Michael Baker
INTERNATIONAL

We Make a Difference

August 28, 2018

Ms. Stephanie L. Gale
West Virginia Department of Administration
Purchasing Division
2019 Washington Street, East
Charleston, West Virginia 25305

Subject: **CEOI 0603 ADJ1900000001**
A/E Services for Rappel Tower Support Facilities – Camp Dawson

Dear Ms. Gale:

The Charleston office of Michael Baker International, Inc. (Michael Baker) is pleased to respond to the Request for Expression of Interest for Architectural & Engineering services for the restoration of Rappel Tower Support Facilities at Camp Dawson. We believe that our team of professionals is uniquely qualified to provide a design that will bring these facilities to 100% of intended function.

Michael Baker is well positioned to provide a comprehensive design team (in-house) including: Architectural, Civil/Site, Mechanical, Electrical, Plumbing and Structural expertise. Our diverse team of professionals are well versed in the preparation of construction documents, bid specifications, and the application of required construction permits and certifications. Michael Baker can also provide assistance during the Bidding process.

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
Senior Associate

Enclosure

Michael Baker

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MANDATORY PROPOSAL SUMISSION FORMS

Purchasing Divison
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: 481314

Doc Description: Rappel Tower Support Facilities (Design) Camp Dawson

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2018-08-07	2018-08-28 13:30:00	CEOI 0603 ADJ1900000001	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

Stephanie L Gale
(304) 558-8801
stephanie.l.gale@wv.gov

Signature X

FEIN # 25-1228638

DATE August 28, 2018

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

ADDITIONAL INFORMATION:

The Acquisition and Contract Administration Section of the Purchasing Division is soliciting Expression(s) of Interest for West Virginia Army National Guard, Construction and Facilities Management Office, from qualified firms to provide architectural/engineering services as defined herein.

INVOICE TO	SHIP TO
DIVISION ENGINEERING & FACILITIES ADJUTANT GENERALS OFFICE 1707 COONSKIN DR CHARLESTON WV25311 US	FACILITY MAINTENANCE MANAGER CAMP DAWSON ARMY TRAINING SITE 240 ARMY RD KINGWOOD WV 26537-1077 US

Line	Comm Ln Desc	Qty	Unit Issue
1	Rappel Tower Support Facilities (Design) Camp Dawson		

Comm Code	Manufacturer	Specification	Model #
81101508			

Extended Description :

Professional engineering design services to develop construction documents to provide for Rappel Tower Support Facilities , located at Camp Dawson, near Kingwood, WV, per the attached documentation.

SCHEDULE OF EVENTS

Line	Event	Event Date
1	Technical Questions Due	2018-08-21

ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

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

PROJECT ENGINEER

(Name, Title)

David J. Hilliard, Project Engineer

(Printed Name and Title)

400 Washington Street East, Suite 301, Charleston, West Virginia 25301

(Address)

304-769-0821 / 304-769-0822

(Phone Number) / (Fax Number)

dhilliard@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)

SENIOR ASSOCIATE

(Authorized Signature) (Representative Name, Title)

Patrick W. Fogarty, Senior Associate

(Printed Name and Title of Authorized Representative)

August 28, 2018

(Date)

304-769-0821 / 304-769-0822

(Phone Number) (Fax Number)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CEOI 0603 ADJ1900000001

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)

- ☐ Addendum No. 1
- ☐ Addendum No. 2
- ☐ Addendum No. 3
- ☐ Addendum No. 4
- ☐ Addendum No. 5
- ☐ Addendum No. 6
- ☐ Addendum No. 7
- ☐ Addendum No. 8
- ☐ Addendum No. 9
- ☐ 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

August 28, 2018
Date

NOTE: This addendum acknowledgement 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 exceed 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: _____ Date: August 28, 2018

State of West Virginia

County of Kanawha, to-wit:

Taken, subscribed, and sworn to before me this 28th day of August, 2018.

My Commission expires May 16th, 2024.

AFFIX SEAL HERE

OFFICIAL SEAL
JAMES S. CARTER III
NOTARY PUBLIC
STATE OF WEST VIRGINIA
210 Tennessee Ave
Charleston, WV 25302
My Commission Expires May 16, 2024

NOTARY PUBLIC _____

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PROPOSAL

Project Location

Camp Dawson is located near Kingwood, WV and serves as a hub for billeting, training, and outfitting citizen soldiers and is the site of the renovation project described in CEOI 0603 ADJ1900000001.

The West Virginia Army National Guard Construction Facilities and Management Office (CFMO) will oversee the project and it is located at 1707 Coonskin Drive, at the West Virginia National Guard Headquarters in Charleston, WV.

Project Background

Through the West Virginia Department of Administration Purchasing Division, The West Virginia Army National Guard (WVArNG) is seeking a highly qualified Architectural and Engineering firm to provide comprehensive design and construction document preparation services for the renovation of the existing Rappel Tower Support Facilities at Camp Dawson. These facilities consist of two pre-fabricated concrete buildings; one is a classroom with storage area and the other is restroom facilities. The firm will be responsible for a complete design including the preparation of construction plans and specifications and to provide bidding assistance to the WVArNG and the Purchasing Division as specified in the Expression of Interest (EOI).

The WVArNG has garnered distinction around the nation for its ability to train top notch men and women as well as serve our state and country when the need arises. These existing facilities used for the training and preparation of our soldiers deserves the full attention of the design team. Michael Baker understands this mission of readiness and we are willing to commit all our efforts into bringing the Rappel Tower Support Facilities back to 100% condition. We are familiar with the Department of Defense (DOD) requirements and stand ready with the experience, capability, and capacity to complete this assignment for the WVArNG.

Qualifications and Experience

Firm Capacity

Michael Baker is a full service Architectural/Engineering firm. Our local office in Charleston WV is a "single-stop resource" capable of providing comprehensive professional services, from Architecture and Planning to Mechanical/Electrical, Civil and Structural Engineering to construction management through operational support. Michael Baker will provide the hands-on services needed for this project, from Client meetings to site surveys, design and bidding phase assistance.

