

Michael Baker

INTERNATIONAL

We Make a Difference

December 17, 2019

Guy Nisbet
Department of Administration
Purchasing Division
2019 Washington Street E.
Charleston, West Virginia 25305

RECEIVED

2019 DEC 17 AM 11:47

WV PURCHASING
DIVISION

Subject: Professional A/E Services for the West Virginia Army National Guard's Construction and Facilities Management Office - Mountaineer Challenge Academy South Renovation/Design Solicitation No. CEOI 0603 ADJ2000000001

Dear Mr. Nisbet:

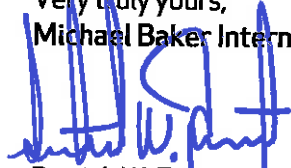
The Charleston, WV office of Michael Baker International, Inc. (Michael Baker) is pleased to respond to the solicitation for the Expression of Interest for Architectural and Engineering Services related to the proposed renovations to campus buildings for the Mountaineer Challenge Academy in Montgomery West Virginia. Michael Baker is interested in the mission of your agency and would like to engage with the West Virginia Army National Guard's Construction and Facilities Management Office as a trusted facilities consultant. We believe that our team of professionals is uniquely qualified to partner with the Construction and Facilities Management Office on this important project and help bring their vision for the Mountaineer Challenge Academy South Renovation Project 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 developing feasibility studies and master planning, and 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 Phases.

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

MTBAKERINTL.COM

400 Washington Street, Suite 301 | Charleston, WV 25301

Office: 304.769.0821 | Fax: 304.769.0822

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COVER LETTER

MANDATORY PROPOSAL SUBMISSION FORMS

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Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

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

Proc Folder: 658630

Doc Description: Mountaineer Challenge Academy South Renovation/Design

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2019-11-21	2019-12-17 13:30:00	CEOI 0603 ADJ2000000001	1

BID RECEIVING LOCATION

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
304.769.0821

FOR INFORMATION CONTACT THE BUYER

Guy Nisbet
 (304) 558-2596
 guy.l.nisbet@wv.gov

Signature X

FEIN # **25-1228638**

DATE **17Dec2019**

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

ADDITIONAL INFORMATION:

Centralized Expression of Interest
 (Professional Architect & Engineering Services for Mountaineer Challenge Academy "South" Improvement/Renovation Project)

In accordance with West Virginia Code: 5G-1-3, The West Virginia Purchasing Division is soliciting Expression(s) of Interest for the Agency, The West Virginia Army National Guard's Office of the Adjutant General, from qualified firms to provide architectural/engineering services and other related professional services to design and specify for construction as well as provide construction contract administration, for Renovations to the Mountain Challenge Academy "South" located in: Montgomery, in Fayette County, West Virginia. per the bid requirements, specifications and terms and conditions as attached hereto.

* Online submissions of Expressions of Interest are Prohibited*

INVOICE TO		SHIP TO	
DIVISION ENGINEERING & FACILITIES ADJUTANT GENERALS OFFICE 1707 COONSKIN DR		DIVISION ENGINEERING & FACILITIES ADJUTANT GENERALS OFFICE 1707 COONSKIN DR	
CHARLESTON	WV25311	CHARLESTON	WV 25311
US		US	

Line	Comm Ln Desc	Qty	Unit Issue
1	MCA South Renovation Design		

Comm Code	Manufacturer	Specification	Model #
81101508			

Extended Description :

Provide professional architectural and engineering design services per the attached documentation.

ADJ200000001	Document Phase Final	Document Description Mountaineer Challenge Academy South Renovation/Design	Page 3 of 3
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ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions



Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

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

Proc Folder: 658630

Doc Description: Addendum No.01 Mountaineer Challenge Academy South

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2019-12-09	2019-12-17 13:30:00	CEOI 0603 ADJ2000000001	2

BID RECEIVING LOCATION

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
304.769.0821

FOR INFORMATION CONTACT THE BUYER

Guy Nisbet
 (304) 558-2596
 guy.l.nisbet@wv.gov

Signature X

FEIN # **25-1228638**

DATE **17Dec2019**

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

ADDITIONAL INFORMATION:

Addendum

Addendum No.01 issued to publish and distribute the attached information to the vendor community.

Centralized Expression of Interest

(Professional Architect & Engineering Services for Mountaineer Challenge Academy "South" Improvement/Renovation Project)

In accordance with West Virginia Code: 5G-1-3, The West Virginia Purchasing Division is soliciting Expression(s) of Interest for the Agency, The West Virginia Army National Guard's Office of the Adjutant General, from qualified firms to provide architectural/engineering services and other related professional services to design and specify for construction as well as provide construction contract administration, for Renovations to the Mountain Challenge Academy "South" located in: Montgomery, in Fayette County, West Virginia. per the bid requirements, specifications and terms and conditions as attached hereto.

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CHARLESTON	WV25311	CHARLESTON	WV 25311
US		US	

Line	Comm Ln Desc	Qty	Unit Issue
1	MCA South Renovation Design		

Comm Code	Manufacturer	Specification	Model #
R1101508			

Extended Description :

Provide professional architectural and engineering design services per the attached documentation.

ADJ2000000001	Document Phase Final	Document Description Addendum No.01 Mountaineer Challenge Academy South	Page 3 of 3
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ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

SOLICITATION NUMBER: CEOI 0603 ADJ20000000001

Addendum Number: No.01

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

- Modify bid opening date and time
- Modify specifications of product or service being sought
- Attachment of vendor questions and responses
- Attachment of pre-bid sign-in sheet
- Correction of error
- Other

Description of Modification to Solicitation:

Addendum issued to publish and distribute the attached documentation to the vendor community.

1. Issue and publish Vendor submitted questions and Agency responses.

No other Changes.

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.
2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

ATTACHMENT A

CEOI ADJ2000000001
Vendor submitted Questions and Agency Responses
12/09/2019

Q.1. What is the projected construction cost for the project?

A. State law forbids disclosing Project Budget amounts.

Q.2. We noted in an article by *WV Public Radio* on August 15, 2019, that "...Gov. Jim Justice signed House Bill 206 on education into law. One of the bill's provisions advocates for a second Mountaineer Academy in Fayette County." Has funding for the renovation been formally approved?

A. As noted within Page 4 of the Solicitation "The award, execution and completion of this contract is contingent upon receipt of funding".

Q. 3. Have Facilities or Feasibility Studies been conducted for the new Mountaineer Challenge site? If so, who completed those? Are they available to firms responding to this RFQ?

A. No.

Q.4. What is the anticipated start date for the project, once an A/E team has been selected?

A. Dependent on availability of funds.

Q.5. How many cadets are expected to be enrolled in the program and living on-campus at one time?

A. Planning to support up to 150 cadets per class.

Q.6. Do faculty and staff also live on campus?

A. To be determined.

Q.7. Will the program of training and study duplicate the current program offered at the Preston location? Will new courses or activities be offered that require specialized facilities? For example, athletics, vocational training, food prep training?

A. To be determined and based upon the availability of funds.

Q.8. Does the program require any special enclosures to help staff keep cadets on-site? e.g. lockable gates, fences?

A. To be determined.

Q. 8a. Related to #8, is there anticipated site or landscape work involved in converting the WVU Technical Campus to Mountaineer Challenge Academy South?

A. To be determined.

Q.9. Will the entire existing WV Technical Campus be used for the new Mountaineer Challenge Academy South, or just selected Buildings?

A. To be determined.

Q.10. Re: submissions, the RFQ asks for electronic submissions via WV Oasis. Are any hard copies requested, too?

A. Expressions of Interest CANNOT be submitted via wvOASIS. Expressions must be submitted by mail, in person, courier, or fax.

Q.11. How many buildings are included in the scope of work?

A. To be determined.

Q.12. Which buildings are included in the scope of work?

A. To be determined.

Q.13. Is the scope of work already defined for each building?

A. To be determined.

Q.14. If the scope of work is not already defined, will a building assessment and cost estimating phase be part of the A/E services?

A. Yes.

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CEOI 0603 ADJ200000001

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 checked="" 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

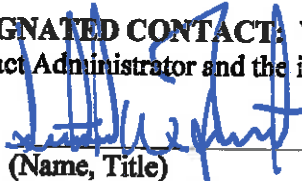
December 17, 2019

Date

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

Revised 6/8/2012

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)

304.769.2132 / 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)



(Authorized Signature) (Representative Name, Title)

Russell E. Hall, P.E., P.S., Vice President

(Printed Name and Title of Authorized Representative)

December 17, 2019

(Date)

304.769.0821 / 304.769.0822

(Phone Number) (Fax Number)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.:

CEOI 0603 ADJ200000001

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)

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Michael Baker International, Inc.

Company

Authorized Signature

December 17, 2019

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 § 23-2c-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 §61-5-3) 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: December 17, 2019

State of West Virginia

County of Kanawha, to-wit:

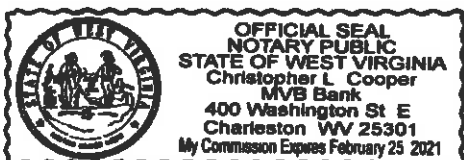
Taken, subscribed, and sworn to before me this 17 day of DECEMBER, 2019.

My Commission expires FEBRUARY 25, 2021.

AFFIX SEAL HERE

NOTARY PUBLIC

[Signature]
Purchasing Affidavit (Revised 01/19/2018)



SECTION I

PROJECT BACKGROUND

The West Virginia Army National Guard's Construction and Facilities Management Office (CFMO) is seeking a highly qualified architectural/engineering firm ready to provide design services and bid documents for the renovation of facilities at the Mountaineer Challenge Academy (MCA) in Montgomery West Virginia. The firm will be responsible to evaluate the existing conditions of a dorm or other buildings, make recommendation and present cost-effective options followed by Construction Documents for upgrades and renovations to the buildings as specified in the Expression of Interest (EOI).

Michael Baker is extremely interested in continuing our relationship with WV Army National Guard's Construction and Facilities Management

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 Army National Guard's Construction and Facilities Management Office* and in providing an innovative, efficient and phased renovation project for the Mountaineer Challenge Academy.

