

Michael Baker

INTERNATIONAL

We Make a Difference

December 4, 2018

Melissa K. Pettrey, Senior Buyer
Department of Administration
Purchasing Division
2019 Washington Street E.
Charleston, West Virginia 25305

RECEIVED

2018 DEC -4 PM 12: 32

WV PURCHASING
DIVISION

**Subject: Professional A/E Services for the General Services Division
Building Twenty-Three Renovations Project – CEOI 0211 GSD1900000002**

Dear Ms. Pettrey:

The Charleston, WV office of Michael Baker International, Inc. (Michael Baker) is pleased to respond to a solicitation for the Expression of Interest for Engineering and Architectural Services related to the proposed renovations to Building Twenty-Three in Beckley West Virginia. Michael Baker is interested in the mission of your agency and would like to engage with the General Services Division as a trusted facilities consultant. We believe that our team of professionals is uniquely qualified to partner with the General Services Division on this important project and help bring their vision for the Building Twenty-Three renovation into reality.

Michael Baker is well positioned to assemble a comprehensive design team (in-house) including: Architectural, Interior Design, Mechanical, Electrical, Plumbing, Structural and Fire Protection Engineering as well as IT and Communications expertise. Our diverse team of professionals are well seasoned in the preparation of construction documents, bid specifications, and the application of required code compliance and construction permits. Michael Baker can also provide leadership or assistance during the Bidding process and the appropriate level of Construction Administration during the Construction Phase.

We thank you for your consideration and look forward to meeting with the selection committee in person in order to share our thoughts and ideas for this exciting opportunity!

Should you have any questions or require additional information, please feel free to contact me at (304) 769-2132 or by e-mail at pfogarty@mbakerintl.com.

Very truly yours,
Michael Baker International, Inc.


Patrick W. Fogarty, P.E., P.S., LEED®GA

Enclosure

MBAKERINTL.COM

400 Washington Street, Suite 301 | Charleston, WV 25301

Office: 304.769.0821 | Fax: 304.769.0822



Purchasing Division
 2018 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

State of West Virginia
 Centralized Expression of Interest
 02 - Architect/Engr

Proc Folder: 512635

Doc Description: EOI: Building Twenty-Three Renovations

Proc Type: Central Contract - Fixed Amt

Date Issued	Solicitation Closes	Solicitation No	Version
2018-11-08	2018-12-04 13:30:00	CEOI 0211 GSD1900000002	1

BID CLERK

DEPARTMENT OF ADMINISTRATION

PURCHASING DIVISION

2019 WASHINGTON ST E

CHARLESTON

WV 25305

US

VENDOR

Vendor Name, Address and Telephone Number:

Michael Baker International, Inc.
400 Washington Street East, Suite 301
Charleston, West Virginia 25301

FOR INFORMATION CONTACT THE BUYER

Melissa Pettrey
 (304) 568-0094
 melissa.k.pettrey@wv.gov

Signature X

FEIN # 25-1228638

DATE 04Dec2018

All offers subject to all terms and conditions contained in this solicitation

**Expression of Interest
(Renovation of Building 23)**

The West Virginia Purchasing Division is soliciting Expression(s) of Interest for the Agency, The West Virginia Department of Administration's, General Services Division, from qualified firms to provide architectural/engineering services per the Expression of Interest and Terms and Conditions referenced herein and attached hereto.

Online submission of Expression of Interest is prohibited.

OFFICE TO	MAIL TO
DEPARTMENT OF ADMINISTRATION GENERAL SERVICES DIVISION 112 CALIFORNIA AVENUE, 5TH FLOOR CHARLESTON WV25305 US	DEPARTMENT OF ADMINISTRATION GENERAL SERVICES DIVISION BLDG 23 407 NEVILLE ST BECKLEY WV 25801 US

Line	Comm Ln Desc	Qty	Unit Issue
1	EOI: Building Twenty-Three Renovations		

Comm Code	Manufacturer	Specification	Model #
81101508			

Extended Description :

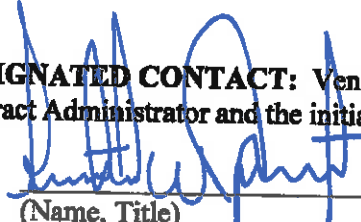
EOI: Building Twenty-Three Renovations

GSD1800000002	Document Phase Draft	Document Description EOI: Building Twenty-Three Renovations	Page 3
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ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

 **SENIOR ASSOCIATE**

(Name, Title)

Patrick W. Fogarty, Senior Associate

(Printed Name and Title)

400 Washington Street East, Suite 301, Charleston, WV 25301

(Address)

304-769-0821 / 304-769-0822

(Phone Number) / (Fax Number)

pfogarty@mbakerintl.com

(email address)

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

 **Michael Baker International, Inc.**

(Company)

 **Patrick W. Fogarty, SENIOR ASSOCIATE**

(Authorized Signature) (Representative Name, Title)

Patrick W. Fogarty, Senior Associate

(Printed Name and Title of Authorized Representative)

04Dec2018

(Date)

304-769-0821 / 304-769-0822

(Phone Number) (Fax Number)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CE01 0211 GSD1900000002

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

- | | |
|---|--|
| <input type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6 |
| <input type="checkbox"/> Addendum No. 2 | <input type="checkbox"/> Addendum No. 7 |
| <input type="checkbox"/> Addendum No. 3 | <input type="checkbox"/> Addendum No. 8 |
| <input type="checkbox"/> Addendum No. 4 | <input type="checkbox"/> Addendum No. 9 |
| <input type="checkbox"/> Addendum No. 5 | <input type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Michael Baker International, Inc.

Company


Authorized Signature

04Dec2018

Date

NOTE: This addendum acknowledgment should be submitted with the bid to expedite document processing.

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

CONSTRUCTION CONTRACTS: Under W. Va. Code § 5-22-1(i), the contracting public entity shall not award a construction contract to any bidder that is known to be in default on any monetary obligation owed to the state or a political subdivision of the state, including, but not limited to, obligations related to payroll taxes, property taxes, sales and use taxes, fire service fees, or other fines or fees.

ALL CONTRACTS: Under W. Va. Code §5A-3-10a, 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: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. 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.

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.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-20-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"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 exceeds five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §81-5-3) that: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Michael Baker International, Inc.

Authorized Signature: [Signature] Date: 04Dec2018

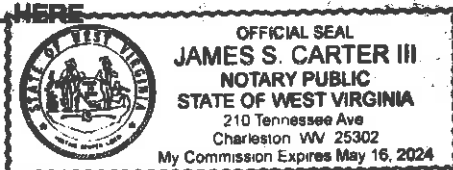
State of West Virginia

County of Kanawha to-wit:

Taken, subscribed, and sworn to before me this 4th day of December, 2018.

My Commission expires May 16th 2024, 2024.

AFFIX SEAL HERE



NOTARY PUBLIC [Signature]

Purchasing Affidavit (Revised 01/19/2018)

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SECTION I

PROJECT BACKGROUND

The West Virginia Department of Administration, General Services Division (GSD) is seeking a highly qualified architectural/engineering firm ready to provide design services and bid documents for the renovation of State Office Building Twenty-Three in Beckley West Virginia. The firm will be responsible to evaluate the existing conditions of the building, make recommendation and present cost-effective options followed by Construction Documents for upgrades and renovations to the building as specified in the Expression of Interest (EOI).

Michael Baker is extremely interested in continuing our relationship with WV General Services Division

Michael Baker International, Inc. (Michael Baker) is a highly qualified firm with extensive experience in providing the type of services required for these projects, and *Michael Baker is extremely interested in continuing our relationship with WV General Service Division* and in providing an innovative, efficient and phased renovation project for the Beckley Building.

QUALIFICATIONS & EXPERIENCE

Firm Introduction

Michael Baker

INTERNATIONAL

Michael Baker International, Inc. (Michael Baker), is a Pennsylvania-based corporation, founded in 1940, with its headquarters located in Pittsburgh, Pennsylvania. Michael Baker has maintained a local presence in Charlestown for over 50 years and our employees are committed to future of our state. Corporately with over \$1.3 billion in annual revenue, Michael Baker has nearly 6,000 employees in over 90 offices located across the U.S. and internationally, and is ranked as the 5th largest design firm for government office buildings in the U.S. by Engineering News-Record.

Michael Baker's team of experienced professionals has demonstrated the ability to deliver quality work products to our clients, on-time and within budget. Each individual on the selected project team has extensive experience in their field of expertise and have demonstrated success on projects of similar size and scope. Michael Baker can provide the entire depth of design services necessary to complete the project but will engage an independent estimating service to insure an unbiased construction cost opinion. An Elevator inspection and consulting service will also be engaged.

FIRM CAPACITY

Michael Baker has worked across the United States on existing building renovation projects to create improvement and revitalization plans; partnering with local governments, NGOs and nonprofits from planning through construction. We have thoroughly reviewed the EOI and are confident we can deliver the services requested.

Professionals from our local office in Charleston WV have worked on many of these nationwide projects as well as projects here at home. Michael Baker is a "single-stop resource" capable of providing comprehensive professional services, from Mechanical/Electrical and Structural Engineering to Architecture and Planning, final design, and construction management through operational support. With the vast resources available from a large company, experts in many fields can be brought together seamlessly to develop innovative solutions for this challenging assignment. The local Michael Baker staff will provide the hands-on services needed for this project, from Client meetings to site surveys, design and Construction Administration/Inspection. With over 30 in house professionals' minutes away from the Capitol and only a one hour drive from the project site, Michael Baker can respond quickly and efficiently to the needs of your project.

Some of Michael Baker's local clients for facility design and renovation projects include, but are not limited to, colleges and universities, counties, parishes, cities, townships, local municipalities, state departments of transportation, military facilities, airports, and private sector clients. Michael Baker's geographic location and experience enables us to respond seamlessly to a wide-ranging scope of services in order to meet our client's needs.

Over the past decade, Michael Baker was retained by WV General Service Division to develop a Master Plan for the State Capitol Complex and to provide a study and a renovation design for public restrooms at the historic West Virginia State Capitol Building. More recently, Michael Baker provided a comprehensive study of storm water flooding issues in the State Capitol Building.

Functioning as an extension of WVU's staff, Michael Baker provided full-time, on-site owner representation to monitor the work of the designer, contractor, and construction management team on the projects noted below at WVU Morgantown.

- Life Sciences Building
- Wise Library Renovation and Expansion
- New Student Recreation Center
- Creative Arts Center Facility Condition Assessment
- Creative Arts Center Renovation
- Allen Hall HVAC Upgrade and Asbestos Abatement
- Clark Hall and Boreman Hall South Roof Assessments
- Boreman Hall South Roof Repairs



WVU Wise Library Renovation and Expansion

In addition, Michael Baker has worked on numerous architectural, HVAC, plumbing, electrical, life safety and sprinkler renovations around the region. Recently, Michael Baker designed and provided oversight during the renovation of buildings at the relocated WVU Tech campus in Beckley West Virginia. These renovations included; architectural, interior design, new roofing, a new and upgraded fire sprinkler system, upgrades to fire alarm systems, and HVAC renovations and upgrades. The size and scope of which is very similar to the project presented in this EOI.



WVU Tech Engineering Classroom Building Renovation

Currently Michael Baker is working on renovation projects at the West Virginia Schools for the Deaf and the Blind in Romney WV. Which includes HVAC, Electrical, Fire Alarm, Life Safety, Fire Sprinkler and architectural projects in multiple buildings.

For Michael Baker, no job is too large or too small locally or nationally!

Nationally, Michael Baker, is a leading global provider of engineering and consulting services which includes planning, architectural, environmental, construction, program management, and full life cycle support services as well as information technology and communications services and solutions. Michael Baker provides its comprehensive range of services and solutions in support of U.S. federal, state, and municipal governments, foreign allied governments, and a wide range of commercial clients. Michael Baker seamlessly integrates architecture, planning, landscape architecture, engineering and management. Internationally recognized with a portfolio spanning over half a century, the team provides excellence in solutions: superior technical ability, creative design and collaborative integration.

The success of our multidisciplinary approach to built environments results from the expertise of our design professionals. We solve challenges from multiple vantage points providing unsurpassed holistic, sustainable and innovative solutions that benefit our diverse clients, including institutions, governmental agencies, corporations, developers and builders.



Institute for Scientific Research, Fairmount WV

In summary,

Michael Baker has the resources and the required qualifications to provide planning, architecture, engineering and design services for GSD on this important project. We have local and nationally recognized experts with the technical experience necessary for this assignment. In addition, Michael Baker's team of experienced professionals have an established record of delivering quality work products to our clients, on schedule and within budget.

Michael Baker's staff can provide documentation of our vast experience in the following areas for this project:

- Nationally recognized expertise in Architecture, Assessment, Programing and Planning
- Facilities Engineering (Civil, Structural, Mechanical, Fire Protection, Plumbing and Electrical)
- Construction Administration and Construction Monitoring
- Coordination with State and Federal Agencies, as required

From major new or renovated building facilities, infrastructure and aviation, to oil and gas pipeline design, bridges and roadway designs, and water resource projects, Michael Baker has evolved into one of the leading engineering and energy services firms by consistently providing targeted solutions for its client's most complex challenges.

DEMONSTRATED EXPERIENCE IN COMPLETING PROJECTS OF A SIMILAR SIZE AND SCOPE FOLLOWS IN SECTION II

PROJECT TEAM

The Principal-In-Charge will ensure that all required resources including staff and equipment are available to the project manager to execute the project successfully. Team resumes, and project profiles provide a brief discussion of team member's experience base relevant to this project.

Michael Baker International, Inc.

Russell Hall, Vice President | 400 Washington Street, Suite 301, Charleston WV 25301

304-769-0821 | RHall@mbakerintl.com

Management and Staffing

The project team will be staffed mainly out of the Charleston West Virginia office, with other professionals working from other offices on an as need basis. Patrick Fogarty will directly manage and coordinate efforts of the design team, overseeing design quality, budget and schedule. The selected Project Managers and primary client contacts for this Project will be divided between Duncan Penny, AIA and David Hilliard, PE; they will also lead the design team, with Senior Architect Joseph Chaffin having design oversight and serving as the Architect of Record. Duncan Penny will lead the space planning, architecture, structural and interior design aspects of the project while David Hilliard will lead the Mechanical/Electrical/Plumbing/Fire Protection portion. They will be coordinating extensively with the architectural designers and building engineers to provide the most efficient and practical solutions for the affected building. These professionals have worked together on numerous projects and bring a high degree of competency, understanding and experience for schedule and budget challenges such as those presented in this EOI.

Key Personnel Assigned to the Project

We are a nationwide firm. As such, we can draw from additional staff of designers and technical experts, providing you with a team that has the resources available to meet your deadlines. We are a diverse team. Our group of architects, designers, engineers and construction management specialists can address any technical issue that may be encountered during all project phases. Unlike most firms, we have in-house personnel specializing in telecommunications, LEED/sustainability, historic preservation and construction management.

As Architect of Record, Joseph Chaffin's professional experience demonstrates a broad practice of architecture and the ability of balancing his creative, organizational, and technical strengths for projects from residential through complex institutional projects. He challenges current capabilities, cultivates leadership, and develops new strengths through his position at Michael Baker. As Director of Architecture, Mr. Chaffin is responsible for the daily operations, design quality, and project execution of the architectural and interior design staff. He performs interdisciplinary technical reviews for all designs and oversees coordination of related engineering disciplines. Ensuring the highest quality design services within budget and schedule parameters, he also emphasizes a "world view," or comprehensive perspective, within which professional services are delivered; prioritizing and maintaining client expectations.

Mr. Hilliard as lead Engineer, has a wide range of "hands on" design, engineering, and construction experience. From his beginnings as a carpenter he has expanded his professional abilities to a senior engineer for Michael Baker. His recent design experience has included the design and project management of the West Virginia State University IDIQ, various Higher Education facilities, the complex mechanical design of such projects as a large Charleston, West Virginia hospital, a Bus Maintenance Garage and office building for the West Virginia Department of Transportation, various Army National Guard Armories and Department of Defense projects, numerous HVAC/Electrical renovations, Master Planning and engineering at the West Virginia Capitol Complex including plumbing and HVAC renovation design on the historic State Capitol Building. His resume covers over 30 years of real world work in engineering, design, fabrication and construction in the mechanical, electrical and general trades.