With over 30 in house professionals locally and 800 regionally, Michael Baker prides itself on a legacy of returning clientele. Some of these local clients whose projects encompass facilities development and renovation include but are not limited to; the West Virginia Department of Transportation, General Services Division, West Virginia Air National Guard, West Virginia University, West Virginia State University, the cities of Nitro, Dunbar, Winfield, and many others. Numerous private sector clients fill out a broad resume of satisfied clientele. Michael Baker's central geographic location in the State Capitol and depth of experience nationally will enable us to respond quickly to wide-ranging scopes of service to meet needs of the WVArNG.

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. With more than $1.3 billion in annual revenue, Michael Baker has more than 6,000 employees in over 90 offices located across the U.S. and internationally. 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.

Michael Baker has extensive resources and the required qualifications to provide planning, architectural, and engineering services for the WVArNG 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.

In summary, Michael Baker's staff can provide documentation of our extensive experience in the following areas for this project:

- Nationally recognized expertise in Assessing, Programing and Planning
- Innovative Architectural concepts and designs
- Facilities Engineering (Civil, Mechanical, Fire Protection, Plumbing, Electrical and Communication)
- Construction Administration and Construction Monitoring
- Coordination with State and Federal Agencies, as required

From small projects to 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 clients most complex challenges.

Management and Staffing

Our team will incorporate "the Baker Way" project management practices it the project by giving the WVArNG one point of contact. This person is responsible for keeping everyone on the same page, by providing open and clear communication, even when the decisions may be tough. Mr. Patrick Fogarty will fill this role for your project, he will coordinate information and ideas between the team members and the Client. Keeping all team members on the right track and coordinating efforts for an innovative and efficient design.

Michael Baker brings fully qualified and integrated teams to address all aspects of the project delivery process. All key personnel are experts in their field with have numerous projects behind them. The Project Managers possess the capability and expertise to lead the team and establish the project programming while progressing through the various milestones of document execution. Our Design Team will establish and execute the program, our Quality Assurance/Quality Control (QA/QC) Team will provide quality checks throughout the design process; and ties the design together. This overlap is what we refer to as "The Baker Way". A cohesive design with continual communication leads to successful projects.

Our locally led, nationally experienced team will be exceptionally responsive to the needs of this project. All our key project delivery personnel are locally based. We will be where you need us, when you need us, every time. Our service goals are:

- Timely response to all documentation
- Return phone calls on the same day
- Provide flexible designs
- In-house peer review on all projects
- Quality program for a successful project

We understand that many of the programming elements may have already been determined. However, we pride ourselves in creating an environment to allow our design professionals to do what they do best- solve problems. The Michael Baker team will assist in any programming that has not already been accomplished by the client. The Project Manager will have the final say over quality control; all while keeping our most important team member, the WVArNG abreast of the progress of the project, budget, and the ramifications of any changes.

Project Team and Organization-The Right People

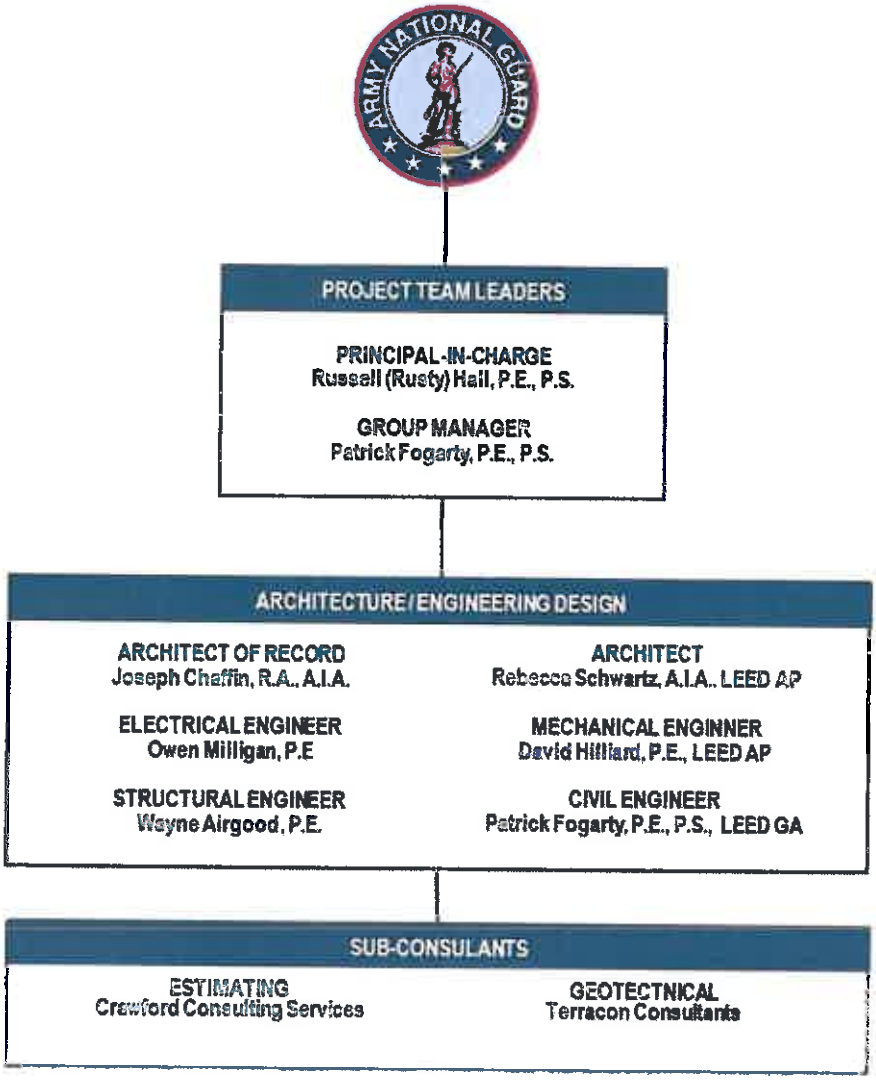
Michael Baker has assembled an integrated team of architects and engineers who all have a specific and critical role to play in the performance of these projects. We have organized our teams under a primary point of contact, Patrick Fogarty. He will organize the team in three primary groups: the programming/architectural team, the engineering team and the QA/QC team. Mr. Fogarty has successfully used his leadership skills to deliver projects all over the state.

