be utilized during the construction period as required for submittal reviews and periodic site inspections related to the MEP/FP work.

Based on the information contained in the RFQ, GAI/ASC's proposed project schedule is as follows:

- Contract Award – October 1, 2006
- Condition Survey and Report – October 2 through 27, 2006
- Preparation of Contract Documents – October 30 through December 15, 2006
- Bid Period – December 18, 2006 through January 19, 2007
- Award Construction Contract – January 29, 2007

- Construction Period – February 19 through May 18, 2007

It should be emphasized that this schedule can be shortened or extended depending on the project requirements. However, it is our opinion that you would be better served to delay the construction start date until after the winter months. GAI will also develop a preventative maintenance program during the design and construction period.

## Project Staffing

The staffing for this project is contained in the Organization Chart and Resumes Section of this EOI. This Section contains the Organization Chart and resumes for the key personnel who have been assigned to the project. As shown in the organization chart, Mr. Steven S. Miller, P.E., will serve as the overall project manager. Mr. Miller has over 18 years of experience in the area of structural rehabilitation and has managed the majority of the garage and building restoration projects for GAI since 1995. Mr. Miller will be assisted by Mr. John D. Mozer, Ph.D., P.E., who will serve as a staff consultant on the project. Mr. Mozer is very knowledgeable about structural and parking garage rehabilitation projects and will be able to provide keen insight into problems that may be encountered during the garage evaluation and design.

The proposed field staff will be directed by Mr. Joseph R. Salvatore, P.E., who will serve as the project engineer and oversee the field inspection team. Mr. Salvatore is a structural engineer with 16 years of experience in a wide variety of areas ranging from structural rehabilitation and bridge inspection to building and bridge design. Mr. Salvatore is a licensed professional engineer in 9 states.

Mr. Michael Beresford, Mr. Craig Steigerwald, Mr. Samuel Mazzella and Mr. Dennis Nebiolo will assist Mr. Salvatore during the garage condition assessment. Each of these individuals has parking garage experience including the performance of condition surveys, the development of repair plans, and construction monitoring/administration.

ASC will assist GAI on the project in the area of MEP/FP related work. Mr. Anthony Molinaro, Jr., P.E. will be the manager for ASC with assistance from Mr. Craig Johnson, C.I.P.E., and Mr. Jason Whitfield, RCDD.

As of the current time, the staff described above and shown in the Organization Chart is 100 percent available for the anticipated duration of the project. In the event that a conflict occurs, GAI has the resources among the 300 employees in our local Pittsburgh and Charleston offices to provide additional staff as required. Similarly, ASC has the resources in their Maryland offices to provide additional staff as required.

## Closing

The information contained in this EOI clearly demonstrates GAI's and ASC's knowledge and capabilities regarding parking garage restoration as related to the Capitol Campus Parking Garage. An experienced team of structural and MEP/FP engineers with an extensive amount of parking garage experience has been assembled for the execution of this project. Based on this information and other information provided in this EOI, we strongly request your consideration in

selecting GAI to be your engineer of record for the performance of the condition assessment, repair design and construction assistance associated with the Capitol Campus Parking Garage.

We appreciate having the opportunity to propose our services for this project. Please call me at 412.476.2000, ext. 1308 if you have any questions or if I can be of further assistance.

Sincerely,

GAI Consultants, Inc.

Steven S. Miller, P.E.
Project Manager

SSM/bas


Allegheny Riverfront Park

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transforming ideas into reality

Engineering Solutions
Environmental Stewardship
Community Enhancement

# GAI Consultants, Inc. - Corporate Profile
## Transforming Ideas Into Reality

### What We Do
GAI Consultants, Inc. delivers professional and personalized consulting in the fields of engineering, planning, environmental, and construction services. Our clients are provided exceptional value through full-service capabilities, state-of-the-art design, and talented, experienced staff.

Our primary service areas address project conception through construction, and meet the needs of our clients in five targeted market sectors.

### Primary Market Sectors
#### Government
Maintaining our nation's infrastructure and national security are top concerns in today's government market. Whether at the federal, state, or local level, government agencies continually find themselves understaffed, overburdened, and under funded. Yet they are expected to fulfill their duties and meet the growing needs of the public whether designing flood control measures or providing environmental compliance services. GAI constantly scans and analyzes the needs of the government market sector to assist our government clients in meeting the needs of the public and in achieving their goals. We act as an extension to the governments' team of professionals. We are able to accomplish this in an efficient manner through providing the "best value" to the government by deploying our skilled professionals to perform specialized services, or by providing a full range of services.

#### Real Estate
The competitive world of private land development and real estate has created an ever-growing need for fast, accurate, and cost-effective information on which to base critical business decisions. We understand the importance of this information to public and private developers and, in response, provide our clients with a full range of professional services for all stages of the development life cycle – from initial concept, through planning, investigation, design, construction, commissioning, operations, and maintenance. Our goal is to present real solutions to today's most prevalent development challenges by focusing on quality service and achieving the greatest return on our clients' investment dollars.

#### Transportation
The need for expanded and improved transportation systems at the state and local levels is continually increasing, while federal funding is under constant pressure. This requires state and local transportation agencies to discover new and inventive ways to reduce costs and overhead, while improving efficiency. Through cooperation and innovation we are assisting our transportation clients with everything from preliminary to final design services by fostering public/private partnerships that lead to cost savings, improved quality, accommodation of peak demand, better managed risks, technology sharing, and faster project delivery. Our goal is to enter into these partnerships by assisting our transportation clients and providing them with the support and expertise necessary to meet the transportation-related infrastructure demands of thriving economies.

#### Energy
Meeting the demands of the ever-increasing energy consuming public, as well as the regulatory requirements of the government, presents specific challenges to the various energy utilities. To be successful, companies involved with the production and transmission of energy products must provide reliable and low cost output to survive. GAI provides expertise, guidance, and a comprehensive support system that enables our clients to make informed decisions and successfully navigate the challenges of this highly regulated and competitive market. Our goal is that through sound information and guidance on items such as coal combustion byproduct disposition and transmission line siting, we will alleviate the regulatory burden that our clients face, while providing them with the ability to remain competitive within their market.

## Industry

The industrial market, as well as the industrial processing and manufacturing of various consumable goods, continues to play a vital role in the growth and stability of our national economy. Due to the effects of the global economy, industry in the United States must remain competitive through increased efficiency and tight cost-control measures. GAI fully understands the constraints faced by the industrial sector, especially the high cost of regulatory compliance with federal, state, and local mandates. Our goal is to partner with our industrial clients in an all-out effort to remain competitive by providing them with the expertise necessary, such as environmental compliance, or structural analysis, to effectively and efficiently comply with the various regulatory bodies as well as make informed and cost-effective decisions regarding their operational and infrastructure needs.

## Primary Service Areas

### Land Development and Planning

- Site Selection and Design
- Land Use Studies, Economic Feasibility, and Site Planning
- Community and Regional Planning
- Planning and Engineering Approvals/Permitting
- Land Surveying and Construction Layout
- Code Impact Assessment and Permit Acquisition
- Facilities Planning and Infrastructure Design
- Landscape Architecture and Streetscape Design

### Construction Engineering and Inspection

- Construction Monitoring and Inspection
- Constructability Reviews
- Materials Testing
- CPM Scheduling and Reporting
- Innovative Construction Management
- Utility Construction Coordination

### Environmental Engineering, Sciences, & Remediation

- Hydrogeologic and Hydraulic Studies and Design
- Ground-water Modeling and Monitoring
- Water and Wastewater Treatment Systems
- Flood Control and Coastal Studies
- Solid and Hazardous Waste Management Design
- Industrial Hygiene and Safety Compliance
- Environmental Impact Statements and Assessments
- Wetland Delineation, Watershed and Stream Restoration, Threatened and Endangered Species
- Gas and Electric Transmission Line Siting
- Geographic Information Systems (GIS) Mapping and Information Management

### Transportation Planning and Design

- Bridge, Highway, and Roadway Design
- Bridge Inspection and Rehabilitation
- Transportation Planning and Transit Studies
- Airport Facilities Design and Reconstruction
- Traffic Studies and Traffic Control Plans
- Eminent Domain Consultation
- Public and Private Agency Coordination
- NEPA / Section 4f Studies / Section 106 Studies

### Geotechnical and Structural Engineering

- Dam Rehabilitation and Design
- Transmission Line Design
- Geologic Studies and Subsurface Explorations
- Subsidence Studies and Remediation
- Mining Engineering and Mine Fire Abatement
- Vibration, Seismic, and Structural Reliability Studies
- Slope Stabilization Analysis and Design
- Foundation Research and Design
- Earth and Rock Retaining Structure Design
- Structural Rehabilitation

### Cultural Resources and Historic Preservation

- Historic Architectural Surveys and Context Studies
- Comprehensive Historic Preservation Plans
- Geographic Information Systems Predictive Modeling
- Prehistoric, Historical and Urban Archaeology
- Phase I, II, and III Surveys and Mitigation
- Public Outreach Programs
- Geomorphology, Pedology, and Soils Surveys
- National Register Inventories and Evaluations

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**Our Clients.** We take great pride in serving both public and private sector clients with whom we have developed long-term relationships. These include public utilities, transportation departments, federal, state and local governments, private developers, and private corporations.

**Our People.** Our employee-owned firm consists of a team of more than 450 highly dedicated and talented engineers, scientists, planners, environmental specialists, construction specialists, and support staff that are known for their solid professional reputations, and personalized quality service.

**Our Ideals.** Built on 45 years of a strong vision and mission, GAI's ethics, principles, and core values guide us and our work. We are committed to the success of our clients and our employees. Quality, respect, innovation, and teamwork are the values that drive our company.

**Our Work.** Simply put, we are in this business to deliver successful projects to our clients, and to help them exceed the expectations of the communities that they serve.


**Pittsburgh, PA**
412.476.2000

**Jacksonville, FL**
904.363.1110

**Charleston, WV**
304.926.8100

**Philadelphia, PA**
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**Orlando, FL**
407.423.8398

**Fort Wayne, IN**
260.625.4155

**Richmond, VA**
804.360.5893

*For more information on GAI Consultants, Inc., please visit www.gaiconsultants.com or call 1.800.292.6076*

RFQ No. GSD076403

# AFFIDAVIT

**West Virginia Code §5A-3-10a states:**
No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owned is an amount greater than one thousand dollars in the aggregate.

**DEFINITIONS:**
"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions.

"Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

**EXCEPTION:**
The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

**LICENSING:**
The vendor must be licensed in accordance with any and all state requirements to do business with the state of West Virginia.

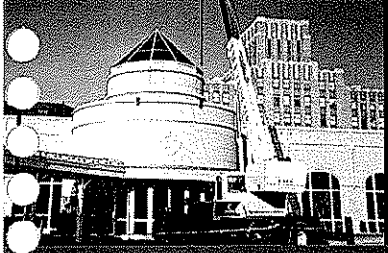
**CONFIDENTIALITY:**
The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures and rules. Vendors should visit **www.state.wv.us/admin/purchase/privacy** for the Notice of Agency Confidentiality Policies.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), it is hereby certified that the vendor acknowledges the information in this said affidavit and are in compliance with the requirements as stated.

Vendor's Name: GAI Consultants, Inc.

Authorized Signature: Mark J. Powell Date: August 25, 2006

*No Debt Affidavit*
*Revised 02/08/06*



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# Structural Investigations & Rehabilitation
## Service Brief

### Overview

GAI Consultants, Inc. (GAI) is a leader in providing engineering services for identifying and evaluating structural deterioration causes and developing appropriate remediation measures. We have provided these services since 1958.