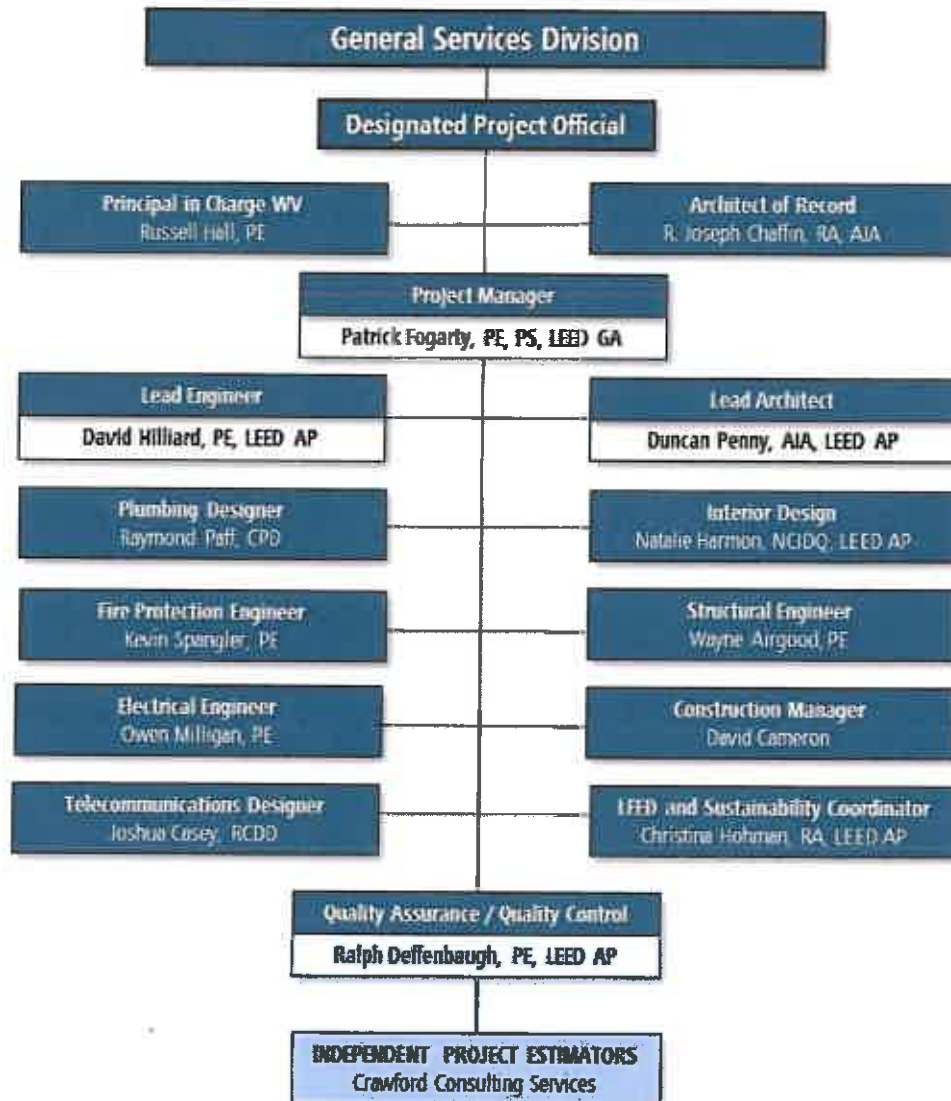
The team pledges our firm-wide resources to provide the GSD with the highest quality product and excellent client service that will exceed your expectations. We truly appreciate your consideration and would be delighted to further discuss our proposal upon request and stand ready to assist at your direction.

In summary, Michael Baker's knowledge of the project building and site, vast building design and inspection expertise, LEED accreditations and sustainable design expertise, and local relationships with GSD staff make us uniquely qualified firm for this important project. Our team is structured around key personnel that have successfully delivered many similar projects and are committed to the quality and schedule required by the GSD.

STATEMENT OR EVIDENCE OF THE FIRM OR TEAM'S ABILITY TO PROVIDE SERVICES

This team was selected based on the current Project understanding. Additional team support members or specialists will be engaged on an as need basis. The process is part of the normal working procedure and is seamless in execution.

MANAGEMENT



RESUMES OF TEAM MEMBERS ARE INCLUDED IN SECTION III & SUB CONSULTANT QUALIFICATIONS IN SECTION IV

IMPLEMENTATION & METHODOLOGY

GOAL ONE: SITE INVESTIGATION

Provide a thorough evaluation

Qualifications, Experience, and Past Performance provide anticipated concepts and proposed methods of approach for achieving each of the Owners objectives.

It is Michael Baker's understanding that up-grades or renovations to the Building Twenty-Three in Beckley, West Virginia are desired. The approach of the entire project would be holistic in nature. A kick off meeting would be held to help us understand the complete project requirements. The first step of the project would be to prioritize work and develop time schedules for the project tasks. This process could include identification of existing conditions through information obtained by a review of the facilities as-built drawings and site investigations. Michael Baker will plan for site visits during the first weeks of the project and begin developing the concepts required to provide the designs for the most cost-effective systems to achieve the project requirements.



Beckley Building Entrance

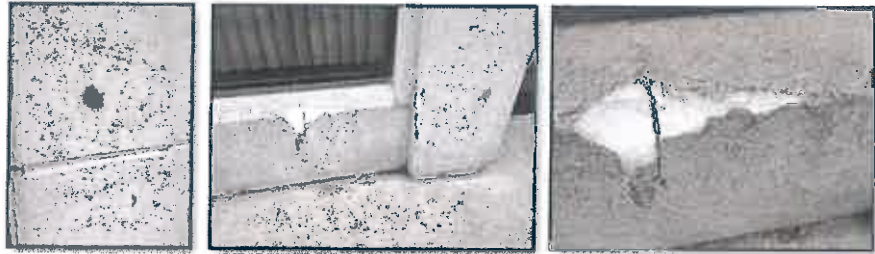
Michael Baker provides a variety of services with extensive experience in many fields of expertise. This allows the core team members access to expertise in all areas of study. Our Architects and Engineers will be involved in all aspects of the existing condition assessment and project design. Depending on the task this may include: Site/Civil, Architectural, Mechanical, Electrical, Plumbing, Fire Protection, Communication and Life Safety engineering. A Michael Baker structural engineer will be engaged to review existing conditions and design any up-grades to the facility's structure as required. As needed Client design coordination meetings and/or site visits will be provided as a normal part of the design development process. This will help to ensure that GSD is receiving the facility that they need to provide a quality experience for the patrons and staff.

The most apparent concern is the overall appearance of this WV State Office Building. General wear on the facility is evident both on the interior and the exterior.

Michael Baker would propose a proper analysis of the existing condition of the building envelope, with close review of the age of materials and assemblies in order to develop a complete design approach. At this time, our understanding is that the exterior of the building has been clad with an older exterior insulation finish system (EIFS) with signs of cracking, penetrations of the exterior coatings, separation of the reinforcing mesh, and possible break down of the underlying expanded polystyrene insulation. In some cases, early versions of this system can be patched with localized replacement of the expanded polystyrene insulation, the reinforcing mesh, and new application of the skim coating, followed by a complete building cleaning and top coating to conceal the patching. Although this can be an effective short term solution, care must be taken to completely analyze the existing conditions with the assistance of a manufacturer's representative, as the existing condition may not allow this approach, and the only practical long term alternative may be the complete removal of the existing cladding down to the substrate, with installation of a newer version EIFS system that includes a high strength reinforcing mesh and an internal drainage system.

If desired by GSD, Michael Baker can utilize our aerial drone systems to provide a video record of the façade and to capture photos of areas that show signs of deterioration that would need to be repaired. A report could be provided noting areas that appear distressed that would likely require a more detailed inspection and repair procedures to remedy. During the design phase Michael Baker would develop detailed recommendation for noted repair locations.

We believe that the drone inspection system would be quicker and more cost effective than more traditional methods. To utilize drones, the sidewalks or parking areas around the building would have to be closed off in small sections and for a limited time when the drone is flying. A 4-person team



Sample Damage to Building Exterior Finish

would consist of a drone pilot, ground observer to monitor the drone's position, an architect to view and control the video and photo documentation and an architectural assistant to record photo locations. It would be helpful, particularly around the entrances, to have assistance from the building maintenance staff to allow short closures of the sidewalks at the entrances to allow the drone inspections over these areas. Also, the building staff would need to be aware that the drone will be in use and visible outside the office windows which may be a concern to employees and patrons. Curtains or shades could be drawn in a coordinated manner to address this concern.

Additionally, Michael Baker can provide complete inspection to determine structural soundness of building components and the building envelope.

To gain a thorough understanding of the existing building and its usage, the following reviews or inspections would be performed prior to developing the Schematic Design options.

- Building code
- ADA and life safety
- Present conditions of the building envelope including exterior finish, windows and roof.
- Mechanical, sprinkler and plumbing systems
- Electrical, fire alarm and communication systems
- Elevator systems
- Evaluate the best approach for efficient space utilization and circulation issues
- Evaluate what would be required to bring the building up to more modern office standards.
- Determine the least disruptive approach for the design of a multi-phase construction project

GOAL TWO: DESIGN

Redesign existing building to resolve issues noted in the evaluation and to bring the building up to current office standards.

Qualifications, Experience, and Past Performance provide anticipated concepts and proposed methods of approach for achieving each of the Owners objectives.

Based on the information gathered, the Michael Baker staff will develop schematic design concepts for review and approval by GSD. A general code review would also be undertaken to determine the State/Local Codes and any special requirement that would affect concept selection. The projects will be studied in a systematic way to analyze the existing conditions, client needs, affected system demands, phasing, budget and construction time frame. Only then will the appropriate solutions to meet all those requirements be determined. Analyzing multiple solutions provides the client the ability to choose the most cost-effective approach for the project. Depending upon the desires of GSD, a minimum

of two potential design approaches will be presented. When various design concept options are developed, and the approach is identified from a technical standpoint, the cost estimating group would be engaged to provide the financial feasibility of each option.

Based on discussions and approvals from GSD, the approved schematic design will be brought into design development (DD) to produce 65% complete plans. DD level technical specifications and construction cost estimates will be provided at this submission.

Once the DD level documents have been approved, the plans will be further developed to provide a 95% set of documents for review by GSD. These plans could be used to submit to the State Fire Marshal as well as the City of Beckley for review and comment.



Beckley Building (Photo from Google Earth)

GOAL/OBJECTIVE 3: CONSTRUCTION DOCUMENTS AND CONSTRUCTION

Provide construction documents and construction phase services for a multi-phase construction project.

CONSTRUCTION DOCUMENTS

Regular progress submissions for review will be made to GSD as determined in the project schedule developed at the beginning of the project. **Michael Baker will work with GSD and the Beckley Building management to develop an efficient and practical project phasing plan.** This plan will be included within the construction documents for a multi-phase construction process. Also included will be plans to show the limitations and requirements for the demolition and removal of the existing components and systems to facilitate the new work. Documentation will include the location of "affected" existing utilities or service lines as needed for renovation efforts. Cost estimates will be updated upon the completion of the 100% Construction Documents plans and specifications. The Architect / Engineer designer of record will be providing final sealed drawings and specifications for the entire project whether multiple bid packages are utilized or plans, and specifications are provided as one project with multiple phases.

PLAN REVIEW

Michael Baker performs an Internal Technical Review (ITR) as part of our normal design process. This process is done on every project before it goes out the door and is part of "The Michael Baker Way of Project Management". This ITR is performed by professionals that are not part of the design team but are experts in the prospective fields that they review. This ensures a nonbiased and critical review of the project documents. This process helps to minimize small errors and omissions and yields a smoother bidding process.

PROJECT DRAWINGS

The drawings will be prepared in AutoCAD or Revit format, whichever is preferred by GSD and will have copyright protection. All files will be provided to the client upon completion of the project for future use. The drawings will be 'bound', such that the files will not require external references and allows for easy future use and alteration.

BIDDING DOCUMENTS

Michael Baker will provide all necessary design and bidding documents for all aspects of the design in accordance with West Virginia State Purchasing Guidelines. Specifications for the installation of all required products or components will be provided as part of the bid package. Drawings and documentation will be provided based on GSD provided as built drawings, site investigations and selected field measurements. Michael Baker will provide Bidding support and assistance as needed.

CONSTRUCTION ADMINISTRATION

Site visits and construction inspection serves are part of Michael Baker's holistic project services. The team members that started the project will be the same professionals providing the regular onsite inspections during construction. All products intended to be installed on the project shall be submitted to and approved by the A/E of record. The shop drawings provided by the awarded contractor will be reviewed by the A/E of record to ensure that they meet all code requirements, specification criteria and are appropriate for the project and will be approved based on meeting those requirements.

After the system installations are complete, Michael Baker will perform a final inspection and develop a corrective measure punch list and will coordinate with regulatory agencies to assure prompt award of the Certificates of Occupancy for the building.

COST CONTROL

GENERAL

Michael Baker has broad experience in sensitive and partially occupied renovations as well as "from the ground up" design and construction. The scope of this project, as presented, poses challenges that are exciting for our team of problem solvers.

The Michael Baker team is very familiar with most of the local contractors and can work productively with a selected contractor to provide the GSD with cost saving alternatives; if the bids come in over budget. The use of additive or deductive alternates can also be used to control project cost.

Also, as stated in the *Michael Baker Way*, Michael Baker professional ITR staff will have the opportunity to review the plans at each milestone and make comments or make recommendations to the project based on comparison with the Owner's Project Requirements, the current plans and specification, and the current project cost opinion. These considerations, along with open discussion with GSD staff, will determine whether we move forward with the current design or make engineered adjustments to the design to stay on budget.

DEMONSTRATED EXPERIENCE IN COMPLETING PROJECTS OF A SIMILAR SIZE AND SCOPE FOLLOWS IN SECTION II

SECTION II

WVU Institute of Technology, Classroom Building *Beckley, West Virginia*

Baker provided general Architectural and Engineering services to the West Virginia University Institute of Technology, Beckley Campus. The client requested a feasibility study, which laid the groundwork for the ambitious renovation of two buildings concurrently. The first was the Classroom building, the facility will house engineering labs, computer classrooms, psychological observation and Rat laboratories as well as some administrative services.

The Classroom Building required extensive coordination between generations of building engineering systems as well as selective demolition of architectural interior systems to allow for update use. The 31,000 SF facility was designed originally as a junior high school on the 1940's and was renovated to house technically advanced mechanical, hydraulic and computer engineering laboratories. To bring the facility to the 21st century, a student lounge, student rest and study spaces- where electronics can be utilized and charged- were devised from a former kitchen and corridor locker areas, respectively. A modern mechanical distribution system was designed to support air conditioning while a new, building-wide fire suppression system, complete with a larger water supply line, was engineered. The Classroom Building also included the design of a psychological observation laboratory that requires national accreditation and necessitated special design considerations.

The facility also received exterior upgrades and a completely new EPDM roof to shore up existing water problems. A large energy recovery unit was installed on the roof to provide fresh air to the classrooms throughout the building. The Classroom Building also required technical coordination of the existing door hardware to interface with existing products as appropriate and necessary. These hardware considerations also had to align with campus wide standards. Lastly, both facilities received interior upgrades to emphasize University branding elements and bring renewed life to a defunct campus.

Additionally, all portions- feasibility study to design and cost proposals- of this traditional design, bid, and build project were performed under a compressed and confined time constraint, allowing the client to successfully move one campus to another in one short year.

Client

West Virginia University
Beckley Campus
400 Kanawha Street
Beckley, WV 25801

Completion Date

July 2017

Michael Baker's Role

- Feasibility studies
- Architecture
- Mechanical engineering
- Fire Protection Engineering
- Electrical engineering
- Plumbing engineering
- Cost estimates
- Construction Administration



WVU Institute of Technology, Benedum Building *Beckley, West Virginia*

Baker provided general Architectural and Engineering services to the West Virginia University Institute of Technology, Beckley Campus. The client requested a feasibility study, which laid the groundwork for the fast pace renovation of the building prior to the start of the new school year in August 2017. The facility will house administrative services, student services, student government, a recreational area and upward bound.

The work completed at the 21,000 SF Benedum Center included interior finishes selection to support large numbers of student use. Other notable portions of the work included upgrades to the mechanical and fire alarm and fire suppression systems as well as retrofitted ADA toilet facilities. A conglomerate of three separate buildings, special attention was spent on exiting requirements and coordination of door hardware systems.

The facility also received a completely new EPDM roof and specialized basement wall treatments to shore up existing water penetration problems. The Benedum Center also required technical upgrades including new data lines and server. The project also requires lots of coordination of the existing door hardware to interface with existing products as appropriate and necessary. These hardware considerations also had to align with campus wide standards. Lastly, both facilities received interior upgrades to emphasize University branding elements and bring renewed life to a defunct campus.

Additionally, all portions- feasibility study to design and cost proposals- of this traditional design, bid, and build project were performed under a compressed and confined time constraint, allowing the client to successfully move one campus to another in one short year.

Client

West Virginia University
Beckley Campus
400 Kanawha Street
Beckley, WV 25801

Rob Moyer Facilities Director

Completion Date

July, 2017

Michael Baker's Role

- Feasibility studies
- Architecture
- Mechanical engineering
- Fire Protection Engineering
- Electrical engineering
- Plumbing engineering
- Cost estimates
- Construction Administration



USC-Center for Predictive Maintenance

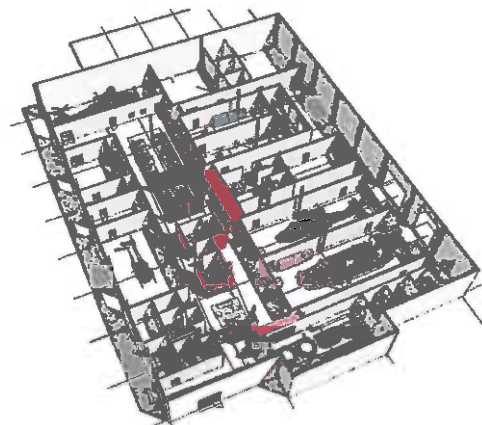
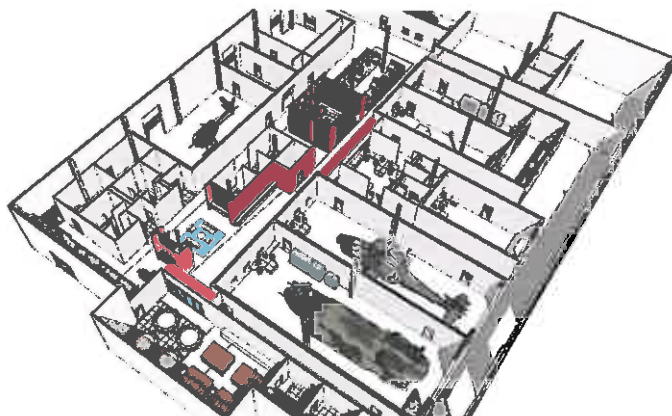
Columbia, South Carolina

Michael Baker is providing project management, programming, existing conditions documentation, grant assistance, architecture & interior design, opinion of probable cost, contractor interview assistance & negotiations and construction administration services for a new, expanded research facility, the USC Center for Predictive Maintenance part of the University's Condition-Based Maintenance Program.