Our design team is under the supervision of Mr. Joe Chaffin, (the Architect of Record) who has over two decades of "getting things done". His hands-on management style means he will be involved in the production and assembly of a well thought out and coordinated set of construction documents.

Michael Baker's programming/architecture team is spearheaded by Ms. Rebecca Schwartz, the project lead Architect, with experience designing and programming military and related projects. Her intimate knowledge of the Department of Defense (DOD) Unified Facilities Criteria (UFC), other governing regulations, and award-winning design concepts will bring unequaled depth of knowledge to this critical role.

Our engineering team, led by Mr. David Hilliard, will ensure the engineering portion of the project meets the UFC for design requirements in a well-coordinated project. Mr. Hilliard has worked as a key member of Mr. Chaffin's team for the last 9 years. He has served as a full project manager on many projects as well as the engineering manager providing a unique ability to facilitate inter-discipline coordination.

Please see APPENDIX 1 for RELATED RESUMES.



Our team thrives in a collaborative environment, whether it be with our in-house professionals, our subs or our most important member: Our Client. We coordinate with all team's members to make sure that the architectural, structural, mechanical, electrical, and civil components of the design are assured to produce a complete and fully coordinated set of construction drawings. We are partnered with an independent estimating frim to provide unbiases analysis for project construction costs and a nationally recognized firm for Geotechnical services located near the project site.

Michael Baker achieves success in uniting the Client with the team by continually synchronizing with- in this case, the WVArNG Construction and Facilities Management Office ensuring the end user group will save time, money, and a lot of headaches simply because we are exclusively one company. **This is our key strength; the ability to integrate seamlessly among multiple offices and with subject matter experts throughout the company, along with specialized subconsultants as needed for the project.**

Our resident soldiers are a permanent part of our community and we want them to be proud of any facility in which they serve. We proudly support the National Guard locally and nationally.

Demonstrated Experience

What separates the qualified from the other teams? Michael Baker believes it is the individual team members and the specific project experience and process knowledge they possess. Our team stands apart as one that excels on all levels. Our blend of Department of Defense and National Guard expertise, incorporating sustainable design leadership and local experience places us at the forefront of firms vying for this unique opportunity.

Michael Baker has strong knowledge of the local WVArNG project requirements and practices with numerous project experiences, both in West Virginia and throughout the United States, we are ready for any challenge. Michael Baker prides itself on providing innovative solutions to complex problems. Cookie cutter solutions rarely benefit owners. Owners reap real value when design teams are willing to be creative and incorporate custom solutions into their analysis and design

As the National Guard continues its historic dual mission, providing units citizen-soldiers from our local community, trained and equipped to protect life and property, to the states while providing units, trained, equipped, and ready to defend the United States and its interests, to the nation and around the globe, Michael Baker continues to support the National Guard Bureau and has previously worked at over 70 National Guard installations nationwide, including Camp Geiger and the 426th Regional Training Institute at Fort McCoy as well as numerous other DOD facilities. The Michael Baker team provides the National Guard with this highly skilled and experienced team that is prepared to support the project with excellent planning, architectural, engineering, environmental, and construction phase services. Michael Baker, serves our clients from concept designs through operations. **No job is too large or too small - we now stand ready to be part your successful team!**

Tactical Equipment Maintenance Facility TEMF, Fort McCoy; LEED Silver Certified

Please see APPENDIX 2 for RELATED PROJECTS.

Please see APPENDIX 3 for SUBCONSULTANTS.

Project Goals and Objectives
General:

Some of the first steps of the project would be to prioritize tasks and develop submission schedules and budget requirements for the project. Any available information for the existing facility would be gathered and reviewed prior to a visit to the property. Once all of the existing data has been reviewed, a site visit would be conducted to assess the current field conditions. Next, a survey of existing site conditions would be conducted, and, if warranted, a subsurface investigation to analyze the existing geology as required for corrective measure to the existing building. All of this information will be used to develop conceptual plan options (35%) that will be presented to and reviewed by the WV CFMO. The project will be studied in a systematic way to analyze the existing conditions, client needs and budget considerations. Through this process we will arrive at a final-agreed-upon concept plan for Design Development.

It is Michael Baker's understanding is that the West Virginia Army National Guard, Construction and Facilities Management Office (WVARNG) would like to develop functional, yet sustainable, designs for a proposed facility renovation.

The two-existing prefabricated concrete buildings, one for classroom and storage and the other for restrooms have numerous opportunities for improved efficiencies and energy savings. Projects of this size may also be combined with other similar projects to create a stream line and uniform approach to the design process. Below is a listing of the current design requirement as indicated in the EOI.

Address structural issues
Abate mildew and mold
Roof issues
Storm drainage
HVAC
Instantaneous hot water system
Complete restroom renovation
New interior LED lights
Repairing water penetrations and door operations

Optional requirements:
Geotechnical drilling
Associated site utilizes infrastructure
Associated Road infrastructure

Our firm provides sustainable design leadership on all our projects starting with the programming phase, the time when our efforts yield the greatest results. Michael Baker understands that the Nation Guard wishes to be a good steward of its resources and we welcome the opportunity to facilitate discussions and guide projects towards a sustainable path. We believe that we understand the project requirements and can provide the needed design in an inovated and cost effective way.

GOAL/OBJECTIVE 1:

Michael Baker will employ a planning philosophy to work with each of the building constraints and to develop a complementary design concept that respects other surroundings facilities. The Owner's guidelines for the facilities will dictate the type of and common amenities to be provided, the degree of infrastructure needed and the overall aesthetic of the renovated buildings.

Once a schematic plan is approved, it will be developed into the first stage of design development with the direction and approval of the WVArNG. The concept will be tested against the Client's Project Requirements and would receive a preliminary cost estimate to ensure

that the concept works within the framework of the budget. Once these plans and costs have been verified, the plan can move forward through design development (65%). This approach provides a more informed and comprehensive concept and ultimately a more complete plan.