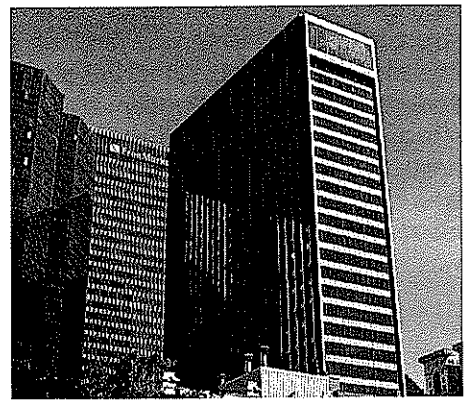
Structural Rehabilitation Services

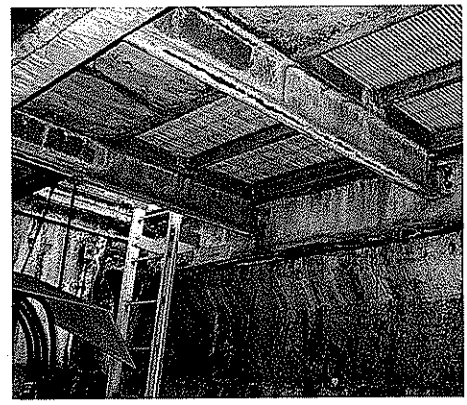
- Visual inspection
- Detailed documentation of deficiencies
- Development of testing programs
- Development and design of remedial measures
- Preparation of plans and specifications
- Development of engineers' estimates of construction and life-cycle costs
- Construction management, monitoring, and administration
- Development of maintenance plans

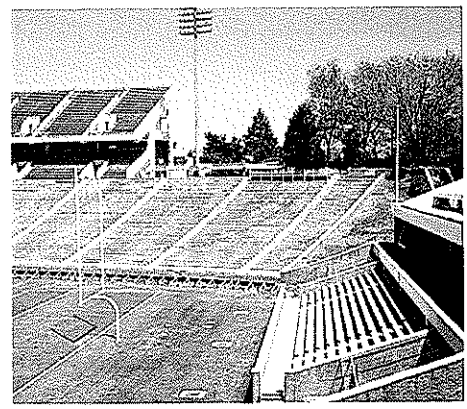
GAI's multidisciplinary approach provides expertise in:

- Structural engineering
- Engineering mechanics
- Materials' engineering and characterization
- Geotechnical engineering
- Hydraulic engineering
- Site development
- Highway engineering
- Bridge engineering
- Traffic engineering
- Computer programming

GAI has successfully completed rehabilitation projects ranging from heavy industrial facilities – such as plant buildings, storage tanks, and silos – to transmission towers, dams, parking garages, commercial office buildings, railroads, piers, docks, tunnels, and bridges for industrial firms, utilities, developers, universities, and federal, state, and local agencies.







Tailoring our services to a client's requirements, GAI designs a long-term or a temporary solution to a rehabilitation problem and provides economic, operational, and environmental assessments of the alternatives.

### Inspection, Documentation of Deficiencies, and Development of Testing Programs

GAI's staff is experienced in the inspection and documentation of the condition of concrete, steel, timber, and masonry structures including parking garages, stadiums, buildings, industrial plants, transmission line structures, dams, waterway facilities, power plants, and pipelines. We also perform inspections of underwater structures and tall structures, and have HAZWOPER-trained personnel who have provided structural inspection services at hazardous waste sites.

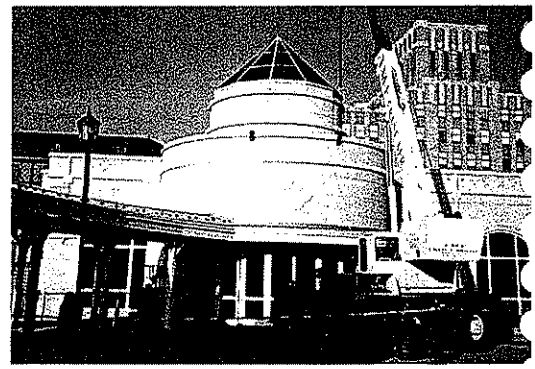
GAI has extensive experience in materials testing, nondestructive testing, and monitoring of structure and foundation movements. Over the years we have established valuable working relationships with independent consultants in related disciplines such as architecture and electrical, mechanical, and corrosion engineering. Our problem-solving approach brings the appropriate technical viewpoint to each project.

### Remedial Plans and Specifications

Identifying structural problems and rehabilitating structures and foundations require sound engineering concepts. The advanced academic training and practical experience of our staff provide a solid background for solving complex structural problems. Our engineers routinely investigate the causes of failures, perform theoretical and experimental stress analyses, analyze structures and foundations subject to vibrations and construction loads, and evaluate the effects of wind, water, soils, ice, or temperature loads on structures.

Years of practical experience have given us the ability to write clear, accurate specifications for new construction or for structural rehabilitation projects. Our quality management programs are designed to provide attention to detail and constructibility in the preparation of plans and specifications.

GAI's engineers keep abreast of developments in construction materials and equipment. We continually update our technical training through professional societies, technical seminars, and informal in-house training.



### Construction Management, Monitoring, and Administration

GAI's services for construction projects range from observation and/or oversight of a specific construction element to full-time field monitoring of construction contractors on major, long-term projects.

We also perform construction administration services including, but not limited to, preparation of construction meeting minutes; review and processing of change orders and payment requisitions; and project closeout.

### Maintenance Plans

Maintenance plan services may include developing a computer data base of facilities and conditions, or a list of procedures, so that inspection and maintenance can be performed according to a predetermined schedule.


**Pittsburgh, PA**
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*For more information on GAI Consultants, Inc., please visit www.gaiconsultants.com or call 1.800.292.6076*

Allen & Shariff

CORPORATION

# *FIRM OVERVIEW*

Allen & Shariff Corporation is a client focused mechanical, electrical, plumbing, fire protection (MEP/FP) and Information Technology / Telecommunications design engineering and construction management firm. Allen & Shariff Corporation believes in creating strategic partnerships with our clients to provide the right design solutions. The skills of our people, our sub consultants, and our commitment to top-notch design and client satisfaction makes the Allen & Shariff team a premiere design partner.

What differentiates the Allen & Shariff Corporation from others is our capability to provide MEP, IT, Audio Visual and Security Systems design in house. In Addition our construction management division works in tandem with our design group to provide all pre construction and construction services including commissioning as may be required. These in house resources give us the ability to provide our clients with "single point" of major engineering and construction management services for the project.

**Allen & Shariff Corporation's** mission statement:

*Our mission is to be the best by delivering outstanding engineering solutions and construction services that are innovative, efficient, practical, and on time. Our team of caring, talented and dedicated professionals, working in a rewarding environment, serves with integrity and pride thus building mutually beneficial and lasting relationships.*

Since 1993, Allen & Shariff Corporation has provided its clients with quality service, operating on the following four guiding principles:

- Provide optimal "design-engineer-solve".
- Offer exceptional services.
- Meet all project deadlines.
- Provide professional services at competitive rates.

We have expertise in the engineering, quality control, and construction management and construction administration of building mechanical, electrical, plumbing, and technology systems and offer the following additional specialized services:

- Site investigations/value engineering/feasibility studies
- Indoor environmental analysis
- Building controls automation
- Cost estimating
- Due diligence reports
- Energy analysis
- Construction management

**The Allen & Shariff** team is an excellent professional staff of 80 comprised of registered professional engineers, designers, CAD, construction and administrative personnel. Our engineers are registered in more than thirty states. Allen & Shariff Corporation's headquarters are located in Columbia, Maryland, and has strategically located offices in Salisbury, Maryland and Pittsburgh, Pennsylvania.

# PARTIAL LIST OF PARKING GARAGE INSPECTION AND RESTORATION PROJECTS

| PROJECT NAME | CLIENT | YEAR | LOCATION |
|---|---|---|---|
| • PPG Parking Garage | Grubb & Ellis Management Services, Inc. | 2003 | Pittsburgh, PA |
| • St. Francis Central Hospital Parking Garage | CB Richard Ellis | 2001 | Pittsburgh, PA |
| • Manor Building Parking Garage | ALCO Parking (Stabile and Associates) | 2001 | Pittsburgh, PA |
| • One Oliver Plaza Garage | Grubb & Ellis Management Services, Inc. | 1999 | Pittsburgh, PA |
| • Canongate Apartment Building Parking Garage | Lucian Caste Architects-Engineers | 1999 | Whitehall, PA |
| • Two PNC Plaza Parking Garage | Oxford Development | 1999 | Pittsburgh, PA |
| • National City Center Parking Garage | Grubb & Ellis Management Services, Inc. | 1997 | Pittsburgh, PA |
| • Brittany Apartments Parking Garage | McKinney Properties, Inc. | 1997 | Wilkinsburg, PA |
| • Fourth Avenue Parking Garage | County of Allegheny | 1996 | Pittsburgh, PA |
| • Grant Building Parking Garage | Grubb & Ellis Management Services, Inc. | 1996 | Pittsburgh, PA |
| • LeGrande Apartment Building Parking Garage | McKinney Properties, Inc. | 1996 | Pittsburgh, PA |
| • Latrobe Area Hospital Parking Garage | Latrobe Area Hospital | 1996 | Latrobe, PA |
| • Washington Gardens Parking Garage | McKinney Properties, Inc. | 1995 | Carnegie, PA |
| • Shadyside Place Parking Garage | Shadyside Hospital | 1995 | Pittsburgh, PA |
| • Shadyside Hospital Leaseholders Garage | Shadyside Hospital | 1995 | Pittsburgh, PA |
| • Norfolk Federal Building Parking Garage | General Services Administration | 1993 | Norfolk, VA |
| • U.S. Post Office and Courthouse Garage | General Services Administration | 1993 | Pittsburgh, PA |
| • Mellon Square Parking Garage | Public Parking Authority of Pittsburgh | 1992 | Pittsburgh, PA |
| • Maiden Bridge Apartment Building Parking Garage | Lucian Caste Architects-Engineers | 1992 | Whitehall, PA |
| • Westinghouse Building Parking Garage | Westinghouse Electric Corporation | 1992 | Pittsburgh, PA |
| • 33 West Salem Avenue Parking Garage | Dominion Bankshares Corporation | 1991 | Roanoke, VA |
| • City of Charleston-No. 1 Parking Garage | City of Charleston | 1991 | Charleston, WV |
| • Shadyside Hospital Visitor's Parking Garage | Keystone Diversified Services Corp. | 1991 | Pittsburgh, PA |
| • Mountainlair Parking Garage | West Virginia University | 1990 | Morgantown, WV |
| • Ninth Street and Penn Avenue Parking Garage | Public Parking Authority of Pittsburgh | 1989 | Pittsburgh, PA |
| • Port Authority Main Shop and Administration Building, | Port Authority of Allegheny County | 1988 | Pittsburgh, PA |
| • Third Floor Parking Deck | | | |
| • Western Psychiatric Institute and Clinic Parking Garage | Pennsylvania Department of General Services | 1987 | Pittsburgh, PA |
| • Sixth Street and Penn Avenue Parking Garage | ALCO Parking (Stabile and Associates) | 1987 | Pittsburgh, PA |
| • Fort Duquesne Boulevard - Sixth Street Parking Garage | Public Parking Authority of Pittsburgh | 1986 | Pittsburgh, PA |
| • Smithfield Street - Liberty Avenue Parking Garage | Public Parking Authority of Pittsburgh | 1985 | Pittsburgh, PA |
| • One Oliver Plaza Garage | Oxford Development | 1985 | Pittsburgh, PA |

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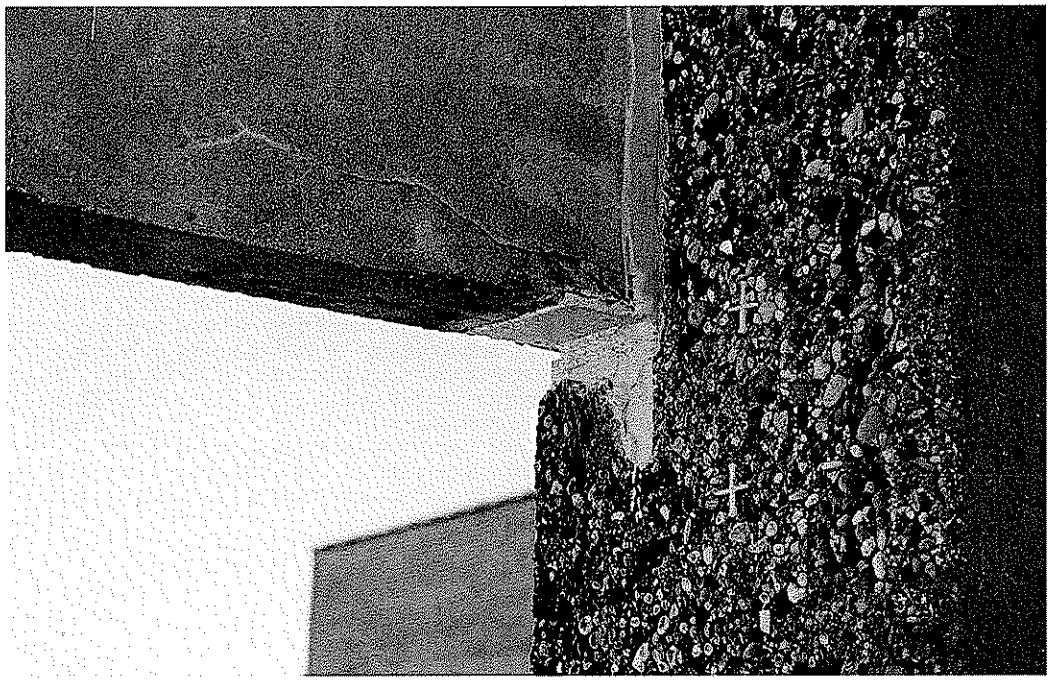
***PROJECT PROFILE***

# City of Charleston - No. 1 Parking Garage
# Charleston, West Virginia



Repaired selected columns and wind panel connections which were extensively cracked and deteriorated. Columns and wind panels are part of a 200,000 square-foot, seven-level double helix concrete parking structure with precast double-tee beams supported by precast ledger beams and columns.