The Condition-Based Maintenance Program at the University is an interdisciplinary group spanning four departments, and includes students at all levels of education, faculty members, and military personnel. The program combines research and implementation solutions to support the U.S. Army Aviation and ground-based vehicle assessment programs. The center supports science, technology, education, and mathematics programs, mentoring, and guidance to develop interest in engineering fields.

The new facility supports the mission of the Condition-Based Maintenance Program with appropriate engineering laboratory spaces and workshops with a style to attract and support new customers and innovative solutions in a space that offers very efficient building operating costs. Public spaces are considered, "Class A" and feature cutting-edge design, lobbies, and flexible spaces made for socializing and work and play spaces with the latest technology. The facility's environment aligns with the Condition-Based Maintenance Program's culture and vision to increase collaboration, foster a new research approaches; create new cross-discipline organization, and create a clear sense of identity for the program.

Lead design architect from your firm and other key personnel involved in the project.



Client

USC Development Foundation
1027 Barnwell Street
Columbia, SC 29208

350 Wayne Street (Site)
Columbia, SC

Completion Date:
Design: 2017
Phase: In negotiations with
Contractors
Construction: 2018 (completion)

Project size:
50,000 Renovation square feet

Project budget:
\$3,000,000.00 (does not include
operational equipment)

Fees and Reimbursables:
Fee \$139,864 (4.6%)
Add Services \$0
Reimbursable Expenses:

Contact:
Mr. Tim Bradley
USC Foundations
803-319-4477
tim@bradleyandassoc.com

J.J. Pickle Federal Building Renovations Austin, Texas

Michael Baker is providing engineering services for building system renovations to the J.J. Pickle Federal Building. Michael Baker's services include mechanical, electrical, and plumbing design; exterior repairs; and space planning.

The 11-story concrete building, constructed in 1964, provides approximately 275,000 gross square feet office to six federal agencies, including the Internal Revenue Service, U.S. Department of Homeland Security, U.S. Department of Transportation, U.S. Department of Agriculture, congressional offices, and other smaller agencies. The building includes large plaza and is connected to the smaller Homer Thornberry Building by an underground tunnel.

The houses a suite of rooms that was used by President Lyndon B. Johnson during his term of office. The suite retains the original finishes and many of the original furnishings chosen by the president, and the building is eligible for listing in the National Register of Historic Places because of the suite's significance.

The building systems are outdated and have reached the end of their useful life. Outdated heating, ventilation, and air conditioning (HVAC) control system and related electronic components need frequent repairs and parts are no longer available. The majority of the components of the facility's central plant are approaching the end of their useful life, thereby requiring the removal and replacement of boilers, cooling towers, and a chiller. Upgrades to the building's exterior include roof replacement as well as work on the windows and the plaza. The fire alarm is outdated and needs to be replaced to ensure life safety.

The windows have been leaking at for some time, causing damage to plaster in tenant spaces. Window glazing is extremely stained and window gaskets are near the end of their useful lives. Installation of a waterproof membrane is needed in the plaza between the Pickle and Thornberry Buildings to prevent further water infiltration and prevent leakage into Pickle office space beneath the plaza.

The project involves cleaning and recaulking the exterior of the building, replacing the flexible joint system in the building façade to address water infiltration, refurbishing the windows, replacing the roof, upgrading the life-safety systems, replacing the HVAC distribution system, replacing the toilet exhaust system, fixing the air-flow problem, upgrading the restrooms' finishes and fixtures, replacing the electric drinking water coolers, replacing the sewer and stormwater sump pumps, upgrading accessibility, replacing the carpet in the public corridors, and repairing the plaza and planters to correct drainage issues.

Client

General Services Administration
7th and D Streets, SW
Room 7600
Washington, D.C. 20407-0000

Completion Date

2018

Project Costs

\$1,697,366 (Fee)

Michael Baker's Role

- Mechanical, electrical, and plumbing design
- Exterior repairs
- Drainage system upgrade design
- Space planning

WVARNG Charleston Armory HVAC & Architectural Renovations

Charleston, West Virginia

The existing building/facility started as the Coonskin Armory constructed in 1961. The Headquarters Building was constructed simultaneously with the Coonskin Armory and occupied the second floor. Also in 1961, as a separate structure, the Adjutant General's Wing (TAG Wing) was constructed nearby. Later, in 1984 the Coonskin Armory/Headquarters Building was physically connected to the TAG Wing with an area of administrative offices. This final major construction project connected all the buildings into one major facility of over 50,000 square feet, referred to as the Charleston Armory.

The West Virginia Army National Guard (WVARNG) Construction and Facilities Management Office (C&FMO) requested a study be conducted of the consolidated mechanical and electrical components of the consolidated facility known as the Charleston Armory. Such items were considered as the condition of existing HVAC/MEP systems and design improvements or upgrades to those systems and examination of the existing building envelope and recommend possible improvements to the Envelope, HVAC, Electrical and Plumbing systems.

A loop pipe water source heat pump system determined the most cost effective for this situation, with fewer pipes, smaller space requirements and a lower installation cost. Various HVAC components included a Fluid Cooler, Boilers, Pumps, Wall Consoles, above ceiling HPs, along with some Rooftop Units and Energy Recovery Units. During the renovation process, mold was discovered growing in certain areas of the building. An investigation was undertaken, building humidity was logged and measures were implemented to install dehumidification in existing equipment in the building, building leaks were sealed and existing mold was remediated. Baker's design also addressed the repair of the existing roofing system, addition and repairs of roof curbs for HVAC equipment, repositioning of blocking and walk pads around the roof, and installation, repair and patching of the existing EDPM roofing system and maintaining the existing warranty.

Client

West Virginia Army National Guard
Division of Engineering and
Facilities
1703 Coonskin Drive
Charleston, WV 25311-1085

Major Michael J. Beckner
304-561-6333

Contract Completion Date

2013

Baker's Role

- Architecture
- Mechanical Engineering
- Feasibility studies
- Cost estimates
- Civil engineering
- Electrical Engineering
- Structural engineering
- Environmental Permitting



West Virginia State Capitol Restroom Renovations

Charleston, West Virginia

Baker led a team of experts in a planning study for the restoration or renovation of 31 restrooms in the West Virginia Capitol Building. The planning study was intended to assess the facilities and their conformance to current code requirements and code-required capacities, compliance with Americans with Disabilities Act (ADA) requirements, quantification of the building occupancy during normal and peak periods, and an evaluation of gender distribution of restrooms within the capitol. The infrastructure of the plumbing and associated systems were also assessed in the course of the study including: water and sewer, fire protection, ventilation, electrical and structural as it related to the restrooms.

The capitol building was built in three phases between 1925 and 1932, and is on the National Register of Historic Places.

The study and subsequent design addressed the design framework for the renovation of the selected restrooms, provided an overall project cost, and propose a logical sequence of design, construction, and schedule of implementation over three years. The study portion identified and verified physical characteristics, including room layouts; fixture counts; location of all mechanical, electrical, and plumbing (MEP) devices; current level of ADA compliance; and location and condition of vitrolite and carrara glass panels. The study also included an analysis of building population issues, building code issues, and the potential impacts of construction.

The findings and recommendations were presented and accepted, and a complete set of construction documents were developed with for construction sequencing and scheduling. The final plan incorporated the client's comments in the schematic and design development documents.

The funding for the construction project was canceled by the State Government.



Client

State of WV General Services
Division
Department of Administration
1900 Kanawha Boulevard East
Building 1, Room MB-60
Charleston, WV 25305

Completion Date

Awaiting funding

Michael Baker's Role

- Feasibility studies
- Architecture
- Plumbing engineering
- Mechanical engineering
- Fire Protection Engineering
- Electrical engineering
- Cost estimates

Sector Delaware Bay Replacement of Windows and Doors

Philadelphia, Pennsylvania

Michael Baker provided architectural and engineering services for replacement of windows and exterior doors in multiple buildings at Sector Delaware Bay.

The project included demolition of the skylight in the Administration Building (formerly the Marine Safety Office Building); construction of structural roof components and internal components, including insulation, finishes, electrical, and lighting in the area of skylight removal; replacement of the windows in the west wing of the Administration Building; and replacement of the doors and windows at the Maintenance Building.

The purpose is to eliminate the problematic skylight, which experiences routine water intrusion due to rain/snow fall, especially under storm conditions, and to increase the resilience of the building envelope by removing the skylight and replacing the windows in the west wing. The windows and doors at the Maintenance Building are also in need of replacement to protect the interior from the external elements.

Michael Baker generated design plans, specifications, cost estimates, and other documentation necessary for the client to solicit and advertise for the contract to complete the work items. Michael Baker performed a thorough site investigation for the project to identify and document existing construction, conditions, and deficiencies and prepared a Site Survey Report.

Michael Baker used a collaborative, integrated, LEED®-based planning and design approach that established performance goals associated with high performance, sustainable buildings. Performance goals aimed to optimize building energy efficiency, enhance indoor environmental quality, and minimize environmental impact by using appropriate materials. Each design was analyzed to demonstrate it would be cost effective throughout its anticipated life-cycle.

Michael Baker prepared calculations, developed cost and construction estimates, prepared project specifications and drawings, performed a site survey, and developed a site survey report. Michael Baker developed design submittals that included site plans; demolition plans; building and structural plans; elevations, cross sections, and design estimates; and descriptions of construction materials.

Additionally, Michael Baker provided solicitation phase and construction phase support by answering design-related questions and reviewing construction submittals.

Client

U.S. Coast Guard
427 Commercial Street
Boston, Massachusetts 02109

Additional References

U.S. Coast Guard, CEU Cleveland
1240 East Ninth Street
Room 2179
Cleveland, Ohio 44199-2060

Completion Date

2015

Project Costs

\$82,468 (Fee)

Michael Baker's Role

- Construction documents
- Designs, specifications, and estimates
- Site investigation and survey
- LEED®-based design approach
- Pre- and post-award assistance

Office Space Reconfiguration *Woodbridge, Virginia*

Michael Baker provided interior design and engineering services for the renovation of an office space within a one-story, 41,726-square-foot municipal office building. Michael Baker's services included interior design, space planning, permitting, and construction administration support.

Project Background

The existing office space was underutilized and did not function to its fullest potential, with limited opportunity to reconfigure the space when additional staff space was required. Michael Baker provided interior design to reconfigure the space under an indefinite delivery, indefinite quantity agreement to provide interior design services.

Interior Design

The project scope included surveying free standing furniture and electrical components; relocating a conference room, suite entry, and reception desk; providing two offices, workstations, and an open meeting area; and creating a space plan to optimize natural light permeating the space.

The county's fiscal budget constraints required that Michael Baker work closely with county's project manager during the initial task scoping phase, necessitating multiple scope and fee proposal modifications to ensure that the county's design and construction budgets were met. Michael Baker developed creative solutions or suggestions to help ensure that the project key indicators remained in balance, including the scope schedule and budget.

Michael Baker had to limit disruptions to allow employees to work during the entire survey process. The design team used a combination of documenting and measuring techniques, using measuring tapes and a laser measuring tool to accommodate tight spaces in substantially congested areas.

Working within the strict constraints of the budget and floor space, Michael Baker created a plan that met all the client's requirements. The office space final renovation provided an open and flexible environment, two offices, a conference room, a reception area, office support space, and systems furniture workstations. Michael Baker assisted the county with furniture selections to accomplish the desired office environment.

Innovative Design Features

Michael Baker's design provided the salient features requested by the county, creating a flexible open workspace, conference room, and offices filled with natural light and low-volatile organic compound paint, facilitating the flow of work.

Construction Administration Support

Due to economic constraints, county staff typically perform the construction administration services for smaller renovation projects. The level of detail and coordination provided in Michael Baker's design documents allowed the

Client

Prince William County
Department of Public Works
Watershed Management Division
Manassas, Virginia 20109

Completion Date

2016

Project Costs

\$20,688 (Fee)

Michael Baker's Role

- Interior design
- Space planning
- Permitting
- Construction administration support

county to perform in-house construction administration with minimal resources. County staff also developed in-house cost estimates and worked with the furniture vendor to secure furniture pricing.

Permitting

Michael Baker secured building permits for the office renovation. Michael Baker prepared a county tenant plans layout checklist for each permit application.

NBSC Bank Headquarters **Columbia, South Carolina**

Michael Baker is providing project management, programming, existing conditions documentation, architecture & interior design, opinion of probable cost, negotiations and construction administration services for the new headquarters of NBSC Bank in the New Main and Gervais Tower. The project was managed and constructed by Holder Development and Holder Construction of Atlanta.

The Main & Gervais Tower, which is located across from the SC State House, is a Class A office tower and NBSC would be the second major tenant of the building. The project consolidated divisions from multiple locations and allowed the bank to capitalize on the image provided by the new tower. The design of the interiors is considered a transitional modern style merging the traditional aesthetic preferred by the bank leadership and the acknowledging both the building's modern design and base building requirements. The bank considers the traditional style an aesthetic that informs the user of the bank's stability and 100-year history. With Branch Banking located on the ground floor, NBSC fills 3 upper floors including an impressive executive suite with marble floors and cherry millwork. The Board Room includes a 28' custom granite table with built-in AV/Teleconferencing equipment.

Client

National Bank of South Carolina
3333 Riverwood Parkway SE
Suite 300
Atlanta, Georgia 30339

1221 Main Street (Site)
Columbia, SC

Completion Date
Design: 2010
Construction: 2011 (completion)

Project size:
65,000 square feet (tenant upfit)

Project budget
\$3,500,000.00 (does not include
operational equipment)

Fees and Reimbursables
Fee \$320,000.00 (9%)
Add Services \$0
Reimbursable Expenses
cost +10%

Contact:
Ms. Lauren Smith
Holder Properties
803-451-4710



Design and Construction Management Master Services Contract

Southwestern, Pennsylvania

Michael Baker is providing architectural and engineering services under a three-year master services agreement for design, preconstruction, bid phase, construction management, and other services for the renovation or improvements to the company's facilities and for major capital projects and programs. Michael Baker's services included project management, architectural and engineering design, design management and design reviews, cost estimates, construction sequencing, bidding-phase support, and construction management and inspection.

The company provides electrical utility services to more than 584,000 customers in Western Pennsylvania, and owns and operates a transmission system consisting of 345-, 138-, and 69-kilovolt lines and equipment. The company maintains customer service, administrative, and substation facilities throughout the service area. Michael Baker provided a wide range of services for renovations and upgrades to these facilities on an on-call basis. Brief descriptions of representative projects follow.

Woods Run Complex Building 5 Elevator Installation

Michael Baker provided architectural and engineering services for renovations to Building 5 of the company's Woods Run Complex to install an Americans with Disabilities Act (ADA)-compliant elevator to service the ground and second floors, and renovations to offices that were affected by the installation of the elevator. Michael Baker's services included the preparation of final design documents, bidding-phase services, and construction management.

The purpose of the project was to install a hole-less hydraulic elevator in an existing interior area of the building adjacent to the entrance lobby, to accommodate personnel with disabilities. Renovations were required to provide space for the elevator, elevator pit, second-floor hoistway floor opening, and roof opening with cap enclosure. The hoistway affected one of the offices on the second floor and eliminated another office, which was renovated into the elevator lobby and an ADA-compliant restroom. Michael Baker provided architecture; interior design; structural, mechanical, and electrical engineering; and plumbing design for this project.

Woods Run Complex Building 3 Restroom Renovations

Michael Baker provided architectural and engineering design services for the renovation of restrooms on the first and second floors, a two-story infill addition with a restroom and storage area, and the replacement of the roof of

Client

Duquesne Light Company
411 7th Avenue
Floor 16
Pittsburgh, Pennsylvania 15219

Completion Date

Estimated: 2019

Project Costs

\$1,606,992 (Fee)

Michael Baker's Role

- Project management
- Architecture
- Civil engineering
- Structural engineering
- Mechanical engineering
- Stormwater management design
- Environmental engineering
- Utility design
- Permitting
- Design management
- Bidding-phase support
- Construction management
- Construction inspection

Building Three of the Woods Run Complex. Michael Baker's services included the preparation of final design documents, bidding-phase support, and construction management.

The project consisted of the demolition of the restrooms on the first and second floors of Woods Run Building 3, with only partition framing and systems infrastructure remaining, and the installation of new plumbing fixtures, finishes, floors, walls and ceilings, and adjustments to the heating, ventilation, and air conditioning systems and lighting in the restrooms. Michael Baker provided architecture; interior design; structural, mechanical, and electrical engineering; and plumbing design for this project.