GOAL/OBJECTIVE 2:

Based on discussions and approvals from the WVArNG CFM& O, the design approved at the 65% completion submission, the plans and specifications for the facilities will be developed to the Construction Document Phase (95%) for completion. A final design Construction Cost Estimates will accompany the 95% CD submission. Upon approval from WV ArNG CFMO, Michael Baker will bring the documents to 100% for bidding purposes.

Building Design Package: Once the exact programing and cost of the proposed facility has been determined and upon approval from WV ArNG CFMO, Michael Baker will finalize the A/E design and Construction Documents for the building facilities. We will coordinate with the WVArNG and provide all necessary design documents in accordance with UFC directives and all applicable codes for all aspects of the building design. Specifications for the installation of all required products or components will be provided as part of the 100% Design submittals.

As required, the plan set could include, but not limited to the following sheets:

Site and Site Utility Plans.

Building Plans, Elevations and Details as required.

Plumbing, Fire Protection and Mechanical Plans, Schedules and Details as required.

Electrical Power, Lighting, Fire Alarms and Data/Communication Plans, Schedules and Details as required.

Specifications: Technical specifications for the building and all related site improvements will be provided.

GOAL/OBJECTIVE 3:

At this phase, the construction plans, and specifications have been completed, These Plans will be submitted or reviewed with state agencies and utility providers. These plans can be provided as independent or a combined Bid Documents for permitting and construction.

Complete A/E services can be provided to the WV ArNG CFMO during this phase including: bid package assembly and distribution to plan rooms, bid assistance, analyzing and the evaluation of bids or proposals. Michael Baker can also provide Construction Administration, throughout the entire construction process as needed.

The same team members that began the project will follow through to the end. All products intended to be installed on the project shall be submitted to and approved by the A/E of record. Shop drawings provided by the awarded contractor will be reviewed by the A/E of record to ensure they meet all code requirements, specifications approved based on meeting the prepared specifications, current code requirements and contract requirements.

After the system installations are complete, Baker will perform a final inspection and develop a corrective measure punch list. Michael Baker will also provide the WVArNG ongoing support through the manufacturer's warranty period after the construction is completed. It is Michael Baker's desire to provide a successful design, but also a practical, functional building suited to the needs of its patrons.

Complete **on-site** Construction Administration services can be provided to the client for each phase of the process, if desired.

Michael Baker can provide all necessary planning, design and bidding documents for construction in accordance with West Virginia Purchasing Division for all aspects of the project. Specifications for the installation of all required products or components will be provided as part of the bid package.

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APPENDIX 1 –Team Resumes

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

Civil Engineer , Facilities Practice Manager

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

Degrees

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

Diploma, 1993, Surveying and Mapping, International Correspondence Schools

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

Licenses/Certifications

Professional Engineer - Civil/Structural, West Virginia, 1990
Professional Surveyor, West Virginia, 1993

Construction Documents Technologist, 1996

General Qualifications

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

Experience

Renovations to Classroom Building, Beckley, West Virginia. *WVU Tech/ West Virginia University. Practice Lead.* Responsibilities included overseeing and managing the required resources for the design team and quality control. 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. Practice Lead.* 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 responsibilities included overseeing and managing the required resources for the design team and quality control. This project is currently under construction.

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

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

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

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

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

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

Architectural Manager and Architect of Record

Years with Baker: 9

Years with Other Firms: 17

Education

B.Arch., 1990, Architecture, University of Cincinnati

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

Licenses/Certifications

Registered Architect –

West Virginia, 2011

Pennsylvania, 2001

NCARB, 1999

General Qualifications

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

Experience

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

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

Aviation Science Center Renovation, Community College of Beaver County, Monaca, Pennsylvania. Architect of Record. Responsible for design/technical quality and project execution provided by the architectural and interior design staff. The Project consisted of architecture, engineering, construction administration and cost estimates to design the auditorium renovations and replacement the HVAC system. Preliminary design services included research of applicable building codes; on site project assessment and verification, measurements, and documentation of the project areas, including a comprehensive field survey of the existing conditions, and the development and prioritization of preliminary scopes of work, schedule development, and oversite 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.

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

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

Michael Baker
INTERNATIONAL

We Make a Difference

Rebecca Marie Schwartz, AIA, LEED AP BD+C

Technical Architecture Manager

Years with Michael Baker: 10
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]

LEED Accredited Professional BD+C, 2011, [redacted]

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

Registered Professional Architect, Kentucky, 2017, [redacted]

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

French Creek Bachelor Enlisted Quarters, Marine Corps Base Camp LeJeune, North Carolina. *Naval Facilities Engineering Command, Mid-Atlantic.* Project Architect. Responsibilities included coordination with design-build contractor and engineering disciplines. Generated construction documentation not limited to but including the following: specifications, design analysis, floor plans, elevations, building sections, and details. Provided Building Information Modeling (BIM) for the project. Michael Baker was the designer of record on a design-build project to construct a 103,334-square-foot combined multistory facility to serve as bachelor enlisted quarters, a 167,450-square-foot three-story 700-vehicle parking garage, a recreation shelter, and a personal equipment cleaning station. The barracks achieved LEED®-NC gold certification. The team's strategic design approach integrated two barracks into a single structure via enclosed connecting corridors on each floor, optimizing common space. Michael Baker's tasks included planning, structural design, and architectural and building systems design.

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.

14LRL13 Independence FFRDB RFP. *U.S. Army Corps of Engineers, Louisville District.* Senior Architect. Responsibilities included coordination with users and engineering disciplines. Participated in design charrettes with end users, conducted field investigation, and generated programming data and analysis utilized to generate RFP (Request for Proposal) documentation not limited to but including the following: specifications, design analysis, and floor plans.

