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EXPRESSION OF INTEREST
**WVDA Central Chiller Plant
Ice Farm and Upgrades Project**
Solicitation No: CEOI 0211 GSD1900000008
May 15, 2019
Project A190552.00



Prepared for:
WV Department of Administration
Division of General Services
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State of West Virginia
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Charleston, WV 25305
304.558.0094

Prepared by:
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May 15, 2019
Project A190552.00

Ms. Melissa Pettrey
State of West Virginia
Department of Administration, Purchasing Division
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Charleston, West Virginia 25302-2345

Expression of Interest
Solicitation No. CEOI 0211 GSD190000008
West Virginia Department of Administration, General Services Division
Architectural/Engineering Services – Central Chiller Plant Ice Farm and Upgrades
114 California Avenue, Charleston, West Virginia 25301

Dear Ms. Pettrey:

GAI Consultants, Inc. (GAI) appreciates the opportunity to provide the West Virginia Department of Administration, General Services Division (WVDA) with our Expression of Interest (EOI) for the Central Chiller Plant Ice Farm and Upgrades Project (Project), located in Charleston, West Virginia for your review and consideration. We understand the importance of this Project to the WVDA and have assembled a proven Project Team with strong experience based capabilities which have successfully completed many similar plant energy cost reduction projects. Our Team is exceptionally qualified to meet the needs of this Project based on the following considerations:

- **Large Cooling Plant Evaluations:** The GAI engineers have proven experience in evaluating chiller plant configurations and operating conditions. The analysis we've provided to Clients on previous projects has resulted in significant energy cost reductions and the recovery of misdirected cooling energy within cooling plants. Our experience base is made evident at the collaborative scoping and concept stage, and remains evident until the end of the project commissioning process.
- **Design Documents:** Discrete direction to installers provides the platform necessary to acquire predictable results. GAI's skill in the preparation of phased-approach contract document illustrations and specifications provides this quality baseline.
- **Construction:** Maintaining cooling energy production is often key to a Client's operation. We would like the opportunity to express our proven methodologies for minimizing and, in many cases, eliminating cooling energy shutdowns during construction. Whether the pre-purchase of large equipment or other scope variations, GAI will prepare the documentation necessary to capture the varying scope needs of the overall Project.
- **Construction Administration:** Our experience in the civilian, Department of Defense, and Veterans Administration markets have uniquely prepared us to work with the Capital Building Commission, responding to its protocols and procedural criteria.

GAI looks forward to working with the WVDA on this important Project. Should you have any questions or concerns pursuant to our EOI response, please contact Mr. Mark Yankech at 321.319.3139 or Mr. Michael McNabb at 412.399.5475.

Sincerely,
GAI Consultants, Inc.

Michael D. McNabb

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Michael D. McNabb, MBA, PE, LEED® AP
Project Manager

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Mark Yankech

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Mark Yankech, LEED® AP
Mechanical Technical Leader

Table of Contents

Corporate Experience.....	1
Project Goals and Objectives.....	3
Key Project Personnel	7
Relevant Project Experience.....	9
Health and Safety	15
Supplemental Information	16
Closing.....	16

Appendices

Appendix A – Project Organizational Chart and Key Personnel Resumes

Appendix B – WVDA Signed Forms

Appendix C – Certificate of Authorization



Corporate Experience

GAI Consultants Introduction

GAI Consultants, Inc. (GAI) is pleased to present our Expression of Interest (EOI) to the West Virginia Department of Administration Division of General Services (WVDA) to provide Architectural/Engineering Services for the Central Chiller Plant Ice Farm and Upgrades Project (Project), located in Charleston, West Virginia (WV).

Established in 1958, GAI is an award-winning, 900+ person, full-service engineering consulting firm headquartered out of Pittsburgh, Pennsylvania (PA) with 28 office locations, including offices in Charleston and Bridgeport, WV. GAI's Charleston office opened in 1986, and we have been providing engineering services to the State of WV, and other local and municipal government agencies, and private clients for over 30 years.