Penn Hills and Edison Service Center Overhead Doors

Michael Baker provided design and construction management services through project completion for the renovation of the 10 overhead doors to 13-foot, six-inch tall openings at the Penn Hills and Edison service centers. Michael Baker developed construction documents and cost estimate, distributed bid packages, provided on-site construction management and inspections, and assembled closeout documents.

All work had to be closely coordinated with the client during the construction phases to avoid interference with service center operations and to keep the facilities secure when doors were removed.

Belleview Substation Fire Escape Code Review and Structural Analysis

Michael Baker provided engineering services for code review and structural review of the fire escape at the utility company's electrical substation. Michael Baker's services included review of applicable fire protection codes and structural review of the fire escape. Michael Baker prepared a letter report describing the results of the code review and structural analysis, with recommendations for the correction of any deficiencies.

Woods Run 6 Meter Farm Design and Construction Management

Michael Baker provided design and construction services for metering installation at Woods Run 6. Michael Baker provided civil and electrical conceptual design services for the meter farm, design management oversight during the conceptual design phase, and bidding and construction management.

Civil design included pavements and surfaces, fencing, and conceptual cost estimate. Michael Baker also provided project management and design management oversight during the conceptual design phase and performed bidding and construction management.

Value-Added

As an extension of services for the client, Michael Baker provides critical facility engineering and construction management for the client's key facilities throughout Western PA. By being attentive to the client facilities and delivery of engineering and construction management services, the client is able to meet key metrics and deadlines on project execution and project delivery, so they may continue to delivery power and electrical services with minimal outage and issues to the thousands of customers in Western Pennsylvania.

Woods Run Complex Building 3 Restroom Renovations *Pittsburgh, Pennsylvania*

Michael Baker provided architectural and engineering design services for the renovation of restrooms on the first and second floors, a two-story infill addition with a restroom and storage area, and the replacement of the roof of Building Three of the Woods Run Complex. Michael Baker's services included the preparation of final design documents, bidding-phase support, and construction management.

The project consisted of the demolition of the restrooms on the first and second floors of Woods Run Building 3, with only partition framing and systems infrastructure remaining, and the installation of new plumbing fixtures, finishes, floors, walls and ceilings, and adjustments to the heating, ventilation, and air conditioning systems and lighting in the restrooms. The project also included the construction of a two-story infill addition of an existing exterior area to provide a unisex Americans with Disabilities Act-compliant restroom on the first floor, with a storage area on the second floor. The project also included the demolition of the barrel roof and its replacement with a low-slope membrane roof at the second-floor level of the addition.

Michael Baker provided architecture; interior design; structural, mechanical, and electrical engineering; and plumbing design for this project under an open-end master services agreement. Michael Baker had provided conceptual design for the project for a previous task order.

Following the company's approval of the conceptual design documents, Michael Baker incorporated review comments to prepare a set of final construction documents. The final design documents included specifications, building plans, elevations, detail drawings, and quantity and quality specifications for materials and systems. Michael Baker conducted a design progress meeting and a final review meeting for clarification and coordination of the final construction documents.

Michael Baker performed a design constructibility review, and prepared and managed the bid package, including distributing it to prospective bidders, responding to bidders' requests for information with written addenda, and reviewing and analyzing the bids. Michael Baker provided on-site construction management, including review and approval of product and systems submittals, construction document management, coordination with the company and the contractor, and project meetings. Michael Baker conducted site observation of the work at substantial completion and prepared a punch-list report, and conducted a follow-up site observation of the work at final completion.

Client

Duquesne Light Company
411 7th Avenue
Floor 16
Pittsburgh, Pennsylvania 15219

Completion Date

2014

Project Costs

\$454,709 (Est. Construction)
\$138,510 (Fee)

Michael Baker's Role

- Architecture
- Interior design
- Structural engineering
- Mechanical engineering
- Electrical engineering
- Plumbing design
- Final design documents
- Bidding-phase support
- Construction management

Montgomery County Public Safety Training Academy

Rockville, Maryland

Michael Baker served as the designer of record and provided complete architectural and engineering services for a new 280,000 square-foot Public Safety Training Academy (PSTA) as part of ongoing inclusive design services for the multimillion-dollar Montgomery County Multiagency Service Park.

Michael Baker's services for the PSTA included project management and quality control, architecture, parking garage design and structural engineering, landscape architecture, MEP engineering, fire protection and life safety engineering, interior design, sustainable design, and construction administration.

Overall Campus Design

Since 2009, Michael Baker has been providing full architectural and engineering services for the Montgomery County Multiagency Service Park. The 210-acre, 43-building multi-use campus includes administration and academic facilities, public safety headquarters and training facilities, foodservice facilities, a firing range, an emergency driving track, vehicle training support and vehicle maintenance buildings, a skills pad and a skid pan, fueling facilities, training garages and shops, a secured parking garage, and transit facilities.

Michael Baker's team worked closely with county representatives to design a campus that responds to user operational and functional needs and is designed to attain the highest degree of sustainability possible. The team has delivered a compact site layout solution that efficiently promotes shared facilities and efficient land use and maximizes green space; provides the county with a "destination" and a place where county staff and visitors gather to work, train, live, and enjoy recreational activities; is context-sensitive and compatible with the surrounding community; and whose design meets schedule and budget constraints. **Michael Baker's design solution establishes a consolidated complex that houses several functions, agencies, and facilities to create a cohesive, positive, flexible, and professional training and working environment that meets the client's vision and mission.** The design aesthetics reflect a community orientation that promotes camaraderie among users and visitors.

The campus consists of two main sites: the east side and the west side, which are divided by a stream valley. The east side features approximately 530,000 square feet of building area and includes a single shared compound for three main facilities—the Montgomery County Public Schools Food Distribution Center, the Montgomery County Public Schools Facilities Maintenance Depot, and the Park and Planning Facilities Maintenance Depot. The area includes two secured gates for service vehicle access and a shared garage centered on a public-entry court.

Client

Montgomery County, Department
of General Services
9th floor, 101 Monroe Street
Rockville, Maryland 20850

Completion Date

2017

Project Costs

\$4,117,601 (Fee)

Michael Baker's Role

- Project management and quality control
- Designer of record
- Parking garage design and structural engineering
- Landscape architecture
- Interior design
- Sustainable design
- MEP engineering
- Fire protection and life safety engineering
- Construction administration

With approximately 280,000 square feet of building area, the west side houses the new PSTA, which includes a two-story police and fire training and administrative building; a firing range; a gym; a skills pad and a skid pan, with observation pavilions and skills pad building, including a classroom, simulator room, and administrative spaces; a mock-up cityscape for training purposes, including a burn facility with a high bay and apparatus bay; a driver training range; a canine training center; and a structured parking garage. The west side is centered on a gracious court that provides entry to the campus and includes frontage on a publically accessible service lane, which provides access to the shared fuel facility. The public and secured areas of the campus are clearly delineated with two gated entries, a landscaped courtyard for casual and ceremonial uses, and a comprehensive system of internal streets and pedestrian circulation. All buildings are stacked and graded to permit direct shop access to their respective yards and are designed and programmed for future expansion capability.

PSTA Design

Design Approach

The PSTA facilities and their corresponding outdoor areas are designed as a unit to create a functional, visually appealing compound that effectively addresses the requirements of the various county agencies and is a source of pride for users and owners. Michael Baker's basis of design approach optimizes the use of natural landscape features by siting the main academic building to create prominent architectural faade elements that easily identify the main entry points to the facility and equally strong faade features facing the courtyard and landscaped areas that establish a functional, unified connection with user and visitor parking areas and structures. The PSTA building also serves as an attractive front that encloses parking and service areas and screens them from sight; the structure is the most prominent in the complex and is the design starting point for the image of the entire campus.

The overall visual appeal of the facilities is accomplished by combining easily identifiable, prominent glass elements with exterior precast and masonry unit components finished with masonry and metal panel systems as the main facade materials. These materials provide the durability and aesthetics appropriate for the varying uses of the PSTA buildings; the result is a carefully scaled, rhythmic use of architectural elements and fenestration. These features are treated in a contemporary manner, establishing a consistent architectural theme throughout the integrated complex that will serve as the aesthetic standard against which all future development in the area will be measured.

Exterior Design

Roofing materials with a solar reflectance index (SRI) of at least 78 are used for the low-sloped roofs. Roofing materials with an SRI of at least 29 are used for steep-sloped roofs. Also, to further reduce solar gain and improve stormwater management, vegetated roofs are employed to the maximum extent possible.

An energy-efficient building envelope was developed through the use of higher-insulation R-values for walls and roofs and higher-performance windows as compared to ASHRAE 90.1-2007 baseline minimum performance requirements.

Interior Design

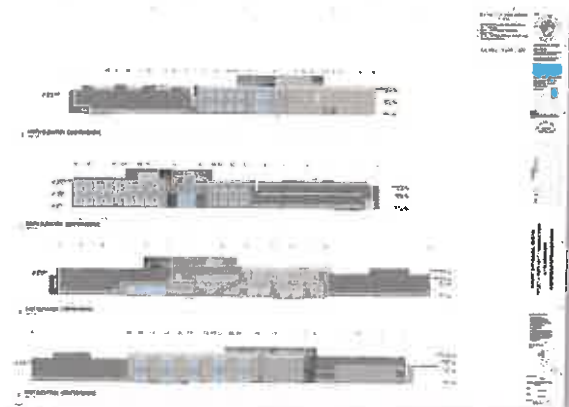
Energy star products are used where possible. In addition, a commissioning authority performed fundamental commissioning of building energy systems as appropriate, including heating, ventilation, HVAC, and refrigeration systems and associated controls, lighting and daylighting controls, and domestic hot water systems.

Energy Efficiency and Sustainability

The PSTA design specifies the use of regional materials and those with recycled content. Low-emitting finish materials are incorporated when possible.

Energy conservation was a priority. Daylight and views are provided for regularly occupied spaces. The electrical design reduces the lighting wattage per square foot in comparison to ASHRAE 90.1 allowances through use of the most current energy-efficient technologies, such as high-efficiency fixtures, high-efficiency lamps and ballasts, and advanced computer modeling of the lighting array to achieve the required light intensities with a minimum number of fixtures. Also, the design plans specify increasing the reflectivity of room finishes to further reduce lighting requirements. LED site lighting was employed, as feasible, and within budget constraints.

Reduction of water consumption within the PSTA involved strategies to use less water than the water-use baseline calculated for the facility through measures that included installation of low-flow aerators on lavatories and sinks. Drought-resistant plants reduce site water usage.



SECTION III

Patrick W. Fogarty, P.E., P.S., LEED®GA

Civil Engineer, Facilities Practice Manager

General Qualifications

Mr. Fogarty has over 29 years of civil engineering project design and management experience. He is responsible for the technical and management aspects of civil design and surveying projects within Baker's Charleston, West Virginia office. Mr. Fogarty has designed and managed projects in numerous disciplines including civil, structural, and transportation engineering; site development planning; and surveying. These projects have included retail/commercial site preparation, airports, streets/highways, bridges, parking lots, buildings, retaining walls/foundations, sanitary systems and structures, as well as boundary and topographic and photogrammetric surveys. Duties included field surveying, drawings and specification preparation, design, design drafting, construction inspection, quality control testing, shop drawing review, project management, contract administration and report preparation.

Experience

West Virginia State Capitol Restroom Renovations. *State of WV General Services Division.* Project Manager. Responsible for the overall management of the project including the coordination of the subconsultant. Baker is leading a planning study for the renovation of 31 restrooms in the historic West Virginia Capitol Building. The planning study will assess the facilities and their conformance to current code requirements and code-required capacities, compliance with Americans with Disabilities Act (ADA) requirements, quantification of the building occupancy during normal and peak periods, and an evaluation of gender distribution of restrooms within the capitol. Baker will provide design, construction sequence, and scheduling recommendations. Upon approval of the design, Baker will prepare construction documents and provide construction administration services for the renovation of three restrooms on the basement level.

Nitro Bank Street Streetscape Improvements, Nitro, West Virginia. *City of Nitro.* Project Manager. Responsible for concept planning, detailed design, construction document generation, and construction administration. Baker provided design, bid-phase support, and construction services for streetscape improvements to Bank Street, located in the city's business district. Baker's services include base mapping, background data collection, design plans, construction document preparation, bid-phase support, construction management, and construction inspection.

Years with Michael Baker: 10
Years with Other Firms: 20

Degrees

B.S., 1985, Civil Engineering, West Virginia University Institute of Technology

Diploma, 1993, Surveying and Mapping, International Correspondence Schools

Coursework, Business Administration, Heriot-Watt University, Edinburgh College of Art

Licenses/Certifications

Professional Engineer - Civil/Structural, West Virginia, 1990

Professional Surveyor, West Virginia, 1993

Construction Documents Technologist, 1996

A/E Services for the Office of the Adjutant General, West Virginia Army National Guard, Division of Engineering and Facilities, Charleston, West Virginia. *State Army National Guard Headquarters.* Project Manager. Responsible for the management and coordination of all activities. The Facilities Management Officer (FMO) for the State of West Virginia, Division of Engineering and Facilities (DEF), West Virginia Army National Guard (WVARNG) selected Baker for a lump sum/fixed fee contract for architectural and engineering services. Baker was selected by the Division of Engineering and Facilities to provide complete design and construction administration services for the renovation of the first floor of the entire wing of the Office of the Adjutant General (TAG). The Owner requested the need for modernization of approximately 12,000 square feet of existing outdated office space - project elements included new acoustical ceilings, flooring, energy-saving light fixtures, duplex outlets, communications jacks, alterations to the existing floor plan, exterior door replacements, new interior doors and hardware, new wall finishes and asbestos removal.

Lost Creek Train Depot Rehabilitation, Lost Creek, West Virginia. *Town of Lost Creek.* Project Manager. Responsible for the management and coordination of all activities as well as all engineering design. The Town of Lost Creek retained Baker for the planning and design of the rehabilitation of a historic train depot adjacent to the Harrison County Rail Trail. Baker prepared a plan to raise the structure, make repairs to the deteriorated timber, excavate and place the concrete foundation system, then lower the structure to rest on the new foundation. Baker provided construction administration and inspection services as well as periodic site review during construction.

Little Kanawha Bus Facility, Calhoun County, West Virginia. *WV Division Of Public Transit.* Project Manager. Responsible for the civil, site and structural engineering components of the project. Baker is providing architectural and engineering services, landscape architecture, and construction-phase support for a new, 9,900-square foot, pre-engineered, metal and brick bus maintenance and transit operations facility. The 5,100-square-foot administrative area will include offices, a conference room, a money-counting room, and a driver-training room, and the 4,800-square-foot bus maintenance area will include storage for seven buses. The facility will be ADA-compliant and is being designed to achieve LEED® certification. Services include site survey and design, geotechnical testing, environmental compliance, utility coordination, bid documents, bid-phase support, and as-built drawings.

West Virginia Army National Guard - TAG Wing Improvement, Charleston, West Virginia. *State Army National Guard Headquarters.* Project Manager. Engineer of Record responsible for the coordination of all activities. Baker performed complete planning, design, and construction management services for renovations to the Office of the Adjutant General at the State Army National Guard Headquarters in Charleston, West Virginia. Project elements included new acoustical ceilings, flooring, energy-saving light fixtures, duplex outlets, communications jacks, several new wall partitions, exterior door replacements, new interior doors and hardware, new wall finishes and asbestos removal. Baker provided Construction Administration and inspection services as well as periodic site review during construction.

R. Joseph Chaffin, R.A., A.I.A.

Lead Design Architect

General Qualifications

In balancing creative, organizational, and technical strengths, Joseph Chaffin's professional experience demonstrates a broad practice of architecture from residential through complex institutional projects. He challenges current capabilities, cultivates leadership, and develops new strengths through his position at Baker. As Director of Architecture, Mr. Chaffin is responsible for the daily operations, design quality, and project execution of the architectural and interior design staff. He performs interdisciplinary technical reviews for all designs and oversees coordination of related engineering disciplines. Ensuring the highest quality design services within budget and schedule parameters, he also emphasizes a "world view," or comprehensive perspective, within which professional services are delivered prioritizing and maintaining client expectations.

Experience

Renovations to Classroom Building, Beckley, West Virginia. *WVU Tech/ West Virginia University. Architect of Record.* Responsibilities included facilitating complete design package and collaboration with WVU Tech staff for the 31,000 S.F. facility. This fast track design and construction project stemmed from a feasibility study produced by request of the Client. The deficiencies found during the Study were remedied during the design phase with a compressed time frame in mind. Coordination of new and old HVAC designs were a large component of this project. University branding elements were incorporated into the interior design to bring new life to a defunct campus. Special consideration was given to coordination with the University's existing door hardware products as well as the design and product specifications for a nationally accredited psychological laboratory within the Project. This project is currently under construction.

Renovations to the Benedum Center, Beckley, West Virginia. *WVU Tech/ West Virginia University. Architect of Record.* A sister project to the above referenced Classroom Building, this 21,000 S.F. project ran concurrent and also stemmed from a Feasibility Study requested by the Owner. Primarily an interior design heavy project, this building required new retrofitted ADA toilet facilities as well as door hardware and HVAC systems coordination. This project is currently under construction.

Aviation Science Center Renovation, Community College of Beaver County, Monaca, Pennsylvania. *Architect of Record.* Responsible for design/technical quality and project execution provided by the architectural and interior design staff. The Project consisted of architecture, engineering, construction administration and cost estimates to design the auditorium renovations and replacement the HVAC system. Preliminary design services included research of applicable building codes; on site project assessment and verification, measurements, and documentation of the project areas, including a comprehensive field survey of the existing conditions, and the development and prioritization of preliminary scopes of work, schedule development, and oversight of estimates of probable cost. He directed the completion of pre-final 90 percent construction documents and the final construction and bid documents, including architectural, mechanical, electrical, and communications engineering drawings, and specifications. Mr. Chaffin also coordinated with the vendor of the air traffic control simulator throughout the design phase.

