

April 26, 2018

Linda B. Harper, Buyer Supervisor
Department of Administration
Purchasing Division
2019 Washington Street E.
Charleston, West Virginia 25305

04/26/18 12:51:00
WV Purchasing Division

**Subject: Professional A/E Services for the General Services Division
WV State Capitol Building Fire Protection & Sprinkler Design
CEOI 0211 GSD1800000003**

Dear Ms. Harper:

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

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

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

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

Very truly yours,
Michael Baker International, Inc.



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

Enclosure

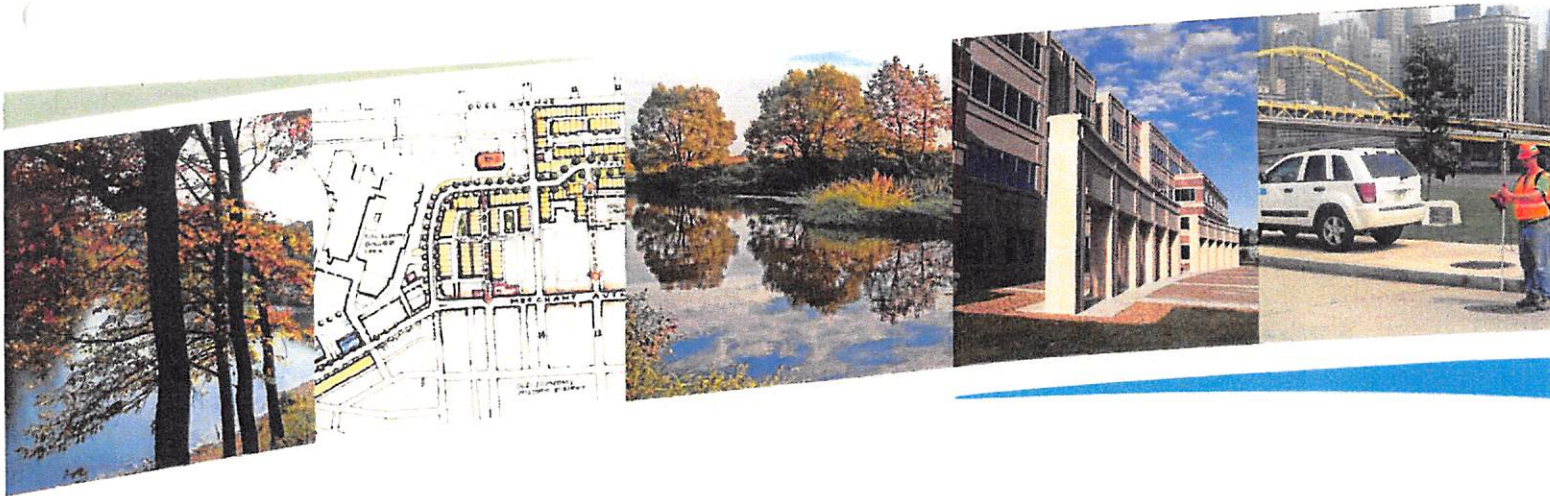


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Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

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

Proc Folder: 435826

Doc Description: EOI: Capitol Bldg Fire Protection and Sprinkler Design

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2018-03-30	2018-04-26 13:30 00	CEOI 0211 GSD1800000003	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

Linda B Harper
 (304) 558-0458
 linda.b.harper@wv.gov

Signature X

FEIN # **25-1228638**

DATE **April 26, 2018**

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

ADDITIONAL INFORMATION:

The West Virginia Purchasing Division for the agency, The West Virginia Department of Administration's, General Services Division is soliciting CEOI responses from qualified firms to provide a contract to provide necessary architectural and engineering services for West Virginia State Capitol Building Fire Protection and Sprinkler Design

INVOICE TO	SHIP TO
DEPARTMENT OF ADMINISTRATION GENERAL SERVICES DIVISION 112 CALIFORNIA AVENUE, 5TH FLOOR CHARLESTON WV25305 US	DEPARTMENT OF ADMINISTRATION GENERAL SERVICES 112 CALIFORNIA AVENUE, 5TH FLOOR CHARLESTON WV 25305-0123 US

Line	Comm Ln Desc	Qty	Unit Issue
1	A/E Svcs: WV State Capitol Bldg Fire Protection & Sprinklers		

Comm Code	Manufacturer	Specification	Model #
81101508			

Extended Description :
 Online Responses Prohibited

SCHEDULE OF EVENTS

Line	Event	Event Date
1	Question Deadline 4:00 PM	2018-04-10



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

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

Proc Folder: 435826

Doc Description: EOI: Capitol Bldg Fire Protection and Sprinkler Design

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2018-04-11	2018-04-26 13 30.00	CEOI 0211 GSD1800000003	2

BID RECEIVING LOCATION

BID CLERK
 DEPARTMENT OF ADMINISTRATION
 PURCHASING DIVISION
 2019 WASHINGTON ST E
 CHARLESTON WV 25305
 US

VENDOR

Vendor Name, Address and Telephone Number:
Michael Baker International, Inc.
400 Washington Street East, Suite 301
Charleston, West Virginia 25301
304-769-0821

FOR INFORMATION CONTACT THE BUYER

Linda B Harper
 (304) 558-0468
 linda.b.harper@wv.gov

Signature X

FEIN # **25-1228638**

DATE **April 26, 2018**

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

ADDITIONAL INFORMATION

Addendum

Addendum No 1 issued to publish the vendor questions and agency answers.