- Performed In-Depth Garage Condition Survey
- Identified Critical Columns and Wind Panels Needing Repairs
- Modeled and Analyzed Structure
- Designed Column and Wind Panel Repairs
- Prepared Column and Wind Panel Repair Plans and Specifications
- Construction Administration and Monitoring

| | |
|---|---|
| *Client:* | City of Charleston<br>Department of Engineering<br>Charleston, WV |
| *Client Contact:* | City Engineer<br>304-348-8106 |
| *Construction Cost:* | $50,000 (Fee) |
| *Date:* | February 1991 |

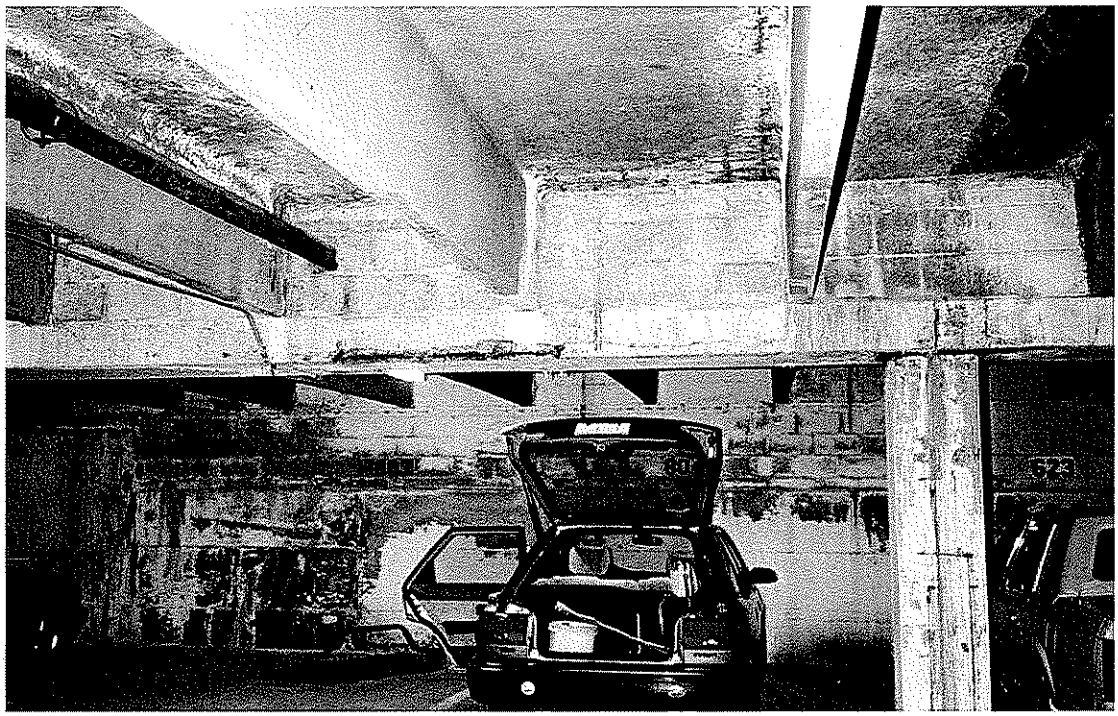
Project #89-431
Cityof ChasGarage/Struc

*Contact GAI Consultants, Inc. at 1-800-437-2150 for more information.*

gai consultants

***PROJECT PROFILE***

# Brittany Apartments Parking Garage
# Wilkinsburg, Pennsylvania



Repaired deteriorated precast double-tee beams and precast support beams in a four-level parking structure. Parking structure consists of an on-grade level, two levels with precast prestressed double-tee beams supported on precast beams and columns, and one level with precast prestressed hollow core slabs supported on a structural steel frame.

- Performed In-Depth Garage Condition Survey
- Prepared an Engineering Evaluation Report
- Recommended Immediate, Short-Term and Long-Term Repairs and Estimated Repair Costs
- Prepared Precast Double-Tee Beam and Precast Support Beam Repair Plans and Specifications

| | |
|---|---|
| *Client:* | McKinney Properties, Inc.<br>Pittsburgh, PA |
| *Client Contact:* | John T. McKinney<br>Vice President<br>412-242-5390 |
| *Construction Cost:* | $22,000 (Fee) |
| *Date:* | 1997 |

Project #94-249
BrittanyApartments Parking Garage/Struc

*Contact GAI Consultants, Inc. at 1-800-437-2150 for more information.*

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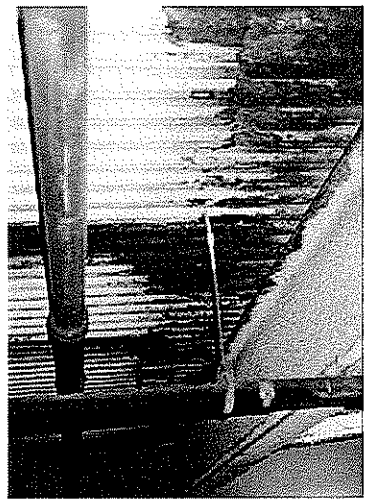
***PROJECT PROFILE***

# Two PNC Plaza
# Parking Garage Rehabilitation Project
# Pittsburgh, Pennsylvania

Evaluated the elevated portion (14,000 sq. ft.) of a two-level, below-grade, parking structure constructed in 1974 and determined areas requiring replacement. The garage is located beneath a 34-story office building and consists of cast-in-place reinforced concrete one-way slabs with stay-in-place composite metal decking and composite structural steel framing.

- Performed an In-depth Spall/ Delamination Survey of Top Surfaces of the Ramp and Floor Slabs
- Documented Condition of Metal Decking on Underside of Floor and Ramp Slabs
- Determined Limits of Floor and Ramp Slab Replacement Areas
- Developed an Engineer's Estimate of the Probable Construction Cost to Repair garage as well as an Estimate of the Construction Duration
- Discussed Concepts for Maintaining Parking on Bottom Level of Garage while Repair Work Is Being Performed
- Determined Live Load Capacity of Floor System Without Metal Decking

| | |
|---|---|
| *Client:* | Oxford Development Company<br>Pittsburgh, PA |
| *Client Contact:* | Darlene Schimmel-Rigby<br>General Manager |
| *Construction Cost:* | $13,000 (Fee) |
| *Date:* | 1999 |

Proj. #98-435
Two PNC Plaza/Struc

*Contact GAI Consultants, Inc. at 1-800-437-2150 for more information.*

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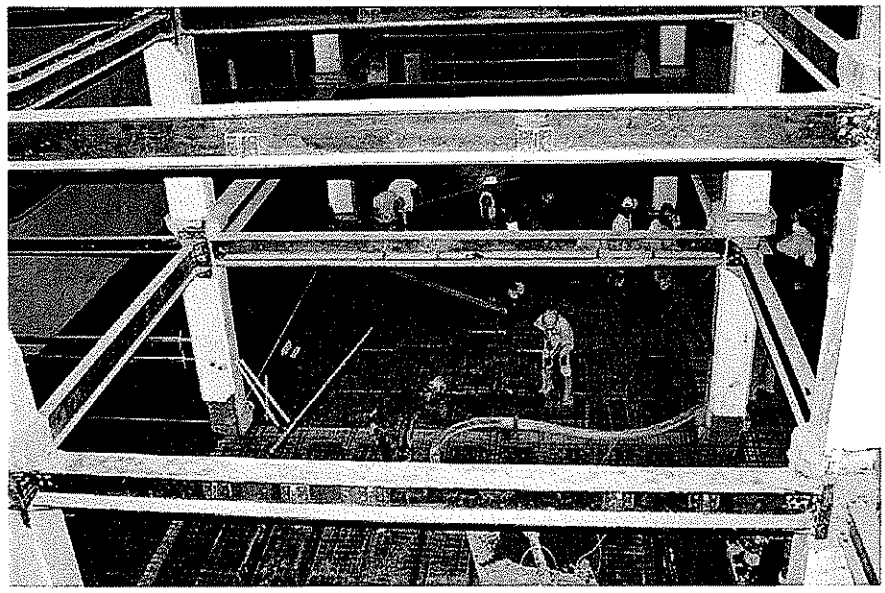
***PROJECT PROFILE***

# Grant Building Parking Garage Restoration Project Pittsburgh, Pennsylvania



Rehabilitated a 60,000-square-foot, five-level, below-grade parking structure which was originally constructed in 1930. The garage is beneath a 40-story office building and consists of cast-in-place reinforced concrete one- and two-way slabs and one-way slabs and joists supported by a concrete encased structural steel moment frame.

- Designed New Slabs and Joists Including Modifications to Existing Slab Elevations to Provide Proper Floor Slope for Drainage
- Prepared Plans and Specifications for:
  - Slab and Joist Replacement
  - New Traffic-Bearing Membrane
  - New Garage Lighting and Panic Alarms
  - New Ductwork, Floor Drains, Sump, and Fire Protection and Carbon Monoxide Detection Systems
- Assistance During Bid Evaluations
- Construction Administration and Monitoring
- Structural Steel Evaluation During Construction

| | |
|---|---|
| *Client:* | Grubb & Ellis Management Services, Inc. Pittsburgh, PA |
| *Client Contact:* | John E. Capozzi, RPA Vice President 412-434-4914 |
| *Construction Cost:* | $3,400,000 |
| *Date:* | February 1996 |

Project #94-523
GrantBldgParking/Struc

*Contact GAI Consultants, Inc. at 1-800-437-2150 for more information.*

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***PROJECT PROFILE***

# Mellon Square Parking Garage
# Pittsburgh, Pennsylvania

Rehabilitated an underground parking structure.

- Condition Survey
- Alternative Repair Schemes and Cost Estimates for:
  - Existing Overlay and Membrane Removal
  - Partial and Full-Depth Slab Repairs
  - Asbestos Ceiling Material Removal
  - Entrance and Exit Ramp Replacement
  - Drainage System Upgrade
  - Waterproofing Membrane Installation
  - Ceiling, Column, and Wall Painting
- Plans and Specifications
- Construction Scheduling, Administration, and Monitoring

| | |
|---|---|
| *Client:* | Public Parking Authority of Pittsburgh<br>Pittsburgh, PA |
| *Client Contact:* | Director of Engineering<br>412-456-2770 |
| *Construction Cost:* | $5,300,000 |
| *Date:* | 1992 |

Project #88-467
Mellon/Struc

*Contact GAI Consultants, Inc. at 1-800-437-2150 for more information.*

Allen & Shariff
CORPORATION

# John Marshall III and Parking Garage

**Responsibility:** *M/E/P/FP Consultants*

**8230-C Greensboro Drive - McLean, Virginia 22102**

| | |
|---|---|
| **Design Start** | 1997 |
| **Construction Start** | 1998 |
| **Construction End** | 1999 |
| **Project Cost** (*thousands*): | $24,000 |

**Owner** Equity Office Properties Trust
Two North Riverside Plaza
Chicago, IL 60606
Frank Frankini
(313) 466-3565

Allen & Shariff was the mechanical, electrical, plumbing (MEP) and Fire Protection Engineer of Record for this new 180,000 square foot, nine story office building with a **five level, 750 car underground parking garage** below in McLean, Virginia. John Marshall III is the third phase of the Booz Allen Hamilton corporate complex in Tyson's Corner, Virginia. The building has a precast and glass facade with a center bay of curtainwall.