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.

FIRM CAPACITY

Michael Baker has worked across the United States on building renovation projects for Federal, State Government, DOD bases, Higher Education campuses, and K-12 Schools 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 40 minute 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, worked with a team of planners at Marshall University to assess numerous campus buildings for a Campus Master Plan, assessed multiple buildings and provided three sets of Construction Documents for the West Virginia Schools for the Deaf and the Blind in Romney WV. These projects included HVAC, Electrical, Fire Alarm, Life Safety, Fire Sprinkler and architectural projects in multiple buildings.

Prior to that, 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 assisted with the move of WVU Tech from the Montgomery campus to Beckley WV, by delivering two complete building renovations on a compressed time schedule. Michael Baker designed and provided oversight during the renovation of buildings. 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

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 CFMO 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 Coordinator and primary client contacts for this Project will be divided between Rebecca Schwartz, 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. Rebecca Schwartz 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. His recent design experience has included the design and project oversight of projects at the new West Virginia University Institute of Technology campus in Beckley, and various other 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 around the country, 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.

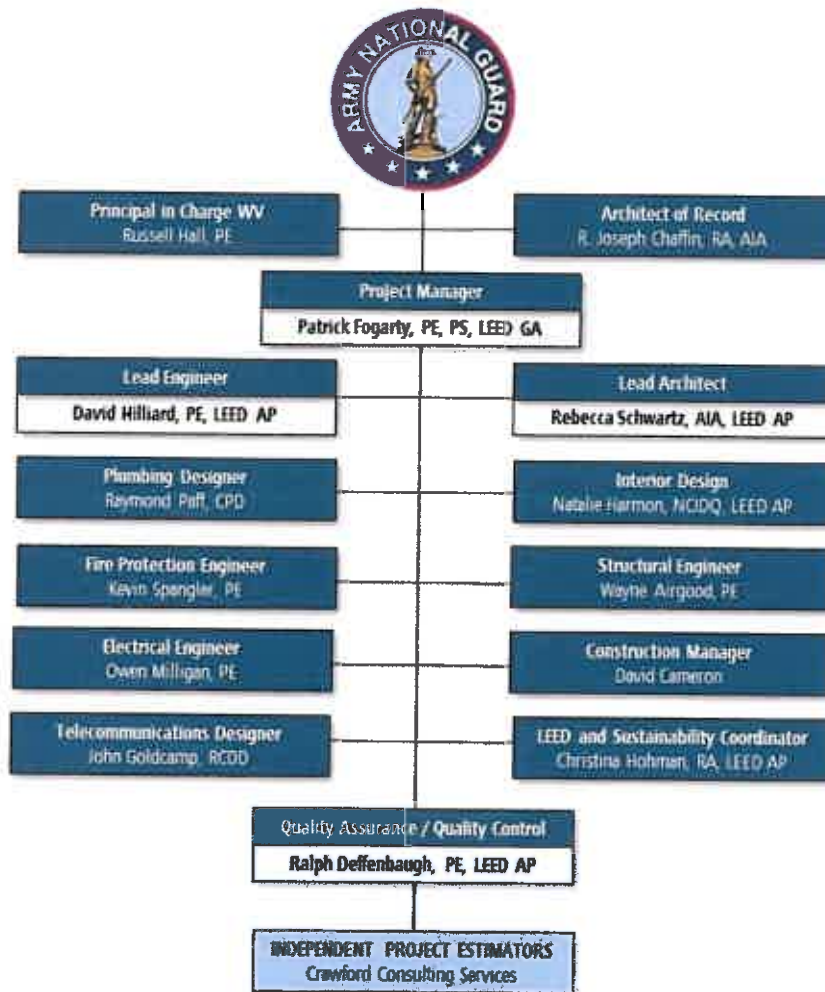
The team pledges our firm-wide resources to provide the CFMO with the highest quality product and excellent client service that will exceed your expectations. We truly appreciate your consideration and would be delighted to further discuss our proposal upon request and stand ready to assist at your direction.

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 CFMO 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 CFMO.

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

This team was selected based on the current Project understanding. Staff references and pertinent certifications or degrees will be made available upon request. 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, EVALUATION AND RECOMMENDATIONS

It is Michael Baker's understanding that up-grades or renovations to various buildings at the old WVU Tech campus in Montgomery, West Virginia are desired. Many Charleston team members graduated from WVU Tech and are familiar with the campus layout and buildings. Some have worked on previous building evaluations at the campus.



Old Main

Michael Baker's current understanding is that the project may include: the renovation of offices, classrooms, a dining facility, a commercial kitchen and a dormitory. The anticipated approach of the entire project would be holistic in nature. A kick off meeting would be held to help us understand the complete Owner's project requirements. We would listen to the desire and concerns of the MCC, the CFMO and get a feel for the level of renovation and the projected budget. After this meeting the first step would be to visit the project site to do preliminary assessment of the affected buildings. This process could include identification of existing conditions through information obtained by a review of the facilities as-built drawings and on-site interviews with maintenance staff. Michael Baker will plan for site visits during the first weeks of the project of the project. The information obtained would be put into a report with findings and prioritized recommendations, along with a proposed time schedule for the various project required tasks. Upon acceptance, feedback and approval of the report, Michael Baker would begin developing space planning and building system concepts required to provide designs for the most cost-effective approach to achieve the project requirements.

Michael Baker provides a variety of services with extensive team 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, Landscape and Building Architecture, Structural, Mechanical, Electrical, Plumbing, Fire Protection, Communication and Life Safety engineering. As needed Client design coordination meetings and/or site or in the CFMO office visits will be provided as a normal part of the design development process. This will help to ensure that CFMO is receiving the facility that they need and to provide a quality experience for the patrons and staff.

The most visible concerns from the street are in the overall appearance of the campus buildings exterior. General wear on the facilities is evident. Michael Baker would propose an overall analysis of the existing condition of the exterior of the affected buildings as well as the basic structural inspection.



Ratliff Hall



MacLean Hall

If desired by CFMO, 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. For large or multiple building, we believe that the drone inspection system would be quicker and more cost effective than more traditional methods.

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

- Building code
- ADA and life safety
- Present condition of the building envelopes including exterior finish, windows and roof.
- Mechanical, sprinkler and plumbing systems
- Electrical, fire alarm and communication systems
- Elevator systems (if required)
- Evaluate the best approach for efficient space utilization and circulation issues
- Evaluate what would be required to bring the buildings up to more modern educational standards.
- Determine the least disruptive approach for the designing multi-phased construction projects.



Courtyard in front of Old Main

GOAL TWO: SCHEMATIC DESIGN AND DESIGN DEVELOPMENT

Michael Baker will design renovations for the existing buildings as required to resolve issues noted in the evaluation and to bring the buildings up to current standards within the project budget. A final prioritized project phasing approach will be developed at this time in coordination with the MCA's desired timeline for classes to begin. Michael Baker has extensive experience working with a compressed design and construction schedule. Depending on the extent of the renovation work required for each building, it may be possible to have some buildings ready for the fall 2020 school year.

With the information gathered during the investigation and evaluation phase, the team will develop schematic design concepts for review and approval by CFMO. A more building specific code review for each project would also be undertaken to verify compliance with all State/Local Codes and any special requirement that would affect concept selection. The projects will be studied in a systematic way considering the existing conditions, client needs, affected mechanical and electrical system requirements, phasing, budget and construction time line. 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 CFMO, 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, feedback and approvals from CFMO, the approved schematic design for each building will be brought from 35% into design development (DD) to produce 65% complete plans. DD level technical specifications and construction cost estimates will be provided at this submission. The quantity and level of submissions can be reduced if a compressed schedule is desired.

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 to the County Health Department and the City of Montgomery for review and comment.

GOAL/OBJECTIVE 3: CONSTRUCTION DOCUMENTS AND CONSTRUCTION

CONSTRUCTION DOCUMENTS

Final construction documents would be provided upon acceptance of the 95% documents. **Michael Baker will work with CFMO and the Mountaineer Challenge Academy management to develop an efficient and practical project phasing plan.** This plan can 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.



View from the Courtyard

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 CFMO 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 CFMO 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 and startups 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 CFMO 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 CFMO 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

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



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



WV School for the Deaf and Blind Multiple Projects *Romney, West Virginia*

Baker provided general Architectural, Engineering and Life Safety design services to the West Virginia School for the Deaf and Blind in Romney West Virginia. The client requested two design projects and a feasibility study for a PE building, which laid the groundwork for an HVAC Up grade and renovation. The first project was an HVAC up-grade in the Secondary School for the Deaf and a campus wide mass communication system that would work for both deaf and blind students. The second project was providing a Fire Sprinkler System in the Instructional Resources Center (IRC) building and numerous campus wide Fire Sprinkler modification and up-grades to bring the buildings up to code as required by a BRIM Report.

Provide the HVAC renovation/upgrade for the Physical Education Building. It included demolition of the exiting low-pressure steam heating system and replacing it with various energy saving HVAC systems, adding a complete climate control system in the Gym and Pool area. The designs will include fresh air and humidity control in these spaces.

Construction Documents were developed for each project and with each formal submission, a cost opinion for the proposed work was included.

BID PACKAGE I

School for the Deaf - Multipurpose Room HVAC Upgrades

Baker designed the replacement of the existing HVAC System serving the Multipurpose room. Design included provisions for Fresh Air in accordance with ASHARE 62.1 Guidelines. Some structural, architectural, ductwork and electrical modifications were also included.

School for the Deaf - Life Safety System

Baker provided plans and specifications for the installation of an integrated Life Safety System that included:

- a. Mass notification hardware and software for Deaf and Blind as required for a complete system
- b. Connect to all existing smart boards
- c. Connect to existing LCD panels
- d. Design and specify new hardware
- e. Integration with existing campus systems as practical
- f. Software from MessageNet Systems

BID PACKAGE II

Instructional Resources Center - New Sprinkler System for an approximate 10,000 SF building.