End of Addendum

The West Virginia Purchasing Division for the agency, The West Virginia Department of Administration's, General Services Division is soliciting CEOI responses from qualified firms to provide a contract to provide necessary architectural and engineering services for West Virginia State Capitol Building Fire Protection and Sprinkler Design

INVOICE TO:	SHIP TO:
DEPARTMENT OF ADMINISTRATION GENERAL SERVICES DIVISION 112 CALIFORNIA AVENUE, 5TH FLOOR CHARLESTON WV25305 US	DEPARTMENT OF ADMINISTRATION GENERAL SERVICES 112 CALIFORNIA AVENUE, 5TH FLOOR CHARLESTON WV 25305-0123 US

Line	Comm Ln Desc	Qty	Unit Issue
1	A/E Svcs: WV State Capitol Bldg Fire Protection & Sprinklers	0.00000	

Comm Code	Manufacturer	Specification	Model #
81101508			

Extended Description :
Online Responses Prohibited

SCHEDULE OF EVENTS

Line	Event	Event Date
1	Question Deadline 4:00 PM	2018-04-10

SOLICITATION NUMBER: CRFQ GSD1800000003
Addendum Number: 01

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

Applicable Addendum Category:

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

Description of Modification to Solicitation:

This addendum is issued to modify the solicitation per the attached documentation and the following:

1. To publish the vendor questions and agency answers.

No other changes.

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

Terms and Conditions:

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

ATTACHMENT A

Capitol Building Fire Protection and Sprinkler Design

- Q.1. How many square feet is the building?
- A.1. Roughly 550,000 square feet.
- Q.2. How many floors is the building?
- A.2. Generally, the Main Unit and the East and West Wings have a basement then four floors, but the Main Unit also has a large dome in its center making that area six floors.
- Q.3. There is a lot of pre-bid meeting text but the document indicates no meeting will be held. Please confirm if there is a pre-bid meeting and if so, when and where.
- A.3. There is NO pre-bid meeting.
- Q.4. Is Phase II design to be bid after the completion of Phase I so the bidder has an idea of scope and current conditions?
- A.4. Yes. The exact methodology for implementing Phase II design services would be negotiated with the successful firm as part of the award process but, generally, the scope and effort required for any Phase II services would be negotiated between the Agency and Firm, then a proposal for the Firm's Phase II services would be mutually requested to be added to the initial contract's scope and amount.
- Q.5. Can the bidders review the reports produced by BRIM?
- A.5. No, but the reports will be available to the successful firm.
- Q.6. Are there drawings that are available for review to aid bidders?
- A.6. No drawings will be made available to bidders. Drawings of the floor plans of the Main Capitol are available for review at the WV Science and Cultural Center's library.
- Q.7. Is the bidding firm expected to perform the physical installation of redesigned systems (labor and material) or is Engineering, Design and Construction Administration the intended scope for this EOI?
- A.7. The latter; installation of redesigned systems will be competitively bid construction projects, and the successful firm will be required to perform engineering, design with bidding and construction administration services.
- Q.8. When referencing design of life safety features indicated in 4.3.4, Is it the intent of the solicitor to reformat the interior of the building or simply take them into consideration when designing other systems based on reducing risk?
- A.8. There is no intent to reformat the interior of the building, which is on the National Historic Register.

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CEOI GSD180000003

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

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

Addendum Numbers Received:

(Check the box next to each addendum received)

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

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

Michael Baker International, Inc.

Company

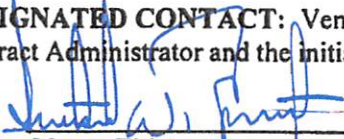
Authorized Signature

April 26, 2018

Date

NOTE: This addendum acknowledgment should be submitted with the bid to expedite document processing.
Revised 6/8/2012

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

 **SENIOR ASSOCIATE**

(Name, Title)
Patrick W. Fogarty, Senior Associate

(Printed Name and Title)
400 Washington Street East, Suite 301, Charleston, WV 25301

(Address)
304-769-0821 / 304-769-0822

(Phone Number) / (Fax Number)
pfogarty@mbakerintl.com

(email address)

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

 **SENIOR ASSOCIATE**

(Authorized Signature) (Representative Name, Title)
Michael Baker International, Inc.

(Company)
Patrick W. Fogarty, Senior Associate

(Printed Name and Title of Authorized Representative)
April 26, 2018

(Date)
304-769-0821 / 304-769-0822

(Phone Number) (Fax Number)

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 OTHER CONTRACTS: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

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

DEFINITIONS:

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

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

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

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Michael Baker International, Inc.