GAI provides engineering services and innovative mechanical, electrical and structural solutions which benefit energy production for a myriad of facility types - from administration, through food processing and manufacturing, to power generation plants. We are an engineering and environmental hub of professionals who study, analyze, design, build, inspect, and manage for our clients, pooling our skills and resources to deliver superior client service throughout the United States (U.S.) and abroad.

We are safety focused, schedule driven, and prepared with a strategic team approach, using flexible resources and staff, to effectively provide mechanical, electrical, structural, civil engineering, construction administration, and technical support to the WVDA for this important Project. We have established a team that can start upon notice to proceed, as well as have the depth to continue to lead and support this Project from initiation through construction.

GAI is currently ranked 102 out of Engineering News-Record's Top 500 Design Firms. GAI's multi-disciplined staff of engineers, environmental specialists, archaeologists, historians, biologists, soil scientists, geologists, Geographic Information Systems (GIS) specialists, and planners enable us to complete many projects in-house, from initiation through construction, facilitating communication and the timely completion of projects in a cost-efficient manner. GAI is capable of providing the WVDA with the engineering services, design, permitting, and construction support services required for this Project.

Local Offices Available for Support

GAI has four offices with staff available to support this Project, including our Charleston, WV office, located within ten miles of the Central Plant, WV State Building #11. GAI will also provide resources for this Project from four office locations in Pittsburgh and Cranberry, PA, as well as our Orlando, FL office. GAI's local office locations are provided below.



Proposed Client Contacts

Local WVDA Contact:

Kenneth W. Kinder, PE, CFM
Engineering Manager
GAI Charleston Office
Telephone: 681.245.8869 / Fax: 304.926.8180
E-mail: k.kinder@gaiconsultants.com

Project Management Contact:

Michael McNabb, MBA, PE, LEED® AP
Project Manager
GAI Cranberry Office
Telephone: 412.399.5475 / Fax: 724.772.2050
E-mail: M.Mcnabb@gaiconsultants.com

GAI's Key Project Success Factors

Our Team is ready to meet the challenges associated with this Project. We have exceptional experience designing mechanical, electrical and structural systems for numerous facilities. Additionally, we have worked on and designed projects where operations have remained in service during renovation and/or construction. Our quality of work, cost control, and timeliness provides a track record that is evident by our award-winning past performance and repeat contract awards. We believe our Team is exceptionally qualified to meet the needs of this Project based on the following considerations:

- **Our Regional Presence:** GAI's office in Charleston, WV office is located within ten miles of the Central Plant, WV State Building #11. Our Proposed **Local Project Contact, Mr. Kenneth W. Kinder, PE, CFM**, is located in this office. Mr. Kinder ensures accuracy of work, meets schedule requirements, and maintains excellent client relationships. He develops engineering calculations, prepares project drawings, generates contract documents and specifications, and completes engineering reports. He also has experience with construction oversight and construction management and site inspections.
- **Our Key Staff:** GAI's multi-disciplined professional and support staff collaborate to provide our clients with time-sensitive and cost-effective solutions. Our proposed **Project Manager, Mr. Michael D. McNabb, MBA, PE, LEED® AP**, is a Professional licensed in WV, and is a mechanical engineer with over 20 years of experience. Our proposed **Mechanical Technical Leader, Mr. Mark Yankech, LEED® AP**, has over 40 years' experience specializing in the mechanical engineering, design, and construction of Central Energy Facilities, District Piping, and heating, ventilating, and air conditioning (HVAC) systems.
- **Top Ranked Design Firm:** GAI is ranked 102 on Engineering News Record's list of the 500 top design firms.

Subsequent sections of this Expression of Interest present GAI's Project understanding, and our qualifications to successfully accomplish the objectives for this important Project for the WVDA.