This HVAC design consisted of floor-by-floor, self-contained, water-cooled, direct expansion (DX), VAV units with water-side economizers with medium pressure duct layout. Each floor has a single MER. The HVAC unit on the top floor has a capacity of 75 tons. The units below the top floor are nominally 65 tons. The perimeter zones on each floor have a total of 10 fan powered VAV boxes with 10 KW of electric heat in two steps. There are four interior VAV boxes. The maximum volumetric capacity of each box is 1900 cfm. The actual HVAC loading is based on a Trane Tracer load calculation using the International Mechanical Code and an allowance of 2 watts/SF of lighting and 3 watts/SF for power. The central HVAC equipment consists of cooling towers, open loop pumps, and a 100% outside air unit.

Electrical design included incoming electrical service and electrical bus duct with high and low voltage panelboards on each floor. The parking garage electrical design included protective area lighting systems, roadway lighting for inside and the immediate exterior perimeter of the garage.

An ADA compliant fire alarm system with a fire control room and wet and dry sprinkler systems were designed for this project.

Allen & Shariff
CORPORATION

# City of Salisbury Parking Garage Annexation

**Responsibility:** *MEP Consultants*

**Salisbury, Maryland**

| | |
|---|---|
| **Design Start** | 05/00 |
| **Construction Start** | 06/01 |
| **Construction End** | 11/01 |
| **Project Cost** (*thousands*): | $2,100 |

**Owner** City of Salisbury, Maryland
125 North Division St., Rm. 104
Salisbury, Maryland 21801
Ms. Carol Turner
410.548.3190

Allen & Shariff Corporation, along with Tim Haahs & Associates, Inc. and George, Miles & Buhr, LLP, was contracted by the City of Salisbury Maryland, to perform a feasibility study for the expansion of the City's parking garage located at South Division Street and Circle Avenue. Following the feasibility study, the design team performed the design for the garage expansion.

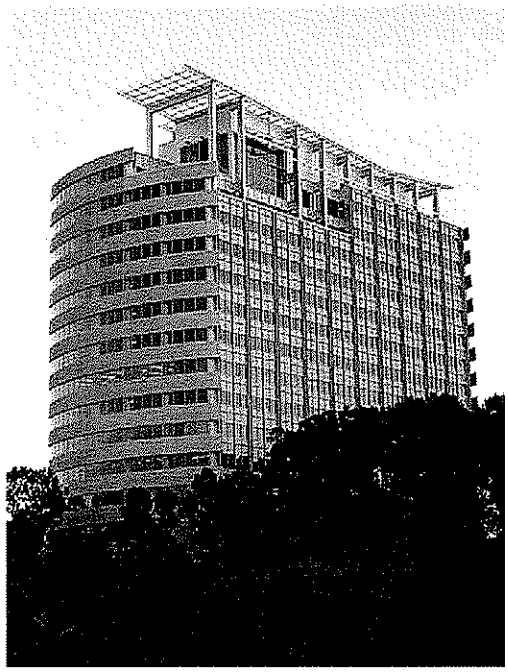
The main objective of this feasibility study was to determine alternative schemes of expanding the existing parking facility to meet current and future demands along with corresponding cost estimates for each scheme. The design team evaluated vertical, horizontal, or a combination of both, to maximize the number of spaces in relation to the cost of the expansion. Additionally, code, local ordinance, and ADA reviews were performed to determine any upgrades or issues that may need to be addressed as part of the expansion.

The addition is a three-column bay, four-level, 230 space project. Design aspects included: garage lighting, power distribution, fire sprinkler standpipes, fire alarm system, security cameras, garage ventilation and gas monitoring systems.

Allen & Shariff
CORPORATION

# Fairview Park & Parking Garage

**Responsibility:** *MEP/FP Consultants*



**Fairfax County, Virginia**

| | |
|---|---|
| **Design Start** | 1998 |
| **Construction Start** | |
| **Construction End** | 2001 |
| **Project Cost** (*thousands*): | $41,000 |

**Owner** Boggs and Partners Architects
Mr. Michael Patton, AIA
410 Severn Avenue, Suite 413
Annapolis, Maryland 21403
410-268-3797

This new 15-story Class A high-rise office building in Fairfax County was completed in late 2000. It included corporate offices, a first floor restaurant and fitness area. Allen & Shariff Corporation was the MEP/FP engineer of record for this 425,000 square foot facility and **385,000 square foot adjacent parking structure.** The building MEP/FP design included HVAC, plumbing, electrical and fire protection systems.

Prior to the start of the HVAC systems design a complete ***life cycle cost analysis*** with multiple options was performed using ***Trace 600 computer analysis*** program. Based on the analysis that evaluated first cost, operational and maintenance cost, energy costs and paybacks a central chilled water system with floor-by-floor air handling units was designed. A Central Cooling Plant located in the Penthouse level consisted of two 650 Ton centrifugal chillers, cooling tower, piping, constant speed primary pumping system and variable speed secondary pumping systems.

A 65-ton AHU was used for each tenant floor. Series fan powered VAV boxes was provided for perimeter office areas with electric heating coils. A computer controlled ***Direct Digital Energy Management System*** was designed to monitor and control mechanical equipment. An extensive sequence of operation, point-by-point summary sheet and control schematics were developed for all mechanical equipment connected to the direct digital control systems.

ASC's commissioning service was comprised of scheduling, witnessing testing and completion of reports.

The entire building was provided with an automatic sprinkler system in conjunction with a security system that is fully supervised, addressable, non-coded, voice alarm system conforming to the requirements of BOCA High Rise Code and ADA requirements.

The electrical system consists of 480/277 and 208/120 volt circuit breaker panel boards provided on each floor in the electrical room with K-4 rated, dry type transformers for the lower voltage. Mechanical equipment and large motor loads operate at 480 volts, lighting at 277 volts and convenience receptacles at 120 volts. A 400 KW diesel generator for ***emergency power*** was designed to support the building life safety systems. The building is complete and occupied.

***List of References***

| | | |
|---|---|---|
| 1. | Mr. John E. Capozzi, RPA<br>Vice President<br>Grubb & Ellis Management Services, Inc.<br>600 Six PPG Place<br>Pittsburgh, Pennsylvania 15222 | (412) 434.1068 |
| 2. | Mr. Christopher E. Holt<br>Assistant Director of Project Management<br>Pittsburgh Parking Authority<br>232 Boulevard of the Allies<br>Pittsburgh, Pennsylvania 15222 | (412) 560.2523 |
| 3. | Mr. Joseph G. Piccini, CPM<br>Director of Project Management<br>Oxford Development Company<br>One Oxford Center<br>Pittsburgh, Pennsylvania 15219 | (412) 391.5300 |

# Architectural and Engineering Services
# Repair/Refurbishment Specifications
# The Capitol Campus Parking Garage

**Steven S. Miller, P.E.**
Project Manager

Allen & Shariff
CORPORATION

**Mechanical/Electrical/Plumbing Fire Protection Design Team**

**Anthony E. Molinaro, Jr. P.E.**
Mechanical Engineer/
Project Manager

**Craig Johnson, C.I.P.E.**
Plumbing/Fire Protection
Engineer

**Jason D. Whitfield, RCDD**
Electrical Engineering
Technology

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**Structural Design Team**

**John D. Mozer, Ph.D., P.E.**
Staff Consultant

**Joseph R. Salvatore, P.E.**
Project Engineer

**Michael A. Beresford, P.E.**
Lead Engineer

**Samuel G. Mazzella, P.E.**
Staff Engineer

**Craig W. Steigerwald, P.E.**
Staff Engineer

**Dennis J. Nebiolo**
Technician

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# Steven S. Miller, P.E.

*Engineering Manager I*

## Education

B.S. Civil Engineering 1984, Washington State University
M.S. Civil Engineering 1986, Washington State University

## Registrations

Professional Engineer, PA 1990, VA 2000

## Previous Employment

Engineer at BDM Corporation, 1986-1988

## Professional Experience

Mr. Miller joined GAI in 1988 and has gained professional experience through his work on many projects including the projects described below.

*Parking Garage Evaluation and Rehabilitation*

- PPG Parking Garage in Pittsburgh, PA for Grubb & Ellis Management Services, Inc. Design of repairs to three-level, below grade, cast-in-place waffle slab structure supported by concrete columns. Engineer responsible for design of repairs to ribs of selected waffle slabs.
- St. Francis Central Hospital Parking Garage in Pittsburgh, PA for CB Richard Ellis/Pittsburgh. Condition assessment and repair recommendations for a four-level, double-helix, precast concrete parking garage. Engineer responsible for condition assessment and developing specifications and details for repairing garage.
- Two PNC Plaza Parking Garage in Pittsburgh, PA for Oxford Development Co. Condition assessment for a 14,000 sq.ft. two-level, below-grade parking structure beneath a 34-story office building consisting of cast-in-place reinforced concrete one-way slabs with stay-in-place composite metal decking and composite structural steel framing. Engineer responsible for directing the engineering assessment of the garage and preparing report on findings.
- Free Markets Building (formerly One Oliver Plaza) Parking Garage in Pittsburgh, PA for Grubb & Ellis Management Services, Inc. Rehabilitation of a three-level below grade parking garage consisting of cast-in-place one-way slabs supported by concrete encased composite steel beams and concrete encased steel columns. Engineer responsible for supervising condition assessment of garage, developing plans and specifications for repairing garage and directing field monitoring during construction.
- National City Center Parking Garage in Pittsburgh, PA for Grubb & Ellis Management Services, Inc. Evaluation and design of repairs for two-level below grade parking structure with cast-in-place two-way slabs, beams, and columns. Engineer responsible for performing structural evaluation, preparing repair plans and specifications and supervising construction monitoring services.
- Grant Building Parking Garage in Pittsburgh, PA for Grubb & Ellis Management Services, Inc. Restoration project to rehabilitate a 66-year old, 60,000 sq. ft., 5-level, below-grade parking structure beneath a 40-story office building and consisting of cast-in-place reinforced concrete one-way and two-way slabs and one-way slabs and joists supported by a concrete encased structural steel moment frame. Engineer responsible for preparing contract documents for the garage repair and for performing monitoring and administration services during construction.
- Fourth Avenue Parking Garage in Pittsburgh, PA for Allegheny County, Department of Engineering and Construction. Rehabilitation of a 15-level parking garage consisting of one-way concrete slabs supported by concrete beams and columns, and two-way concrete slabs supported by concrete column capitals, drop panels and columns. Engineer responsible for performing the condition assessment of the garage and for developing plans and specifications for the garage repairs.

- Brittany Apartments Parking Garage in Wilkinsburg, PA for McKinney Properties, Inc. Parking garage condition survey and repair project for a four-level parking structure consisting of one level on grade, two levels with precast prestressed double-tee beams supported on precast beams and columns, and one level with precast prestressed hollow core slabs supported on a structure steel frame. Engineer responsible for structural evaluations and preparing contract documents for the repair.
- City of Charleston No. 1 Parking Garage in Charleston, VA for the City of Charleston, Dept. of Engineering. Parking garage condition survey and repair project for a 200,000 sq. ft. seven-level double helix concrete parking structure with precast double-tee beams supported by precast ledger beams and columns. Engineer responsible for structural evaluations and preparing contract documents for the repair.
- Federal Office Building and Parking Structure in Norfolk, VA for the General Services Administration, Region 3, Shenandoah Branch. Rehabilitation project for a 3-story parking structure with one-way slabs supported by stay-in-place metal decking, composite steel girders, and steel columns. Engineer responsible for structural evaluations and preparing contract documents for the repair and for supervising construction monitoring.
- Shadyside Hospital Visitors' Parking Garage in Pittsburgh, PA for Keystone Diversified Services Corp. Engineering study project for renovating a 7-level hospital parking garage consisting of one-way concrete slabs supported by castellated structural steel beams. Engineer responsible for structural evaluations and for preparing contract documents for the garage repair.
- Mellon Square Parking Garage in Pittsburgh, PA for Public Parking Authority of Pittsburgh. Rehabilitation project for a 300,000 sq.ft., six-level, below-grade, reinforced concrete parking structure consisting of two-way flat slabs supported by drop panels, column capitals, and columns. Engineer responsible for structural evaluations and preparing contract documents for the repair.
- Mountainlair Parking Garage in Morgantown, WV for West Virginia University. Rehabilitation project for the second-level floor slab of a 3-level structure with conventionally reinforced two-way flat slab construction with column capitals and drop panels on levels two and three, and a slab-on-grade on level one. Engineer responsible for structural evaluations and preparing contract documents for the repair.
- Penn Avenue and Ninth Street Parking Garage in Pittsburgh, PA for the Public Parking Authority of Pittsburgh. Rehabilitation project for the 192,000 sq.ft. six-level, reinforced concrete parking garage with waffle slab-type construction. Engineer responsible for designing repairs to cracked drop panels during construction period.