Authorized Signature: [Signature] Date: April 25, 2018

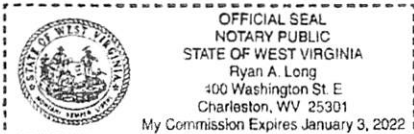
State of West Virginia

County of Kanawha, to-wit:

Taken, subscribed, and sworn to before me this 25 day of April, 2018.

My Commission expires January 3, 2022.

AFFIX SEAL HERE



NOTARY PUBLIC

[Signature]

Purchasing Affidavit (Revised 07/07/2017)

West Virginia State Capitol Building Fire Protection and Sprinkler Design CEOI GSD1800000003

1. Project Location

General Services Division location: 112 California Ave., Fifth Floor, Charleston, WV 25305
WV State Capitol Building location: 1900 Kanawha Boulevard East, Charleston, WV 25305

2. Project Background

The State of West Virginia Department of Administration's Board of Risk and Management (BRIM) performed onsite surveys and studies of the WV Capitol Building that have revealed that the building lacks proper stair enclosures, has excessive dead-ends, and has excessive common travel distances. Due to the uniqueness and historic significance of the building, strict compliance with the letter of the building and fire codes is impractical and cost prohibitive. Alternate means of compliance with building and fire codes will be developed to provide a level of fire safety to the building occupants consistent with the intent of the codes. Application of state-of-the art fire protection engineering methodologies in a performance-based approach will be utilized. Also, alternative measures such as early fire detection, smoke control evacuation, and complete sprinkler coverage will be investigated.

Michael Baker International, Inc. (Baker) is a highly qualified firm with extensive experience in providing the type of fire protection services required for this project, and we are extremely interested in continuing a professional relationship with the General Services Division. CJL Engineering Inc (CJL) is a highly qualified engineering consulting firm that maintains a professional relationship with Baker, and also has project experience in buildings within the Capitol complex, including a recent major renovation to West Virginia State Office Building #3.

3. Qualifications & Experience

TEAM QUALIFICATIONS

Baker's proposed team of experienced professionals has demonstrated the ability to deliver quality work products to our clients, on-time and within budget. Each individual on this project team has extensive experience in their field of expertise and have demonstrated success on projects of similar size and scope. Baker will execute the entire project with additional fire protection engineering support from CJL Engineering. Baker and CJL have a strong professional working relationship on many other projects. Examples include the Afghanistan Border Police Battalion stations located throughout the country of Afghanistan and Department of Defense Task Order #14 mixed-use buildings in the country of Qatar.

The key technical members of the team for this project are licensed Fire Protection Engineers with Baker and CJL. These individuals have strong working relationships on previous projects, which enhances the technical expertise of the team. The key member qualifications are discussed in more detail in section 4.2 below.

MANAGEMENT AND STAFFING

Michael Baker International, Inc. (Contact Person)
Name: Patrick W. Fogarty, Senior Associate
Address: 400 Washington Street East, Suite 301, Charleston, WV 25301
Phone number: 304-769-0821
Email Address: PFogarty@mbakerintl.com

Signature: 

PERSONS ASSIGNED TO THE PROJECT – Resumes provided in Appendix 1

Name	Role
David Hilliard, PE	Mechanical Engineer / Deputy Project Manager
Kevin Spangler, PE	Fire Protection Engineer
Jeffrey McKendree, PE	Fire Protection Engineer (CJL)
Michael Zellers, PE	Fire Protection Engineer
Jaclyn Krawczyk, EIT	Fire Protection Senior Designer (CJL)

ADDITIONAL PERSONNEL RESOURCES AVAILABLE FOR THE PROJECT

Name	Role
Patrick Fogarty, PE	Project Manager
R. Joseph Chaffin, RA	WV Licensed Architect, Office Executive
Nichole Riley	Architect Associate
Sumeet Jadhav, EIT	Fire Protection Associate
Alfonso Doblado, EIT	Fire Protection Associate

4. Project and Goals

4.1 DESIGN WORK

The Baker Team has a total of three (3) licensed Fire Protection Engineers that will be fully engaged in the project. Along with the assigned engineers, three fire protection Engineers-In-Training (EIT) are available to provide additional support on the project.

Based on the description of the project provided, it is anticipated that the Project Approach to best accomplish the building assessments and designs is with sub-teams. This would be set up such that one PE and one EIT would make up an individual sub-team and take the lead on one of the sub-disciplines of the project; Life Safety, Fire Alarm and Fire Suppression. This approach will allow the sub-teams to focus extra effort on individual aspects of the project, rather than multiple disciplines.

Throughout the processes, the team as a whole will work together to provide holistic reporting and consistent designs. Each of the sub-teams will also have the resources and experience of each of the other sub-team members for the more complex aspects of the project. Weekly meetings will be held to

ensure that team members are mindful of the project as a whole with respect to technical aspects as well as budget and schedule.

With Baker's local office located in Charleston, WV, along with David Hilliard's experience in all aspects of engineering and familiarity with the Capitol Building, any additional site related issues will be quickly ascertained, discussed with the Client and team members, and dealt with.