Project Goals and Objectives

Developing goals as an Owner/Engineer/Operator team is a primary objective of GAI. Driving to the genesis of operational concerns is an important first step. GAI intends to mobilize to the site, conduct physical plant reconnaissance, and follow with Owner/Operator meetings to identify system deficiencies and discover potential energy conservation measures. Dialog with the local electric utility company representatives to determine rates, potential incentives and rebates is also critical. From these discussions, clear study and work scope objectives evolve which can be finalized to meet the Owner's goals.

Listening to our Clients to understand their perspective is the foundation from which successful projects move forward. Whether retrofit or new construction, our essential objective is to comprehend Client concerns so that creative solutions can be developed and presented in a manner that drives consensus-based decisions. We rely on each other as mutual colleagues motivated by these common goals. Working within the power generation market, we are keenly aware of trends in energy production costs. Sustainable, contemporary best practice applications are a focus, and we work within budgetary constraints to provide results which will meet or exceed expectations.

Goal One – Evaluation

Energy modeling and life cycle cost (LCC) awareness are earmarks of GAI MEP engineering. Up to forty percent of the energy required to operate contemporary business facilities can often be attributable to mechanical HVAC systems. The engineers at GAI are aware of numerous energy studies and through modeling, strive to design LCC effective designs which provide definable energy cost reductions and cost benefit analysis, leading to a reduction in the cost of ownership for facilities.

Site investigation will readily reveal the hydraulic performance of the existing chilled water system. The piping, pumping and chiller arrangement will be reviewed to identify any fundamental energy production concerns. GAI will review existing utility bills and any available chilled water production data, through metering, to define a model with which to move forward. Short of historical metering, water chiller logs are an excellent source of operational information.

An example of this is the recently constructed 8,360 refrigerated tons District Energy Plant IV at the University of Central Florida (UCF). Through the collection of chilled water and electrical metering information from the original plant, a model was constructed using 8760 hour software. This model, along with capital investment costs, was used to rate the performance of nine (9) water chiller products of varying manufacturers, voltages, and as accessorized with and without variable frequency compressor drives. The study results were compared to American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) baseline references. The results clearly identified the water chiller product that was correct for the performance and UCF payback target. The UCF DEP IV is the first LEED gold Certified Industrial building on campus.

At the Orlando Regional Medical Center, an aged 6,000 refrigerated tons chilled water plant with primary-secondary pumping was analyzed. Through daily chiller performance logs and secondary piping circuit metering, it was identified that nearly 800 refrigerated tons of cooling generated were never leaving the plant but recirculating through the bypass/decoupler in a manner that caused erratic chiller loading and part-load performance. The redesign included a retrofit to a variable-primary pumping system using the existing equipment, enabling the 800 tons to feed a new 250k square foot Cancer Center building.

LCC efforts require detailed cost estimating and market research to understand commodities and pricing. GAI would suggest studying a minimum of three (3) chilled water system alternatives with ice thermal energy storage and off-peak chilled water generation as a primary target. The systems would each be



composed in narrative and sketch form so that a detailed takeoff could be conducted. This includes initial quantities of piping, fittings, accessories, and equipment for each potential solution. The LCC effort also relies on accurate maintenance and replacement costs (M&R). ASHRAE datums are a primary reference, but there is no substitute for experienced based evaluation. However, quite often, M&R evaluations fall short of the true information necessary to make an informed decision and must be supplemented with ASHRAE data.

The electrical utility company interface is essential to determine the feasibility of off-peak rate cooling generation. Many utilities not only offer time of use electric rates but also rebate incentives for large consuming customers. At the St. Kilian's Parish School in Cranberry Township, Pennsylvania, donation funding of ice storage tanks bridged the gap to make off peak ice generation for cooling financially acceptable. GAI engineers are innovative and the forward thought of our staff looks at all means to make a desired mechanical solution possible.