*Structure Evaluation and Rehabilitation*

- Leak Investigation for the Port Authority Service Center at Mellon Square Parking Garage in Pittsburgh, PA for the Pittsburgh Parking Authority. Field investigation and drawing review of planters and utilities in vicinity of Service Center. Engineer responsible for field investigation, preparation of report, and design of repairs based on findings from field investigation.
- PNC Data Center in Pittsburgh, PA for Grubb & Ellis Management Services, Inc. Building evaluation to determine cause of movements and cracking of first floor slab-on-grade. Periodic evaluations of building consisting of level surveys and visual examinations to determine if movements are continuing. Miscellaneous structural engineering services. Engineer responsible for supervising building evaluation, preparing investigation report, and performing periodic evaluations.
- Due Diligence Savings and Structural Evaluations of Existing PNC Bank Owned Buildings Along Fifth Avenue in Pittsburgh, PA for Oxford Development Company. Surveys were performed on eight (8) buildings up to 5 stories in height to obtain information regarding the overall condition of their building and to identify critical repair items for maintaining the existing structures for up to 5 years. Detailed evaluations of the building facades were performed on 5 of the 8 buildings to identify required repairs. Engineer responsible for supervising the survey and evaluation work and for preparing the associated reports.

- Plaza Repair Project at Two PNC Plaza in Pittsburgh, PA for Oxford Development Company. Preparation of plans and specifications for plaza repairs including, but not limited to, sidewalk vaults, structural slabs, and drainage. Engineer responsible for condition assessment of plaza and preparing contract documents and assisting with review of bids.
- Grant Building Vaults in Pittsburgh, PA for Oxford Development Company. Evaluation and design of repairs for existing electrical sidewalk vault. Engineer responsible for evaluation, design, and construction period services.
- Litton-Reaves Hall Academic Building in Blacksburg, VA for Virginia Polytechnic Institute and State University. Structural evaluation of the exterior brick and stone panel facade for a 3-story building. Engineer responsible for field evaluation, report preparation and repair recommendations.
- Hotel Roanoke Conference Center in Roanoke, VA for the City of Roanoke. Evaluation of the 3-story conference center to determine cause of floor and building movements. Evaluation of connections for exterior precast concrete facade panels. Design of repairs to remove expansive slab from beneath floor slabs and spread footings beneath columns. Design of repairs to defective connections for precast concrete panels. Design of retrofits for roof level spandrel beams. Engineer responsible for all field evaluation and design work, expert witness testimony and supervision of construction monitoring during repairs to conference center.
- Hotel Roanoke in Roanoke, VA for Virginia Polytechnic Institute and State University. Forensic investigation project to evaluate structural modifications to the hotel based on suspect structural work observed on adjacent property. Engineer responsible for structural evaluation, problem identification, and coordination with owner, contractor, and engineer-of-record to correct deficient conditions.
- Sears Roebuck and Company Retail Store in Wilkins Township, PA for Soffer Organization. Structural evaluation and modification project for a collapsed roof on a one-story retail store building following heavy rainfall. Engineer responsible for the investigation and structure analysis for the roof collapse; and for designing modifications to the steel roof joists for the building.
- Mitchell Power Station in Courtney, PA for Allegheny Energy Supply. Condition assessment and evaluation project for three anchored and one cantilevered sheet pile wall(s) located on the Monongahela River for a complete assessment of the effects of future normal pool lowering of the river by more than 3 feet, and for recommendation of a cost-effective wall retrofit for new loading conditions anticipated from river pool lowering and future dredging levels. Engineer responsible for structural analysis and design.
- Scott Stadium in Charlottesville, VA for the University of Virginia. Structure rehabilitation project for the framed portion of the 60-year old cast-in-place stadium structure consisting of reinforced concrete slab (seat) and joist (riser) system supported by girders and columns. Engineer responsible for a detailed evaluation of the concrete slabs, joists and framing members of the stadium; making recommendations for repair, replacement and/or shoring of individual members; preparing contract documents for recommended repairs; performing five annual inspections of the stadium; and developing final design for converting the elevated portion of the stadium to an on-grade structure utilizing pneumatically stowed fill.
- Turtle Creek Flood Channel in Turtle Creek, PA for the U.S. Corps of Engineers, Pittsburgh District. Program design project for dredging and renovating the flood channel. Engineer in charge of a field reconnaissance team responsible for observing and documenting the condition of the flood channel, including locating and documenting the extent of expansion joint deterioration, concrete spalling and cracking, sedimentation, and erosion, using a computer database containing information from the investigation to develop a comprehensive rehabilitation program for the project. Prepared drawings showing the types, sizes, and locations of the repairs and typical repair sections and details, and prepared a detailed construction cost estimate.
- Cleveland Harbor East and West Piers in Cleveland, OH for the U.S. Army Corps of Engineers, Buffalo District. Condition survey project for two 1,400'-long piers constructed in the 1890s. Engineer responsible for structural evaluations.

- Highland Avenue - Penn Circle North to Penn Circle South in East Liberty, PA for the Urban Redevelopment Authority of Pittsburgh. A public space improvements project involving site investigations, building and underground vault surveys, and sidewalk replacement and/or rehabilitation. Engineer responsible for structural evaluations
- Mt. Washington Transit Tunnel in Pittsburgh, PA for the Port Authority of Allegheny County. Construction monitoring project for inspection of a light rail tunnel rehabilitation project involving two-lane reinforced concrete roadway, embedded double track light rail system, catenary replacement, tunnel lighting, and portal building improvements. Engineer responsible for structural evaluations.
- Gateway High School Stadium in Monroeville, PA for Gateway School District. Structural assessment project to assess the condition of the stadium precast concrete bleachers, concrete foundations, and retaining walls. Engineer responsible for structural evaluations.

## Summary

Mr. Miller specializes in investigation and rehabilitation of existing steel and concrete structures, as well as structural analysis and design and finite element analysis.

## Publications/Presentations

2003 Miller, S. S., Bruhn, R. W., and Patton, M. E. *Structural Evaluation and Rehabilitation of a Conference Center Subjected to Heaving Caused by Electric Arc Furnace Slag.* Presented at the Soil and Rock America 2003 Conference, Boston, Massachusetts, June 2003.

# John D. Mozer, Ph.D., P.E.

*Staff Consultant*

## Education

B.S. Civil Engineering 1961, University of Colorado
M.S. Civil Engineering 1963, University of Illinois
Ph.D. Civil Engineering 1967, University of Colorado

## Honors

University of Colorado Fellowship
American Society of Civil Engineers' Amman Research Fellowship

## Registrations

Professional Engineer, PA 1971

## Affiliations

American Society of Civil Engineers, Member

## Previous Employment

Professor at Carnegie Mellon University, 1967-1973

## Professional Experience

Dr. Mozer joined GAI in 1973 and has gained professional experience through his work on many projects including the projects described below.

*Parking Garage Rehabilitation*

- Free Market Building (formerly One Oliver Plaza) in Pittsburgh, PA for Grubb & Ellis Management Services, Inc. Parking structure condition survey and rehabilitation project for the elevated portion of a 57,000 sq.ft., 3-level below-grade, 30+-year old parking structure located beneath a 40-story office building and consisting of cast-in-place reinforced concrete one-way slabs supported by a concrete encased composite structural steel frame. Staff consultant during the design of repairs.
- Mellon Square Parking Garage in Pittsburgh, PA for the Public Parking Authority of Pittsburgh. Rehabilitation project for a 300,000 sq.ft., six-level, below-grade, reinforced concrete parking structure consisting of two-way flat slabs supported by drop panels, column capitals, and columns. Penn Avenue and Ninth Street Parking Garage in Pittsburgh, PA for the Public Parking Authority of Pittsburgh. Rehabilitation project for the 192,000 sq.ft. six-level, reinforced concrete parking garage with waffle slab-type construction. Consultant responsible for an engineering assessment of four major parking structures in downtown Pittsburgh, developing plans and specifications for the rehabilitation of these structures, providing bid period services, reviewing and approving contractor submittals including temporary shoring and bracing plans, repair procedures and schedules, field engineering support, and coordinating monitoring services during construction.
- Ft. Duquesne and Sixth Street Parking Garage in Pittsburgh, PA for Horne's Department Store. Garage repair project. Engineer responsible for preparing plans, technical specifications, and other bidding documents for repairs to the garage.
- Smithfield-Liberty Parking Garage in Pittsburgh, PA for the Public Parking Authority of Pittsburgh. Engineering evaluation and rehabilitation design project for a 222,000 sq. ft., eight-level, reinforced concrete slab structure supported by concrete encased beams and girders. Project manager responsible for supervising the engineering assessment of the garage, directing the development of plans and specifications for the repair work and coordinating field inspection services during construction.

- One Oliver Plaza Parking Garage in Pittsburgh, PA for Oxford Development Company; Dravo Corporation. Parking Garage repair project. Engineer responsible for supervising an engineering study to assess the condition of the garage, directing the development of plans and specifications for the repair work, and coordinating field inspection services during construction.
- Western Psychiatric Institute and Clinic Parking Garage in Pittsburgh, PA for the PA Dept. of General Services. Rehabilitation project for a 5-level reinforced concrete waffle slab parking structure. Engineer responsible for professional services for the parking garage repair project, directing the field survey to determine repair types and quantities, providing office engineering to prepare plans and technical specifications, and contact with state and local institutional officials to implement the work.

*Structure Rehabilitation*

- Mitchell Power Station in Courtney, PA for Allegheny Energy Supply. Condition assessment and evaluation project. Consultant responsible for field assessment of above and underwater sections of river dock walls, sheet pile walls, intake structures and the discharge tunnel.
- Bluestone Dam in Hinton, WV for U.S. Army Corps of Engineers, Huntingdon District. Seismic stability analysis project for a 165'-high, 2000'-long concrete gravity dam and appurtenant structures. Consultant responsible for state-of-the art seismic stress analysis for the dam considering reservoir structure interaction.
- Gorge Plant Dam on the Cuyahoga River in Akron, OH for Ohio Edison Co. Dam design project to convert an Ambursen-type 58'-high 425'-long concrete slab and buttress dam to a gravity dam. Consultant responsible for structural assessment of buttress and intake structure walls under construction loads during rehabilitation of the dam, including designing bracing systems for the walls, and designing and testing fly ash concrete fill for the internal chambers of the dam.
- Virginia Dams for Allegheny Power Supply. Hydroelectric dam remedial repair projects. Engineer responsible for remedial repair evaluations and design for three small hydroelectric dams in Page and Warren Counties, Virginia.

## Summary

Dr. Mozer specializes in structure analysis and design, fatigue analysis, rehabilitation of existing steel and concrete structures, and design of protection systems for concrete structures.

# Joseph R. Salvatore, P.E.

*Lead Engineer*

## Education

B.S. Civil Engineering 1989, University of Pittsburgh

## Registrations

Professional Engineer, PA 1996, MD 1996, OH 1997, WV 1997, NY 1998, NJ 1998, SC 1998, MA 1998, Structural Engineer, IL 1998

## Affiliations

Association for Bridge Construction and Design (ABCD), Member

## Previous Employment

Engineer at D&L/Philip Service Corporation, 1996-1999
Engineer at Associated Engineering Sciences, Inc., 1994-1996
Engineer at Poerio, Inc., 1993-1994
Engineer at Centerline Engineering, 1990-1993

## Professional Experience

Mr. Salvatore joined GAI in 1999 and has gained professional experience through his work on many projects including the projects described below.