Baker provided a complete design for a building wet sprinkler system for the entire building. An existing sprinkler line entrance was already provided. Design to include Hazard Classifications, riser detail, hydraulic calculations, basic pipe routing. Detailed sprinkler piping Shop Drawings were provided by the constructing Fire Sprinkler Contractor.

Client

West Virginia School for the Deaf and Blind
301 East Main Street
Romney, West Virginia 26757

Mark Gandolfi
Superintendent of Administration

Completion Date

Phase I Construction - July 2019
Phase II Construction - Aug 2019

Phase III Construction - Sept 2020
(Estimated)

Michael Baker's Role

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

Seaton Hall Dormitory - Sprinkler System modifications

Baker designed for building wet sprinkler system modifications which were determined after the building assessment and code review. Some noted area included;

- a. Entrance to handicapped Dorm Rooms
- b. Under new duct enclosures in Dorm Rooms
- c. New Elevator Lobbies (Ground, First and Second Floors)
- d. Laundry Rooms (girls side)
- e. Kitchenettes (girls side)
- f. Corridor near Room 204 (Second and Third Floors, girls side)
- g. The Supply Room (Second Floor, girls side)
- h. Housekeeping Closets (idle dorm room)
- i. The void between the old restrooms and adjoining Girls dorm room
- j. Sprinkler in several dorm rooms appear to be installed too far below the ceiling. Re-pipe according to UL listing
- k. Boys Storeroom (old wash room)
- l. The Sprinkler in the Nurses Office is too close to ceiling. Re-pipe according to UL listing.
- m. Walk-in freezer/cooler
- n. Basement Snack Bar area
- o. Old walk-in cooler box located in the Basement (now used as storage)
- p. Room 207 (Second Floor)
- q. TV Lounge (Third Floor)
- r. Storage Room 202 (Second Floor, boys side)

Elementary School for the Deaf - Sprinkler System modifications

Baker designed for building wet sprinkler system modifications which were determined after the building assessment and code review. Some noted area included;

- a. Auditorium sprinkler lines were lowered to provide adequate spacing from the sprinkler head to the ceiling.
- b. 3rd floor room adjacent to the gross motor room had sprinkler heads added along with two janitor's closets.
- c. Three walk-in coolers in kitchen area had sprinklers installed with new supply lines.
- d. Storage room on the right side of the auditorium had sprinklers installed with new supply lines.

BID PACKAGE III**Physical Education Building – New HVAC System**

Three (3) concepts were presented to Owner's review for the HVAC renovation/upgrade of the Physical Education Building. Each Concept included a cost opinion for the proposed work. The selected concept was a complete replacement of the exiting low-pressure steam heating system and to provide building wide energy saving HVAC systems. Including adding complete climate control systems in the Gym and Pool area. The designs includes fresh air and humidity control for the these spaces. Baker's fire protection engineers provided a code evaluation and their recommendations were included with the final design. Baker assisted WVSDB in seeking funding for the project with design concepts, project justification and construction cost opinions. The project will go into construction in 2020.



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 a phased construction sequencing and scheduling. The current phase includes 11 Restrooms. The MBI team worked with GSD, House of Delegates leadership, SHPO and the Capitol Building Commission to produce the final Construction Documents.

The 11 Restroom construction project is out for bidding and construction is projected to be completed by the end of 2020.

Client

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

Completion Date

Out for Bidding 2019

Michael Baker's Role

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



Open-End Architectural/Engineering Services

West Virginia State University, Institute, West Virginia

Baker was retained by the West Virginia State University (WVSU) under an Open-End Architectural and Engineering contract to perform renovations, alterations, reconstruction and/or extensions of existing facilities. The Indefinite Delivery / Indefinite Quantity (IDIQ) agreement is for a period of 10 years. Baker's specific tasks include programming, planning, design development, construction documentation, evaluations, feasibility studies, cost estimating and construction contract administration services. Major "building" design and "building" renovation projects are not included in this contract.

The following is a summary of some of our experiences:

East Hall Renovations

East Hall is a historic facility housing faculty administrative functions for the University. In the last several years, the original wood siding and window units have begun to show signs of age deterioration. Baker performed an inspection of the building then prepared a scope of work and construction cost opinion for the replacement of the siding and windows as well as the design of a new ADA-compliant entrance ramp.

Ferrell Hall Entrance Improvements

Ferrell Hall is the primary administrative facility for the University. Baker performed a building entrance inspection and code review for ADA compliance. Baker then prepared a scope of work and construction cost opinion for the upgrades to both entry/egress points on the west end of the facility. The work included ADA-compliant walkways, stairs and railing, upgrades to the existing wheelchair ramp, a decorative retaining wall and landscape improvements.

Dawson Hall Humidity Assessment

Dawson Hall is a women's dormitory on the University Campus. Baker performed a building inspection for humidity and mold related problems. It was determined that further investigation and testing was required. Once the investigation is complete, a report will be prepared outlining recommendations for improvements to the ventilation and insulation within the individual dorm rooms Baker will then prepared a scope of work for corrective measures of the air flow/ventilation and building envelop.

Hamblin Hall Water Line Location

Hamblin Hall serves as the University's Science Building. A main 10" water line serving the campus runs under the facility and through the adjacent vacant lot. Baker was engaged to locate the line and associated shut-off valve which was inadvertently buried during fill operations circa 1985. Services involved underground line location techniques, the examination of old campus mapping, and coordination with the site survey team that actually located the buried valve.

Client

West Virginia State University
124 Ferrell Hall
Institute, WV 25112

Janis Bennett /Director of Purchasing
304-766-3010

Completion Date

10-Year IDIQ ending 2021



Storm Drain Assessment and Repair

A study was completed of 72" storm drain system, 42" storm drain system and various combined sewer and storm drains on campus. Camera crews videoed selected pipe sections from the outfalls back to manholes and beyond.

A Deeply buried 72" CMP (Corrugated Metal Pipe) and damaged portions of an existing RCP (Reinforced Concrete Pipe) needed replacement with new RCP, the project was designed and constructed after an extensive study to determine the extents of the damage.

Also a 42" storm drainage system from State Route 25 on the east side of campus that combine at a drop inlet (DI) east of the Hamblin Hall parking area an on to Dubois Street was evaluated for damage. Recommendations and estimates were provided to the university.

An 18" VCP (Vitrified Clay Pipe) main sewer line serving the campus was also evaluated for damage due to the presents of sinkhole forming behind the baseball field. . Old drawings indicate that this pipe extends from Athletics Drive south to a lift station east of the football field and was a "combined sanitary and storm sewer". Recommendations and estimates were provided to the University for the upgrade of this line.

Campus Main Water Loop Assessment and Design

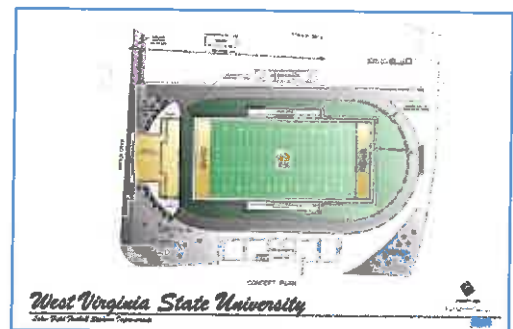
Baker mapped domestic water valves, meters and fire hydrants in and around the main core campus in preparation for new district water piping system design.

A new loop water system for the main campus was designed and included a new secondary service connection from Barron Drive. This will back-feed the main water piping system. The new service mains are being installed in phases to help control costs and minimize disruptions to the campus.

Lakin Field Football Stadium Improvements

WVSU's Lakin Field serves the University's Football Program and is currently in need of upgrades. The field has a natural turf field with an oval track surrounding it, and drainage structures in the area which are aging and need upgrading. The University requested that Baker assist them with planning upgrades to the football field and drainage system. Baker's civil services included a topographical survey of the area including the drainage structures in the football field area. We also prepared an analysis of the conditions and a proposal with costs of upgrading the field to an artificial turf field, addition of an ornamental fence, a new scoreboard with video display, new goal posts, ticket booths, and upgrades to the existing drainage.

Baker additionally prepared a preliminary cost analysis of the work for fund raising purposes.



MDL - Dormitory Building Reno Philadelphia, Pennsylvania

Michael Baker is providing architectural and engineering for this project, which involves renovating existing floor plans on all floors to provide private sleeping rooms with private baths and closet. Michael Baker is providing all ATRP requirements for progressive collapse and blast resistant windows.

Michael Baker International was the designer of record for the renovation of an existing dormitory at Joint Base McGuire-Dix-Lakehurst in New Jersey. Michael Baker's services included architecture, interior design, fire protection design, structural design, and civil design.

The building, constructed in the 1970s, was designed as a dormitory for 1st year Airmen. Michael Baker was tasked with the re-design of the rooms from sleeping rooms with shared bathrooms to apartment style units. The re-design would include the addition of ADA accessible units, storage rooms, and new common spaces. McGuire Air Force Base stressed the need for the units to feel more collegiate and contemporary in their interior design.

MBI was responsible for producing the construction document set using Revit Architecture 2016, including but not limited to all detailing for the building. Additional responsibilities included surveying the existing building, space planning, coordination with the engineering disciplines, acting as the BIM/CAD manager for the project, assembling packages for the submissions, attending on-site client meetings, writing the design analysis, working with interior design on the selection of finishes, and working with product manufacturers. All work was done under the supervision of a senior architect.