Years with Baker: 9

Years with Other Firms: 17

Education

B Arch, 1990, Architecture, University of Cincinnati

Certificate, 1988, Architecture, Ecole d'Art Americaines - Ecole des Beaux Arts

Licenses/Certifications

Registered Architect, West Virginia, 2011

NCARB, 1999

Registered Architect, Pennsylvania, 2001

Nursing Simulation Renovation and Laboratory Design, Clarion University, Clarion, Pennsylvania. Director. Responsible for design/technical quality and project execution provided by the architectural and interior design staff. This state-of-the-art nursing education facility, included a simulation laboratory with four high-technology mannequins and a control room, related classrooms and skills lab spaces, offices, conference rooms, social lounge, and study lounge. His role also included interdisciplinary technical reviews for all design/construction documents. Baker's tasks included architectural design, building systems engineering, construction cost estimate development, and as-built plans development.

Building 12 Defense Logistics Agency Headquarters Renovation Design, Tobyhanna, Pennsylvania. *Tobyhanna Army Depot.* Director. Responsible for design/technical quality and project execution provided by the architectural and interior design staff. Role also included interdisciplinary technical reviews for all design/construction documents. Baker prepared design documents for the partial renovation of Building 12 to serve as the new Defense Logistics Agency headquarters building. Work was performed under a three-year indefinite delivery-indefinite quantity contract. Baker's tasks included architectural design, building systems engineering, construction cost estimate development, and as-built plans development.

Restroom Renovation Design, TISCOM, Alexandria, Virginia. *U.S. Coast Guard, CEU Cleveland.* Director. Responsible for design/technical quality and project execution provided by the architectural and interior design staff. Role also included interdisciplinary technical reviews for all design/construction documents. Baker is developing specifications, construction drawings, a detailed cost estimate, and a projected construction schedule to renovate two male and two female restroom areas in the Telecommunication and Information Systems Command Navigation Center. The renovated restrooms will be compliant with the Americans with Disabilities Act and will include new plumbing fixtures, toilet partitions, floor coverings, wall coverings, electrical fixtures, and exhaust fans.

U.S. Armed Forces Reserve Center, Rutland, Vermont. *U.S. Army Corps of Engineers, Louisville District.* Director. Responsible for design/technical quality and project execution provided by the architectural and interior design staff. Responsibilities also included detailed interdisciplinary reviews of the RFP design criteria documents with an emphasis on architecture. Baker developed design-build RFP documents for a new 600-member Armed Forces Reserve Center meeting Silver LEED® standards. A 97,634-square-foot training building (AFRC), a 14,600-square-foot multi-use classroom, a 7,302-square-foot Organized Maintenance Shop (OMS), and a 3,113-square-foot unheated storage (UHS) building were included in the RFP package. The center accommodates training and mobilization, and provides for the storage, inspection, maintenance, and repair of combat and tactical vehicles and equipment associated with the regional deployment of Vermont Army National Guard and Army Reserve units. RFP development consisted of conducting a design charrette; providing a topographical survey and geotechnical investigation; performing a utility survey; developing conceptual site plans, floor plans, and building elevations; developing RFP specifications; preparing DD Form 1354 – Transfer of Real Property; and providing a PACES construction cost estimate.

Design of U.S. Army Reserve Center Renovation and Expansion, Homewood, Illinois. *U.S. Army Corps of Engineers, Louisville District.* Director. Responsible for design/technical quality and project execution provided by the architectural and interior design staff. Role also included interdisciplinary technical reviews for all design/construction documents. As designer of record, Baker provided architectural and engineering services for the renovation and expansion of a 400-member U.S. Army Reserve Center to provide a 60,374-square-foot Training Building, including an approximately 3,500-square-foot Unheated Storage Building. The project also includes construction of a 22,300-square-foot parking area for military equipment, and 130 parking spaces for privately owned vehicles. Tasks were performed under an indefinite quantity-indefinite delivery engineering agreement. Baker designed the training facility to meet LEED® Silver certification. Baker's services included architectural design, surveys, environmental and geotechnical investigation, all site and building engineering, cost estimating, value engineering, and LEED® certification administration.

David J. Hilliard, P.E., LEED® AP

Mechanical/Electrical/Plumbing Engineer

General Qualifications

Mr. Hilliard has a wide range of "hands on" design, engineering, and construction experience. From his beginnings as a carpenter he has expanded his professional abilities to a senior engineer for Baker. His recent design experience has included the design of new campus water lines and other service utilities at West Virginia State University, the complex mechanical design of such projects as a large Charleston, West Virginia hospital, a Bus Maintenance Garage and office building for the West Virginia Department of Transportation, an Army National Guard Armory HVAC/Electrical renovation, Master Planning and engineering at the West Virginia Capitol Complex including plumbing renovation design on the historic State Capitol Building. His resume covers over 30 years of real world work in engineering, design, fabrication and construction in the mechanical, electrical and general trades.

Over the years, while practicing his profession, Mr. Hilliard continued his education by studying mathematics, civil and mechanical engineering, finally taking degrees in both mathematics and mechanical engineering. He has continued his professional development through his involvement with ASME, ASHRAE, ASPE, USGBC, and other pertinent organizations

Experience

Renovations to Classroom Building, Beckley, West Virginia. *WVU Tech/ West Virginia University. MEP Designer, Project Manager and Engineer of Record.* Responsibilities included facilitating complete design package and collaboration with WVU Tech staff for the 31,000 S.F. facility. This fast track design and construction project stemmed from a feasibility study produced by request of the Client. The deficiencies found during the Study were remedied during the design phase with a compressed time frame in mind. Renovations of HVAC systems, electrical upgrades, fire alarm upgrades, and a new building wide sprinkles system were undertaken, as well as the design of new ADA restrooms. Special consideration was given to the design and product specifications for a nationally accredited psychological rat laboratory within the project. This project was completed in the summer of 2017 in time for the start of the new campus opening.

West Virginia State Capitol Storm Water Study. *State of WV General Services Division.* Project Manager and Engineer, Mr. Hilliard provided the State of West Virginia General Services Division with a comprehensive study of storm water related flooding issues in the basement and ground floor of the Capitol building. He directed in on site assessments, detailed plan review and in provided overall corrective measures recommendations.

West Virginia School for the Deaf and Blind - Architectural/Engineering Services for Multiple Projects, Romney, West Virginia. 3-year Contact. Mr. Hilliard is currently working as the project manager and MEP Engineer of Record for

Years with Michael Baker: 9

Years with Other Firms: 20

Degrees

B.S.M.E., 2005, Mechanical Engineering, West Virginia University Institute of Technology

B.S., 2002, Mathematics and Science, West Virginia State College

Licenses/Certifications

Professional Engineer, West Virginia 2011 [REDACTED]

Professional Engineer, Mississippi 2016 [REDACTED]

Professional Engineer, Louisiana 2016 [REDACTED]

Professional Engineer, Kentucky 2017 [REDACTED]

LEED AP, bd+c, 2010

multiple projects at the school including; a campus wide Life Safety System, HVAC upgrades in two buildings, fire alarm upgrades, new and upgraded sprinkler systems in multiple buildings, and a complete renovation of the campus Physical Education Building.

West Virginia State Capitol Restroom Renovations. *State of WV General Services Division.* Mechanical Electrical and Plumbing Engineer of record. Mr. Hilliard provided the State of West Virginia General Services Division with a comprehensive MEP study of the Capitol building related to the renovation and renovation of the 33 restrooms. He worked diligently to verify and document existing building components and assisted in providing overall design, construction sequence, and scheduling recommendations. Construction Documents were developed and completed for an extensive plumbing renovation, electrical and fire alarm upgrades as directed by GSD. The construction project was defunded and has not been built.

Renovations to the Benedum Center, Beckley, West Virginia. *WVU Tech/ West Virginia University. Project Engineer and Project Manager.* A sister project to the above referenced Classroom Building, this 21,000 S.F. project ran concurrent and also stemmed from a Feasibility Study requested by the Owner. Primarily an interior design heavy and roofing project, this building required new retrofitted ADA toilet facilities, repurposed rooms and relocated walls, HVAC systems upgrades, electrical, fire alarm and fire sprinkler modifications. This project was completed in the summer of 2017 in time for the start of the new campus opening.

Little Kanawha Bus, Calhoun County, West Virginia. *WV Division of Public Transit.* Mechanical Engineer. Responsible for the Mechanical, Electrical and Plumbing Design, MEP Document Preparation, and Construction Administration for a new bus maintenance and office facility for Gilmer County. Duties include the design of the vehicle storage, cleaning and maintenance mechanical systems, as well as oil pumping and collection systems. The design of an energy efficient HVAC system for the entire building is also part of his responsibilities. The facility was designed as a LEED® project.

Good News Mountaineer Garage and Office Building Renovation, Charleston, West Virginia. Mechanical Engineer. Responsible for the Mechanical, Electrical and Plumbing Design, MEP Document Preparation, and Construction Administration for newly renovated Auto Repair garage and administrative office facility for this non-profit organization. The Good News Mountaineer Garage accepts donations of vehicles that are repairable for a reasonable amount of money. These donated cars are then distributed to families with low incomes for transportation to work.

Army National Guard Headquarters Renovations, Charleston, West Virginia. *State Army National Guard Headquarters.* Mechanical Engineer. Responsible for all mechanical design oversight and construction management. Baker performed complete planning, design, and construction management services for renovations to the Office of the Adjutant General at the State Army National Guard Headquarters in Charleston, West Virginia. Project elements included a complete renovation and replacement of the HVAC system with a Loop Heat Pumps, new acoustical ceilings, flooring, energy-saving light fixtures, several new wall partitions, new interior doors and hardware, new wall finishes and asbestos removal. Baker provided Construction Administration and inspection services as well as periodic site review during construction.

Duncan M. Penney, AIA, LEED AP, DBIA

Senior Architect

General Qualifications

Mr. Penney's exceptional technical, analytical, and architectural skills reflect many years of experience in architectural design and project management. His achievements include delivering multi-million dollar projects on time and within construction budget. Mr. Penney has performed project design, project management, design charrettes, feasibility studies, construction administration, and specification writing. A Certified Construction Specifier (CCS), he is skilled in producing construction documents. Mr. Penney is also a U.S. Green Building Council, LEED® Accredited Professional, with experience on dozens of Silver LEED®-certified U.S. Army Reserve and Army National Guard Readiness Centers. He is a skilled team facilitator and design charrette leader, and is adept in providing cross-functional team leadership. He maintains close liaison with clients.

Mr. Penney has an expressed interest in life safety issues. He is a Past Board Member and Past President of the International Code Council, Pennsylvania Chapter (formerly known as W. PA Professional Chapter of B.O.C.A./International Code Council) and has served as a panelist and co-presenter for a Tri-AIA Regional Conference.

Mr. Penney's computer software experience includes: Microsoft Word, and other spreadsheet, database, and word-processing applications; Revit 2018; AutoCAD 12 and 14; Microsoft Project; Microsoft Excel; MicroStation; Specsintact; and Adobe Photo Editor.

CBP ATC Master Plan, Harpers Ferry, West Virginia. U.S. Army Corps of Engineers, Fort Worth District. Senior Architect. Responsibilities included the field and document review of 12 buildings for ADA / ABA conformance. Overall findings were included in a Master Plan report for the Government. Michael Baker developed a Vision Plan, Area Development Plan (ADP), Area Development Execution Plan (ADEP), Sustainable Component Plans (SCP), two Customer Concept Documents (CCD), Architectural Barriers Act (ABA)/American Disability Act (ADA) Survey, and Master Planning Digest for the U.S. Customs and Border Protection (CBP) Advanced Training Center (ATC). Michael Baker conducted six different charrettes over the course of two years and met with numerous tenant organizations. The goal of the master planning products was to provide a clear future development strategy and guide the real property direction for the next 20 years.

Woods Run Complex Building 3 Restroom Renovations, Pittsburgh, Pennsylvania. Duquesne Light Company. Senior Architect. Responsibilities included assisting with construction administration by the review and processing of contractor submitted shop drawings. Michael Baker provided architectural and engineering design

Years with Michael Baker: 15

Years with Other Firms: 23

Degrees

B Arch, 1979, Architecture,
Carnegie Mellon University

A.D., 1975, Fine Arts, Cape Cod
Community College

Licenses/Certifications

Construction Documents
Technologist, 2002

LEED Accredited Professional,
2003

NCARB, Pennsylvania, 1990, 47947

Certified Construction Specifier,
2001

Certified Construction Contract
Administrator, 2004

NCI Charrette System Certificate,
2005

Design-Build Professional, 2010,
D947

Registered Architect,
Pennsylvania, 1986, RA010272X

services for the renovation of restrooms on the first and second floors, a two-story infill addition with a restroom and storage area, and the replacement of the roof of Building Three of the Woods Run Complex. Michael Baker's services included the preparation of final design documents, bidding-phase support, and construction management.

Indefinite Delivery-Indefinite Quantity Contract for Architectural and General Engineering Services, Tobyhanna Army Depot and, North-Atlantic, Division Locations. *Tobyhanna Army*

Depot. QA/QC. Responsibilities included serving as a technical advisor and reviewer for a detailed interdisciplinary technical review of the construction documents. Facilitated QC review process utilizing discipline review checklists, scope checklists, and coordination of drawings. Michael Baker is providing planning, architecture, and general engineering services under a three-year indefinite delivery-indefinite quantity contract for projects at DOD installations within the North Atlantic Division. Representative projects include additions and renovations to the Rotary-Wing Maintenance Hangar at Fort Drum's Wheeler-Sack Army Airfield; Maneuver Enhancement Brigade facilities at Fort Drum, New York (barracks, Brigade Headquarters, Battalion Headquarters with classrooms, a five-Unit Company Operations Facility, and a Tactical Equipment Maintenance Facility); the Fort Drum North Post Space Study; and renovations to a number of buildings and amenities at Tobyhanna Army Depot, such as the Building 12 Defense Logistics Agency Headquarters renovation, Building 1-C roof replacement, family housing unit renovations, an elevator installation, and on-call HVAC engineering support services.

U.S. Armed Forces Reserve Center, Rutland, Vermont. *U.S. Army Corps of Engineers, Louisville District. Senior Architect.* Served as an advisor to the A/E design team for planning and implementing a design charrette with the stakeholders. Michael Baker developed design-build RFP documents for a new 600-member Armed Forces Reserve Center meeting Silver LEED® standards. A 97,634-square-foot training building (AFRC), a 14,600-square-foot multi-use classroom, a 7,302-square-foot Organized Maintenance Shop (OMS), and a 3,113-square-foot unheated storage (UHS) building were included in the RFP package. The center accommodates training and mobilization, and provides for the storage, inspection, maintenance, and repair of combat and tactical vehicles and equipment associated with the regional deployment of Vermont Army National Guard and Army Reserve units. RFP development consisted of conducting a design charrette; providing a topographical survey and geotechnical investigation; performing a utility survey; developing conceptual site plans, floor plans, and building elevations; developing RFP specifications; preparing DD Form 1354 – Transfer of Real Property; and providing a PACES construction cost estimate.

Architectural and Engineering Design Services for the Army Reserve 1222nd Engineer Company Readiness Center, Mechanicsburg, Pennsylvania. *U.S. Army Corps of Engineers, Louisville District. QA/QC.* Served as a technical advisor and reviewer for a detailed interdisciplinary technical review of the documents. Facilitated QC review process utilizing discipline review checklists, RFP scope checklists, and coordination of drawings. Michael Baker is providing architectural and engineering services for a 100-member, 26,855-square-foot U.S. Army Reserve Center. The new 23.8-acre site includes two structures: readiness training center, and organizational maintenance shop with an integral unheated storage area. Michael Baker is providing sustainable design and development and Energy Policy Act of 2005 features to meet the Silver LEED® level. Designed to maximize energy efficiency, the readiness center exceeds current energy standards by as much as 30 percent. Featuring water-efficient landscaping that maximizes open space, this structure is designed to reduce its ecological footprint. In addition, many recycled, low-emitting materials and finishes help keep the interior healthy for occupants and the planet.

Natalie Harmon, NCIDQ®, LEED AP ID+C

Interior Designer

General Qualifications

Mrs. Harmon has several years of interior design experience. She has provided interior design services for the U.S. Army Corps of Engineers, United States Air Force, University of Pittsburgh, The Allegheny County Airport Authority, Connecticut Department of Transportation, Naval Facilities Engineering Command, The Department of Defense, Metro North Railroad, Duquesne Light Company, Dicks Sporting Goods, Washington Federal Bank, Heinz 57 Center, Fragrasso Financial Advisors, LA Fitness and PNC Bank. Types of projects include corporate facilities, commercial office design, maintenance facilities, training facilities, dormitories, food service facilities, commercial retail and education facilities. She has extensive knowledge of commercial furniture including workstations, deskings, tables, lounge seating, technology equipment and accessories. Mrs. Harmon has experience with furniture and equipment procurement, sustainable design, space planning, ergonomics, signage, finishes and specifications. She is proficient in the use of AutoCAD Architecture, Adobe Photoshop, Revit Architecture, and Microsoft Professional Suite as well as SpecsInTact. She has designed, specified and procured furniture packages using Knoll, Steelcase, Kimball, KI, Lyon, UNICOR products and more. She has extensive experience with structural finish element including carpeting, stone flooring, resilient flooring, paint, wallcovering, acoustical ceiling/wall treatment and much more. Mrs. Harmon's career history with design build projects has built her communication skills and vast knowledge of interior construction materials, resources and reference documents. She has experience on producing Requests for Proposals and Requests for Quotes which has advanced her understanding of projects from initiation to completion.