All aspects of the life safety, fire alarm and mass notification systems, and fire sprinkler system will be analyzed through site investigations and code research. Additional information pertaining to each of the specific disciplines is discussed in more detail in section 4.3 below.

4.2 DESIGN TEAM CREDENTIALS AND EXPERIENCE

Fire Protection Engineers

Baker and CJL have teamed up for this proposal to provide extensive experience in the field of fire protection engineering.

Kevin Spangler is a licensed fire protection engineer with an MS degree in Fire Protection Engineering from the University of Maryland. He has over 10 years of experience in fire protection engineering and is the fire protection engineering manager for Michael Baker International. Kevin's experience is extensive in all aspects of fire protection engineering, including suppression system design, fire alarm systems, mass notification systems and life safety analysis. Kevin is a registered fire protection engineer in 15 states, and is able to apply for reciprocity for PE license in WV via NCEES records.

Jeffrey McKendree is a licensed fire protection engineer with a BS degree in fire protection engineering technology from Eastern Kentucky University and is certified NICET Level III in Water-Based Systems Layout. He has over 18 years of experience in designing fire protection systems and performing life safety code analysis, and is the fire protection engineering manager for CJL Engineering.

Michael Zellers is a licensed fire protection engineer with a BS degree in Mechanical Engineering from the University of Pittsburgh. He has 3 years of experience as a fire protection engineer, with an additional 5 years of experience as a Mechanical Engineer. Mike is also a volunteer firefighter with his local station.

David Hilliard is a licensed mechanical engineer with a BSME in Mechanical Engineering from West Virginia University Institute of Technology. He has over 30 years of real world work in engineering, design, fabrication and construction in mechanical, electrical, fire protection and general trades. David is located in Baker's Charleston, WV office and has extensive experience at the WV Capitol Building from previous projects and building assessments.

Jaclyn Krawczyk is a registered Engineer-In-Training and Senior Fire Protection Designer with a BSME in Mechanical Engineering from the Pennsylvania State University. She has over 14 years of engineering experience in building design and construction with an emphasis on fire suppression and fire alarm system design. Jaclyn has extensive experience in providing engineering design in historic buildings.

See Resumes for more details on team members in **Appendix 1**.

Experience with National Register of Historical Places

The Project Profiles included in **Appendix 2** were selected as a representative group of various kinds of related projects. These include local projects in the State Capital building itself, and other relevant projects around the country.

An additional historic project of note that is not included in Appendix 2 is the renovation of Marine Barracks Washington, Building 8, located in Washington D.C. The building was established in 1801 and is the oldest post of the US Marine Corps and commissioned by Thomas Jefferson. The building is being renovated to support the current needs of the US Marine Corps. The existing building underwent extensive analysis for life safety concerns and many unique solutions and prescriptive design measures were instituted in the project design. All three of the fire protection engineers on this proposal (Kevin Spangler, Jeff McKendree and Michael Zellers) were intimately involved in the building system designs. The project has not been included in the appendix because construction has not yet been completed at the time of this proposal.

4.3 DESIGN STANDARDS AND CRITERIA

The project team will utilize the appropriate codes and regulations for the building's analysis and design of the protection systems. These codes and regulations include West Virginia Title 87 – Series 1 State Fire Code, the WV state adopted set of codes (2015 ICC codes), insurance carrier requirements, and any other voluntary requirements from local jurisdictions.

As part of the design team's process, they will meet with the building code officials and the responding fire department to ensure the life safety, fire alarm and suppression systems meet the needs of the building occupants and also complement the operations of the responding fire department personnel. With the fire department, key items will be discussed with their responding operations, including incorporating proper signage for uncomplicated rescue assistance, proper location of fire protection controls (FDC, fire alarm control panel, hose valves, riser shutoff valves). Exterior operations will also be discussed, such as fire command locations, access control points, fire apparatus access and hydrant locations.

A full life safety analysis will be performed on the existing building. The building assessment will analyze the existing building as it relates to the IBC 2015 code. Building construction elements that will be analyzed include, but are not limited to; construction type, allowable height and areas, exposure and separation requirements, fire ratings, occupancy types and interior finishes.

Egress and life safety elements will also be analyzed as part of the assessment. This assessment will be completed utilizing existing drawings, and then confirmed with on-site verification. This includes items like exit access paths, remoteness of exits, areas of refuge, accessible exits, occupancies, occupant loads and door locking arrangements. Emergency power, lighting and exit signage will also be evaluated for locations, survivability, electrical safety and distributed energy resources.

Special fire protection requirements will be discussed and evaluated. These areas include the discussion of vertical openings (atriums), smoke control system requirements, fire proofing and any special hazard systems.

The existing fire detection and notification systems throughout the building will be evaluated. The building will be evaluated for the code requirements associated with such a system, and options will be

evaluated. The installation of a mass notification system will also be evaluated based on the building type.

The condition of the existing automatic fire sprinkler and fire suppression systems shall be assessed by the fire protection engineer assigned to the fire suppression sub-discipline. This shall be completed by applying requirements found in the appropriate NFPA standard for the Inspection, Testing and Maintenance of the type of system being assessed. The feasibility for the modification of and addition to existing fire suppression systems shall also be analyzed utilizing the appropriate NFPA standards.