Historic Marine Barracks Washington Building 8 Renovation Design-Build RFP, Marine Barracks Washington, Washington, D.C. *U.S. Navy NAVFAC Washington.* Technical Manager. Responsibilities as Architecture Technical Manager included managing the work effort of the professional and technical staff in the architecture group within the overall architecture engineering practice. Essential duties are comprised of providing technical guidance, preparing scope of work and cost estimates for the project, managing staff utilization by scheduling, monitoring and revising assignments related to the project, and satisfying project requirements by ensuring that quality standards and deadlines are met through internal design reviews. Michael Baker provided design, engineering, and historic preservation services for the renovation of Building 8, a 47,000-square-foot historic structure constructed between 1903 and 1906 that is part of the U.S. Marine Corps Barracks and Commandant's House National Historic Landmark Site. The project included a sensitive phased renovation with integration of existing communications and networks running through the building from other sections of the campus to the Commandants House at the north end of the site. The scope of the renovation work addressed structural modifications to reflect space requirements; mechanical, electrical, and plumbing systems upgrade; communication system upgrade; fire protection system and life safety review and upgrade; Americans with Disabilities Act (ADA) analysis and compliance; and anti-terrorism/force protection (AT/FP) compliance to the maximum extent practicable. The procurement documents required integration of sustainability design into the renovation work, and the building is expected to meet 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.

Michael Baker
INTERNATIONAL

We Make a Difference

David J. Hilliard, P.E., LEED® AP

Mechanical/Electrical/Plumbing Engineer

Years with Michael Baker: 9
Years with Other Firms: 20

Degrees

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

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

Licenses/Certifications

Professional Engineer, West Virginia 2011

Mississippi, 2016
Louisiana, 2016
Kentucky, 2017
LEED AP, bd+c, 2010

Professional Affiliations

American Society of Plumbing Engineers

American Society of Heating, Refrigerating, and Air-Conditioning Engineers

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

Design of Three T-Hangars, Morgantown, West Virginia. *Morgantown Municipal Airport.* Mechanical/Electrical Engineer. Responsibilities included the Mechanical, Electrical and Plumbing Design of three T-hangars on the east side of the airfield and included, HVAC, plumbing ADA restrooms and drainage systems, fire protection, and electrical utilities design. He also, preformed Construction Administration for advised during construction and help coordinate with the Military IRT staff through an onsite project manager.

Renovations to Classroom Building, Beckley, West Virginia. *WVUTech/ West Virginia University, Morgantown, WV.* MEP Designer 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. Renovation old 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 is currently under construction.

Renovations to the Benedum Center, Beckley, West Virginia. *WVUTech/ West Virginia University, Morgantown, WV.* MEP Designer and Engineer 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 ADA toilet facilities, Fire Alarm and sprinkler system upgrades and retrofitted HVAC equipment. This project is currently under construction.

Open-End Architectural/Engineering Services (10-year IDIQ), *West Virginia State University, Institute, WV.* Mechanical/Electrical and Plumbing Designer and Engineer of Record for on demand projects at West Virginia State University. Mr. Hilliard has been involved with and coordinated all aspects of the various tasks which have included; programming, planning, design development, construction documentation, systems evaluations, and feasibility studies, as well as cost estimating. Also included were mapping, evaluation and design services for storm and sewer line systems, a campus wide domestic water loop system design, football field upgrades and overall facility maintenance support as requested by the University. He has also been involved with the development and acquisition of WVDEP permits for both MS4 and Air Perming.

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

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

West Virginia State Capitol Restroom Renovations. *State of WV General Services Division, Charleston, WV.* Mechanical Electrical and Plumbing Engineer. Mr. Hilliard provided the State of West Virginia General Services Division a comprehensive MEP plan for the renovation and renovation of the 33 restrooms of the West Virginia State Capitol Building. He helped provide design, construction sequence, and scheduling recommendations. And will provide Construction Administration during construction

Headquarters Facility Renovations for the Coonskin Complex. *West Virginia Army National Guard, Charleston, WV.* 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.

Michael Baker
INTERNATIONAL

We Make a Difference

Wayne Airgood, P.E.

Structural Engineer

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]

Maryland, 2013, [redacted]

North Carolina, 2014, [redacted]

General Qualifications

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

Experience

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

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

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

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

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.

Michael Baker
INTERNATIONAL

We Make a Difference

Owen Milligan, P.E.

Electrical Engineering Manager

Years with Michael Baker: 9
Years with Other Firms: 21

Degrees

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

Computer Aided Drafting, Putnam County Technical Center, 1995

Licenses/Certifications
Professional Engineer -

West Virginia, 2013
California, 2003
Pennsylvania, 1999
Montana, 2001
Kentucky, 2005
Oklahoma, 2008

General Qualifications

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

Experience

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

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.

Non-Baker Project Experience

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

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

Michael Baker
INTERNATIONAL

APPENDIX 2 – Project Profiles

Michael Baker
INTERNATIONAL

We Make a Difference

WVANG & WVARNG Access Control Facility

Charleston, West Virginia

The plan was to relocate the existing two lane road (County Route 51/2, "Coonskin Drive") and construct a new entry control facility including a gatehouse, ID check station and truck inspection area for the joint use base. Michael Baker presented three concepts to the Client. Option B, featuring a wide swiping curved roadway design was selected for concept development.

The project utilized conventional design and construction methods to accommodate the mission of the facility. Various LEED-like components were incorporated into the design of the facility to provide a minimum of 10 LEED points, but LEED accreditation was not desired. The Access Control Facility was designed as permanent construction in accordance with DD Form 1391s, ANGETL 15, the DoD Unified Facilities Criteria (UFC) 1-200-01, General Building Requirements and UFC 1-200-02, High Performance and Sustainable Building Requirements. The facility is also compliant with applicable DoD, Air Force, and base design standards. In addition, local materials and construction techniques were used, where possible, that where cost effective. This project was designed to comply with DoD ATFP (antiterrorism/force protection) requirements per unified facilities criteria. The project was also designed to meet the communication requirements of ANG base Command and Control, AT/FP and UFC.