Experience

411 7th Ave 7th Floor Reno. Duquesne Light Company. Interior Designer. Responsible for documenting and coordinating finishes for renovation of the sixth floor data center. Coordinated with electrical for new break room casework, selected appliances for break room including sink, microwaves, coffee machine, and more, and assisted in selecting new carpet tile and finishes for the space. Responsibilities also included organizing meetings, creating agendas, and meeting minutes. Efforts have also been put forth to set up finish and furniture standards for client.

Woods Run Complex Building 3 Restroom Renovations, Pittsburgh, Pennsylvania. Duquesne Light Company. Interior Designer. Responsible for assisting in presentation renderings and CAD drawings. Michael Baker provided architectural and engineering design services for the renovation of restrooms on the first and second floors, a two-story infill addition with a restroom and storage area, and the replacement of the roof of Building Three of the Woods Run Complex. Michael Baker's services included the preparation of final design documents, bidding-phase support, and construction management.

Aberdeen Army Reserve Center. Korte Design Inc. Interior Designer. Responsibilities included providing FF&E, signage and finishes selections, and packages. Also responsible for documenting the selection on construction drawings.

Years with Michael Baker: 8

Years with Other Firms: 4

Degrees

B.S., 2007, Interior Design, Art
Institute of Pittsburgh

Licenses/Certifications

LEED Accredited Professional
ID+C, 2008

National Council for Interior Design
Qualification, 2012, 28707

Architectural and Engineering Services for U.S. Army Reserve and Military Construction Projects, Various Locations. *U.S. Army Corps of Engineers, Louisville District.* Interior Designer. Responsibilities included providing FF&E, signage and finishes selections, and packages. Also responsible for documenting the selection on construction drawings. Under a third consecutive indefinite delivery-indefinite quantity contract, Michael Baker is providing architectural design and engineering services for a variety of mission-critical projects that serve the U.S. Army Reserve's expanding needs for personnel training and equipment maintenance and support the activation of additional brigade combat teams. Infrastructure projects include equipment concentration site warehouses; tactical equipment maintenance facilities; and central-issue, container-loading, billeting, and dining facilities.

Interior Design Open-End. *Duquesne Light Company.* Interior Designer. Responsibilities included communicating with the client for renovations to their downtown offices including selecting and documenting new finishes and the design and install coordination of wall graphics. Employee work spaces have been refreshed including updated break rooms. Furniture and signage was also designed and coordinated with local vendors. Designs are ongoing so scheduling, follow ups and punch list are also part of the interior design services.

J.J. Pickle Federal Building Renovations, Austin, Texas. *General Services Administration.* Interior Designer. Responsibilities included providing FF&E, signage and finishes selections, and packages. Also responsible for documenting the selection on construction drawings. Michael Baker is providing engineering services for building system renovations to the J.J. Pickle Federal Building. Michael Baker's services include mechanical, electrical, and plumbing design; exterior repairs; and space planning.

MDL - Education Center Reno. *U.S. Army Corps of Engineers, Philadelphia District.* Interior Designer. Responsibilities for the renovation of McGuire's Education Center includes selecting and documenting finishes, creating construction drawings and specifications in Specs In Tact. The project involves renovating existing floor plans and parking area. The Interior finishes includes painting of all walls and new flooring throughout. Architectural/Engineering to provide all ATFP requirements for progressive collapse and blast resistant windows.

Design and Construction Phase Services for Building 12 Restroom Addition, Tobyhanna, Pennsylvania. *Tobyhanna Army Depot.* Designer. Responsibilities included FF&E and finishes selections and packages as well as documenting the selection on construction drawings. Michael Baker served as the designer of record for a design-build project for the addition of two restrooms in Building 12. Work was performed under a three-year indefinite delivery, indefinite quantity contract. Tasks included architecture, building systems engineering, and construction cost estimate and as-built plans development.

014 Bldg 411 Interior Finishes. *Duquesne Light Company.* Interior Designer. Responsibilities included surveying existing space, choosing and documenting finishes for office renovation, and presenting to users. Michael Baker provided Interior Design services for the renovation of the Executive Suite of a private client. Michael Baker worked with client's executive staff to develop a comprehensive design, suitable for the company's public profile. Michael Baker delivered construction documents for finishes, furniture, and artwork, as well as provided construction management services as required for advertisement and award.

Office Space Renovations, Pittsburgh, Pennsylvania. *Duquesne Light Company.* Interior Designer. Responsible for documenting and coordinate finishes for renovation of 6th floor data center. Coordinated with electrical for new break room casework. Selected appliances for break room including sink, microwaves, coffee machine, etc. Assisted in selecting new carpet tile and finishes for space. Responsibilities also included organizing meetings, creating agendas and meeting minutes. Efforts have also been put forth to set up finish and furniture standards for client.

Wayne Airgood, P.E.

Structural Engineer

General Qualifications

Mr. Airgood is a practicing structural engineer with experience in the design of commercial, institutional, light industrial building structure, and foundation systems.

Experience

Design of Central Issue Facility, Fort McCoy, Wisconsin. *U.S. Army Corps of Engineers, Louisville District.* Mr. Airgood was the senior structural engineer of record responsible for design of the building structure and foundation systems from concept through construction of an approximate 62,553-square-foot large-sized Central Issue Facility (CIF) to expedite the shipping and receiving, distribution, processing, and exchange of soldier equipment. The structural system consisted of steel joist and girder framing supported by interior steel columns and exterior precast, insulated concrete load-bearing walls. Foundations were soil supported, isolated and continuous, reinforced spread footings.

Container-Loading Facility Design, Fort McCoy, Wisconsin. *U.S. Army Corps of Engineers, Louisville District.* Mr. Airgood was the senior structural engineer of record responsible for the design of a clear span steel roof framing system to achieve column-free interior warehouse space of a 30,862-square-foot Container-Loading Facility. Roof framing system is supported by interior steel columns and exterior precast, insulated concrete load-bearing walls. Foundations were soil supported, isolated and continuous, reinforced spread footings.

Montgomery County Public Schools Foodservices Facility. *Montgomery County, Department of General Services.* Mr. Airgood was the senior structural engineer of record responsible for the development and design of structural framing and foundation systems for 70,000-square-foot food production, warehouse and distribution facility. His responsibilities included coordination with owner/user and other engineering disciplines throughout design, performing and overseeing of production structural design calculations and documents and construction administration services such as review of structural product submittals and periodic site visits.

West Haven Commuter Rail Station Engineering Design, West Haven, Connecticut. *Connecticut Department of Transportation.* Mr. Airgood was the senior structural engineer responsible for the structural framing and foundation design of a two story passenger train station building. The station building featured a two story, glass curtain wall enclosed passenger waiting area with exposed to view curved roof structure. The design also included a 75 foot span, glass curtain wall enclosed pedestrian bridge spanning over the four rail line track bed to connect the station building with a new two story stair and elevator tower. His responsibilities included coordination with engineering and architectural disciplines during design, performing and overseeing of production structural design calculations and documents, and review of fabrication shop drawings and other construction administration services as related to the building structural systems.

Years with Michael Baker: 8

Years with Other Firms: 23

Degrees

B.S.C.E., 1984, Structural Engineering, Geneva College

Licenses/Certifications

Professional Engineer, Pennsylvania, 1999, [REDACTED]

Professional Engineer, Maryland, 2013, [REDACTED]

Professional Engineer, North Carolina, 2014, [REDACTED]

Penn Hills Operations Center Addition, Penn Hills, Pennsylvania. *Duquesne Light Company.* Mr. Airgood was the senior structural engineer of record responsible for the development, design, and detailing of a load bearing masonry wall and steel framing addition to an existing facility.

Design-Build Tactical Equipment Maintenance Facilities, 31st ADA Brigade, Fort Sill, Oklahoma. *U.S. Army Corps of Engineers, Tulsa District.* Mr. Airgood was the senior structural engineer responsible for the design of the foundation systems to support an 18,000-square-foot, 35,200-square-foot, and 57,031-square-foot pre-engineered steel Tactical Equipment Maintenance Facilities (TEMF), and a 20,000-square-foot Supply Support Activity facility supply support activity warehouse (SSA). Because of existing expansive soil conditions, the ground floors of each building were designed as reinforced concrete floor systems with a void space between the expansive soil and floors. The concrete floor system and PEMB structural columns were supported by a deep foundation system of drilled concrete piers extending to rock. His responsibilities included review of structural fabrication drawings, attending design coordination meetings and periodic site visits during construction.

Buildings 200 & 250 of Imperial Business Park, Imperial, Pennsylvania. Mr. Airgood was the lead structural engineer responsible for the development and design of the structure and foundation systems for two, 250,000-square-foot warehouse facilities. Responsibilities also included construction administration services such as review of structural product submittals and periodic site visits. Each building consisted of steel joist and joist girder roof framing supported by interior steel columns and exterior precast concrete bearing and shear walls. Foundations were soil supported, isolated and continuous, reinforced spread footings.

ABB Manufacturing and Office Facility, Mt. Pleasant, Pennsylvania. Mr. Airgood was the lead structural engineer of a high-bay manufacturing, testing and warehouse facility for electric transformer equipment, including an attached two-story office area. The structural systems consisted of precast concrete wall panels enclosing a steel framed interior column and roof structure, including the support of numerous under-hung crane systems throughout the facility ranging from 5- to 20-ton capacities. The lateral framing system was a combination of steel braced and moment frames, and foundations were soil supported isolated and continuous, reinforced spread footings.

Fuel Cell Facility, Pittsburgh, Pennsylvania. *Siemens Westinghouse.* Mr. Airgood was the lead structural engineer of a high-bay manufacturing facility, warehouse and two-story attached office area. The structural systems consisted of precast concrete wall panels enclosing a steel framed interior column and roof structure. The lateral framing system was a combination of steel braced and moment frames, and the structural design included support of various top running bridge crane systems ranging from 10- to 40-ton capacities. The foundations were soil supported isolated and continuous, reinforced spread footings.

Kevin Spangler, P.E.

Fire Protection Engineering Manager

General Qualifications

Mr. Spangler is a registered fire protection engineer with an M.S. degree in Fire Protection Engineering and 9 years of experience in the fire and life safety consulting industry. He has been with Michael Baker International since 2009 and has been the fire protection engineering manager since 2014. He provides leadership to the fire protection group and performs project technical reviews of system designs. He also serves as the Designer of Record for his specific project designs. In his wide-ranging fire protection experience and education, he has an extensive technical background and knowledge in the design of fire protection engineering systems, code and life safety analysis, and the commissioning and testing of fire systems. The variety of projects have exposed Mr. Spangler to various types of facilities for military, government, commercial, public, and private clients.

Experience

Renovations to Classroom Building, Beckley, West Virginia. WVU Tech/ West Virginia University. Mr. Spangler was the fire protection engineer of record responsible for the design of the fire protection systems at the WVU Tech Beckley Classroom Building. The project consisted of a renovation of an existing building. A new wet-pipe sprinkler system was added to the building, and the existing fire alarm system was adjusted to account for the building renovation. Mr. Spangler provide drawings and specifications for the installing contractor, and reviewed the delegated design submittals for compliance with the project scope and construction codes. This project is currently under construction.

Renovations to the Benedum Center, Beckley, West Virginia. WVU Tech/ West Virginia University. Designer. A sister project to the above referenced Classroom Building, this 21,000 S.F. The existing sprinkler and fire alarm systems were adjusted to account for the building renovation.. This project is currently under construction.

West Virginia School for the Deaf and Blind - Architectural/Engineering

Services for Multiple Projects, Romney, West Virginia. 3-year Contact. Mr. Spangler is currently working as the project Fire Protection Engineer for multiple projects at the school including; a campus wide Life Safety System, HVAC upgrades in two buildings, fire alarm upgrades, new and upgraded sprinkler systems in multiple buildings, and a complete renovation of the campus Physical Education Building.

Army Reserve Center, Full Facility Revitalization (FFR), Independence, MO.

Mr. Spangler was the fire protection engineer for the renovation of the existing army reserve center located in Independence, Missouri. He was responsible for performing a field investigation of existing conditions, performing a fire

Years with Michael Baker: 8

Years with Other Firms: 1

Degrees

M.S., 2008, Fire Protection Engineering, University of Maryland, College Park Campus

B.S., 2006, Agricultural and Biological Engineering, The Pennsylvania State University

Licenses/Certifications

Professional Engineer, California, 2011, [REDACTED]

Professional Engineer, Virginia, 2012, [REDACTED]

Professional Engineer, Pennsylvania, 2012, [REDACTED]

Professional Engineer, Illinois, 2013, [REDACTED]

Professional Engineer, Idaho, 2014, [REDACTED]

Professional Engineer, Connecticut, 2015, [REDACTED]

Professional Engineer, South Carolina, 2016, [REDACTED]

Professional Engineer, Minnesota, 2016, [REDACTED]

Professional Engineer, Mississippi, 2017, [REDACTED]

hydrant flow test and preparing RFP specifications and design criteria documents. The building scope included a new wet pipe sprinkler system in the Reserve Center Building and also the Maintenance Facility. The existing fire alarm system was documented and determined to be removed and replaced with a new fire alarm and mass notification system. The new fire alarm system is designed to serve both buildings and an outdoor speaker system for parking lot notification.

Shaw Headquarters Building Renovation, Shaw AFB, South Carolina

Mr. Spangler was the Fire Protection Engineer of record for the renovation of the three story Headquarters Building at Shaw AFB in South Carolina. The building contained an existing fire alarm and existing sprinkler system. The fire alarm system was removed and installed with a new fire alarm and mass notification system. The existing sprinkler system was modified to account for the new building design. The existing sprinkler system was identified by field investigation and as much of the existing sprinkler system was re-used as possible to keep costs minimal for the client. A life safety analysis was performed according to NFPA 101 Life Safety Code and the IBC to ensure the new system design met all building and egress requirements. Mr. Spangler was responsible for the delegated design review and approval of shop drawings prepared by the installing contractor.

Fire Pump Replacement. Allegheny County Airport Authority – Pittsburgh International Airport.

Mr. Spangler was the fire protection engineer designer of record for the project. He completed detailed field measurements of the existing systems and finalized the design for the newly installed fire pumps. The project included the installation of 4 new, electric motor driven fire pumps in two (2) separate fire pump houses (2 pumps per fire pump house). The fire water tanks and existing water supply were analyzed to meet code requirements and the existing piping rerouted as necessary to provide appropriate pump recirculation. The challenges that were faced and solved during in the project included the installation of previously purchased fire pumps into an existing system. The project was successful due to the attention to detail in field measurements of the existing systems and the detailed design of the new system.

Private Corporate Client. Hangar located at Allegheny County Airport. Michael Baker was responsible for the building design for a renovation of a historic hangar located at the Allegheny County Airport. Mr. Spangler was the Fire Protection Engineer responsible for the design of fire protection systems throughout the building including sprinkler system, foam system, and fire alarm system. Two fire pumps were designed and retrofitted into the building to provide the adequate flow and pressure for the suppression systems. Detailed hydraulic calculations were performed and discussed with the local Authority Having Jurisdiction in order to remove the existing fire water storage tanks from the project. As part of the project, a site survey of existing building and final inspections of the final systems installations were performed.

Camp Geiger East Infantry Training Complex, Marine Corps Base Camp Lejeune, North Carolina. Naval Facilities Engineering Command, Mid-Atlantic. Mr. Spangler was the fire protection engineer of record for Academic Building, CIF and Warehouse buildings. He was responsible for fire protection design of protection systems including sprinklers, fire alarm and mass notification systems to meet the requirements of the RFP, UFC and NFPA codes. He performed life safety analysis for complete compliance with NFPA 101, IBC and the UFC criteria. This includes classifying occupancies, occupant load calculations, egress analysis and rated separations. He also performed an on-site fire hydrant flow test according to NFPA 291 to determine the available water supply. This information was used to perform detailed hydraulic calculations for the building sprinkler systems. He worked directly with the NAVFAC fire protection engineer to analyze the water system and remove the need for a fire pump for each of the buildings. Michael Baker served as the lead designer for the design-build delivery of a 137,850-square-foot infantry training complex on five acres at Camp Geiger. The project included the construction of a two-story headquarters and academic building, a warehouse, a consolidated issue facility, an armory building, and an emergency weather center, the demolition of five buildings and various electrical distribution upgrades. The project was designed to meet the requirements for LEED Silver certification.

Raymond C. Paff, C.P.D.

Senior Plumbing Designer

General Qualifications

Mr. Paff is a senior designer responsible for the design and specification of a variety of projects involving all building plumbing systems, vehicle fluid systems, vehicle fuel systems; gasoline and diesel, medical gas, generator fuel oil systems, site drainage, deionized water systems, fire protection (sprinkler and halon FM 200), life safety systems, water supply systems, and natural gas systems with leak detection. He has worked on military, transit, aviation, commercial, industrial, health care, and institutional projects.