*Structure Inspection and Design*

- Structural Evaluation of Five Existing PNC Bank Owned Buildings along Fifth Avenue in Pittsburgh, PA for Oxford Development Company. Detailed evaluations of the facades on 5 buildings up to 5 stories in height to identify required repairs. Engineer responsible for performing the detailed evaluations and assisting in the report preparation and repair recommendations.
- North Shore Riverfront Park along the Allegheny River in Pittsburgh, PA for EDAW, Inc. Civil engineering and permitting project for a park along the river, completed in 2004. Structure engineer responsible for fountain pool design, including abutment design for a pre-fabricated bridge superstructure and preparation of construction plans.
- New Collector Buss Room at Two PNC Plaza in Pittsburgh, PA for Oxford Development Company. Engineer responsible for obtaining as-built information on existing collector buss room, designing new roof structure consisting of fiberglass beams, floor grating and plating supported by galvanized steel angles and expansion anchors, and coordinating with contractor during construction.
- PNC Data Center in Pittsburgh, PA for Grubb & Ellis Management Services, Inc. Building evaluation to determine cause of movements and cracking of first floor slab-on-grade. Periodic evaluations of building consisting of level surveys and visual examinations to determine if movements are continuing. Miscellaneous structural design services. Engineer responsible for monitoring new foundation and slab-on-grade installation, designing repairs to cracked block in stair towers, designing steel lintels for new wall openings and analyzing building structure for additional proposed loads.
- Martin Luther King Jr. East Busway Extension in Edgewood and Swissvale Boroughs, Allegheny County, PA for the Port Authority of Allegheny County. Final busway design project for 2.3 miles of 2-lane busway with four stations, four park-n-ride lots, and a linear park, completed in 2003. Structure engineer responsible for retaining wall design.
- Roanoke Conference Center Building in Roanoke, VA for the Hotel Roanoke Conference Center Commission. Evaluation and repair project for a 5-year old conference center building to determine if connections failed as a result of foundation movements caused by expansive slag, completed in 2002. Structure engineer responsible for the review and subsequent retrofit of the structural

connections of the precast concrete panels for the Hotel Roanoke Conference Center, part of the lateral load resisting system requiring review due to deficiencies discovered after construction.

*Bridge Inspection*

- S.R. 0837, Section A13 (Glenwood Bridge South Approach Interchange) in West Homestead, Allegheny County, PA for PennDOT, District 11-0. Structure inspection and rehabilitation project for the south approach interchange of a 31-span, multi-beam structure with four lanes and multiple ramps. Bridge engineer assisting with inspection, which involved a condition assessment of the steel superstructure, supervision of delamination and crack surveys of the substructures, and obtaining powder samples for chloride testing.
- Day Covered Bridge over Short Creek in Morris Township, Washington County, PA for the Washington County Planning Commission. Bridge inspection and restoration project for a 38'-long historic timber covered bridge, completed in 2002. Bridge engineer assisting with structural inspection of timber trusses and concrete and stone substructures.
- Jackson Mill Covered Bridge in Hanover Township, PA for the Washington County Planning Commission. Bridge inspection and restoration project for a 46'-long historic timber covered bridge, completed in 2002. Bridge engineer assisting with structural inspection of timber trusses and concrete and stone substructures.
- Interstate 79, Section A12 in Collier Township for PennDOT, District 11-0. Highway reconstruction project for 5 miles of interstate highway including three interchanges, 20 bridges, and 2 new bridges, completed in 2005. Project engineer responsible for analysis, rating, and inspection of 26 structures, including reviewing the existing structures to determine deficiencies with respect to present code and sign structures. Performed structural inspections of precast girders, steel superstructures and sign structures, delamination and crack surveys of substructures, and obtained powder samples for chloride testing.
- Fort Pitt Boulevard in Pittsburgh, PA for the City of Pittsburgh D.E.C. Bridge engineer responsible for preliminary engineering for the reconstruction of Fort Pitt Boulevard, which included the investigation of several different superstructure configurations, the replacement of the pier caps, and the effects of the AASHTO LRFD specifications on the existing to remain foundation units. Performed delamination and crack surveys of substructures.

Mr. Salvatore has gained professional experience through his work on projects with previous employers as described below.

*Structure Design*

- Lead structural engineer for the design of the expansion of the Nucor melt-cast facility in Berkely, SC. The project included the design of the building layout and expansion, overhead crane requirements, and equipment foundations for a continuous casting tower, rolling mills, and storage bay.
- Lead structural engineer for the design of the Birmingham Steel melt-cast facility in Memphis, TN. The project included the relocation of an existing building from Baytown, TX, as well as the design of the caster and rolling mill buildings, design of building and equipment foundations, and the review and coordination of vender information.
- Lead structural engineer for the design of the installation of a new furnace at the North Star Steel Facility in Youngstown, OH. The project included the design and layout of the new furnace and its associated equipment, design of the foundations to support the furnace, and modifications to the existing building structure, which included the removal of building columns to facilitate the addition of the furnace.
- Lead structural engineer for the design of a cold mill at the Nucor facility in Hickman, AR. The project included the design of the equipment foundations and the deep basement required for the cold mill.

## Summary

Mr. Salvatore specializes in structural and civil engineering including industrial and commercial structural design for buildings and bridges including concrete, steel, timber, masonry, and aluminum design.

# Michael A. Beresford, P.E.

*Lead Engineer*

## Education

B.S. Civil Engineering 1990, Carnegie Mellon University

## Registrations

Engineer-in-Training, 1990

## Affiliations

Association for Bridge Construction and Design (ABCD), Member

## Previous Employment

Construction Laborer for Mosites Construction Company, 1989-1990

## Professional Experience

Mr. Beresford joined GAI in 1990 and has gained professional experience through his work on many projects including the projects described below.

*Structure Inspection and Design*

- Plaza Repair Project at Two PNC Plaza in Pittsburgh, PA for Oxford Development Company. Preparation of plans and specifications for plaza repairs including, but not limited to, sidewalk vaults, structural slabs and drainage. Engineer responsible for assisting in the condition assessment of the existing sidewalk vaults including determining the means of repairing the vaults.
- Fourth Avenue Plaza Repair Project at PPG Plaza in Pittsburgh, PA for Grubb & Ellis Management Services, Inc. Repairs to approximately 270' of sidewalk along Fourth Avenue. Engineer responsible for obtaining the as-built information on the sidewalk layout including the location of the existing granite pavers and curbs, and the underground and under structure utilities; assisting in the development of repair plans and specifications; and designing the reinforcement for the new sidewalk structural slabs.
- Loyal Order of Moose – Lodge #234 in Export, PA. Structural assessment of existing steel roof joists. Engineer responsible for obtaining as-built information on the existing roof structure, analyzing steel roof joists for proposed new loads, and preparation of report on findings.
- Mt. Washington Transit Tunnel in Pittsburgh, PA for the Port Authority of Allegheny County. Construction monitoring project for inspection of a light rail tunnel rehabilitation project involving two-lane reinforced concrete roadway, embedded double track light rail system, catenary replacement, tunnel lighting and portal building improvements. Engineer responsible for structural evaluations.
- Fourth Avenue Parking Garage in Pittsburgh, PA for Allegheny County, Department of Engineering and Construction. Rehabilitation of a 15-level parking garage consisting of one-way concrete slabs supported by concrete beams and columns, and two-way concrete slabs supported by concrete column capitals, drop panels and columns. Engineer responsible for assisting in the initial condition assessment of the garage.
- Monroeville Mall Manhole "D" in Monroeville, PA for Turnberry Isle Associates. Inspection and analysis project for a 6'-diameter, 150'-deep manhole and a 7-foot diameter pipe culvert in the parking lot of a major retail mall, completed in 1994. Engineer assisting with inspection and evaluation of the manhole and pipe culvert.

# Michael A. Beresford, P.E.

*Lead Engineer*

*Bridge Inspection*

- Interstate 79, Section A12 in Collier Township for PennDOT, District 11-0. Highway reconstruction project for 5 miles of interstate highway including three interchanges, 20 bridges, and 2 new bridges. Assisted with bridge inspection and design, completed in 2004. Inspection consisted of concrete deck and substructure soundings to locate delaminations, crack surveys, checking condition of girder welds, and obtaining powder samples for chloride testing.
- Eramet Marietta Power Plant Bridge in Marietta, OH for Eramet Marietta, Inc. Annual bridge inspection project for a 144'-long, 3-span multi-girder steel structure over Route 7, completed in 2003. Bridge engineer responsible for evaluations and preparing a bridge inspection report. Evaluation consisted of sounding substructures, and inspecting girder welds.
- Allegheny County Bridges (1995) in Allegheny County for the Allegheny County Dept. of Public Works. Annual (1995) structure inspection program for 36 county-owned structures including steel girder structures, prestressed concrete box beams, metal pipe culverts, concrete box culverts, steel deck girder structures, and steel deck truss bridges, completed in 1995. Bridge inspector responsible for preparing inspection reports and rating analyses, including Bridge Management System (BMS) forms, for various steel, concrete, and prestressed concrete bridges and for performing visual examinations of welds and condition of concrete substructures.
- Allegheny County Bridges (1994) in Allegheny County for the Allegheny County Dept. of Public Works. Annual (1994) structure inspection program for 36 county-owned structures including steel girder structures, prestressed concrete box beams, dual concrete arch tunnels, concrete box culverts, concrete arch culverts, a major steel thru truss bridge, and steel deck truss bridges, completed in 1994. Bridge inspector responsible for preparing inspection reports and rating analyses, including Bridge Management System (BMS) forms, for various steel, concrete, and prestressed concrete bridges and for performing visual examinations of welds and condition of concrete substructures.
- Allegheny County Bridges (1993) in Allegheny County for the Allegheny County Dept. of Public Works. Annual (1993) structure inspection program for 36 county-owned structures including steel girder structures, prestressed concrete box beams, metal pipe culverts, and concrete box culverts. Inspector for 26 Allegheny County Bridges-Group 95I-C, completed in 1993. Bridge inspector responsible for preparing inspection reports and rating analyses, including Bridge Management System (BMS) forms, for various steel, concrete, and prestressed concrete bridges and for performing visual examinations of welds and condition of concrete substructures.
- Hollow Road Overpass Bridge in Cabell County, WV for WVDOT, Division of Highways. Bridge inspection and rehabilitation project to strengthen and rehabilitate a dual 112'-long 3-span continuous steel multi-girder bridge, completed in 1993. Bridge engineer assisting with inspection and design. Inspection consisted of substructure sounding to locate delaminations, crack surveys, and checking condition of girder welds.
- Howells Mill Overpass Bridge in Cabell County, WV for WVDOT, Division of Highways. Bridge inspection and rehabilitation project to rehabilitate a 368'-long dual steel deck girder bridge comprising a 3-span continuous unit and a simple-span unit on each, completed in 1993. Bridge engineer assisting with inspection and design. Inspection consisted of substructure sounding to locate delaminations, crack surveys, and checking condition of girder welds.
- Korean War Veterans' Memorial Bridge (WV 7) over the Ohio River (formerly New Martinsville Bridge) in Wetzel County, WV for WVDOT, Division of Highways. Annual bridge inspection project for the 2,100'-long bridge consisting of three continuous thru-truss main spans and five multi-girder approach spans, completed in 2001. Bridge inspector responsible for preparing the inspection report, rating analysis, and structure inventory and appraisal forms, and for performing soundings (delamination surveys) of concrete substructure, and inspections of rivets, pins, and welds.

- Interstate 79, Sections S10 and S11 in Washington County for PennDOT, District 12-0. 4-R interstate highway rehabilitation project including rehabilitation of 6 miles of mainline highway, two full interchanges, 12 structures, 3 pipe culverts, and approximately one mile of adjacent roadways, completed in 1995. Bridge inspector for the Chartiers Creek Bridge in-depth inspection including a structural evaluation of girder welds, delamination and crack surveys of concrete substructures, and preparing the inspection report and inspection drawings.

### Summary

Mr. Beresford specializes in the design and inspection of bridges and building structures including analyses and cost estimating.