Recommendations for system upgrades and repairs shall be based upon the findings of the existing system assessments. The system upgrade evaluation and solutions will include code compliant systems, as well as performance based designs for situations that are not practical for preservation of the existing building. Unique applications, such as water mist systems or clean agent systems will also be analyzed for their applicability and practicality for the building. The fire protection engineers assigned to this project have experience with many projects utilizing non-traditional suppression systems.

All findings will be documented and any non-code compliant items will be identified. These items will be discussed with the Client as to the degree of the hazard, potential options and solutions for providing a practical level of fire safety to the building and occupants.

APPENDIX 1 –Team Resumes

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

Civil Engineer , Facilities Practice Manager

General Qualifications

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

Experience

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.

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

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.

David J. Hilliard, P.E., LEED® AP**Mechanical/Electrical/Plumbing Engineer****General Qualifications**

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

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

Experience

Renovations to Classroom Building, Beckley, West Virginia. WVU Tech/ West Virginia University. MEP Designer 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. WVU Tech/ West Virginia University. 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.

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 [REDACTED]

Professional Engineer, Mississippi [REDACTED]

Professional Engineer, Louisiana 2016 [REDACTED]

Professional Engineer, Kentucky 2017 [REDACTED]

LEED AP, bd+c, 2010

West Virginia State University - Open-End Architectural/Engineering Services, Institute, West Virginia. 10 year IDIQ. 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.*

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.* 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

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

Kevin Spangler, P.E.

Fire Protection Engineering Manager

General Qualifications

Mr. Spangler is a registered fire protection engineer experienced with fire protection and detection systems for new building designs and renovation projects, both domestic and international. Responsibilities include provision of design services and performance of independent technical quality reviews for fire protection designs including sprinklers and fire alarms, and review of life safety analysis. Project types include Department of Energy and Department of Defense facilities such as laboratories, fuel cell and corrosion control hangars, shipping and receiving facilities, storage facilities and warehouses, administrative and office buildings, training centers, vehicle maintenance facilities, and hotel, dormitories, and barracks. He is also experienced with commercial and higher education work with projects like commercial server protection and campus wide systems.

Experience

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

Army reserve center, full facility revitalization (FFR), Independence, MO. Mr. Spangler was the fire protection engineer for the renovation of the existing army reserve center located in Independence, Missouri. He was responsible for performing a field investigation of existing conditions, performing a fire hydrant flow test and preparing RFP specifications and design criteria documents. The building scope included a new wet pipe sprinkler system in the Reserve Center Building and also the Maintenance

Years with Michael Baker: 9

Years with Other Firms: 1

Degrees

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

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

Licenses/Certifications

- Professional Engineer, Nevada, 2017, [REDACTED]
- Professional Engineer, California, 2011, [REDACTED]
- Professional Engineer, Virginia, 2012, [REDACTED]
- Professional Engineer, Pennsylvania, 2012, [REDACTED]
- Professional Engineer, Illinois, 2013, [REDACTED]
- Professional Engineer, Idaho, 2014, [REDACTED]
- Professional Engineer, New York, 2014, [REDACTED]
- Professional Engineer, Connecticut, 2015, [REDACTED]
- Professional Engineer, South Carolina, 2016, [REDACTED]
- Professional Engineer, Minnesota, 2016, [REDACTED]
- Professional Engineer, Mississippi, 2017, [REDACTED]
- Professional Engineer, Maryland, 2017, [REDACTED]
- Professional Engineer, Texas, 2017, [REDACTED]
- Professional Engineer, Georgia, 2017, [REDACTED]
- Professional Engineer, Michigan, 2018, [REDACTED]

Facility. The existing fire alarm system was documented and determined to be removed and replaced with a new fire alarm and mass notification system. The new fire alarm system is designed to serve both buildings and an outdoor speaker system for parking lot notification.

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

Site wide fire alarm replacement, Department of Energy Site, ID

Mr. Spangler was the responsible fire protection engineer Designer of Record for a new site wide fire alarm replacement project on an isolated Department of Energy compound located in Idaho. The high security site renovation included 29 buildings requiring alterations or full replacement of the fire alarm systems. All fire alarm systems were integrated and report to a central security area for site wide monitoring. Demolition and new installation documents were created based on site visit information and existing drawings. The client is using the completed project as a basis of design and example of design quality for similar projects for their other sites located in New York and Pennsylvania.

Building 238 Renovation, Hill Air Force Base (HAFB), Davis and Weber Counties, Utah. *Department of the Air Force.* Fire Protection Engineer. Mr. Spangler was the responsible for preparing drawings for the fire alarm and sprinkler system in the renovation area. Michael Baker provided architectural and engineering services for the repair by replacement of administrative offices within an existing aircraft maintenance facility. The project included design of a new, structurally independent, 7,800-square-foot two story office space area within the existing building, as well as the replacement of the fire alarm system throughout the 500,000 square ft building. Mr. Spangler was also responsible for site evaluation to identify the existing system and identifying on-site solutions for new system components and system design. He created design documents for contractor bidding including drawings and along with specifications to meet the Base's needs. Due to the facility's high security and classified nature, the design had to provide phasing details that would allow complete construction without interrupting the 24/7 operations within the facility.