Client

West Virginia Air National Guard
130th Civil Engineer Squadron
1679 Coonskin Drive
Charleston, WV 25311

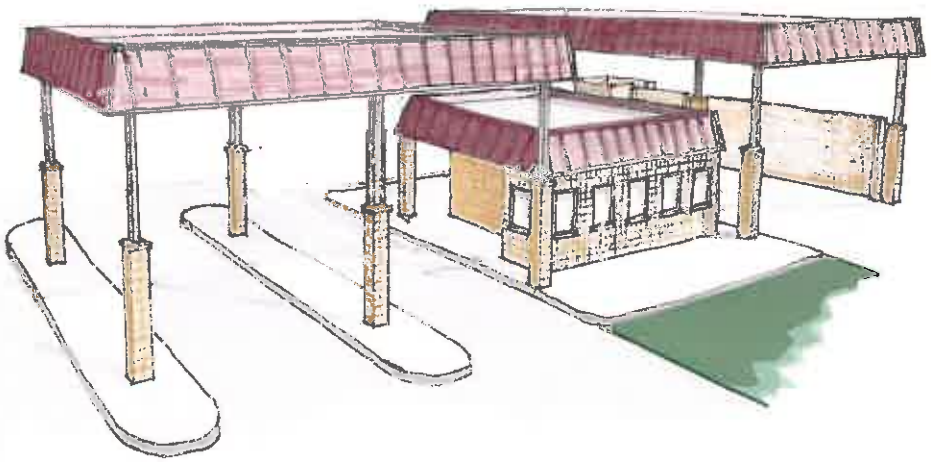
Captain Harry Netzer, P.E.
Deputy Base Civil Engineer
304-341-6649

Contract Completion Date

May 2017

Baker's Role

- Architecture
- Civil engineering
- Landscape Architecture
- Mechanical Engineering
- Electrical Engineering
- Structural engineering
- Cost Estimates
- Construction Administration



Michael Baker
INTERNATIONAL

We Make a Difference

Coonskin Park Maintenance Facility

Kanawha County, WV

Baker provided general Architectural and Engineering services to the West Virginia Army National Guard on behalf of the Kanawha County Parks and Recreation Commission at Coonskin Park in Charleston. The new maintenance and storage facility was built to relocate exiting maintenance and storage services interrupted by the new bridge and entrance to Coonskin Park.

The West Virginia Army National Guard selected Baker to provide complete design and construction administration services. The project included the design of a pre-engineered metal building and the corresponding utility infrastructure. It was sited on the available property to allowing for future expansion. The site is approximately 3.5 acres. The facility has approximately 6,000 square feet of which 4,500 square feet house maintenance garage functions for the park. The remaining 1,500 square feet is dedicated to future locker/shower rooms for the adjacent soccer field. The garage has four automatic garage doors, two with drive-through capabilities. A restroom is included on the maintenance side, with roughed-in plumbing for the future shower/locker rooms.

Client
West Virginia Army National Guard
Construction and Facilities
Maintenance Office
1707 Coonskin Drive
Charleston, WV 25311

LTC David P. Shafer
Construction and Facilities Management Office

Todd Reynolds, Project Manager

Completion Date
October 2014

Baker's Role

- Architecture
- Civil Engineering
- Mechanical Engineering
- Electrical Engineering
- Landscape architecture
- Structural Engineering
- Bid Phase Services
- Construction Inspection

This facility is the temporary home for park equipment and maintenance staff until the new park access bridge, entrance and new park maintenance complex is completed. The building is then planned to become part of the soccer complex.

Michael Baker
INTERNATIONAL

We Make a Difference

Renovations to Building 5, Bay 1

Tobyhanna, Pennsylvania

Michael Baker served as the designer of record on a design-bid-build project to renovate Building 5, Bay 1 at the Tobyhanna Army Depot. Work was performed under a three-year indefinite delivery-indefinite quantity contract.

The scope of work involves adding HVAC capacity, installing a drop-ceiling system, expanding existing restrooms, and enhancing door systems.

Michael Baker prepared design and construction plans and construction cost estimates for the project.

Michael Baker investigated options to enhance HVAC performance and increase cooling and add humidification in work room 155 of Building 5. Individual dedicated air-conditioning units were designed for the TYQ-23 testbed room and two TYQ-23 mobile shelters to replace the field HVAC units. The TYQ-23 mobile shelters are box-truck-sized field trailers to be refurbished. The testbed room is a permanent mock-up of the shelter used for component testing. A dedicated air-handling unit to serve the MIG room will be installed to replace the existing through-the-wall air conditioning units. The MIG room is where various types of small electronic components are tested and refurbished. Michael Baker's design also included provisions for painting of the high-bay ceiling of the warehouse area that contains the TYQ-23 shelters and MIG room.
A drop-ceiling system with T8 lighting fixtures was designed for work room 170 of Building 5. Michael Baker designed 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 involved the installation of additional fixtures to increase capacity and replace the existing fixtures. The new plumbing fixtures meet or exceed the conservation requirements of the Energy Policy Act of 2005.

Michael Baker reconfigured the double vestibule at the main north entrance and the adjoining office and corridor to maximize usable space. The existing overhead rollup doors along the south wall and east and west ends of the corridor will be replaced with new automatic sliding doors. The manually operated sliding freight and fire doors at the south end of work room 170 will be replaced with new automatic sliding doors and an automatic fire shutter.

Client

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

Completion Date

2013

Michael Baker's Role

- Architecture
- Interior design
- Mechanical engineering
- Electrical engineering
- Construction cost estimation

Michael Baker
INTERNATIONAL

We Make a Difference

Buildings 1786 and 1788 Remodel

Mountain Home AFB, Elmore County, Idaho

As the designer of record, Michael Baker provided electrical, mechanical, fire protection, and structural design for the renovation of buildings 1786 and 1788 to support the AN/TYO Operations Module. The project included construction of a secure computer room, associated administrative areas, secure storage area, and upgrades to existing restrooms for Americans with Disabilities (ADA) access. Michael Baker's services included project management; civil, architecture, and interior design; structural, mechanical, electrical, telecommunications, plumbing, and fire protection design; and construction administration.

Client

HHI Construction
49 North Main
P.O. Box 950
Farmington, Utah 84025-0950

Completion Date

2016

Project Costs

$80,837 (Fee)

Michael Baker's Role

- Electrical design
- Mechanical design
- Structural design
- Fire protection design

Michael Baker
INTERNATIONAL

We Make a Difference

Good News Mountaineer Garage Administrative and Maintenance Facility

Charleston, WV

Baker provided general Architectural and Engineering services to the Good News Mountaineer Garage (GNMG). The facility is located on the west side of Charleston, West Virginia. The Good News Mountaineer Garage is a nonprofit organization that accepts donations of vehicles that are repairable for a reasonable amount of money. After repair, these donated cars are then distributed to low-income families needing dependable transportation.