# Samuel G. Mazzella, P.E.

*Staff Engineer*

## Education

B.S. Civil Engineering 1979, University of Pittsburgh
Graduate Studies in Soil Mechanics and Foundation Engineering, University of Pittsburgh

## Registrations

Professional Engineer, PA 1997

## Certifications

Troxler Moisture-Density Gauge, 1982

## Previous Employment

Engineer at Ackenheil & Associates Geo Systems, Inc., 1979-1984

## Professional Experience

Mr. Mazzella joined GAI in 1984 and specializes in geotechnical engineering with emphasis on construction monitoring and analyses for bridge, highway, and earthwork projects. In addition to monitoring borehole drilling and subsurface investigations, he has been responsible for foundation evaluations and recommendations that have brought many projects to fruition. Highlights of a few representative projects are as follows:

- Free Market Building (formerly One Oliver Plaza) in Pittsburgh, PA for Grubb & Ellis Management Services, Inc. Parking structure condition survey and rehabilitation project for the elevated portion of a 57,000 sq.ft., 3-level below-grade, 30+-year old parking structure located beneath a 40-story office building and consisting of cast-in-place reinforced concrete one-way slabs supported by a concrete encased composite structural steel frame. Engineer evaluating an existing parking garage, including crack survey, observations, drawings of the field survey, and preparing a repair quantity estimate. The project work was completed in 1999.
- Latrobe Area Hospital in Latrobe, PA. Condition survey project completed in 1996 for a post-tensioned, composite-slab construction parking garage. Engineer evaluating an existing parking garage, including crack survey, observations, drawings of the field survey, and preparing a repair quantity estimate.
- Pittsburgh City Sewers in Pittsburgh, PA for the City of Pittsburgh, D.E.C. Sewer rehabilitation/ reconstruction project for 8 sewers (storm, sanitary, combination), completed in 1997. Engineer responsible for developing details, specifications, and engineering cost estimates for the rehabilitation of three existing sanitary sewer lines, including applying fiber reinforced shotcrete to approximately 10,000 ft of brick and block sewer lines, and adding two new manholes to the lines.
- Warren, Luray and Newport Hydroelectric Stations in Virginia for Allegheny Energy. A condition survey project to assess the aforementioned concrete dams that serve the respective hydroelectric stations. Engineer responsible for supervising preliminary concrete core sampling and participated in the subsequent detailed field inspections and reports to assess the existing condition and develop repair recommendations and documents. Investigation work was completed in 1988.
- Trinity South Elementary School in Amwell Township, Washington County, PA for Trinity Area School District. Forensic investigation project to explore the results of expansive shale damage to a single-story school. The project work was completed in 2001. Engineer responsible identifying reacted

shale; monitoring and documenting the as-built conditions for forensic investigation and the repairs to the building; collecting soil and rock samples for testing and other forensic information related to damage done by the expansive shales and preparing the geotechnical investigation and construction monitoring reports and providing expert testimony for litigation.

- Fort Steuben Mall in Steubenville, OH for The Goodman Co. Construction and renovation activities spanning 15+ years at a shopping mall requiring extensive geotechnical and structural engineering services to repair problems with expansive shale. Engineer providing landslide site reconnaissance and subsurface exploration (Standard Penetration Test and rock coring); slope stability analysis (Simplified Bishop Method) for pre-slide and remediation of slope geometries; developing repair schemes, an engineer's cost estimate, and construction documents; and providing construction monitoring for the repairs.
- Mitchell Power Station in Courtney, PA for Allegheny Energy Supply. An assessment of the effects on Mitchell Power Station of the Corps of Engineers lowering the normal pool for the Monongahela River by more than three feet, and what modifications would be required to offset those effects. The engineering study included potential site modifications, including future levels for river dredging, which would be required when lowering the Monongahela River pool, and provided recommendations, construction cost estimates, and repair drawings and specifications. The work was completed in 2003.
- Mr. Mazzella was the engineer responsible for construction monitoring, concrete testing, and evaluating the geotechnical capacity of the 64 drilled shaft foundations constructed for the Colver-Glory Transmission Line in Cambria and Indiana Counties, PA for Penn Line Services, Inc. The design and construction was for a 9.5-mile-long, 115 kV transmission line from Colver Power Plant to Penelec's Glory Substation for a single-pole transmission line. The drilled piers ranged in size from 4.5' to 8.5' in diameter and were embedded to a depth of 10' to 31'. During excavation, the field evaluation of the soil and rock strata led to adjusting four of the embedment depths, saving excavation time and foundation costs.

# Craig W. Steigerwald, P.E.

*Staff Engineer*

## Education

B.S. Civil and Environmental Engineering 1995, University of Pittsburgh

## Registrations

Professional Engineer, PA 2000

## Certifications

Troxler Moisture-Density Gauge
Pennsylvania Department of Transportation Construction Documentation Systems (CDS)

## Professional Experience

Mr. Steigerwald joined GAI in 1995 and has gained professional experience through his work on many projects including the projects described below.

*Construction Monitoring*

- One Oliver Plaza in Pittsburgh, PA for Grubb & Ellis Management Services, Inc. Parking deck rehabilitation project. Engineer responsible for construction monitoring of structural repairs to the parking deck and ramps including: delineating repair areas, evaluating condition of existing steel reinforcement and concrete encased steel beams, reviewing repair areas prior to concrete placement, and documenting repair quantities.
- One Riverfront Center in Pittsburgh, PA for Axiom Real Estate Management, Inc. Parking deck rehabilitation project. Engineer responsible for construction monitoring of structural repairs to the parking deck including: delineating repair areas, evaluating condition of existing steel reinforcement, reviewing repair areas prior to concrete placement, monitoring installation of waterproof membrane on repaired parking deck, and verifying repair quantities.
- Fourth Avenue Parking Garage in Pittsburgh, PA for Kaclik and Graves Architects. Parking garage rehabilitation project. Engineer responsible for construction monitoring of structural repairs to the garage including: delineating repair areas, evaluating the condition of existing steel reinforcement, reviewing repair areas prior to concrete placement, and preparing as-built drawings.
- Seward Power Plant H-Piles in Seward, PA for Duke Fluor Daniel. Geotechnical services project in support of a new power plant to develop practical and reliable criteria to enable driving H-piles on a site underlain by hard and soft rock. Engineer responsible for field monitoring installation of H-pile foundations. (C01-159)
- Roanoke Conference Center Foundation in Roanoke, VA for the Hotel Roanoke Conference Center Commission. Structural evaluation project to design underpinning for the safe removal of expansive slag from beneath 40 heavily loaded building foundations and the on-grade portion (approx. 60,000 s.f.) of the conference center building. Engineer performing construction monitoring of micro pile installation and removal/replacement of slag material. (C98-246, C99-231)
- Engineer providing construction monitoring services on two projects at Harrison Power Station in Shinnston, WV for Allegheny Energy. The projects involved the installation of micro pile foundations for SCR facilities and the Phase I-Lower Tributary Valley (LTV) expansion to the ash containment liner at the Pigotts Run Disposal Site. (C00-276)
- PNC Park Bulkhead Wall in Pittsburgh, PA for L.D. Astorino & Associates, Ltd. Structure design and construction monitoring project to provide final design and construction monitoring services for a 1,110'-long anchored sheet pile wall to support the river walk area between the PNC Baseball Park and the Allegheny River, including a tieback system consisting of 142 inclined soil anchors. Engineer

responsible for construction monitoring of bulkhead wall construction activities including soil anchor installation and testing. (C98-491)

- U.S.S. Clairton Coke Works in Clairton, PA for the United States Steel Corporation. Geotechnical investigation project to remedy settlement of facilities along river wall. Field representative responsible for the compaction and void filling grouting program, including researching utility locations, developing construction drawings, and reviewing material submittals, as well as, performing daily drilling and grouting operations. (C95-210)

*Geotechnical Analysis and Design*

- S.R. 0048, Section A19, Landslide in Allegheny County, PA for the Pennsylvania Department of Transportation. Retaining wall design for landslide repair along State Route 48 requiring design of two anchor pile and lagging walls including determining wall pressures, steel posts, anchor requirements, and drilled shaft dimensions. Slope stability analysis was performed using the program *PC-Stable*. (C00-277)
- Penn Crossing Commercial Development in Harrison City, Westmoreland County, PA for Lorasen Holdings, Inc. Commercial site development project for a residential development including over 5 acres of new and mitigated wetlands, an ongoing project. Engineer responsible for field monitoring the geotechnical investigation, evaluating field data, and slope stability analysis of fill slopes associated with the proposed grading plan. (C99-333, C01-122)
- S.R. 0088, Section 40M in Allegheny County, PA for PennDOT, District 11-0. Geotechnical investigation project 600' south of the intersection of SR 0051 and SR 0088 to widen a 2,000' section of SR 0088 requiring three pile and lagging walls along Chartiers Creek totaling 1,000 linear feet. Engineer responsible for designing pile and lagging retaining walls including preparing detailed cost estimates, calculating the embedment lengths of drilled shaft foundations, and sizing steel piles and reinforced concrete foundations. (C94-559)

*Transmission Line Design and Analysis*

- Beckjord-Feldman 138 kV Transmission Line in Cincinnati, OH for Cinergy CG&E. Reconductoring project requiring analysis for eight types of steel lattice towers due to the planned installation of larger conductors to increase power transfer. The analysis included identifying maximum loads imposed on angle members, connections, clamps, and insulators. The modeling of the transmission line structures was performed with the computer program *PLS-TOWER*.
- Poe-Ivor Transmission Line in Prince George, Sussex, and Southampton Counties, VA for Dominion Virginia Power. Foundation evaluation project for a 33.8-mile-long double-circuit, 115 kV transmission line to assess the condition and ability of the foundations to resist new design loads associated with re-sagging conductors on the line. Engineer responsible for visiting 40 tower sites in the Poe-Ivor segment of the line to define soil conditions and collect soil samples. (C00-417)

## Summary

Mr. Steigerwald specializes in geotechnical and structural engineering, exploration, analysis, design, and construction monitoring.

Mr. Steigerwald is an integral part of GAI's overall project quality control process, conducting quality assurance checks for a multitude of geotechnical and structural design and analysis projects within GAI's Geotechnical and Structures Group.

# Dennis J. Nebiolo

*Senior Technician*

## Education

B.S. Biology 1974, Edinboro State College

## Certifications

Quality Geotechnical Laboratory Testing 1989, University of Missouri, Rolla
PennDOT Certified Concrete Field Testing Technician – Certification Expires 2010
ACI Concrete Field Testing Technician, Certification Expires April 2010

## Professional Experience

Mr. Nebiolo joined GAI in 1974 and has gained professional experience through his work on many projects, including the projects described below.

*Construction Monitoring Geotechnical Field Technician*

- Laboratory testing of soils, structural fills and concrete involved in failures such as slope stability, settlement, and expansion for the Summerset at Frick Park Residential Development at Nine Mile Run in Pittsburgh, PA for the Urban Redevelopment Authority of Pittsburgh. Residential development project for a 238-acre brownfield site requiring Phase I and II grading, design, and permitting; and residential development project requiring infrastructure planning, design, and permitting for a 713-unit multi-phased residential development on an abandoned riverside slag dump bordering the main access highway to Pittsburgh's eastern suburbs.
- Pile driving monitoring at First Energy's Seward Generating Station; and slip form and rebar inspection, and fresh concrete field testing for ash silos at the Seward Generating Station in New Florence, PA.
- Sampling and testing of representative construction materials, soil and granular fill compaction field monitoring, and field and laboratory concrete testing for the Rapid Dump Railcar Unloader (RDRU) at the Allegheny Energy Bruce Mansfield Generating Station; for Turnberry Associates' Village Shops at the Monroeville Mall; and for the PNC Data Center at Robinson Towne Center for Grubb & Ellis.
- Test pit excavation monitoring, sampling, and testing of representative soils, and construction monitoring of compacted soil backfill for Continental Building Systems, Inc.'s proposed warehouse project at Cranberry Park in Cranberry, PA.
- Examination and photography of dam intake and access towers and access bridge remediation to verify specified materials, material quantity, anchor and weld plate locations, welds, stiffeners, and surface preparation and paint for the Keystone Generating Station access bridge project for First Energy.
- Field technician responsible for inspecting and testing material for the 400'-high earth and rockfill Little Blue Run Dam near Shippingport, PA. Piezometer installation for continuous monitoring of pore pressure response. Large scale density testing on rockfill and nuclear moisture-density gauge testing of soils and granular filter materials.

## Summary

Mr. Nebiolo has been responsible for providing testing support for GAI's materials testing laboratory for in-house projects as well as for client's contracting GAI's laboratory services, responsible for contracts, cost estimates, proposals, reports, and invoice tracking. GAI's laboratory testing clients include a wide range of engineering and environmental consulting firms and construction and contracting companies.

Mr. Nebiolo has been responsible for providing fresh concrete testing in the field as well as the laboratory concrete strength testing on several projects.