Jeffrey McKendree, P.E., CET

Jeffrey McKendree, P.E., is the Fire Protection Engineering Manager at CJL Engineering and is responsible for the fire protection engineering design, specifications and management of current projects. He also maintains relationships with architect and clients in reference to Life Safety Analysis and current Fire Codes.

Jeff also provides construction observation services, which requires him to visit the construction site to solve field problems and to provide punch lists for completion of the project.

He has served as a fire protection design engineer for National Historic Landmarks, hospitals, universities, schools, office buildings, high-rise condominiums, and mission critical facilities.

Historic Building Projects

National Park Service
Harper's Ferry Archival Storage, Charles Town, WV
Second Bank of the United States, Philadelphia, PA
Ford's Theatre, Washington, DC
Ellis Island, New York City, NY

University of Pittsburgh, Pittsburgh PA
Hillman Library Full Facility Renovations
Cathedral Of Learning Sprinkler Upgrades

Union Trust Building, Pittsburgh, PA
Tenant Fit-outs in historical building

Noteworthy Projects

West Virginia State Office Building, Clarksburg, WV
New four-story office building

West Virginia University, Morgantown, WV
New Alumni Center Building

United States Apache Helicopter Program, Country of Qatar
Responsible for fire suppression design, fire alarm design and building life safety analysis for multiple buildings at Al Udeid Air Base in Qatar

Hershey Medical Center, Hershey, PA
Community Center Renovation
New Student Housing

Pennsylvania State University, State College, PA
Stuckeman School of Architecture and Landscape Architecture

Lebanon Valley College, Lebanon, PA
New Housing Building
Community Center Renovation

Indiana University of Pennsylvania, Indiana, PA
Seven new student housing buildings.



TITLE

Fire Protection Engineer

SPECIALIZATION

Fire Protection Engineering
Code & Life Safety Analysis
Sprinkler System Hydraulic Calculations

EDUCATION

A.A. Fire Science Technology
Harrisburg Area Community College,
Harrisburg, PA, 1997

Bachelor of Science
Fire and Safety Engineering
Eastern Kentucky University Richmond,
KY, 1999

REGISTERED PROFESSIONAL ENGINEER

Maryland

MEMBERSHIPS/ACTIVITIES

National Institute of Certifications in
Engineering Technology (NICET)
Water-Based Systems Layout / III

Society of Fire Protection Engineers
Professional Member

National Fire Protection Association
Member

AutoCAD®

REVIT® BIM

HASS Hydraulic Analysis



Jaclyn A. Krawczyk EIT, LEED® Accredited Professional

Jaclyn A. Krawczyk is a Senior Fire Protection Designer with CJL Engineering and has over 14 years of experience in the industry. She is responsible for surveying and evaluating the condition of existing facilities, designing new fire protection and fire alarm systems, International Building Code and NFPA code consultations, evaluating shop drawing submissions, and performing life safety analysis on new and existing building projects. Jackie also provides construction observation services, which requires her to visit the construction site to solve field problems and to provide punch lists for completion of the project.

She has served as a fire protection design engineer for National Historic Landmarks, universities, schools, office buildings, hospitals, high-rise condominiums, restaurants, and personal care homes.

Historic Building Projects

Union Trust Building, Pittsburgh, PA
Tenant Fit-outs in historical building

Bucknell University, Lewisburg, PA
Carnegie Building historic reconstruction and renovation

West Virginia Capitol Complex, Charleston, WV
State Office Building #3 renovation

University of Pittsburgh, Pittsburgh, PA
Cathedral of Learning, multiple floor renovations

Noteworthy Projects

UPMC Lemieux Sports Complex – New Medical Offices, Dual Ice Rink and Training Facility, Cranberry, PA

UPMC East, New Medical Center (LEED Silver), Monroeville, PA

UPMC Hamot, Regional Center for Mother and Baby Health, Erie, PA

Duke LifePoint East Hills Outpatient Center, Conemaugh Health System, Johnstown PA

Bluefield Regional Medical Center, MOB, Bluefield, WV

Akron Children's Hospital, Beeghly Campus, Boardman, OH

Valley Hospice Personal Care Home, Wheeling, WV

Missouri Baptist Hospital, St. Louis, MO

Wooster Community Hospital, Wooster, OH

Radiation Oncology Center at Lakewood Ranch Professional Center, Sarasota, FL

Garden State Urology Center, Whippany, NJ

The Highlands AT&T Call Center, Wheeling, WV

Newburyport Medical Oncology, Newburyport, MA

Carmichaels Junior-Senior High School – Renovations, Carmichaels, PA

St. Francis University, Loretto, PA

New Science Center and Vivarium

DiSepio Institute for Rural Health and Wellness (LEED Compliant)

Seneca Nation of Indians New Sports Complexes, Cattaraugus and Alleghany Territories, New York

CamTran Operations Center, Johnstown, PA

Pleasant Ridge Manor, Sprinkler Retrofit, Girard, PA



TITLE:

Senior Fire Protection Designer

SPECIALIZATION:

Sprinkler System Design
Fire Alarm System Design
Code Consultation
Life Safety Analysis

EDUCATION:

The Pennsylvania State University,
University Park, PA

Bachelor of Science
Mechanical Engineering
2004

MEMBERSHIPS/ACTIVITIES:

Society of Fire Protection Engineers
Member

National Fire Protection Association
Member

AutoCAD

REVIT BIM

HASS Hydraulic Analysis

Michael C. Zellers, P.E.