Client

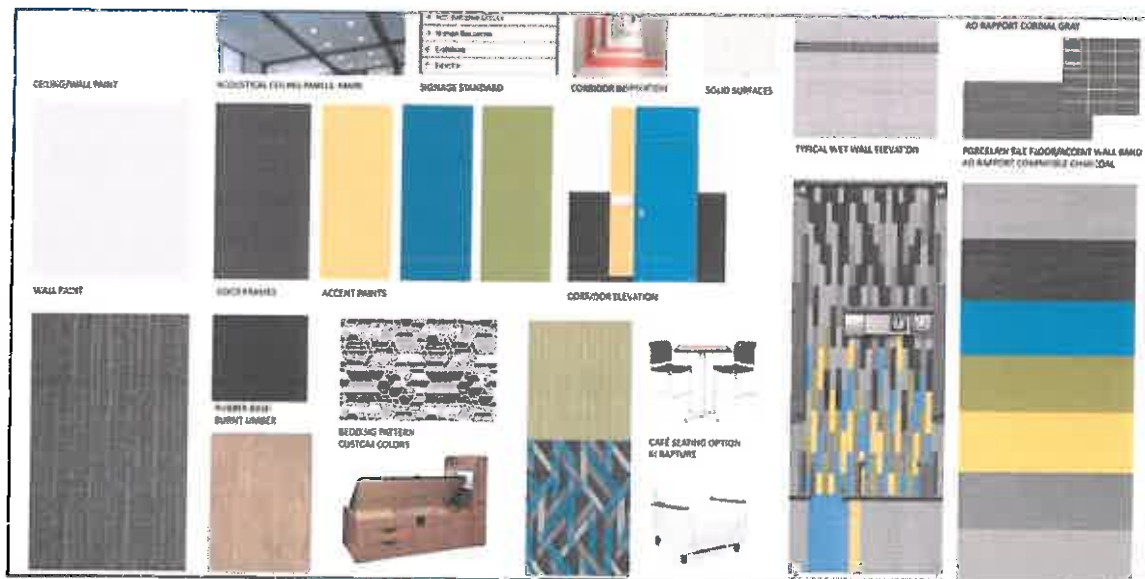
U.S. Army Corps of Engineers,
Philadelphia District
Wanamaker Building, 100 Penn
Square East
Philadelphia, Pennsylvania 19107

Completion Date

2019

Project Costs

\$574,511 (Fee)



Design-Build Renovation of Dormitory Building 2424

Edwards Air Force Base, California

Michael Baker was the designer of record for the design-build renovation of the 25,933-gross-square-foot, three-story Dormitory Building 2424. Michael Baker's services included project and design management; architecture; civil, structural, mechanical, electrical, and plumbing engineering; structural interior design; life safety, fire alarm and suppression, and telecommunications design; landscape architecture; and construction administration and observation.

Project Overview

Dormitory Building 2424, constructed in the 1950s, consists of cast-in-place concrete columns bearing the concrete slabs of three levels: the second and third floors and a roof slab. The purpose of the project was to renovate the dormitory to comply with the U.S. Air Force Unaccompanied Housing Design Guide. The dormitory was reconfigured to change the building from a 58-room to a 61-room facility and provide seismic, sprinkler, and life-safety system upgrades, and was modified to meet current antiterrorism and force protections standards.

The project involved renovation of the housing wings with some modifications to the central core. The design converted the 58 individual-style units to three- and four-person modules with individual full baths and closets.

The core areas of the renovated facility include a first-floor hall and mail room, storage areas, offices, electrical and mechanical rooms, a communications room, lockers, and a vending area. The second-floor core area includes a hall, TV room, dining area, communications room, mechanical room, lockers, and a storage area. The third-floor core includes a lounge, game room, communications room, lockers, and a storage area.

The project also involved replacement of all building systems, including the fire suppression system; plumbing; heating, ventilation, and air conditioning systems; electrical systems; and communication systems. The exterior design is compatible with the installation's design standards, providing a contemporary aesthetic and thermally efficient envelope.

Project and Design Management

Michael Baker's project and design management services included facilitation of two-day kick-off meeting and design charrette at the base, participation in biweekly progress meetings with the contractor, and participation in design review meetings.

Client

U.S. Army Corps of Engineers, Los Angeles District
CESLCT-P
P.O. Box 2711
Los Angeles, California 90053-2325

Completion Date

2017

Project Costs

\$600,956 (Fee)

Michael Baker's Role

- Project management
- Design management
- Preliminary and final design
- Architecture
- Civil engineering
- Structural engineering
- Mechanical, electrical, and plumbing design
- Structural interior design
- Life safety and fire protection design
- Telecommunications design
- Landscape architecture
- Construction administration
- Construction observation

Michael Baker developed and maintained a SharePoint website for document control, and developed and implemented a design quality control plan for the project.

Preliminary and Final Design

Following the design charrette, Michael Baker performed a pre-design visit to the project site and researched available building construction records and compared them with visible building systems to develop baseline record drawings for the design. Michael Baker prepared design documents at the 65 percent interim, 100 percent pre-final, and corrected 100 percent design phases. Michael Baker prepared Unified Facilities Guide design specifications in SpecsIntact format, and participated in three design review meetings.

The structural design maintained the standing-seam metal roofing that was installed during a renovation in 1992. The new exterior wall finish consists of a 3-inch-thick exterior insulation and finish system over 8-inch concrete masonry block that provides a minimum of R-15 thermal insulation. The project team installed a weather barrier to prevent air and moisture infiltration. Thermally broken, fixed, blast-resistant aluminum windows using glazing filled with argon gas also provide insulation and a measure of antiterrorism and force protection. Other antiterrorism and force protection measures include exterior metal blast-resistant doors.

Interior finishes are low-maintenance and easily cleaned. Colors are comfortable and provide an aesthetically pleasing environment. Interior colors and finishes are coordinated to create a cohesive design and give a residential feel to the facility.

Within the apartments, the bathrooms have ceramic tile flooring with coordinating ceramic tile base. Kitchens and living rooms feature sheet vinyl tile flooring and rubber baseboard. The sleeping rooms and closet floors also have carpet tile with coordinating base. Cabinets and built-in casework in kitchens are medium density fiberboard with a plastic-laminate finish with solid surface counters and backsplashes.

Other flooring includes resilient tile floor and loose entry mat in the vestibule and interior common area corridors. Ceramic tile with coordinating ceramic tile base is in the public restrooms. The lounges and game room have carpet tile floor with coordinating rubber base. The mechanical rooms, electrical rooms, communication rooms have the existing floor finishes from a renovation in the 1990s, and lockers have resilient tile flooring with coordinating rubber baseboards.

The purpose of the electrical design was to support the mechanical system requirements of chillers, exhaust fans, air compressors, roll-up doors, and hot water heaters. The electrical design package included all the electrical construction requirements needed to complete the exterior site work and the interior design for the facility. This consisted of the primary medium voltage connection details and the associated underground duct bank; primary pad-mounted transformer for the facility, parking lot lighting, and primary duct banks; the manhole connection details for the communication systems lighting fixture layout and lighting fixture schedule creation; receptacle layout, panel, and switchboard installation details with panel schedule loading; electrical circuiting to mechanical equipment, primary, and secondary grounding design, power, and communication system one-line diagrams; and communication rack placement and equipment layout.

The renovations included all new light fixtures and lighting controls; replacement of emergency egress lighting; and removal of all abandoned electrical equipment, devices, conduit, and wiring.

Michael Baker designed an upgraded telecommunications system with all new telephone and data outlets throughout the facility, and new 19-inch racks, patch panels, and termination blocks in the telecommunications

rooms on each floor. New 19-inch voice and data racks with separate telephone and data patch panels are installed in each telecommunications room. All new Category 6 UTP horizontal cabling was installed from each telecommunications outlet to the rack-mounted patch panels. New backbone copper and fiber-optic cabling was installed between racks on each floor.

Michael Baker provided mechanical design to upgrade the heating, ventilation, and air conditioning (HVAC) and plumbing systems to meet current standards. The mechanical and plumbing design included replacement of the exterior boiler; the air-cooled chiller; hot and chilled water piping, pumps, and accessories; all fan-coil units and thermostats; and the two exhaust fans.

Plumbing design consisted of upgrades to the building domestic water supply system, including replacement of the domestic hot water heater, main domestic water line, and domestic hot water storage tank, and modification of distribution systems for the new restroom and kitchen layouts. Michael Baker also designed upgrades to the building sanitary system, including the replacement of the sanitary sewer main outside the building and rework of the sanitary sewer lines and vent lines to accommodate the new restroom layouts. The plumbing design also included the replacement of the natural gas main piping and distribution within the facility.

Michael Baker designed a new automatic fire protection sprinkler system with an aboveground double-check backflow preventer, a fire department connection, and control valves. The fire protection upgrade also included the replacement of the entire fire alarm system and mass notification system, including single-station and photoelectric duct smoke detectors that initiate the shutdown of the associated HVAC units, strobe and speaker devices, and fire extinguishers.

The intent of Michael Baker's landscape design concept was to provide moderate solar exposure and wind protection, control noise, screen objectionable or frame good views, provide antiterrorism and force protection measures, and define the area. Michael Baker designed an automated underground irrigation system using the most recent water efficiency technology, and designed site furnishings that complement adjacent facilities.

Construction-Phase Services

During construction, Michael Baker reviewed all contractor submittals and responded to contractor requests for information, and provided on-site construction observation services. Michael Baker prepared as-built drawings based on the contractor's red-line construction documents.

USC-Center for Predictive Maintenance

Columbia, South Carolina

Michael Baker provided 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.