Central plant systems often provide large cost benefit challenges. Return on investment is a fundamental guiding principle of GAI designs. Energy modeling and competitive bid objectives provide an in-depth perspective and commonly reveal which equipment best suits function and ultimate building ownership. Through building simulation and load profile study, the energy modeling and LCC experience at GAI provides Owners with the right tools to make choices of long-lasting value.

- 8760 hour load calculations
- Life cycle cost analysis
- Competitive bid equipment selection
- Hydraulic piping system modeling
- Controls and instrumentation design
- Thermal energy storage systems

Goal Two – Engineering Design

Accuracy in energy modeling and LCC analysis provide a firm foundation from which design. Contemporary market cost estimating provides a predictable capital investment path towards the development of a design scope and onward to construction documents. Design and construction with dynamic cost management throughout the entire process acts to meet scope goals and minimize potential cost overruns.

At the UCF DEP IV, University Energy Services and the Facilities and Planning office set commodity pricing and construction cost limitations which could not be achieved. Throughout the design, many materials of construction and processes were reviewed through the assistance of a construction manager. The result was the installation of the required mechanical system at a cost which was no higher than the essential need. GAI staff members reshaped building areas, redefined pipe layouts, reselected equipment and system accessories to bring the installation to fruition with the lowest capital investment possible.

Similarly, at the new UCF Downtown Orlando campus, the aspiration was to construct a small tri-generation facility which would provide electrical power, cooling and heating energy to a group of University buildings. After many iterations of study and cost, it was determined that the tri-generation concept could not be acquired but rather, a high efficiency chiller system be provided using local utility company electricity and incremental condensing boilers at each building. This design flexibility and GAI attention to goals enabled the project to remain cost effective and it is now under construction. The effort maximized the University assets as much as possible, given the capital investment shortfall.



At Orlando Health, Health Central Hospital in Ocoee, Florida, the central chilled water plant required upgrading to enable the addition of a new emergency department and patient tower addition. Reconnaissance discovered many areas of hydraulic imbalance in the classic primary-secondary chiller system. In addition, the facility cooling towers were at a state of imminent failure. The water chillers were replaced with high efficiency units, the cooling tower array was replaced and the chilled water system converted to a variable-primary system. The plant upgrades enabled a near 50k square feet to be added to the plant with virtually no increase in electrical energy cost.

GAI engineers have worked on numerous evaluations and designs with Naval Facilities Engineering Command (NAVFAC), United States Army Corps of Engineers (USACE), Department of Veterans Affairs and a confidential Naval research facility located in western Pennsylvania. We are adept at the team building necessary to coexist with design agencies and arriving at consensus-based solutions. From study through full construction documents, our shoulder to shoulder approach has proven itself through many successful construction projects.

Goal Three – Construction Phasing

Having extensive experience with the design of health care, university, and utility projects as well as other critical-operation facilities, GAI engineers understand the need to sustain the Owner's mission during construction. This forward thinking is identified on the construction documents, often through chronological drawings which define the limits of construction for each phase of construction. Aspects of shutdown for piping and electrical connections, system draining and general outages should be predictable elements of the process rather than reactionary. Through understanding of the Owner's needs and operations, GAI engineers develop solutions which include the necessary hardware and steps to minimize and more often, eliminate outages.

At Orlando Health's, Health Center Hospital, the chiller plant recapitalization required the replacement of three (3) cooling towers, two (2) centrifugal water chillers and the pump systems while maintaining the hospital in a state of continuous operation. During construction, there was no need to re-schedule procedures and/or relocate departments affected by the plant work. The construction drawings were phased to illustrate an order of installation events over a distinct chronology that would not affect hospital operations.

At the Advent Health Winter Park Memorial Hospital, current staff at GAI analyzed the connected loads, the associated five (5) secondary chilled water piping loops, and the plant chilled water piping to enable another conversion from an aged inefficient primary-secondary chilled water pumping system, to an energy efficient variable-primary chilled water pumping system. As in Health Central above, multiple construction drawings illustrated the removal and replacement of the cooling towers, three (3) of the water chillers and associated chilled water system pumps to result in a predictable outcome without compromise to the hospital medical mission. The system design additionally required the introduction of new water chillers in a manner which provided hydraulic compatibility with the existing water chillers.