Fire Protection Engineer

General Qualifications

Michael Zellers is a licensed fire protection engineer experienced in the design fire protection systems as they relate to protecting property and life. He is experienced in new construction and renovation projects, experiencing and understanding the challenges that are associated with each style of project. He is also versed in the application of unique code criteria, such as those associated with foreign countries that exceed or contradict those requirements associated with typical building codes.

Mike has experience in site investigations on existing buildings to identify existing conditions and evaluate compliance with required codes. He is also experienced in the testing and commissioning of fire sprinkler, fire alarm and mass notification systems after installation is complete, to ensure proper operation and code compliant functionality.

Along with his professional experience, Mike is an active volunteer fire fighter with his local fire station, experiencing fire scenarios and emergency situations first hand. This personal experience allows him to provide a true understanding of the requirements and operations of the systems that he designs.

Experience

Integrated Air Missile Defense (IAMD) Program, Qatar. *U.S. Army Corps of Engineers, Middle East District.* Fire Protection Engineering Tech. Mr. Zellers was responsible for fire protection design including sprinklers, fire alarm and mass notification systems to meet the requirements of the RFP, UFC and NFPA codes. He performed life safety analysis for complete compliance with NFPA 5000, and other Qatar specific design standards that go above and beyond standard code requirements. The life safety analyses included classifying occupancies, performing occupant load calculations, determining egress requirements and identifying rated separations. The extensive project encompassed the design-bid-build delivery of seven Integrated Air Missile Defense (IAMD) sites, including 48 prototype building types and over 300 total facilities, for the Qatari Emiri Air Defense Forces (QEADF). The 12 Task Order 0014 facilities included administration, quality of life, dining, medical, industrial, and operational functions. Full design packages included plans; specifications; and design analyses.

Attleboro ARC DB RFP, Attleboro, Massachusetts. *U.S. Army Corps of Engineers, Louisville District.* Fire Protection Engineering Tech. Mr. Zellers was responsible for fire protection design including sprinklers, fire alarm and mass notification systems to meet the requirements of the RFP, UFC and NFPA codes. He performed life safety analysis for complete compliance with NFPA 101, IBC and the UFC criteria. The life safety analyses included classifying occupancies,

Years with Michael Baker: 3

Years with Other Firms: 5

Degrees

B.S.M.E., 2011, Mechanical Engineering, University of Pittsburgh

Licenses/Certifications

Professional Engineer, California, 2018, 1996

performing occupant load calculations, determining egress requirements and identifying rated separations. He was also responsible for the design of the wet pipe sprinkler systems, the fire alarm and the mass notification systems. Mike reviewed the fire sprinkler shop drawings for all applicable UFC and NFPA codes and standards to ensure compliance with his prepared contract documents. Michael also performed final system testing of the sprinkler system and fire alarm and mass notification system.

Building 238 Fire Protection Design, Hill Air Force Base (HIF), Davis and Weber Counties, Utah. *Department of the Air Force.* Fire Protection Engineering Tech. Mr. Zellers assisted the fire protection engineer of record in fire alarm design to meet the requirements of the RFP and NFPA codes. Michael Baker provided detailed design drawings for a new fire protection system for building 238. Michael Baker provided architectural and engineering services for the repair by replacement of administrative offices within an existing aircraft maintenance facility. The project included design of a new, structurally independent, 7,800-square-foot two story office space area within the existing building, as well as the replacement of the fire alarm system throughout the 500,000 square ft building. Due to the facility's high security and classified nature, the design had to provide phasing details that would allow complete construction without interrupting the 24/7 operations within the facility.

DO 008 Attleboro ARC-Taunton. *U.S. Army Corps of Engineers, Louisville District.* Fire Protection Engineering Tech. Mr. Zellers was responsible for fire protection design including sprinklers, fire alarm and mass notification systems to meet the requirements of the RFP, UFC and NFPA codes. He performed life safety analysis for complete compliance with NFPA 101 and IBC. The life safety analyses included classifying occupancies, performing occupant load calculations, determining egress requirements and identifying rated separations.

J.J. Pickle Federal Building Renovations, Austin, Texas. *General Services Administration.* Fire Protection Engineering Tech. Mr. Zellers assisted the fire protection engineer of record in the design of the fire alarm system while complying with all applicable NFPA codes and standards. Michael Baker provided engineering services for the high rise building system renovations to the J.J. Pickle Federal Building. The building included historical preservation of the Lyndon B Johnson Suite located on the top floor.