The GNMG selected Baker to provide complete design and construction administration services in three phases. Among these design services were the installation of a new HVAC, fire alarm system and fume detection systems. The first phase was to renovate the interior of the building on 4th Avenue in order to provide facilities for the automobile repair and administrative staff. Phase II included the build-out of a show room and Phase III was dedicated to the exterior of the building including vehicle storage and special event areas. Parking for some repaired vehicles and employee vehicles was provided east side of the building. The site is approximately 0.75 acres. The main facility has approximately 7,500 square feet of space of which 4,700 square feet, houses four administrative offices, a board room, a copier/supply room, restrooms and a large show room /event center which can accommodate up to approximately 75 individuals. The remaining 2,100 square feet is dedicated to the automotive repair functions. The garage includes two new vehicle lifts and overhead parts storage. The building was designed so that the vehicles can pull through the garage while the lifts are being used. Baker incorporated green building practices, including passive solar tube lighting in the showroom and maintenance garage. LED lighting was also used in order to help control utility costs for the operation of the facility.

Client

Good News Mountaineer Garage
1637 4th Avenue
Charleston, WV 25387

Ms. Asley Orr,
Executive Director
304-344-8445

Completion Date

March, 2016

Michael Baker's Role

- Architecture
- Civil Engineering
- MEP Engineering
- Landscape architecture
- Structural Engineering
- Bid Phase Services
- Construction Management
- Estimating

GOOD NEWS MOUNTAINEER GARAGE

Michael Baker
INTERNATIONAL

APENDIX 3 - Subconsultants

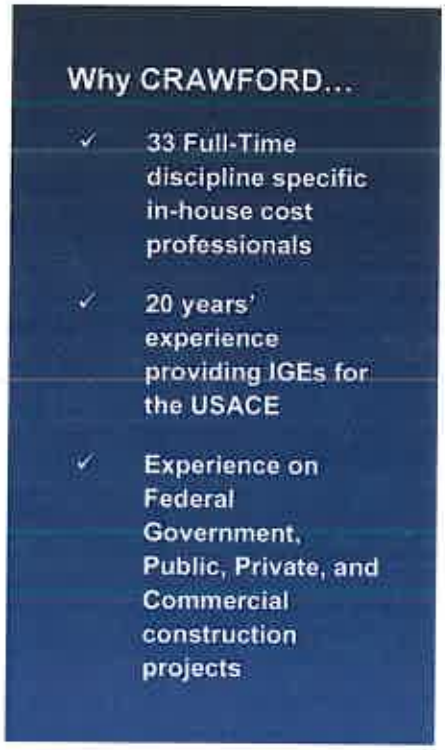
National Guard Bureau

CRAWFORD
CONSULTING SERVICES

CRAWFORD has been providing high quality full service construction cost estimating services to the National Guard Bureau for the last 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, Certified Value Specialists, 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 $8.5 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 mission is to provide unparalleled construction consulting services for our clients, ensuring a high standard of quality, timeliness, and responsiveness. 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

CRAWFORD has provided Cost Estimating Services for the National Guard Bureau (including Army & Air National Guard) and various state Guard agencies since 1997 on more than 140 projects totaling more than $400 million in construction value.



For 20 years, CRAWFORD has provided cost engineering/cost estimating and scheduling services under the IDIQ contracting environment, which includes but is not limited to detailed cost estimates/schedule analyses, quantity takeoff, reviewing change orders, obtaining vendor quotes, conducting market surveys to determine costs for labor, equipment, and materials. We have in-depth knowledge of MCACES-MII, PACES, Windows Estimator (WinEst), USACE's PC Cost Computer Estimating, USACE's Historical Analysis Generating Software, USACE Parametric Cost Estimating Software (PACES), and ROCKTEK (cost estimating for earthwork). We have completed more than 700 MCACES-MII projects and 70+ PACES projects for over 30 USACE Districts since 1998.

Mission Statement: To provide unparalleled full construction consulting services for our clients, ensuring a high standard of quality, timeliness, and responsiveness.

All cost estimates are built using the most current version of **MCACES Second Generation (MII)** software for all USACE projects and all CRAWFORD personnel are experts in this software. All CRAWFORD estimates are consistent with the best estimating practices of the construction industry, FAR 36.203, and are current, accurate, and complete. **They reflect the expected cost to the Government to perform the work by contract and include all reasonable costs which a prudent, experienced, and well-equipped contractor might anticipate and include in their bid.**

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

Being in tune with different construction climates as well as being able to forecast the future is important to accuracy in budgeting projects, escalation factors, and determining availability of labor and materials in a given area. CRAWFORD has performed Market Analyses in order to ensure that a project's procurement methods are feasible in terms of scope, budget, as well as contracting strategy.

Our in-house research team is experienced at interviewing construction industry decision makers: 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. Please see below for a few examples or our construction cost estimates against awarded projects for the US Army Corps of Engineers and other Federal Agencies in the AOR and surrounding areas:

Please see below for a few examples or our construction cost estimates against awarded projects for the National Guard Bureau:

Agency	Project	Our Estimate	Bid / Award	Delta	Year
National Guard Bureau	KC-46A Consolidated Building Renovations - Seymour Johnson AFB, NC	$8,823,396	$9,635,420	-8.43%	2016
National Guard Bureau	Field Maintenance Shop Design, Rochester, NH	$7,540,000	$7,195,000	4.79%	2015
Air National Guard	Repair Flight Simulator, Building 304, Coroapolis, PA	$3,316,527	$3,329,527	-0.39%	2015
Army National Guard	Multi-Use Training Facility, NASJRB, Fort Worth, TX	$1,674,435	$1,696,500	-1.30%	2012
Army National Guard	Civil Engineering Addition, NASJRB, Fort Worth, TX	$1,481,304	$1,479,000	0.16%	2012
Air National Guard	Repair / Replacement of Bridges at Michie Stadium, United States Army Garrison, West Point, NY	$1,662,380	$1,582,000	5.08%	2012

Mission Statement: To provide unparalleled full construction consulting services for our clients, ensuring a high standard of quality, timeliness, and responsiveness.