Attention to detail and the experience in constructing critical central plant facilities places GAI engineers at the cutting edge of Owner assurance.

Goal Four – Construction Procurement

Successful construction projects start with appropriately detailed construction documents. Leaving little to the imagination of installers; documenting installation steps and the materials and methods through a thorough specification channels the site work into predictable outcomes.

GAI engineers have worked with the various NAVFAC, USACE and VA resident engineers, contracting officers and resident officers in charge of construction on multiple projects. This training ensures



acknowledgement and acceptance of installation protocols. Construction and procurement submittals reviewed by the design engineer ensure concept consistency. These submittals are the final line of quality assurance prior to an installation. While submittals are seen by many in the review process, the responsible charge lies with the designers. GAI engineers thoroughly review and process product submittals and shop drawings in a timely fashion, understanding the reality of the construction schedule.

Regular site observation by the design engineer is often a great augment to the Owners resident engineers on site. When called upon, GAI mobilizes the site to attend and participate in meetings, observe construction and provide site observation reports.

GAI engineers participate in post Test and Balance (TAB) and Commissioning (Cx) efforts. Cx is a systematic order of events arranged to provide and demonstrate the system performance envisioned by the design engineers, and as requested by the Owner. We stand by at this ninth hour to assist the Cx, TABs and installers to acquire success.

Based on GAI's provenance with Federal authorities with which we have worked, we look forward to providing the Capital Building Commission (CBC), with the ideally designed and cost effective solution.



Key Project Personnel

The GAI Team has extensive experience in mechanical and electrical engineering service upgrade projects. This section presents our key staff biographies and their areas of experience, specialization, and responsibilities for this Project. Our experience encompasses designing central mechanical systems, district piping systems, associated electrical systems, power distribution systems, emergency generators, and emergency power systems. Our staff are also experienced in providing construction administration, and the overseeing of commissioning. Our electrical engineers provide power system studies, harmonic analysis, arc flash and load flow analysis. Our key staff have over 40 years of experience in related projects. Additionally, we have the ability to pull from over 500 engineering and technical personnel from our WV Western PA and Orlando offices for this Project. A Project Organizational Chart and Key Personnel Resumes are provided in **Appendix A**.

Michael D. McNabb, MBA, PE, LEED® AP - Project Manager

Mr. McNabb is a certified Professional Engineer and LEED® AP with 23 years of technical and business knowledge, comprehensive project management experience, and complex design skills. He has held prominent engineering integration and leadership roles supporting the technical and business development plans for complex HVAC systems for modern commercial and Industrial buildings. He has been involved in the successful execution of over 30 mechanical design and implementation projects, including original build and renovation completions of three (3) Veteran's Affairs Hospitals in Pennsylvania (Altoona, Philadelphia, and Erie, PA), and the Hilton Garden Inn Hotel of Cranberry, PA. Industrial project experience includes the Veolia Antero Clearwater water treatment and reuse facility in Pennsboro, WV, and the new Alcoa 3D Printing Metal Powder Plant for the Alcoa Technology Center in New Kensington, PA.



Kenneth Kinder - Local Contact and Support Services

Mr. Kinder specializes in civil engineering design for civil engineering projects including civil site design, erosion and sediment control, stormwater management, hydraulic modeling, floodplain permitting, coal permitting, limestone quarry permitting, and solid waste landfill design. Mr. Kinder ensures accuracy of work, meets schedule requirements, and maintains excellent client relationships. He develops engineering calculations, prepares project drawings, generates contract documents and specifications, and completes engineering reports. He also has experience with construction oversight and construction management, site inspections, landfill inspections, and levee and dam inspections.