Client

USC Development Foundation
1027 Barnwell Street
Columbia, SC 29208

350 Wayne Street (Site)
Columbia, SC

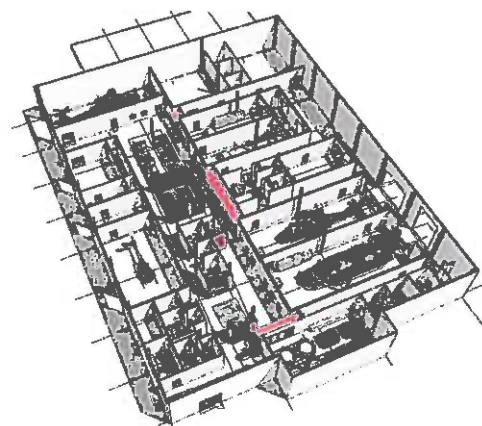
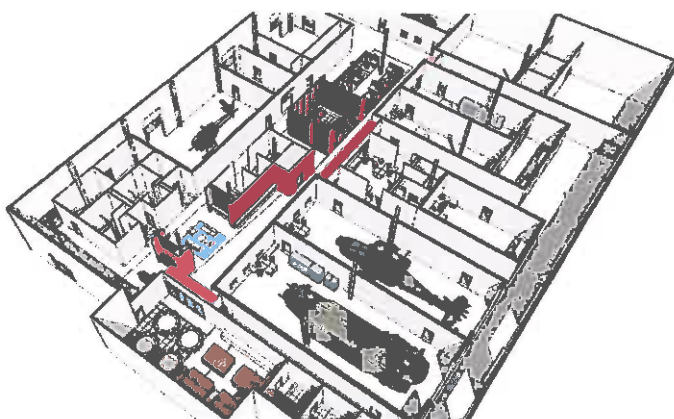
Completion Date:
Design: 2017
Construction: 2018

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



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

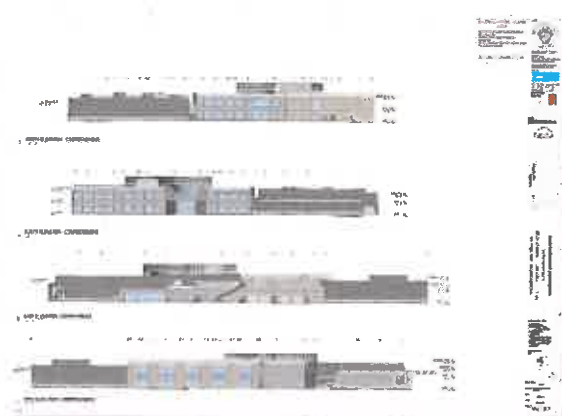
Energy star products are used where possible. In addition, a commissioning authority performed fundamental commissioning of building energy systems as appropriate, including heating, ventilation, HVAC, and refrigeration systems and associated controls, lighting and daylighting controls, and domestic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



Building Renovation to Create a Nursing Simulation Laboratory

Clarion, Pennsylvania

Michael Baker provided architectural and engineering design services for the renovation of the first floor of Ralston Hall to create a state-of-the-art nursing education facility on the main campus. Michael Baker's services included data collection and analysis, program documentation and preliminary design, pre-final design and development of construction documents, bidding-phase support, construction administration, and a one-year warranty inspection.

The purpose of the project was to construct a state-of-the-art nursing education facility, including a simulation laboratory with four high-technology mannequins and a control room, related classroom and skills lab spaces, offices, conference rooms, social lounge, and study lounge on the first floor of a residence hall on the main campus.

The project was developed on an accelerated design schedule to allow the university to have full access by the beginning of the fall 2015 semester. Further, the building had to remain in operation throughout construction, with access to all ingress, egress, and safety exits maintained. The project included the development of four prime contracts for general construction; heating, ventilation, and air conditioning (HVAC); plumbing; and electrical systems.

Information Gathering and Program Confirmation

Michael Baker conducted a full-day meeting with university representatives and stakeholders at the university's Venango Campus in Oil City, which has a nursing simulation laboratory similar to the new facility at the main campus. Michael Baker team members from all participating disciplines met with staff of the existing simulation lab to discuss critical components of the facility, successful and unsuccessful elements of the existing lab, critical technical components, and other aspects of the existing lab.

Michael Baker then toured the first floor of Ralston Hall on the main campus with stakeholders to discuss the required program spaces and the existing building systems and their impact on the new layout. Michael Baker investigated the 10,000-square-foot area to verify existing conditions, determine which building elements had to remain and which could be removed, confirm the locations of asbestos-containing materials, and determine which furnishing, fixtures, and equipment needed to be incorporated into the construction documents.

Program Documentation and Preliminary Design

Based on the information gathered from the meetings and physical investigation, Michael Baker developed and documented a program of space and equipment requirements for the facility, including spatial and programmatic requirements, relationships, circulation, equipment needs, engineering components, ambient environment, safety,

Client

Clarion University
McEntire Building
840 Wood Street
Clarion, Pennsylvania 16214

Completion Date

2016

Project Costs

\$1,200,000 (Est. Construction)
\$84,600 (Fee)

Michael Baker's Role

- Architecture
- Interior design and space planning
- HVAC design
- Plumbing design
- Electrical design
- Preliminary, pre-final, and final design
- Bidding-phase support
- Construction administration

and security. Michael Baker developed a preliminary design that was in conformance with applicable building codes, including the International Building Code, and then tested the implications of a range of possible technical and programmatic solutions that were identified during the information gathering phase. Michael Baker evaluated the layout against the program objectives and compared it with other functional and financial considerations to achieve a consensus for the preliminary design. The preliminary design documents included a construction cost estimate.

Pre-Final and Final Design

Based on the university's comments on the preliminary design, Michael Baker prepared a pre-final design. The pre-final design documents included demolition plans; floor plans; a reflected ceiling plan; interior elevations; enlarged floor plans; typical construction details; preliminary door and frame and finish schedules; preliminary HVAC, plumbing, and electrical plans, details, and schedules; preliminary specifications; and a construction cost estimate. Following a pre-final design review meeting, Michael Baker incorporated the university's comments into the final signed and sealed construction documents.

Bidding-Phase Support

Michael Baker's bidding-phase services included answering contractor requests for information and developing the application for the building permit to be submitted to the Pennsylvania Department of Labor and Industry.

Construction Administration

Michael Baker's construction administration services included participation in the initial project conference and biweekly project meetings, preparation and distribution of meeting minutes, and review of contractor submittals. Michael Baker conducted a substantial completion inspection and prepared a complete set of as-built drawings.

One-Year Warranty Inspection

One year after the date of substantial completion, Michael Baker will performed an inspection to verify whether the warranties specified in the contract document specifications have been achieved.

Value-Added

Michael Baker saved the client time and money by providing the design and construction bid documents on an accelerated schedule.

Indefinite Delivery-Indefinite Quantity Contract for Architectural and General Engineering Services

Tobyhanna Army Depot and, North-Atlantic, Division Locations

Michael Baker is providing planning, architecture, and general engineering services under a three-year indefinite delivery-indefinite quantity contract for projects at U.S. Department of Defense installations within the North-Atlantic division.

Michael Baker's services address virtually every aspect of facility planning and design. Tasks including coordinating and implementing planning charrettes, conducting on-site investigations, conducting antiterrorism and force protection analyses, performing programming, performing space planning and interior design, developing building systems designs (including HVAC, electrical, and plumbing and fire protection systems), developing construction cost estimates, reviewing construction submittals, responding to contractor requests for information, and preparing as-built plans.

Assignments include developing designs for building renovations as well as new construction.

Representative projects awarded to date are summarized below.

Planning Charrette Coordination and Preliminary Scope Development, Tobyhanna Army Depot, Tobyhanna, Pennsylvania. Michael Baker coordinated and conducted a three-day strawman meeting with client representatives to develop preliminary Unified Facility Criteria-compliant scopes of work, floor plans, and construction cost estimates for the construction of an Army community services-chapel-community center; an addition to Building 72, which is a C4ISR assembly and repair facility; and select renovations to Building 12 to provide new Defense Logistics Agency headquarters, including parking and site improvements. Tasks included charrette coordination, preliminary scope development, architecture, mechanical and electrical engineering, and construction cost estimation. Michael Baker's services will expedite the future development of detailed facility designs.

On-Call HVAC Engineering Support Services, Tobyhanna Army Depot, Tobyhanna, Pennsylvania. Michael Baker provided on-call HVAC engineering support to client staff. Michael Baker's HVAC engineering duties as a technical consultant involved field survey, feasibility study, engineering report, design and layout, and construction

Client

Tobyhanna Army Depot
11 Hap Arnold Boulevard
Building 18
Tobyhanna, Pennsylvania 18466

Completion Date

Estimated 2019

Project Costs

\$124,500,000 (Est. Construction)
\$2,917,451 (Fee)

Michael Baker's Role

- Project management
- Planning and design charrette coordination
- Planning and programming
- Space planning
- Architecture
- Multidiscipline engineering services
- Antiterrorism and force protection analysis
- Cost estimation
- RFP Wizard implementation
- Sustainable design - Silver LEED certification
- On-site investigation
- DD Form 1391 parametric cost estimation

support services. Michael Baker provided an on-site mechanical engineer for assignments, as necessary. Projects were accomplished by in-house personnel or contractors. Assignments included modifications of HVAC design for extensive interior renovations to Building 3, the back-ramp-area of Building 1-A, and the first-floor of Building 11, and for the construction of an addition to Building 17; evaluation of HVAC system needs and management of construction for Building 30 – a new 78,000-square-foot facility – and for two new officer-grade family housing facilities; and the design of new or upgrade of existing HVAC systems as part of renovations to numerous warehouses throughout the depot.

Design and Construction Phase Services for Family Housing Unit Renovations, Tobyhanna Army Depot, Tobyhanna, Pennsylvania. Michael Baker developed designs and construction cost estimates, performed construction submittal reviews, responded to contractor requests for information, and prepared as-built plans for the installation of new front-porch roofs and rear-patio privacy fences for 10 buildings containing 40 family housing units (Buildings 507 through 509).

Barracks Restroom Renovation Design, Tobyhanna Army Depot, Tobyhanna, Pennsylvania. Michael Baker performed design and construction phase services for barracks restroom renovations. Michael Baker's tasks included developing designs for the demolition of the existing second- and third-floor east-end enlisted personnel restrooms, expansion of the shower area to include additional showers, and complete replacement of all plumbing fixtures, lighting fixtures, exhaust components, and floor and wall finishes.

Renovations to Building 5, Bay 1, Tobyhanna Army Depot, Tobyhanna, Pennsylvania. Michael Baker is serving as the designer of record on a design-bid-build project to renovate Building 5, Bay 1. The scope of work involves adding HVAC capacity, installing a drop-ceiling system, expanding existing restrooms, and enhancing door systems. Michael Baker will prepare design and construction plans and construction cost estimates. Michael Baker will investigate options to enhance HVAC performance and increase cooling in work room 155 of Building 5. Individual dedicated air-conditioning units will be designed for the TYQ-23 testbed room and two TYQ-23 mobile shelters to replace the field HVAC units currently being used. A drop-ceiling system with T8 lighting fixtures will be designed for work room 170 of Building 5. Michael Baker will design an air handling unit that provides full HVAC and humidity control for the work room to replace the existing unit heater that serves the space. Restroom renovation design will involve the installation of additional fixtures to increase capacity and replace the existing fixtures. Door system modifications include reconfiguring the double vestibule at the main north entrance and the adjoining office and corridor to maximize the usable space as well as replacing four existing roll-up door installations with automatic sliding glass door systems.