Rehabilitation of Taxiways A and M, Piedmont Triad International Airport (GSO), Greensboro, North Carolina. *Piedmont Triad Airport Authority.* Fire Protection Engineering Tech. Mr. Zellers was responsible for fire protection design including fire alarm and FM-200 clean agent systems to meet the requirements of the RFP and NFPA codes. He performed life safety analysis for complete compliance with IBC. This includes classifying occupancies, occupant load calculations, egress analysis and rated separations. The building consisted of a remote electrical vault containing valuable electrical equipment that required special suppression system protection to ensure a fire incident did not disrupt the operations of the system for the airport.

APPENDIX 2 – Project Profiles

Michael Baker

INTERNATIONAL

We Make a Difference

West Virginia State Capitol Restroom Renovations *Charleston, West Virginia*

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

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

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

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

Client

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

Completion Date

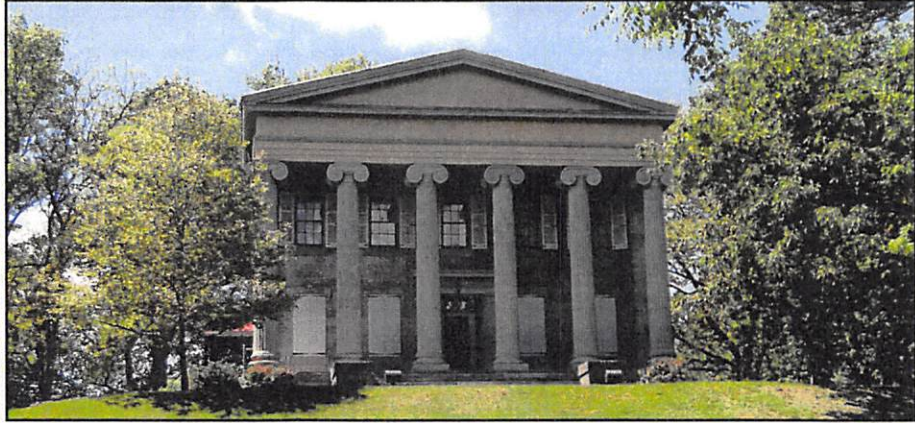
Awaiting funding

Baker's Role

- Planning
- Architecture
- Mechanical Engineering
- Electrical Engineering
- Plumbing
- Fire Protection
- Structural engineering



Baker Mansion Museum – Systems Upgrade
Blair County Historical Society
Altoona, PA



The Project

The Baker Mansion Museum is an imposing Greek revival structure that was built in 1849 by Elias Baker, owner of the Allegheny Furnace. This historic structure was the centerpiece of a 5,000-Acre estate that encompassed furnaces, a forge, iron ore mines, quarries, farms and timberlands. (The Baker's land holdings would eventually become the City of Altoona). The Blair County Historical Society has operated the museum since 1920. CJL Engineering designed the Mechanical and Electrical upgrades implemented during the recent renovation of this 20-room historic structure.

CJL Engineering Design Solutions

- New Electrical Service and distribution equipment, new receptacles and wiring
- New exterior building lighting for front and rear façades
- New humidifiers for the existing system
- New toilet rooms in the basement and at the Carriage House
- New systems for fire detection / intrusion detection, telephone, door entry, sound and intercom



Renovation / Retrofit of Historic Landmark Union Trust Building Pittsburgh, PA



The Project

Built in 1916 by Industrialist Henry Clay Frick as the Union Arcade, and now known as the Union Trust Building, this 517,376 sq. ft., 11-story structure is one of the most recognizable architectural landmarks in Downtown Pittsburgh. This Grant Street building once featured 240 shops and 700 offices, all configured around a circular center atrium. Its new owners, Boston-based, The Davis Companies, has embarked on a \$25 million renovation / retrofit that will restore the building into a preeminent Class A address and marketed toward High Technology tenants. CJL Engineering was contracted to implement and design a comprehensive Fire Protection, Mechanical, Electrical, IT and Plumbing retrofit.

CJL Engineering Design Solutions

- Complete retrofit of the existing automatic fire sprinkler and fire alarm systems to new tenant layouts.
- New 1500-Ton Chilled Water Plant
- Replaced all Power and Electrical Systems
- Provided a new exterior LED Lighting Concept
- Removed and relocated all Mechanical and Electrical Systems in the basement and sub-basement areas to allow for two levels of underground valet parking for tenants.
- Designed Heating and Air-Conditioning for the concourse areas of the 1st and 2nd floors
- Designed Kitchen Grease Duct Exhaust Systems for first floor restaurants in each of the four building quadrants
- New Emergency Generator



WVU Institute of Technology, Classroom Building

Beckley, West Virginia

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

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

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

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

Client

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

Completion Date

July 2017
Currently under Construction

Michael Baker's Role

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



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

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

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

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

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

Client

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

Completion Date

July, 2017
Currently under Construction

Michael Baker's Role

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