Experience

West Virginia State Capitol Storm Water Study. *State of WV General Services Division.* Plumbing Engineer, Mr. Paff assisted in providing the State of West Virginia General Services Division with a comprehensive study of storm water related flooding issues in the basement and ground floor of the Capitol building. He assisted in on site assessments, detailed plan review and in providing overall corrective measures recommendations.

West Virginia State Capitol Restroom Renovations. *State of WV General Services Division.* Plumbing Engineer, Mr. Paff provided the State of West Virginia General Services Division with a comprehensive MEP study of the Capitol building related to the renovation and renovation of the 33 restrooms. He assisted in providing overall plumbing design and detail recommendations. Construction Documents were developed and completed for an extensive plumbing renovation, but the construction project was defunded and has not been built.

Comprehensive Architecture/Engineering/Construction Phase Services for the Renovation of Offices and Industrial Facilities. *Baker-Add-Gilbane.* Designer. Responsible for design of plumbing and fire protection systems to meet International Plumbing Code design standards. Michael Baker provided comprehensive architecture/engineering/construction phase services for the renovation of offices and industrial facilities under an open-end task order contract for the Bureau of Engraving and Printing.

Building 200, Airside Business Park, Moon Township, Pennsylvania. *Airside Business Park, L.P.* Designer. Responsible for design of the plumbing and fire protection systems to meet International Plumbing Code design standards. Michael Baker provided planning, architectural, and engineering services for the design of the shell and core of this 93,000-square-foot office building. The office building is precast tilt-up concrete panels with metal accents at entrance canopies, compatible with the nearby airport's terminal.

Office Building Assessments for Corporate Expansion, VA, IL, and Massachusetts. *Legent Corporation.* Designer. Assisted in the design of plumbing and fire protection systems to meet International Plumbing Code design standards. Michael Baker conducted condition assessment surveys of four office buildings that Legent Corporation was considering for purchase to house their software coding and marketing operations. The facilities were located in Virginia, Illinois, and Massachusetts and ranged in size from 27,000 square feet to 140,000 square feet. Reports were generated for each facility stating the suitability to Legent's needs,

Years with Michael Baker: 27

Years with Other Firms: 13

Degrees

Certificate, 1987, Visual Arts, Art Institute of Pittsburgh

A.S., 1977, Architectural Engineering Technology, The Pennsylvania State University

Licenses/Certifications

Certified Plumbing Designer, 1981,
Full

assessing all system types, noting their deficiencies and adaptability, logging of all code violations, and making recommendations for improvements (both required and suggested) with associated preliminary cost estimates.

Manchester Headquarters Office Modifications, Pittsburgh, Pennsylvania. *Port Authority of Allegheny County.* Designer. Designed the plumbing and fire protection systems to meet International Plumbing Code design standards for the renovation of this office building. Michael Baker designed renovations to the Port Authority of Allegheny County's 80,000-square-foot headquarters building. The project included mechanical, electrical, plumbing, fire protection, and architecture, including construction phasing to coordinate with ongoing building and transit operations. The work included a retrofit of the existing dual-duct HVAC system with new controls and dual-duct boxes, new lighting, a complete sprinkler system throughout the building, new ceilings, additional transformers, and operable partitions. All construction was performed between the hours of 7:00 pm and 4:00 am to minimize disruption to ongoing building and transit operations.

U.S. Army Reserve Complex, Wheeling, West Virginia. *U.S. Army Corps of Engineers, Baltimore District.* Designer. Provided fire protection design for a LP gas-driven fire pump, pump house, and 100,000-gallon above ground water tank. The project was designed to meet military design standards. Michael Baker provided a complete design-build package for a new U.S. Army Reserve Center located on a 25-acre site in Wheeling, West Virginia. The \$15.5 million project involved design of an 18,000-square-foot OMS/AMSA building and a 24,000-square-foot training center. Both buildings were constructed of steel frames on spread-footing foundations. Facades feature a combination of split-faced block with brick. The roofs are constructed of standing-seam metal, with certain roofs vaulted. Associated site infrastructure work included the removal of a hilltop and construction of parking facilities and a one-half mile access road, as well as landscaping. Due to water pressure issues for fire protection, an on-site 60,000-gallon water storage tank was constructed. This project shared property with a regional general airport authority.

On-Call Services for A/E Design Services for Bell Atlantic - Real Estate Section, Pennsylvania, West Virginia, New Jersey, Delaware, Virginia. *Gensler & Associates / Architects.* Designer. Provided design of plumbing systems for toilet rooms and above ground fuel oil system to support back-up generators at several locations, as well as revisions to the existing fire protection system for the New Stanton cable vault. The projects were required to meet International Plumbing Code design standards. As part of a consortium serving a five-state region, Michael Baker provided full-scope architectural, interior design, and multi-disciplined engineering services to Bell Atlantic's Real Estate Section, primarily for renovation projects. The buildings, which ranged in function and size, housed local exchange switches. Other projects included reconfiguration of office space, performance of engineering analyses, and design work to support replacement of electro-mechanical telephone switching equipment with a new electronic switching; general facility upgrades, and building preparations to receive new equipment installed by Bell Atlantic.

Owen Milligan, P.E.

Electrical Engineering Manager

General Qualifications

Mr. Milligan is an electrical engineer who is experienced working with consulting engineering firms in the study and design of electric distribution and control systems, emergency power for process plants and facilities, water/wastewater treatment plants, government and commercial projects, ASHRAE energy-efficient building design, coordination with vendor and contractors, and approval of vendor drawings. He has a strong knowledge of distribution equipment and designs, motor control center layouts and design, and start-up and services during construction. He is capable of handling multiple projects from conception to final design, working as a team member toward meeting project goals. His work includes management of Baker's electrical engineering department, supervising and providing technical advice to designers and coordinating design and construction work with engineers, contractors, vendors, and clients.

Experience

Design/Build SATOC for Military Facilities in the Southwest Region, Various Locations in Southwestern U.S., AR, AZ, CA, LA, NM, NV, OK, TX. U.S. Army

Corps of Engineers, Tulsa District. Electrical Engineer. Provided design assistance to the electrical engineering subconsultant, and performed a technical quality review of the construction documents for the TEMFs located at Fort Bliss. Electrical systems included lighting, lightning protection and grounding, power distribution, telecommunications, fire alarm, and unique voltage and frequency requirements. Designs were required to meet UFC and military design standards. Projects constructed under this contract include Brigade Combat Team (BCT) Tactical Equipment Maintenance Facilities (TEMF). TEMFs provide facilities for the purpose of maintaining and repairing vehicles, complete with equipment and parts storage, and administrative offices. Task orders awarded to date include the following: Two TEMFs at Fort Bliss in El Paso, Texas to be shared by five Battalions and one Company; and a Unit Operations Facilities consisting of a TEMF and an Organizational (Deployment) Storage facility, at Fort Bliss in El Paso, Texas. Facility designs are required to meet or exceed a Silver LEED® certification.

Little Kanawha Bus, Calhoun County, West Virginia. WV Division of Public Transit.

Electrical Engineer. Responsible for the Electrical Design, Electrical Document Preparation, and Construction inspection for electrical components for a new bus maintenance and office facility for Gilmer County. Duties include the design of the vehicle storage, cleaning and maintenance systems, as well as oil pumping and collection systems. The design of an energy efficient systems for the entire building is also part of his responsibilities. The facility was designed as a LEED® project.

On-Call Multi-Discipline Services, Pittsburgh International, and Allegheny County Airports (PIT/AGC), Pittsburgh, Pennsylvania. Allegheny County Airport Authority. Technical Advisor. Provided technical direction to electrical design staff and performed a technical quality review of the construction documents. Designs were required to meet NEC

Years with Michael Baker: 7

Years with Other Firms: 20

Degrees

B.S., 1988, Electrical Engineering,
Gannon University

Computer Aided Drafting, Putnam
County Technical Center, 1995

Licenses/Certifications

Professional Engineer, West
Virginia, 2013

Professional Engineer,
Pennsylvania, 1999

Professional Engineer, Kentucky,
2005

Professional Engineer, Oklahoma,
2008

standards. Since 1989, Baker has provided multidiscipline, on-call services to the Allegheny County Airport Authority (ACAA). The ACAA owns and operates Pittsburgh International Airport (PIT) and Allegheny County Airport (AGC). Baker acted as an extension to the ACAA's staff, providing the depth of resources and experience of the entire company when called upon by the ACAA. Baker provided a full range of services to ACAA on an "On-Call/As-Needed" basis, including architecture, civil, structural, mechanical, electrical and environmental engineering, general engineering administration, construction support, and other areas.

Rescue Swimmer Training Facility, U.S. Coast Guard Support Center, Elizabeth City, North Carolina. *U.S. Coast Guard, Facilities Design & Construction Center Atlantic.* QA/QC. Performed a technical quality review of the electrical design for this building renovation project, including lighting and electrical receptacles. Baker prepared Design/Build RFP Documents for a new Rescue Swimmer Training Facility (RSTF) for the Aviation Technical Training Center (ATTC), a tenant of and located on the SC Elizabeth City, NC. The \$13.3 million RSTF is a dedicated aquatic trainer for the purpose of supporting the Aviation Survival Technician (AST) School and recurrent water survival training requirements. Sized appropriately for the curriculum and student loading, the RSTF contained elevated platforms, pool temperature controls, adequate wet and dry storage, male and female locker/shower facilities, classrooms, and office space.

Gymnasium Locker Room Rehabilitation, USCG Training Center Cape May, New Jersey. *U.S. Coast Guard.* QA/QC. Performed a technical quality review of the electrical design for this building renovation project, including lighting and electrical receptacles. Baker prepared the design, construction documents, and cost estimate for the interior rehabilitation of an existing facility to combine two women's locker rooms into one large room.

Relocation and Improvements to the Front Gate, USCG Training Center Cape May, New Jersey. *U.S. Coast Guard.* QA/QC. Performed a technical quality review of the electrical design for this building renovation project, including lighting and electrical receptacles.

Route 52, Contract - "B", Somers Point & Ocean City, New Jersey. *New Jersey Department of Transportation.* Electrical Engineer. Responsible for the electrical systems design to meet NEC standards for a new Visitor's Center, bridge and site lighting, power distribution, and a supplemental photovoltaic solar system.

Non-Baker Project Experience

Siemens Government Services, Inc (formerly SD Engineers), Pittsburgh, Pennsylvania. Senior Electrical Project Engineer. Responsibilities included Senior Electrical Engineer in charge of all electrical work at the Department of Energy's Naval Reactor Facility in West Mifflin, Pennsylvania. Duties included complete electrical design including multiple new office building designs and construction, light industrial type facilities for confidential DOE projects, retrofitting and relocation of existing laboratories, power studies, arc flash calculations, and site power distribution.

Chester Engineers / US Filter Corporation, Pittsburgh, Pennsylvania. Electrical Project Engineer. Responsibilities included the following:

- Lead electrical engineer for multiple site water and wastewater treatment projects for a large automobile manufacturer.
- Lead electrical engineer for design of water treatment plants for several large steel manufacturers.
- Lead electrical engineer on design of numerous remote cellular telephone communication sites for a large, wireless Telecommunications Company.
- Assisted a Senior Electrical Engineer on a Short Circuit and Coordination Study using CAPTOR/DAPPER analysis program.
- Responsible for several large detailed constructions cost estimates.

Joshua L. Casey, R.C.D.D.

Telecommunications Distribution Designer

General Qualifications

Mr. Casey's ability to churn out timely, accurate designs has made him a key-contributor to many successful projects. Using his experience, tempered by working for an international architecture firm, then a leading technology consultant, Mr. Casey navigates a project team with ease and leverages his background and expertise to design technology infrastructure, telecommunications, and security to resolve conflicts using modern software. As a Registered Communications Distribution Designer, Mr. Casey's role will be to communicate with the owner and Michael Baker's design team to provide a high-level of detail for all spaces that require telecommunications, security, and audiovisual systems, including planning and programming, infrastructure and systems design, and bid documentation and management.

Experience

Design and Construction Management Master Services Contract, Southwestern, Pennsylvania. *Duquesne Light Company.* Communications Designer. Responsible for designing the security system that consisted of gate access control, card access, intrusion detection, and video surveillance. The access control system allowed for employees from any of the companies facilities to have access into the building and rooms that they had clearance for. The video surveillance system allowed for the security personnel to view any camera on campus and control any pan, tilt, and zoom either internally or at a remote location. Michael Baker is providing architectural and engineering services under a three-year master services agreement for design, preconstruction, bid phase, construction management, and other services for the renovation or improvements to the company's facilities and for major capital projects and programs. Michael Baker's services include project management, architectural and engineering design, design management and design reviews, cost estimates, construction sequencing, bidding-phase support, and construction management and inspection.

Architect-Engineer Design Services, Middle East. *U.S. Army Corps of Engineers, Middle East District.* Communications Designer. Designed structured cabling, and security for the renovation of a school. Project consisted of the demolition of the current and a design of a new telecommunications structured cabling system and security system. Coordinated with owner locations of equipment that needed a data connection provided for use. Security system consisted of access control locations and door hardware, camera locations. DoD regulations require U.S. Military Installations to update Base Camp Master Plans every five years. Base Camps require a master plan to guide life cycle development, land use, location of facilities and infrastructure, security and defense planning, and to guide future changes of base camp purpose, upgrades, expansion, or reduction. The development of the Camp Buehring and Udairi Range BCMP was developed in accordance with CENTCOM "The Sand Book" and Army Corps of Engineers "Engineer Pamphlet 1105-3-1." The plans are intended to be decision maker documents and serves as the single, integrated, authoritative reference for existing (temporary) and future (permanent) development work.

Years with Michael Baker: 1

Years with Other Firms: 11

Degrees

A.D., 2003, Computer Aided Drafting and Design, Pittsburgh Technical Institute

Licenses/Certifications

Registered Communications Distribution Designer, USA and Canada, 2017, [REDACTED]

Edison Security Upgrades, Duquesne Light Company. Communications Designer. Responsible for designing the security system that consisted of gate access control, card access, intrusion detection, and video surveillance. The access control system allowed for employees from any of the companies facilities to have access into the building and rooms that they had clearance for. The video surveillance system allowed for the security personnel to view any camera on campus and control any pan, tilt, and zoom either internally or at a remote location.

Ohio Architectural/Engineering Indefinite Delivery Indefinite Quantity Contract (IDIQ), Rickenbacker Air National Guard Base, Columbus, Ohio. *121 OH Air National Guard.* Communications Designer. Performed ITR of telecommunications design set. Michael Baker designed replacement lighting and dual light level control system for the aircraft ramp and apron that serve PAA KC-135 aircraft at the base. Michael Baker's tasks included overseeing the geotechnical investigation to confirm subsurface conditions; developing the demolition design for the old lighting system; developing the site design relative to the cutting and patching of asphalt drives and concrete sidewalks; coordinating boring beneath aircraft access taxiways to hangars; developing the replacement lighting and control system design, including poles, fixtures, foundations, and underground wiring; and overseeing cost estimate development.

Non-Michael Baker Project Experience

R&D Renovation and Expansion Building, Corning, New York, Corning Incorporated. Designed structured cabling, wireless, and security for renovation and expansion of Corning Inc. Research and Development building. System consisted of main backbone cabling using fiber optics to a wall mounted telecommunication cabinets that distributed copper to a cluster of labs. Coordinated with owner locations of equipment that needed a data connection provided for use. Designed wireless access point placement. Designed Telecommunications Rooms and Rack layouts as well as Telecommunication Cabinet locations and zoning. Security system consisted of access control locations and door hardware, camera locations, RFID tag tracking for all equipment, and security control panel locations in telecommunications rooms. Size: 520,000 SF; \$300,000,000

New Headquarters, Parkersburg, West Virginia, Highmark Mountain State Blue Cross/Blue Shield. Designed structured cabling, wireless, and security for new headquarters. Building consisted of office and meeting spaces, cafe, and public accessible plaza. Designed Telecommunications Rooms and Rack layouts, outlet locations and doors to be secured for access control. Security system consisted of access control locations and door hardware, security camera locations, and security control panel locations in telecommunications rooms. Size: 123,000 SF

Infrastructure Renovation, Veteran Affairs Medical Center, Ann Arbor, Michigan, Illiana Health Care System. Designed structured cabling for renovation of VA Illiana Health Care System. System consisted of main backbone cabling to consolidation points which then distributed cabling to local outlets for personal desks. Designed Telecommunications Rooms and Rack layouts as well as consolidation point placement and zoning.

Corporate Headquarters, Pittsburgh, Pennsylvania, Summa Technologies. Designed the IT/Telecom, audiovisual, and security system for multiple uses allowing the owner to utilize the technology based on numerous furniture layouts, user segments, and event types. Spaces included the Main Entry, Training Room, Conference Rooms, Design Studios and Team Rooms, Board Room, War Room, Café, Tech Stairs, and a small, light-broadcast studio. For spaces with little to no integrated technology, mobile collaboration carts can be wheeled into these spaces transforming them into wireless environments. The security systems consisted of card access and video surveillance which allowed the client to both record video onto a network attached recorder as well as view cameras on either a PC or mobile device. Size: 25,000 SF

Ralph T. Deffenbaugh, P.E., LEED AP

Technical Manager

General Qualifications

Mr. Deffenbaugh provides leadership for project quality and interdisciplinary coordination for the architecture engineering group. In his wide-ranging experience, he has provided oversight of the engineering efforts focusing on integration of systems, development of energy reduction strategies, and detailed quality assurance reviews of various types of facilities for military, government, commercial, public, and private clients. His experience includes serving as project manager, lead structural engineer, resident structural engineer, or project/design engineer for various types of facilities, including tactical equipment maintenance facilities, vehicle maintenance facilities, barracks, military facilities, administrative/office buildings, bus maintenance facilities, manufacturing plants, fabrication facilities, utility buildings, clean rooms, administrative facilities, transit stations and park-n-rides, water storage, and water/wastewater treatment facilities. In 2007, Mr. Deffenbaugh received his LEED® accreditation from the U.S. Green Building Council.