Renovation Design of Building 10, Bay A and Bay C, Tobyhanna Army Depot, Tobyhanna, Pennsylvania. Michael Baker is serving as the designer of record on a design-bid-build project to fully renovate Building 10 A and partially renovate 10-C at Tobyhanna Army Depot. Michael Baker will perform architecture and building systems design, develop construction cost estimates, and prepare as-built plans. The modifications will enable relocation of the client's Environmental Control Branch repair shop and fabric application shop from other locations at the depot and reconfiguration of the carpenter shop operations that currently exist in Building 10-A. The work is also necessary to comply with building codes and Americans with Disabilities Act requirements.

Erected in the 1950s, Building 10 is of permanent construction and consists of a single-story, steel-frame structure with CMU walls with an EFIS exterior finish on the north and east sides. It is divided into three bays. 10-A encompasses a 200-foot by 134-foot area currently used solely for the carpenter shop. 10C contains approximately 500 square feet of office space that will be demolished and replaced with a two-story, freestanding, in-plant office tower. Work within 10A will entail the demolition of the compressed air and steam stations; demolition of light

fixtures and upgrading of the lighting system; upgrade of electrical systems to conform with NEC 2005 and client specifications; establishment of adequate compressed air supply and air drops to machines and work benches; installation of two new steel-stud-and-gypsum-board walls to divide the bay into three separate shops; installation of sliding glass electric doors in the new walls; removal of exterior windows and closure of the openings using CMU and an EFIS finish system; painting of the interior CMU walls; replacement of overhead and personnel doors; renovation of the office near the mezzanine; renovation of the mezzanine to accommodate two additional offices, with full HVAC; and installation of two modular-office mezzanines with stairwells, one in the Environmental Control Branch repair shop and one in the fabric application shop, with full HVAC. Work within Bay C will entail the installation of a new in-plant modular office tower, which will feature two offices on the upper level with walk-through access and a conference room and copy/print room on the lower level, with full HVAC.

Design and Construction Phase Services for Elevator Installation, Tobyhanna Army Depot, Tobyhanna, Pennsylvania. Michael Baker is providing architectural and engineering services for the installation of a new elevator and related equipment in Building 12. The new elevator will provide access to the proposed second-floor mezzanine that will be installed as part of the Building 12 office renovation project and is necessary to comply with building codes and Americans with Disabilities Act requirements. Elevator installation must also be coordinated with other concurrent Building 12 projects, which include restroom, administrative, and testing area renovations. The scope of work entails installation of ceiling, flooring, and permanent walls and all finishes; modification of the roof to accommodate the elevator penthouse, installation of the elevator pit, modification of foundations, and installation of a hoist beam; installation of a sump pump; demolition of the existing interior wall to enable access to the proposed second floor mezzanine and installation of a lintel for the new wall opening; repair and upgrade of the HVAC system to serve the mechanical equipment room; repair and upgrade of electrical distribution and lighting systems; potential modifications to the existing fire sprinkler system; and installation of common access card readers for elevator access. Michael Baker's services include architecture; mechanical, electrical and fire protection engineering, construction cost estimation, and as-built plans development.

Design and Construction Phase Services for Renovation of Building 12 Administrative Space, Tobyhanna Army Depot, Tobyhanna, Pennsylvania. Michael Baker is serving as designer of record on a design-build project to renovate the administrative space on the east side of Building 12. The project involves renovating the existing administrative space and relocating the majority of functions to the planned new second-floor mezzanine, which will be constructed as part of the office renovation on the west side of the building. The undertaking is necessitated by the transfer of the depot's Test, Measurement, and Diagnostic Equipment testing area from Building 1-A to the east side of Building 12 and must also be coordinated with other concurrent Building 12 projects, which include restroom, elevator, and testing area renovations. The scope of work entails installation of a drop ceiling, flooring, permanent walls, all finishes, and cubicle systems; development of the basic furniture and cubicle layout; repair and upgrade of the existing HVAC system to serve the second-floor space; demolition of existing high-pressure steam lines to accommodate the new layout; repair and upgrade of the building electrical distribution, telecommunications, and lighting systems; modification of the existing Public Address and Audio Visual Information System system to serve the new space; modification of the fire sprinkler system to serve the new space; installation of common access card readers for exterior doors, the elevator, and stairwell areas; and provision of access to the proposed second-floor restrooms that are part of the office renovation project and future access to restrooms from unfinished space on the second-floor mezzanine. Michael Baker will convene and conduct a planning charrette and develop design and construction plans and construction cost estimates. Michael Baker's tasks encompass architecture; interior design; mechanical, electrical and fire protection engineering; construction cost estimation; and as-built plans development.

Architectural and Engineering Services for U.S. Army Reserve and Military Construction Projects

Various Locations

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.

Michael Baker's tasks include developing preliminary and final designs and request-for-proposal (RFP) performance specifications for U.S. Army Reserve Center horizontal and vertical construction and other military construction projects within the client's area of responsibility. Infrastructure projects included equipment concentration site warehouses; tactical equipment maintenance facilities; and central-issue, container-loading, billeting, and dining facilities.

On full design-bid-build and design-build RFP projects, Michael Baker participates in design charrettes and design review meetings to explore the range of user needs and preferences for structural and system functionality and promote team understanding and consensus, and energy charrettes to identify potential initiatives to promote energy efficiency, minimize environmental effects, and reduce immediate and long-term operating costs. These meetings are critically important, as they form the basis for an iterative and collaborative process to achieve user mission goals.

Michael Baker's initiatives to promote sustainability addressed all aspects of building and site design and construction. They include specifications for the use of materials that were locally available and products with recyclable content; integration of occupancy sensors to reduce lighting energy consumption; use of water-saving features, such as low-flow plumbing fixtures, to reduce water consumption; use of ozone-friendly refrigerants and refrigerant quantities to minimize ozone depletion; development of landscaping designs that minimize the use of potable water, incorporation of native, low-maintenance drought-tolerant plants, and preservation of existing trees; and the diversion of construction waste from landfills to meet LEED requirements.

Brief descriptions of representative projects follow.

Client

U.S. Army Corps of Engineers,
Louisville District
600 Dr. Martin Luther King, Jr.
Place
P.O. Box 59, Room 972
Louisville, Kentucky 40202

Completion Date

2017

Project Costs

\$19,423,083 (Fee)

Michael Baker's Role

- RFP document preparation
- Planning
- Sustainable design
- Site and civil engineering
- Geotechnical engineering
- Architectural design
- Interior design
- Structural engineering
- Mechanical engineering
- Plumbing design
- Fire protection engineering
- Electrical engineering
- Communications design

Facility Design

Container-Loading Facility Design, Fort McCoy, Wisconsin. As designer of record, Michael Baker provided architectural and engineering services for the construction of a 30,862-square-foot container-loading facility; a two-acre, concrete-paved container storage yard; and a 19-space parking lot. Michael Baker designed the container-loading facility to meet LEED Silver certification. Tasks ranged from site and civil engineering to building architectural and interior design and facility engineering, including structural, mechanical, plumbing, fire protection, and electrical and telecommunications systems design, and LEED certification administration.

Fort McCoy serves as a key transfer point for the shipping and receiving of military equipment for U.S. Army Reserve units and troops throughout the world. The new building meets escalating service demands by optimizing equipment and material containerization and transport operations.

Michael Baker promoted sustainability throughout building design and construction. The building design included materials and features that reduce environmental effects, save energy, and minimize costs. Materials that were locally available and products with 20-percent recyclable content were used. Occupancy sensors reduce lighting energy consumption. Interior building water-saving features, such as low-flow plumbing fixtures and urinals, reduce water consumption by 20 percent. Ozone-friendly refrigerants and refrigerant quantities were used to minimize ozone depletion. Long-term energy consumption is reduced through contracting with a Green-E-certified renewable energy provider that supplies 70 percent of electricity for the building.

Billeting Facility Design, Fort McCoy, Wisconsin. Michael Baker served as the designer of record for construction of a 65,000-square-foot, two-story billeting facility for noncommissioned officers and other military trainees. Michael Baker designed the billeting facility to meet LEED Silver certification. Michael Baker's services included architectural design, surveys, geotechnical investigation, all site and building engineering, cost estimating, value engineering, and LEED certification administration.

The billeting facility, which is part of the noncommissioned officer academy campus at Fort McCoy, primarily houses students who are attending noncommissioned officer and other training courses. The project is the third phase of the noncommissioned officer academy campus construction at Fort McCoy, for which Michael Baker provided master planning services. Because the new billeting facility construction limits overlap those of the Phase II academy building, the team had to coordinate project construction efforts.

The new L-shaped billeting facility includes two long wings that predominantly consist of double-occupancy billets. Michael Baker's design provided for 126 double-occupancy units and enabled a buildout to create 12 additional units in support of training initiative expansion at the base. An exterior courtyard was constructed to join the new building with the billeting facility that was constructed during Phase I of the master plan.

The billeting facility project includes a campus-wide stormwater management system for this phase and future phases.

Sustainability measures were integrated throughout building design and construction and included the use of locally available materials and products with 20-percent recyclable content; occupancy sensors to reduce lighting energy consumption; water-saving features, such as low-flow plumbing fixtures, to reduce water consumption by 40 percent; ozone-friendly refrigerants and refrigerant quantities to minimize ozone depletion; solar panels to offset 100 percent of the annual energy consumed by the exterior lighting; best practices site stormwater management systems; and landscaping that includes native, low-maintenance, drought-tolerant plants and preserves existing

trees, while avoiding irrigation system use, thereby reducing landscaping-related potable water consumption by 100 percent.