Company Profile

TERRACON CONSULTANTS, INC.

The Terracon is a 100 percent employee-owned consulting engineering firm providing quality services to clients. Since 1965, Terracon has evolved into a successful multidiscipline firm specializing in:

- Environmental
- Facilities
- Geotechnical
- Materials

Over its history, Terracon has achieved significant expansion through both internal growth and acquisitions. Terracon currently has more than 4,000 employees in more than 140 offices and 50 states nationwide. Additionally, we partner with our U.S. clients to serve their international needs.

The firm's success is further evidenced by a current ranking of 24 in *Engineering News-Record*'s 2018 listing of the Top 500 Design Firms, as compared to a ranking of 51 a decade ago. Terracon's growth is due to dedicated employees who are responsive to clients, provide quality services, and take advantage of opportunities in the marketplace.

Terracon provides services on thousands of projects each year. Our culture, systems, and structure enable us to excel at both small and large projects. By combining our national resources with specific local area expertise, we consistently overcome obstacles and deliver the results our clients expect.

Terracon serves a diverse portfolio of private and public clients. By being responsive, resourceful, and reliable, we strive to exceed our clients' expectations for service, solutions, quality, and speed of delivery. Based on a deep understanding of our clients' needs, Terracon's commitment is centered around these key objectives.

Geotechnical

Design and construction reliable foundations and infrastructure require a thorough understanding of soil, rock, and groundwater conditions. Through Terracon's nationwide network of geotechnical professionals, access to historical subsurface exploration data from thousands of locations across the country, and GIS-enabled geology mapping, we can accurately anticipate ground conditions and develop the right work plan to explore a site. Our innovative technologies and collaborative approach allow us to provide practical design recommendations. Terracon's Geotechnical services include:

- Report of Expected Geotechnical Conditions (REGC)
- Subsurface Exploration (Soil Borings, In-Situ Testing, Geophysical)
- Laboratory Testing
- Geotechnical Design
- Collaborative Reporting / Decision Making
- Geotechnical Instrumentation
- Construction Monitoring and Support

Materials

Proper selection, quality, workmanship, and performance of construction materials plays a vital role in ensuring that today's buildings and infrastructure perform adequately over long time periods. We work with clients to minimize material replacements, reduce the likelihood of deterioration, avoid potential failures, and investigate and evaluate construction materials related problems and failures when they do occur.

- Construction Quality Assurance / Quality Control
- Construction / Special Inspection
- Materials Engineering
- Field and Laboratory Testing and Analysis
- Construction Observation and Monitoring
- Pavement Consulting and Engineering
- Structural Steel and Nondestructive Testing

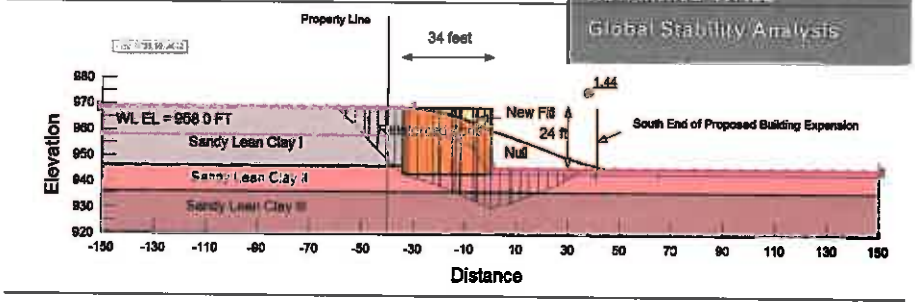
WHY TERRACON?

Resourceful. We strive to find efficient solutions to project-related issues. Geodesign saves clients time and money by providing an extensive network of capabilities.

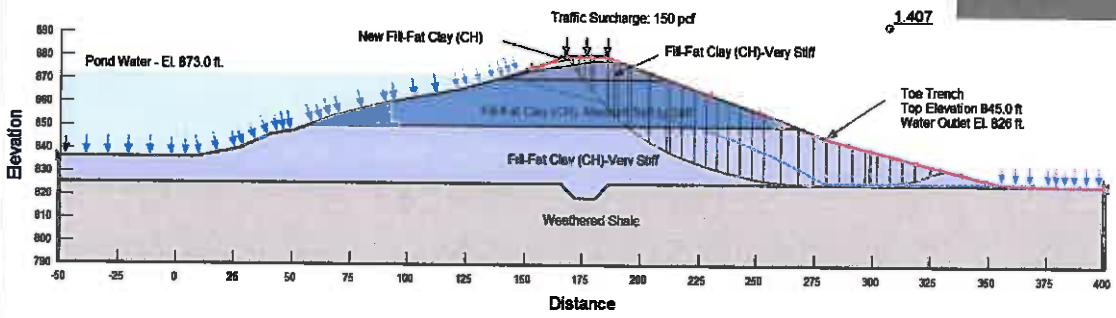
Responsive. With more than 140 offices nationwide, we can meet your needs no matter where the project is located and connect you with the most experienced geodesign engineers.

Reliable. Our extensive geodesign abilities reflect more than 50 successful years of professional experience.

RETAINING WALL
Global Stability Analysis



EARTH DAM
Stability and Seepage Stability Analyses



SERVICES
available in all
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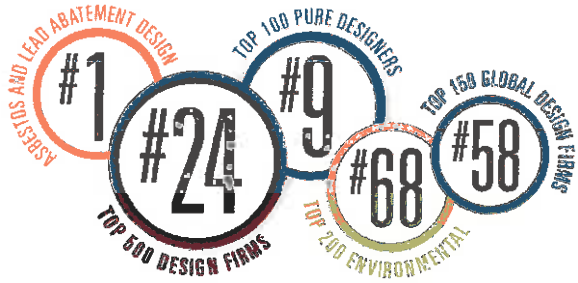

CONTACTS

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alma.baratta@terracon.com

Environmental ■ Facilities ■ Geotechnical ■ Materials