Experience

Campus Master Planning and Architectural and Engineering Services for State Capitol Complex, Charleston, West Virginia. *State of WV General Services Division.* QA/QC. Responsibilities included quality assurance reviews for civil, structural, architectural, mechanical, and electrical drawings and specifications. Facilitated QC review process utilizing discipline review checklists, RFP scope checklists, and coordination of drawings. Michael Baker is providing comprehensive master planning services, plans and construction specifications, and construction administration for improvements to the historic West Virginia state capitol campus. Master planning services include plans for expansion, location of new buildings, pedestrian and traffic circulation, landscaping, utilities, and site security. Michael Baker is also providing construction plans and contract administration services for some of the security and landscaping improvements.

A/E Services for the Office of the Adjutant General, West Virginia Army National Guard, Division of Engineering and Facilities, Charleston, West Virginia. *State Army National Guard Headquarters.* QA/QC. Responsibilities included coordinating the quality assurance reviews for architectural, mechanical, and electrical drawings. Facilitated QC review process utilizing discipline review checklists, RFP scope checklists, and coordination of drawings. The Facilities Management Officer (FMO) for the State of West Virginia, Division of Engineering and Facilities (DEF), West Virginia Army National Guard (WVARNG) selected Michael Baker for a lump

Years with Michael Baker: 11
Years with Other Firms: 26

Degrees

B.A.E., 1980, Architectural Engineering (Structural Design Option), The Pennsylvania State University

Licenses/Certifications

LEED Accredited Professional, 2007, [REDACTED]

Professional Engineer, West Virginia, 2004, [REDACTED]

Professional Engineer, Kentucky, 2004, [REDACTED]

Professional Engineer, Louisiana, 2009, [REDACTED]

Professional Engineer, Massachusetts, 1992, [REDACTED]

Professional Engineer, Maryland, 1996, [REDACTED]

Professional Engineer, Michigan, 2012, [REDACTED]

Professional Engineer, Ohio, 2004, PE [REDACTED]

Professional Engineer, Pennsylvania, 1991, [REDACTED]

Professional Engineer, Virginia, 1991, [REDACTED]

sum/fixed fee contract for architectural and engineering services. Michael Baker was selected by the Division of Engineering and Facilities to provide complete design and construction administration services for the renovation of the first floor of the entire wing of the Office of the Adjutant General (TAG). The Owner requested the need for modernization of approximately 12,000 square feet of existing outdated office space - project elements included new acoustical ceilings, flooring, energy-saving light fixtures, duplex outlets, communications jacks, alterations to the existing floor plan, exterior door replacements, new interior doors and hardware, new wall finishes and asbestos removal.

Little Kanawha Bus Facility, Calhoun County, West Virginia. *West Virginia Division Of Public Transit. QA/QC.* Responsibilities included quality assurance reviews for civil, structural, architectural, mechanical, and electrical drawings and specifications. Facilitated QC review process utilizing discipline review checklists, RFP scope checklists, and coordination of drawings. Michael Baker is providing architectural and engineering services, landscape architecture, and construction-phase support for a new, 9,900-square foot, pre-engineered, metal and brick bus maintenance and transit operations facility. The 5,100-square-foot administrative area will include offices, a conference room, a money-counting room, and a driver-training room, and the 4,800-square-foot bus maintenance area will include storage for seven buses. The facility will be ADA-compliant and is being designed to achieve LEED® certification. Services include site survey and design, geotechnical testing, environmental compliance, utility coordination, bid documents, bid-phase support, and as-built drawings.

Design-Build Community-Based Outpatient Clinic, Lake Charles, Louisiana. *SDA, Inc. QA/QC.* Provided detailed review of VA clinic including challenges in duct and heat pump installation with roof trusses. Michael Baker provided architecture and engineering services for a new 32,000-square-foot, design-build, community-based outpatient clinic for military veterans. Michael Baker's services included design management; conceptual, preliminary, and final architectural design; structural design; landscape design; interior design; mechanical, electrical, plumbing, and fire protection engineering; and construction administration and inspection.

Lancaster Station Renovations, Lancaster, Pennsylvania. *Amtrak. QA/QC.* Provided detailed QA review for the contract documents. Michael Baker provided architectural and engineering services for renovations to the historic Lancaster Station. Michael Baker's services included architectural and interior design, mechanical and plumbing design, historic preservation, and construction administration.

P-478 Navy Gateway Inn & Suites (NGIS), Naval Station Newport, Rhode Island. *NAVFAC MIDLANT NEIPT. QA/QC.* As design quality manager, established the quality plan for this project. Michael Baker is the designer of record for the new 200 key, 104,000-square-foot Navy Gateway Inns & Suites hotel. Michael Baker's services included architecture, interior design, civil engineering, landscape architecture, mechanical engineering, plumbing design, fire protection design, and sustainable design.

John F. Kennedy Center for the Performing Arts Pedestrian Access Design Review, Washington, D.C. *Federal Highway Administration - Eastern Federal Lands Highway Division (EFLHD). QA/QC.* Responsibilities included quality assurance reviews for civil, structural, architectural, mechanical, and electrical drawings and specifications. Facilitated QC review process utilizing discipline review checklists, RFP scope checklists, and coordination of drawings. Michael Baker is performing an independent quality assurance-quality control review of plans for improvements to facilitate riverfront pedestrian access between the John F. Kennedy Center for the Performing Arts and the Rock Creek and Potomac Parkway (RCPP) Trail. The project scope includes the addition of two continuous staircases with integral elevator towers centered on the Potomac River side of the building and extending from the River Terrace to the RCPP Trail, along with various trail and site improvements.

SECTION IV

CRAWFORD

CONSULTING SERVICES

CRAWFORD has been providing high quality full service construction cost estimating services for various private and state universities for more than 20 years, ranging from pre-construction through occupancy. We maintain a highly-skilled team of construction professionals with certifications including Project Management Professionals, Planning and Scheduling Professionals, Construction Quality Managers, Certified Construction Managers, Certified Professional Estimators, Certified Cost Professionals, Associate Value Specialists, and LEED Accredited Professionals with expertise on projects of all types and magnitude. CRAWFORD has completed projects that range in size from under \$10,000 to over \$8 billion. Our project capabilities range from new construction, renovation, retrofit, infrastructure, to civil works projects and our experience stretches from local, regional, national, to international. We help simplify the procurement process for contracting officers and project managers because we specialize in construction management, cost estimating / cost engineering, value engineering, quality assurance / quality control, inspection, staff support and scheduling. CRAWFORD, as a **woman-owned small business**, assists agencies in meeting small business utilization goals. Our award-winning firm has received the following accolades:

- Society of American Military Engineers (SAME) 2016 Robert B. Flowers Small Business Award
- 2015 Business Women's First Award
- BTAP Program - Selected by Naval Facilities Engineering Command HQ as one of six Women-Owned Businesses in the United States to participate in the DoD Business Technical Assistance Pilot Program
- 2008 Mayor's Annual Good Neighbor Award
- 2006 Historic Preservation Award from the Pittsburgh Historic Review Commission (Phipps Conservatory)
- 2005 Small Business Woman of the Year Award
- 2004 Minority Business Opportunity Council Woman Business of the Year
- Fifty Best Women in Business Award in 1999 for the Commonwealth of Pennsylvania – Department of Commercial and Economic Development

Since 1993 CRAWFORD has provided cost estimating and scheduling services on more than 190 higher education projects at over 25 different colleges and universities. In addition to our higher education support we have provided 100+ cost estimates at the k-12 education level.

CRAWFORD currently has the capacity in all key cost estimating disciplines with nine cost engineering key personnel who are certified through AACE and ASPE who lead our architectural, structural, civil, mechanical, and electrical estimating groups respectively along with an additional 28 full-time cost engineering specialists who support these lead estimators. Our estimating group is divided into five (5) subgroups as indicated above and **all personnel work in the same building** out of our headquarters

Why CRAWFORD...

- ✓ 37 Full-Time discipline specific in-house cost professionals
- ✓ 20+ years' experience providing Cost Estimating Services for various universities and k-12 institutions
- ✓ Experience on Federal Government, Public, Private, and Commercial construction projects
- ✓ 25 years in business
- ✓ Working relationship with 8 out of 10 of *The Top 500 Design Firms, ENR*

CRAWFORD has award information on projects totaling \$1.74 billion. Our estimate's aggregate delta in comparison is **0.85%**.

CRAWFORD

CONSULTING SERVICES

office in Pittsburgh, PA. The personnel named in this proposal are committed and will be the leaders of our team.

Our in-house research team is experienced at interviewing construction industry decision makers: architects, engineers, project managers, estimators, large & small contractors, sub-contractors, distributors, wholesalers and equipment suppliers. Our methods do not rely solely on published indices and forecasts; however, we perform detailed market surveys for the specific geographic area that the project is planned to be built. This is a good resource for owners to refer to as a gauge for their project. The analysis can help determine factors that affect the overall budget, schedule, and contracting strategies for an owner. Due to the instability in the global, national, and local construction economy CRAWFORD provides analysis, discussions, material indices, and cost tables to provide real-time information on labor shortages, material costs, fuel, etc.

Providing an accurate cost estimate is paramount to CRAWFORD. We ensure accuracy by having a well-rounded staff of cost estimators in our office. Working closely with the design team along with maintaining our internal unit cost database ensures an accurate, detailed, and defensible end product. Throughout the entire design period, close coordination between the designer and CRAWFORD is exercised to achieve truthful cost control.

Project	Our Estimate	Bid / Award	Delta
Indiana University - New Dining Facility, Indiana, PA	\$15,482,443	\$15,423,869	0.38%
Duquesne University - Fisher Hall Renovation, Pittsburgh, PA	\$459,205	\$424,750	8.11%
Clarion University - Ralston Hall Renovations, Clarion, PA	\$1,281,905	\$1,278,994	0.23%
Indiana University of Pennsylvania - Renovation and Addition to Folger Hall, Indiana, PA	\$10,359,209	\$10,319,000	0.39%
Indiana University of Pennsylvania - Crimson Café, Indiana, PA	\$5,646,158	\$5,441,300	3.76%
USACE Norfolk District - DoDEA - Replace Barkley Elementary School, Fort Campbell, KY*awarded to an 8a firm	\$36,816,258	\$39,876,422	-7.67%
DoDEA - Bowley Elementary School - Replace HVAC System, Fort Bragg NC	\$3,692,806	\$3,799,450	-2.81%
USACE Norfolk District - DoDEA - West Point Middle School Addition and Renovation, West Point, NY	\$22,899,697	\$23,974,000	-4.48%
USACE Fort Worth District - Stadium and Track Facility, Fort Hood, TX	\$12,226,915	\$11,573,215	5.65%
USACE New York District - Relocation of US Military Academy Prep School, West Point, NY	\$124,052,346	\$128,632,000	-3.56%
USACE New York District - West Point Classroom Addition, West Point, NY	\$3,888,274	\$3,716,004	4.64%

Mission Statement: Crawford is a trusted leader in providing world-wide pre-construction and construction-phase services to diverse clients on complex projects, delivering innovative, unbiased, responsive premier - quality solutions.

Donald E. Crean, AVS, CCP
Senior Cost Estimator



EXPERIENCE: 25+ Years

EDUCATION:

Allegheny College; BA
Economics / Political Science

**PROFESSIONAL
ACCREDITATION:**

Society of American Value
Engineers (SAVE) International

Association for the
Advancement of Cost
Engineering (AACE)
International

CERTIFICATIONS:

Certified Cost Professional
(CCP)

Associate Value Specialist
(AVS)

Overview:

Mr. Crean has over 25 years of engineering experience developing cost estimate packages for new MILCON and Sustainment Restoration and Modernization (SRM) projects ranging from \$10,000 through \$8 billion master plan estimates. He oversees take-off and software input of all AE discipline components of the project. Mr. Crean works closely with the design teams and project owners to ensure all scope requirements are met while keeping the cost estimates within the programmed budget. He's developed over 500+ cost estimates for projects in 23 countries worldwide and is well versed in AACE RP 18R-97 and ER 1110-3-1300. **Training:** MCACES Second Generation (MII), SUCCESS Estimator, WinEstimator, PlanSwift.

Crawford Consulting Services, Inc., East Pittsburgh, PA
Senior Cost Estimator; 2009 – Present

- Manages construction cost estimating projects with awarded costs between \$10K - \$5B
- Oversees complete execution and delivery of cost estimating package to owner's and clients with a <5% accuracy rate
- Provide Market Analysis on construction projects across the country which include research, data gathering and reporting on items including but not limited to: general contractor involvement, subcontractor involvement, labor supply, material availability, equipment pricing, construction indices, and construction climate
- Provides cost estimating, scheduling, constructability review, value engineering, risk analysis and other support enabling agencies to improve strategic and tactical decision making
- Performs cost estimating project take-off, product research and pricing quantity take-off, and research pricing
- Provides Life cycle cost analysis

Relevant Renovation Project Experience

United States Air Forces Central (USAFCENT) Headquarters, Building 1130 Renovation, Shaw Air Force Base, SC

Mr. Crean provided cost engineering services through corrected final and worked with the client to develop six (6) base bid packages and four (4) optional bid items for an 8(a) set-aside solicitation. Renovation of 88,955 SF four-story building including offices, conference rooms, circulation spaces, lobby and related spaces. **Cost: \$19.283M**

City of Pittsburgh – Riverview Observatory Renovations, Pittsburgh, PA

Mr. Crean provided a construction cost estimating services for the renovations to the Riverview Observatory in Pittsburgh, PA. Renovations of the Observatory included repaving the road, installing new inlets along the road and a new storm line, adding 5 or 6 parking spaces for the dog park, adding a drinking fountain at the dog park and potentially a sanitary line for it, putting the existing overhead electric line underground, and adding the parks department's standard pole light fixtures along the road. **Cost: \$696,793.**

Jonald E. Crean, AVS, CCP
Senior Cost Estimator

City County Building Energy Upgrades, City of Pittsburgh Department of Public Works, Pittsburgh, PA

Mr. Crean provided a construction cost estimating services at the 90% Design Phase. Energy upgrades to the City County Building in Pittsburgh, PA. Upgrades will include all demolition and renovation of the first floor, the first floor mezzanine, and third floor HVAC, plumbing, lighting/electrical, and architectural renovations. **Cost: \$3.4M**

911th Airlift Wing – Repair Administrative Building 218, Pittsburgh, PA

Mr. Crean provided a construction cost estimate for the repair of Administrative Building 218. Upgrades for the structural support, interior architecture, mold remediation, HVAC, Plumbing, Electrical, and Fire Protection Systems, as well as the Telecommunications and Data center. **Cost: \$2+M**

GSA - USMS Build Out, Federal Stokes Building, Cleveland, OH

Mr. Crean provided a construction cost estimate utilizing the RS Means Cost Database and historical project costs to determine the material, labor, equipment and subcontractor pricing. Provide a Cost Estimate for construction costs for the USMS 4th Floor build out broken located on the north side / left hand quadrant of the building. **Cost: \$1.5M**

GSA – USAO Renovation, Evansville, IN

Mr. Crean provided a construction cost estimate with the design basis utilizing the existing and proposed 2nd floor plans, the Design Guide for the Dept. of Justice and Pricing Policy Excerpt for Shell and TI. Renovate and expand USAO 2nd Floor office by renovating the adjacent space for DID and Design requirements. **Cost: \$565,269**

Edinboro University of Pennsylvania - Cooper Science Building Renovation and Addition

Mr. Crean worked with the professional of record along with Edinboro University, under PASSHE, providing detailed cost estimating services on the renovation of the existing 60,000 SF building. The first phase of the project was the new construction of a 30,000 SF addition to Cooper Science Hall, which includes 'wet' teaching labs and offices for biology, chemistry. **Cost: \$14.M**

USACE Japan District – Renovation of Zama High School, Camp Zama, Japan

Mr. Crean provided MCACES MII Cost Engineering Services. CRAWFORD attended the Planning Charrette on site with additional DD Form 1391 Validation Services. Renovations to buildings 913,912,915, and 906 to improve site conditions to meet DoDEA Education Facilities Specifications and AT/FP standards. Retrofit blast resistant upgrades to the doors, windows and exterior walls. Seismic upgrades include ceiling suspension brackets, code requirement updates and exterior wall reinforcements. **Cost: \$19.42 million**

USACE Kansas City District – Renovations of Bldgs. 275 & 168, Ft. Leavenworth, KS

Mr. Crean provided cost engineering services and worked with our design team member to capture renovation scope for Buildings 275 & 168 to upgrade existing building systems and improve configuration of interior layout to conform to the mission of CYS – Skies Unlimited. Renovation of the facility shall be consistent with the renovation practices used for civilian sector projects that perform similar functions to the military user. This includes preservation of historic building shell and interior historic character defining features while replacing building systems **Cost: \$5.2M (Draft RFP Submission)**