Dining Facility Design, Fort McCoy, Wisconsin. Michael Baker was the designer of record for the design-bid-build delivery of an approximately 20,000-square-foot, one-story annual training-mobilization dining facility. Modeled after the client's operational readiness training complex 1,428-person dining facility standard design, the new building includes two 4,500-square-foot dining areas, a 3,000-square-foot kitchen, men's and women's restrooms, mechanical and electrical rooms, a communications room, and exterior storage space. Michael Baker's services included architectural design, surveys, environmental investigation, geotechnical engineering, all site and building engineering, cost estimating, value engineering, and LEED certification administration.

Charrette participation was critically important to project development. Michael Baker facilitated a design charrette and collaborated with the client in identifying needs and preferences and preferred alternatives to the standard design. In addition, Michael Baker held a special energy charrette to target materials and approaches to promote sustainability and conserve energy, with the goal to exceed ASHRAE 90.1 2007 performance criteria by 40 percent. This project involved facility winterization, a very unique and challenging design requirement. The client anticipated winter seasons during which the dining facility may be unoccupied. While Michael Baker's design provided for the contingency of year-round operations, with energy conservation measures to maximize cost savings, Michael Baker included provisions to enable complete wintertime shutdown of all areas except one small room, which houses the water riser and fire alarm panels, and quick reactivation of building systems within two weeks at any time during the year. In addition, all systems, finishes, and equipment were analyzed or selected for the ability to withstand winter temperatures.

This project also included another unique sustainable design feature: outdoor placement of kitchen cooler and freezer condenser units to reduce the building heat load.

Tactical Equipment Maintenance Facility and Equipment Concentration Site Warehouse Design, Fort McCoy, Wisconsin. Michael Baker was the designer of record for the design-build delivery of an approximately 58,000-square-foot, two-story, modified large tactical equipment maintenance facility (TEMF) and an approximately 44,000-square-foot, one-story equipment concentration site (ECS) warehouse, along with 30 acres of gravel hardstand designated for organizational parking. Michael Baker designed both structures to meet LEED Silver certification. Michael Baker's services included architectural design, surveys, environmental investigation, geotechnical oversight, all site and building engineering, cost estimating, value engineering, and LEED certification administration. The new TEMF, ECS warehouse, and additional hardstand will enable ECS-67 at Fort McCoy, the largest ECS in the world, to support the Army Force Generation training initiative by storing and maintaining more vehicles and furnishing all required equipment for training units, eliminating the need for training units to ship their own equipment to and from the installation and related costs.

The ECS warehouse and its vaults, which accommodate the separate U.S. Army Reserve and ECS missions, provide a clear height of 25 feet. This clearance enables forklift access throughout the vaults—a unique design feature.

The project energy charrette was integral to project development. Energy charrette participants evaluated renewable energy sources and passive and active energy-saving measures. These included structure siting and physical orientation; internal layout; R-value enhancements; low-emissivity windows; daylight harvesting measures; energy-saving lighting options; and high-efficiency heating, ventilation, and air conditioning systems. Michael Baker designed an 18-foot-high solar wall for the TEMF that captures heat from the sun and passes it into the building during the winter months. The elimination of exterior light pollution was also extremely important for this project.

Michael Baker designed the perimeter security lighting to minimize light pollution and avoid disruption of night maneuver training, which is conducted on an adjacent site.

U.S. Army Reserve Center Renovation and Expansion Design, Homewood, Illinois. As designer of record, Michael 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 included construction of a 22,300-square-foot parking area for military equipment and 130 parking spaces for privately owned vehicles. Michael Baker designed the training facility to meet LEED Silver certification. Michael Baker's services included architectural design, surveys, environmental and geotechnical investigation, all site and building engineering, cost estimating, value engineering, and LEED certification administration.

Sustainability measures included the use of locally available materials and products with 20-percent recyclable content; occupancy sensors to reduce lighting energy consumption; water-saving features, such as low-flow plumbing fixtures, to reduce water consumption; ozone-friendly refrigerants and refrigerant quantities to minimize ozone depletion; a solar photovoltaic array and inverter system, which provides electrical energy to supplement utility provider-supplied electricity and offsets the annual energy consumed by the new exterior lighting; best practices site stormwater management systems; and landscaping that minimizes the use of potable water, integrating native, low-maintenance, drought-tolerant plants and preserving existing trees.

U.S. Army Reserve Center Design, Bethlehem, Pennsylvania. Michael Baker was the designer of record for the construction of a 200-member U.S. Army Reserve Center. Michael Baker designed the center to meet LEED Silver certification.

The U.S. Army Reserve Center consists of a 42,043-square-foot, two-story training building; a 5,480-square-foot, one-story organizational maintenance shop; a 1,358-square-foot, one-story unheated storage building; 3,364 square yards of paved parking for military equipment; and parking for 128 privately owned vehicles. Michael Baker's services included architectural design, surveys, geotechnical investigation, all site and building engineering, cost estimating, value engineering, and LEED certification administration.

Sustainability measures included the use of locally available materials and products with 20-percent recyclable content; occupancy sensors to reduce lighting energy consumption; water-saving features, such as low-flow plumbing fixtures, to reduce water consumption; ozone-friendly refrigerants and refrigerant quantities to minimize ozone depletion; best practices site stormwater management systems; and landscaping that minimizes the use of potable water, integrating native, low-maintenance, drought-tolerant plants and preserving existing trees.

SECTION III

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

Civil Engineer , Facilities Practice Manager

General Qualifications

Mr. Fogarty has over 30 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

Renovations to Classroom Building, Beckley, West Virginia. WVU Tech/ West Virginia University. Project Manager. Responsible for the management and coordination of all activities to facilitate a 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.

Renovations to the Benedum Center, Beckley, West Virginia. WVU Tech/ West Virginia University. Project Manager. Responsible for the management and coordination of all activities to facilitate a complete design package. 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.

Years with Michael Baker: 12

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

West Virginia School for the Deaf and Blind - Architectural/Engineering Services for Multiple Projects, Romney, West Virginia. 3-year Contact. Project Manager. Responsible for the management and coordination of all activities to facilitate a complete design package 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.

West Virginia State Capitol Restroom Renovations. *State of WV General Services Division.* Project Manager. Responsible for the management and coordination of all activities to facilitate a complete design package for State of West Virginia General Services Division with Capitol Building restroom renovation. He oversaw the work of the design team as they verified and documented existing building components and assisted in providing design QAQC, 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.

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.

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.

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.

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.

Years with Baker: 10

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

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.

West Virginia School for the Deaf and Blind - Architectural/Engineering Services for Multiple Projects, Romney, West Virginia. 3-year Contact.

Mr. Chaffin was the Architect of Record 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.

West Virginia State Capitol Restroom Renovations. *State of WV General Services Division.* Mechanical Electrical and Plumbing Engineer of record. Mr. Chaffin was the Architect of Record for the West Virginia Capitol Building related to the restoration and renovation of the 11 restrooms. He worked with the design team to select historically appropriate building components and assisted in providing overall design, construction sequence, and scheduling recommendations.

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.

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.

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

Lead Project 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.

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.

Years with Michael Baker: 10

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

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

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 Document were developed and completed for an extensive plumbing renovation, electrical and fire alarm upgrades as directed by GSD. Currently, the project is split into phases and 11 restroom and all associated infrastructure in out for bid and with construction to begin in the Spring of 2020.

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.

Nitro Bank Street Streetscape Improvements, Nitro, West Virginia. City of Nitro. Electrical Designer. Responsible for concept planning, detailed design, construction document generation, and construction administration of electrical components. 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.

Architectural and Engineering Services for U.S. Army Reserve and Military Construction Projects, Various Locations. U.S. Army Corps of Engineers, Louisville District Mechanical Engineer. Responsible for onsite mechanical commissioning oversight. 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.

Rebecca Marie Schwartz, AIA, LEED AP BD+C

Lead Architect

General Qualifications

Ms. Schwartz is an architect with experience in commercial, higher education, and military facilities. She manages and develops projects from Pre-design through Contract Administration phases, including all aspects of a project: drafts proposals and contracts, documents existing conditions, performs code analysis, prepares architectural programming documentation pertinent to clientele, proposes and develops design schemes, creates and revises construction documents, compiles specifications, reviews shop drawings and submittals, reviews request for payments, and prepares field reports and records. She maintains direct working relationships with clients, consultants, contractors, and governing authorities throughout the design process.

Experience

P-478 Navy Gateway Inn & Suites (NGIS), Naval Station Newport, Rhode Island. NAVFAC MIDLANT NEIPT. Sustainability Manager. Responsible for overseeing and ensuring sustainable design strategies and features to minimize the energy consumption of the facilities; conserve resources; minimize adverse effects to the environment; and improve occupant productivity, health, and comfort to reduce the total cost of ownership of the project using a whole building, life-cycle approach. Led effort with lead architect and design engineers in creating the USGBC LEED-NC project checklist and the LEED documentation to achieve LEED Silver rating. 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.

Design of 1,000-Room Lodge, Fort Lee, Virginia. U.S. Army Family, Morale, Welfare and Recreation Command (FMWRC). Project Architect. Responsibilities included coordination with the design-build contractor and engineering disciplines. Generated construction documentation not limited to but including: specifications, design analysis, floor plans, elevations, building sections and details. Michael Baker provided design services for a 500,000-square-foot, 1,000-room lodge, comparable to a commercially branded hotel, with associated grounds building and site development. The architecture approach for the seven-story structure was influenced by several important factors, including proximity to the Petersburg Battlefield National Park and the adjacent four-story Army Logistics University, for which the Lodge was constructed. Design features include integrated stormwater management with landscape design, wireless communications, Onity system lodging controls, multistory fire protection and alarm systems, and High-Risk Target antiterrorism and force protection measures. The "green building" is designed and constructed to obtain LEED® Silver certification, achieving LEED® points in the categories of Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, and Innovation In Design. Energy conservation is integral with the building envelope design and includes a continuous, spray-applied, soy-based polyurethane foam insulating air barrier system.