Mark Yankech, LEED® AP -- Mechanical Technical Leader

Mr. Yankech is a Leadership in Energy and Environmental Design Accredited Professional (LEED® AP), specializing in mechanical engineering, design, and construction in Industrial HVAC Facilities, Central Energy Facilities and District Piping. He has more than 40 years of experience in design and project management, and has an in-depth understanding of architectural, electrical, structural, and civil disciplines. He is adept at leading multi-discipline design teams to develop and present innovative facility solutions from design, project construction, commissioning, to Client post-occupancy satisfaction.



Steven E. Schroth, MBA, PE – Electrical Technical Leader

Mr. Schroth is GAI's proposed Electrical Technical Leader with over 30 years of electrical engineering experience. He is a licensed Professional Engineer (PE) in WV, PA, Ohio, Georgia, Vermont, Wisconsin, Rhode Island, Maine, and Nevada, and has provided project management for numerous projects involving electrical design, including industrial and commercial facilities, WWTPs, hospitals, universities, commercial office buildings, and laboratories. Mr. Schroth's experience includes designing electrical systems, power distribution systems, fire alarm, telecommunication, and emergency power systems. He has performed power system studies, harmonic analysis, voltage drop calculations, short circuit, arc flash, and load flow analyses, relay coordination studies, power factor correction, as well as the protective device coordination, and determined the device settings for the AC and DC power distribution systems.



Robert R. Bee, PE – Structural Technical Leader

Mr. Bee specializes in Project Management and structural engineering for commercial buildings environmental and industrial facilities, power plants, and other structures. He has over 30 years of project management experience in project delivery approaches, including traditional Design-Bid-Build, Design Build, Engineer Procure Construct, Construction Management Multi-Prime and Construction Management-at-Risk.



Mr. Bee provides analysis and design for major structures complying with reinforced concrete design to ACI 318, ACI 349 and ACI 350 "Code Requirements for Environmental Engineering Concrete Structures" and structural steel design to AISC "Manual of Steel Construction". Mr. Bee's experience with structures and structural components includes: reinforced concrete, structural steel, masonry, steel decks, pre-stressed and post tensioned concrete, lateral load resisting systems (wind and seismic), shear walls, ridge frame building systems. He has experience with bridge and retaining wall structures, including pre-stressed AASHTO beams, flat slab, pile caps, piling, slab, and abutment.

Jeff Sies – Lead Estimator

Mr. Sies has over 20 years of experience in engineering and project controls; primarily in the cost estimating of hard-money competitive bids, conceptual/budgetary cost appropriation estimates, construction performance tracking, scope compliance, scheduling, and field support assignments. He has experience in a wide variety of industries including nuclear and fossil fuel power plants, industrial wastewater treatment, chemical and pharmaceutical processes, steel mills, and plant infrastructure.



David J. Bevilacqua – Principal-in-Charge

Mr. Bevilacqua is an Assistant Vice President with GAI and leads the Nuclear and Industry Market Sector. In this role he leads engineering and design efforts for small and large scale maintenance, operation and capital projects for our clients. Mr. Bevilacqua specializes in engineering and construction management as well as program and project management, primarily for government, industrial, and power generation facilities. He has over 36 years of broad experience managing engineering and construction projects for nuclear, fossil, and renewable power plants. He has also provided engineering and program management for industrial facilities.



Relevant Project Experience

GAI works on various projects for numerous clients and many of our projects are confidential in nature; therefore, we have reflected this confidentiality in our confidential projects by not publishing project names, locations, and confidential client information. If deemed essential, GAI may be able to discuss with our respective clients with whom there are confidentiality obligations and request written permission to make further disclosure.

University of Central Florida District Energy Plant (DEP) IV Orlando, Florida



Owner: University of Central Florida

Contact: Benjamin Fauser

Phone: 407.823.0373

Email: ben.fauser@ucf.edu

Work Tasks and Services:

- Mechanical Engineering
- Energy Modeling
- Construction Administration Assistance

To sustain campus growth, the University of Central Florida required an increase in cooling capacity to be added to the existing district cooling piping system. The existing plants on campus are capable of generating 17,000 refrigerated tons of cooling and are supplemented by a two million gallon chilled water thermal energy storage tank. The campus topography is mostly circular in shape with facilities constructed at several intermediate loop roads emanating from the center. The underground district chilled water piping follows the outer circular pattern, with chilled water generation facilities at the southeast and northwest of the circle.