## Dennis J. Nebiolo

*Senior Technician*

Mr. Nebiolo specializes in applying field and laboratory techniques in the areas of soil and rock mechanics, botany, mycology, plant taxonomy, plant anatomy, and microbiology; water quality analysis; identification and quantification of phyto- and zooplankton; fishery population studies. He specializes in identifying and preparing various soils, rocks, rock core, and natural and man made potential construction materials for laboratory analysis; and interprets and applies various standards regulating laboratory testing procedures for geotechnical engineering and related fields.

Mr. Nebiolo presented a 2-hour training seminar, a Continuing Education Seminar, on slurry wall construction containment barriers, involving pre-construction subsurface investigation, materials testing and compatibility, field installation techniques, and options followed by quality control testing.

Mr. Nebiolo as a representative of the Geotechnical Group on the Safety Committee presented a 1-hour continuing education seminar on office and field safety in conjunction with the in-house associated forensic consultant on June 2006.

Allen & Shariff
CORPORATION

# Anthony E. Molinaro, Jr., P.E.

**Director**

**Assignment:** *Mechanical Engineer/Project Manager*

**Education**

B.S./1985/Mechanical Engineering/Gannon University, Erie, PA

**Professional Engineering Registrations**

1991/Reg. PE PA #41354-E , 1996/OH #E-60311, WV #15040

**Years with Firm:** 6

**Years with Other Firms:** 14

**Professional Experience**

Mr. Molinaro has over 19 years of experience in design, quality control, and project management of building mechanical, electrical, plumbing, fire protection (MEP/FP) and Data Telecommunication systems. He has experience in education, aviation, government, military, commercial and transit projects. His area of specialty is the design of HVAC systems including: energy management and control systems for medical facilities, data centers, corporate headquarters, educational facilities, multifamily housing, and transit facilities. Mr. Molinaro's responsibilities include HVAC system selection and design, specifications, energy studies, writing design guidelines, value engineering, complete inter-discipline coordination and quality control. Mr. Molinaro has designed and retrofitted multiple projects which have included renovation of chilled and hot water systems, all air systems and glycol systems for 24/7 operations. The system upgrades have also included the incorporation of energy conservation measures into the designs which have reduced the operating costs of the building MEP systems. Mr. Molinaro's extensive background as a design engineer and a project manager provides a strong foundation of understanding for complex engineering projects.

Mr. Molinaro's responsibilities as Director include supervising personnel, client interaction, budgeting and proposal preparation. Mr. Molinaro is responsible for interfacing with clients to obtain client needs, and incorporating those needs into contract documents. As a Director of Allen and Shariff Corporation, Mr. Molinaro is responsible for insuring that all the necessary resources required for successful design and implementation of the projects are made available to the team.

Mr. Molinaro's role in the overall project is to help the client in obtaining the most cost effective building engineering systems solutions for their projects in compliance with the project schedule. Experience is as follows:

**Smithfield & Liberty Garage - Pittsburgh, PA**

Project Manager - ASC provided MEP services for a renovation of the retail and pedestrian areas of the garage. Performed HVAC calculations and designed HVAC system modifications. Reviewed new lighting system design produced by the architect for applicability of design intent and desired light levels. Designed all life safety system modifications including: exit lights, emergency egress lighting, and fire alarm.

**Collier Division Garage (Port Authority), Pittsburgh, PA**

Port Authority of Allegheny Co. included the electrical design for a new transportation area, and a new body shop. Responsible for the electrical designs and coordinating design in-house, and interfacing with project architectural, structural, and mechanical designers. Work included the design of a new electrical service, power, lighting, telecommunications. Project total construction value of $1,400,000.

**Downtown Transit Center, Beaver, PA**

Services included HVAC design and specifications for a 14,000 square foot Transit Center, for the Beaver County Transit Authority. The facility contains mechanical and storage areas, waiting area, ticket office, public spaces, and administrative office space in addition to bus loading bays, bus waiting areas, parking lot, and a kiss-n-ride drop off.

**Pittsburgh Intl. Airport - Parking Garage Stairwell Replacement**

Allegheny County Airport Authority - Provided mechanical, electrical, and plumbing design services for the replacement of four existing stairwells in the existing short term parking garage. Systems involved include lighting, fire alarm, life safety, fire protection, and heating and ventilation

**PACE Northwest Division Garage Improvements, IL**

This project was the renovation and expansion of a 110,000 square foot, 80-bus garage maintenance and storage facility from concept design to construction phase services for the Regional Transportation Authority of Northeastern Illinois.

Allen & Shariff
CORPORATION

# Craig Johnson, C.I.P.E.

**Plumbing Department Head**

**Assignment:** *Plumbing/Fire Protection Engineer*

**Education**

2005 - NFPA Fire Protection Certification Class
1999 - University of Wisconsin Fire Protection and Sprinkler Systems
1981 - Air Conditioning and HVAC - Lincoln Technical Institute
1977-78 Mechanical & Electrical Design - Montgomery (MD) College

**Professional Engineering Registrations**
1984 - Certificate in Plumbing Engineering (CIPE)

**Years with Firm:** 1.5
**Years with Other Firms:** 27

**Professional Experience**

Mr. Johnson has over 27 years of experience in the design of HVAC, plumbing, sprinkler and fire life safety protection systems for a wide variety of existing and new data/computer room and telecommunications installations and upgrades, a wide variety of existing and new high and low-rise projects, recreational and residential complexes, office buildings, parking structures, hospitality facilities, restaurants, etc.

His work includes design of plumbing and fire protection systems, layout of bulk mains and fire standpipes, fire pump rooms, equipment selection and specification of performance criteria. He routinely coordinates the work of mechanical, electrical, structural and architectural disciplines and is thoroughly familiar with NFPA, 101 Life Safety and local codes. Mr. Johnson's relevant experience includes:

**Potomac Yard Land Bay (Mixed-Use) - Arlington, VA**

Plumbing/FP Engineer - 15-acre mixed-use community - 2,848,001 SF of office, **parking garge, residential,** hotel and **retail** development in an urban town center environment. ASC is presently providing MEP engineering services for the MEP design for the Land Bays B, C, D West, D East and E West

**University Town Center (Mixed Used) - Hyattsville, MD**

Plumbing/FP Engineer - 725,000 sf of mixed-use space now under construction at University Town Center in Hyattsville, MD. ASC is designing the MEP engineering systems for the following:
Building 1: Total 154,000 GSF - 8 floors with the first floor consisting of 27,000 SF of retail, lobby, office space.
Building 2: 36,500 GSF - 5 floors consisting of 18 **condominium** units on the second through fifth floors and future **retail** on the first floor. The condo unit area is 27,000 SF and retail area is 9,500 SF.

**National Harbor Buildings J & M (Waterfront St.) - National Harbor, MD**

Full MEP design for two new office buildings. Building 'J' consists of 65,420 SF of office, 26,819 SF of "cold dark shell" and a 1230 space **parking garage**. Building 'M' is very similar with 65,420 SF of office, 12,740 SF of retail and a 1236 space parking garage.

**Salvation Army Divisional Headquarters, Washington, DC**

MEP, fire protection and sanitary engineering systems for this new 70,000 SF office building with 48,000 SF of **below grade parking** (Construction Amount: $50M).

**Prince George's Co. Justice Center - Upper Marlboro, MD**

Plumbing/FP Engineer - This new facility is comprised of a new 400,000 SF courthouse accommodating district and circuit courts, a **2,000 car parking structure** and a new two-story food services building. This project has been nominated for several awards of excellence in innovative and cost effective architecture and engineering. The mechanical and electrical systems in this complex boast the state-of-the-art design in Energy Management and Control System (EMCS) design.

**Student Housing at George Washington University**

MEP system design for this $10 million, 8-story 118 unit student **housing** facility with **two levels of underground parking.**

**1100 New York Avenue, Washington, DC**

MEP design for the incorporation of existing 17,700 SF Greyhound Bus Terminal into a new 12-story atrium, and three levels, 301 spaces of **underground parking**.

**Carlyle Towers - East Building, Alexandria, VA**

Chief Plumbing Engineer for the MEP system design for this 20-story **condominium** building with six townhouses and 160 above grade **parking** spaces. Construction Dollar Value: $25M

Allen & Shariff
CORPORATION

# Jason D. Whitfield, RCDD

**Electrical Designer**

**Assignment:** *Electrical Engineering Technology*

**Education**

2000/B.S. Business Management - Concentration in Electrical Engineering Technology - Point Park College, Pittsburgh, PA
1995/A.S. Drafting & Design - Community College of Allegheny Co., PA

**Professional Engineering Registrations**
RCDD Certification - National

**Years with Firm:** 2
**Years with Other Firms:** 12

**Professional Experience**

Mr. Whitfield is proficient in the design of Electrical (power, lighting, fire alarm), Telecommunications, Outside Plant Telecommunications Infrastructure and Cabling Systems, Low Voltage and Security systems for Educational, Commercial and Institutional. He is especially experienced designing low voltage systems for "High Tech" clients. In addition, he has participated in Project Management of various tasks, developed scope of work with clients, produced final working drawings using most current ACAD software, coordinated design between inter-disciplines, created and reviewed specs and final drawings, and participated in field work for preparation of projects.

**Additional Education/Affiliations:**

C.E., Voice, Data and Telecom Course - Duquesne Light; Certification in Siemon Cable System Design; Building Industry Consulting Services International (BICSI); American Society for Industrial Security (ASIS)

Experience is as follows;

**Closed Circuit Television (CCTV) Related Experience:**

Collington Retirement Home –CCTV system, District of Columbia
PNC Bank – CCTV system design for 41st, 42nd and 43rd Floor, Pittsburgh, PA
UPMC Cancer Center West – CCTV system, Moon Township, PA
UPMC Medical Center Natrano Heights – CCTV system, Natrona Heights, PA
UPMC Passavant Hospital, East Wing – CCTV system, Pittsburgh, PA
Magee Women's Hospital – CCTV system, Pittsburgh, PA
Springfield Elementary School, Connellsville School District – CCTV system, Connelsville, PA
West Hempfield Middles School, West Hempfield School District - CCTV system, West Hempfield, PA
Center for Arts and Performing Arts (CAPA) – Pittsburgh Public Schools - CCTV system, West Hempfield, PA

**Fire Alarm Related Experience:**

Collington Retirement Home – Campus Fire Alarm System, District of Columbia
USX Tower – High Rise Fire Alarm System, Pittsburgh, PA
Seagate Technology – FM200 System for Computer room, Pittsburgh, PA
PNC Bank – Fire Alarm System Design for 41st, 42nd and 43rd Floor, Pittsburgh, PA
UPMC Cancer Center West – Fire Alarm System, Moon Township, PA
UPMC Medical Center Natrano Heights – Fire Alarm System, Natrona Heights, PA
UPMC Passavant Hospital, East Wing – Fire Alarm System, Pittsburgh, PA
Magee Women's Hospital – Fire Alarm System, Pittsburgh, PA
Magee Research Center – Fire Alarm System, Pittsburgh, PA
Mercy Hospital – Fire Alarm System, Pittsburgh, PA

**Security/Access Related Experience:**

Collington Retirement Home –Security/Access system, District of Columbia
PNC Bank – Security/Access system design for 41st, 42nd & 43rd Floor, Pittsburgh, PA
UPMC Cancer Center West – Security/Access system, Moon Township, PA
UPMC Medical Center Natrano Heights – Security/Access system, Natrona. Heights, PA
UPMC Passavant Hospital, East Wing – Security/Access system, Pittsburgh, PA
Magee Women's Hospital – Security/Access system & main security control room design, Pittsburgh, PA
Springfield Elementary School, Connellsville School District – Security/Access system, Connelsville, PA
West Hempfield Middle School, West Hempfield School District - Security/Access system, West Hempfield, PA
Center for Arts and Performing Arts (CAPA) – PPS - Security/Access system, West Hempfield, PA
Western Psychiatric Institute & Clinic) – Pittsburgh Public Schools - Security/Access system, West Hempfield, PA
Processing and Distribution Center – United States Postal Service - Security/Access system, Pittsburgh, PA
Frick International Studies Academy – Pittsburgh Public Schools - - Security/Access system, Pittsburgh, PA
Reizenstein Middle School – Pittsburgh Public Schools - - Security/Access system, Pittsburgh, PA
Prospect Multicultural Center – Pittsburgh Public Schools - - Security/Access system, Pittsburgh, PA