Years with Michael Baker: 9

Years with Other Firms: 8

Degrees

B.Arch., 2000, Architecture, The Pennsylvania State University, College of Architecture

Licenses/Certifications

Registered Professional Architect, Pennsylvania, 2005 [REDACTED]

NCARB, Pennsylvania, 2011, [REDACTED]

LEED Accredited Professional, 2002, [REDACTED]

Registered Professional Architect, New York, 2013, [REDACTED]

Registered Professional Architect, Kentucky, 2017, [REDACTED]

Systems Integration Maintenance Office, Fort Campbell, Kentucky. U.S. Army Corps of Engineers, Louisville District. Senior Architect. Responsibilities included coordination with engineering disciplines. Generated construction documentation not limited to but including: specifications, design analysis, floor plans, elevations, building sections and details. Responsible for interaction and ongoing discussions with Owner and Contractor for design compliance and assurance of successful high quality design. Provided full Building Information Modeling (BIM)/ Revit for the project deliverables. Michael Baker was the designer of record for a 48,400-square-foot Systems Integration Maintenance Office (SIMO) facility. The facility includes administrative space (private offices and open office space); classrooms; conference rooms; laboratory spaces; storage spaces; metal fabrication shop; computer labs; flight lockers; showers and restrooms; mechanical, electrical and communication rooms; intrusion detection; surveillance; and electronic access control. Spaces support SIMO flight operations, mission planning, and pilot flight planning. This project complied with UFC 4-010-01 DoD Anti-Terrorism Force Protection requirements and per unified facilities criteria and Mission Planning spaces complied with ICS 705-1, 705-2, and TER room were designed to comply with AR 380-5 requirements. Site design included parking, stormwater management/bio-retention, landscaping and site utilities. The project is designed to achieve a LEED Silver Certification.

Rehabilitation of the Ernie Pyle U.S. Army Reserve Center, Fort Totten, Queens, New York. U.S. Army Corps of Engineers, Louisville District. Architect. Provided architectural support to the project architect such as space planning and other tasks. Michael Baker was tasked to provide Design-Bid-Build documents for the renovation of a 41,312-square-foot U.S. Army Reserve Center, the addition of a 4,994-square-foot Unheated Storage Building, and the addition of MEP and POV parking. The renovation included storage and office areas on two floors, electrical, mechanical, plumbing, and fire protection on all three floors, as well as vault and elevator construction and asbestos removal. Renovation included compliance with Anti-terrorism and Force Protection Requirements, as well as Handicapped Accessibility.

Architectural and Engineering Indefinite Delivery, Indefinite Quantity Contract for Design of Army Reserve and Military Projects, Nationwide. U.S. Army Corps of Engineers, Louisville District. Architect. Performed various architectural support services for nine task orders under this IDIQ contract ranging from providing architectural support to the project architect such as implementing redlines and other tasks, to implementing the client's comments, changes, and corrections from the final and corrected final design review meetings into the certified final design-build RFP documents. Michael Baker is providing planning, design, and construction-phase services for U.S. Army Reserve facilities and other military projects throughout the United States. Michael Baker provides third-party verification that the buildings are designed and built using strategies aimed at reducing the environmental impact of the project. The projects are designed to achieve LEED® Silver certification, with an emphasis on energy and water efficiency. In addition, many of the projects feature preferred parking for fuel-efficient vehicles and bicycle storage and changing rooms. To preserve green space, many of the buildings maximize open space and are built on environmentally preferable sites.

Architectural and Engineering Services for U.S. Army Reserve and Military Construction Projects, Various Locations. U.S. Army Corps of Engineers, Louisville District. Architect. Provided architectural support to the project architect for items such as creating partition types on construction documents, assisting in the preparation for project kick-off meetings with the project design team and client, implementing redline markups, and various other tasks. 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.

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, desking, 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 constructions 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

West Virginia State Capitol Restroom Renovations. *State of WV General Services Division.* Interior Designer. Responsible for documenting and coordinating finishes for renovation at the Capitol building related to the renovation and renovation of the 11 restrooms. She worked with the design team and SHPO to select building components that compliment the historic nature of the WV Capitol Building.

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

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, [REDACTED]

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.

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 ATEP 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.

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 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.

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.

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.

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.

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,

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, 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.

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.

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 worked 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.

West Virginia State Capitol Restroom Renovations. *State of WV General Services Division.* Mr. Spangler was the fire protection engineer of record responsible for the design of the fire protection infrastructure at the State Capitol Building for 11 public restrooms. He worked diligently to verify and document existing building components and assisted in

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]

providing overall design, construction sequence, and scheduling recommendations. Construction Documents were developed and completed for an extensive plumbing renovation, electrical and fire alarm upgrades for 11 restrooms.

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 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.

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.

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

West Virginia School for the Deaf and Blind - Architectural/Engineering Services for Multiple Projects, Romney, West Virginia. 3-year Contact. Mr. Airgood worked as the Structural 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.

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

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]

review of fabrication shop drawings and other construction administration services as related to the building structural systems.

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.

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

West Virginia School for the Deaf and Blind - Architectural/Engineering Services for Multiple Projects, Romney, West Virginia. 3-year Contact. Mr.

Milligan was the Electrical Engineer of Record 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.

West Virginia State Capitol Restroom Renovations. *State of WV General Services Division.* Mr. Milligan was the Electrical Engineer of Record. He provided the State of West Virginia General Services Division with a comprehensive electrical plans for the State Capitol Building 11 restroom renovation. He worked with the design team 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.

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.

Years with Michael Baker: 8

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

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 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.

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.

John M. Goldcamp, R.C.D.D.

Telecommunications Distribution Designer

General Qualifications

As a Telecommunications Distribution Designer, Mr. Goldcamp brings over 16 years of experience to Michael Baker. He is a Registered Communications Distribution Designer (RCDD) and an Outside Plant Designer (OSP). He is proficient in Microsoft Office, MS Project, AutoCAD, and Autodesk Revit.

Experience

West Virginia School for the Deaf and Blind - Architectural/Engineering Services for Multiple Projects, Romney, West Virginia. Technical Specialist. Responsibilities included design of low voltage infrastructure drawing coordination with all engineering disciplines, developed official responses to contractors' questions; developed construction specifications and construction drawings; field inspections, and review contract close-out documentation. As part of the design team, Mr. Goldcamp worked as the communication technology designer 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.

CCT 0403 DBS1800000001. West Virginia Schools for the Deaf & Blind. Technical Specialist. Responsibilities included design of low voltage infrastructure drawing coordination with all engineering disciplines, developed official responses to contractors' questions; developed construction specifications and construction drawings; field inspections, and review contract close-out documentation.

Design and Construction Management Master Services Contract, Southwestern, Pennsylvania. Duquesne Light Company. Designer. Responsibilities included design of low voltage infrastructure drawing coordination with all engineering disciplines, developed official responses to contractors' questions; developed construction specifications and construction drawings; field inspections, and review contract close-out documentation. 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.

HHEX Dionysus Pad & Compressor. Huntley & Huntley Energy Exploration, LLC. Technical Specialist. Responsibilities included design of low voltage infrastructure drawing coordination with all engineering disciplines, developed official responses to contractors' questions; developed construction specifications and construction drawings; field inspections, and review contract close-out documentation.

Ohio Architectural/Engineering Indefinite Delivery Indefinite Quantity Contract (IDIQ), Rickenbacker Air National Guard Base, Columbus, Ohio. 121 OH Air National Guard. Technical Specialist. Responsibilities included design of low voltage infrastructure drawing coordination with all engineering disciplines, developed official responses to contractors' questions; developed construction specifications and construction drawings; field inspections, and review contract close-out documentation. Michael Baker designed replacement lighting and dual light level control system for the aircraft ramp

Years with Michael Baker: 1

Years with Other Firms: 30

Degrees

B.S., 2010, Business, Point Park University

Licenses/Certifications

Registered Communications Distribution Designer, Pennsylvania, 1998

Outside Plant Designer (OSP), Pennsylvania, 2000

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.

MDL - Education Center Renovation, Philadelphia, Pennsylvania. *U.S. Army Corps of Engineers, Philadelphia District.* Technical Specialist. Responsibilities included design of low voltage infrastructure drawing coordination with all engineering disciplines, developed official responses to contractors' questions; developed construction specifications and construction drawings; field inspections, and review contract close-out documentation. Michael Baker is providing architect and engineering services on this project, which involves renovating existing floor plans and parking area. Interior work includes painting of all walls and new flooring throughout. Architectural/Engineering is providing all ATFP requirements for progressive collapse and blast resistant windows.

PHL TO15 TYAD 2B4 Renov. *U.S. Army Corps of Engineers, Philadelphia District.* Technical Specialist. Responsibilities included design of low voltage infrastructure drawing coordination with all engineering disciplines, developed official responses to contractors' questions; developed construction specifications and construction drawings; field inspections, and review contract close-out documentation.

MDL - Dormitory Building Reno, Philadelphia, Pennsylvania. *U.S. Army Corps of Engineers, Philadelphia District.* Technical Specialist. Responsibilities included design of low voltage infrastructure drawing coordination with all engineering disciplines, developed official responses to contractors' questions; developed construction specifications and construction drawings; field inspections, and review contract close-out documentation. Michael Baker is providing architectural and engineering for this project, which involves renovating existing floor plans on all floors to provide private sleeping rooms with private baths and closet. Michael Baker is providing all ATFP requirements for progressive collapse and blast resistant windows.

Allegheny Valley Hospital (AVH) Relocate Administrative Spaces, Natrona Heights, Pennsylvania. *Allegheny Health Network.* Technical Specialist. Acted as a technical resource role for the electrical engineer and was the direct supervisor for the electrical and telecom designs. Had direct input on the nurse call, overhead paging, voice, data and security system cabling infrastructure. Conducted independent internal review in a QA/QC capacity for electrical and telecommunication designs. Michael Baker is providing architecture, interior design, and engineering services for the design for the Allegheny Valley Hospital Relocate Administration and Space Consolidation Renovation. After completing Stage I and Stage II reports (programming and schematic design), Michael Baker

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

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%.**

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

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.**

Donald 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)**