The additional capacity requested by UCF was a nominal 8,000 tons of refrigerated tons cooling. The project was also required to consider heat recovery chiller options to enable heating water at additional projects under construction. With the radially connected district piping loop, extensive hydraulic modeling was required to best utilize existing pipe size assets, understand seasonal chilled water distribution patterns and flow conditions both when the Thermal Energy storage (TES) was in charge mode and in discharge mode.

For the DEP IV, current GAI staff members generated an 8760 hour annual chilled water energy model based on record chilled water production and energy consumption conditions acquired from the original plant; located nearest to the new DEP IV site. Capital investment costs, maintenance and replacement (M&R) costs were generated for nine chiller types of varying electrical voltages, accessorized with and without variable speed drive compressors, and from multiple manufacturers to establish a competitive bid platform. Using the energy model and cost input data, through the life cycle cost exercise, UCF selected the water chiller type which met their payback aspirations and capital investment limitations.



Additional heat recovery water chillers were also modeled and indicated a payback of greater length than the cooling with only centrifugal chillers. The payback was still within reach of UCF limitations and the incorporation of this technology allow the waste heat energy to be diverted to heating systems in nearby buildings.

A prominent feature of the project was the integration of a defined chiller control philosophy based primarily on chiller efficiency, but also based on chiller age/reliability and physical location. The campus plants include an equal mix of both Trane and York water chillers located at various connection points to the radial district loop. The control philosophy stages chillers from differing points of the campus in an order which provides an even refrigeration loading to the radial piping loop, and uses the more efficient and reliable chillers in the order of priority.

Value added: The DEP IV boasts a chilled water production efficiency of 0.699 kW/ton. Being the newest and most efficient plant, it is the first in the sequence of operation at the southeast campus side. The new plant chilled water source vastly improved the hydraulic characteristics of chilled water supply to many buildings on campus. The heat recovery water chiller installed provides a nominal 180 tons of supplemental cooling energy but simultaneously generates enough heating energy to supply the nearby 100k square feet research building. The DEP IV is the first LEED Gold industrial building on campus.



Advent Health, Winter Park Memorial Hospital Central Plant Winter Park, Florida



Owner: Advent Health

Contact: Donald Paschal,
Director of Facilities

Phone: 407.646.7706

Email:
Donald.paschall@flhosp.org

Work Tasks and Services:

- Mechanical Engineering
- Energy Modeling
- Life Cycle Cost Analysis
- Construction Administration Assistance

A needed expansion to the diagnostic, treatment and patient care space at Winter Park Memorial Hospital (WPH) was identified in 2017. A project was conceived to provide a patient tower which also houses several treatment and feature spaces. The project necessitated modifications to the central energy plant which serves the aggregate 650k square feet facility. Required in the plant expansion was additional chilled water cooling capacity and reliable emergency power for the new floor area.

Study of the existing plant revealed an antiquated cooling system composed of inefficient water chillers and primary-secondary pumping with five separate sets of chilled water secondary pumps. The standby engine-generators were not arranged with paralleling switchgear but were rather dedicated to specific areas of the hospital. Energy modeling revealed that the replacement of aged water chillers, cooling towers and a conversion to variable-primary chilled water pumping would result in a conservative \$100k annual energy savings. Based on experience, it was additionally suspected that a significant quantity of chilled water was inadvertently being drawn through the decoupler/bypass and not providing cooling to the building.

The existing plant location lacked the space to be physically expanded. Engineers at GAI designed a recapitalization which enabled a phased replace-in-place of the water chillers and even though real estate was a premium, found an opportune location for new cooling towers. The contract drawings were set up to define the project through a specific chronology of events. Parallel systems of chilled water and condenser water piping were installed, enabling the chillers, cooling towers and pumps to be installed incrementally. Through a series of valves and split-tee hot-tap piping connections, each of the five existing secondary piping loops were incorporated to the new variable-primary chilled water system with no interruption to the medical mission. The detailed phasing notes and illustrations provided discrete direction to the installers, eliminating change orders, and generating a successful result.

Fitted with an automatic control valve, rogue flow through the decouple/bypass was eliminated finding an additional 400 of cooling which further fortified the energy cost reduction of the plant and improved the capital investment payback. A parallel emergency generator was installed requiring an entirely new fuel



oil storage and delivery system. The installation of the generator system mirrored the phasing developed for the chilled water retrofit making this a project with winning Client approval.

Value added: The successful design generates a significant reduction of chilled water production costs. The associated energy cost reduction is a benefit which will continue for years to come. The paralleled standby generator system provides the inherent redundancy necessary for general hospital health care. The phased construction document set provided a discrete way forward for the project installers.

Orlando Health Central Emergency Department and Central Energy Plant Ocoee, Florida

GAI performed civil engineering design for the recently completed emergency department and patient tower addition to Heath Central Hospital located in Ocoee Florida. The project expanded grade level acute care spaces at the facility and patient rooms at upper levels of the facility. The project required the relocation of the ambulance drop-off entrance and the roadways leading up to the area. Closely coordinated with underground cooling and heating energy utilities, it included relocation and addition to underground potable water sanitary sewer and stormwater systems.

Current GAI staff also provided the engineering services to recapitalize the existing aged central chilled water plant. This phased-construction replacement-in-place included new water chillers, cooling towers, related pumps and piping systems, and fuel systems for a new engine-generator. The design included a conversion to variable-primary chilled water pumping from the previous primary-secondary pumping strategy.



Value Added: The new roadways and paved apron at emergency department entrance greatly improved the safety aspects of vehicular travel and provided ample space for ambulance staging and storage.

The chilled water system conversion enabled the approximate 50,000 square feet of new space to be served with little to no increase in electrical energy costs. It also provided a significant level of redundant chiller capacity and lowered plant maintenance costs.

Owner: Orlando Health Central

Contact: Todd Duncan

Phone: 407.467.7702

Email:
todd.duncan@orlandohealth.com

Project Components:

- Central Energy Plant Expansion (CEP)
- Extensive underground infrastructure arterials
- Emergency department expansion
- New Bed Tower

Work Tasks and Services:

- Survey
- Master Planning
- Civil Engineering
- Mechanical Engineering
- Energy Modeling
- Community Planning
- Landscape Architecture
- Permitting
- Construction Administration Assistance



Uptown District Energy Center Engineering and Planning Services Pittsburgh, Pennsylvania

As Owner's Engineer, GAI provided Engineering, Permitting, Construction Monitoring, and Scheduling Support for the NRG Energy, Inc. (NRG) Uptown District Energy Center, which is located in the City of Pittsburgh, Allegheny County, Pennsylvania.

The new Uptown District Energy Center is a district heating and cooling facility that will deliver steam, chilled water, and backup power to the University of Pittsburgh Medical Center, Mercy Hospital, and future customers, in an inner-city environment. The Energy Center will operate with higher efficiency, lower carbon emissions, and lower capital and operating costs compared to multiple stand-alone systems. It will consist of a new two-story steel-framed structure, reinforced masonry and reinforced concrete walls, and cast-in-place slabs-on grade, all supported on a combination of drilled pier deep foundations and grade beams. The Energy Center will be marketing the system and its benefits to businesses and organizations that want to be more energy efficient and cost-effective.

Value Added: The Energy Center will provide reliable, resilient, and efficient energy services, producing district energy which will allow UPMC Mercy Hospital to focus resources on its primary mission of health care.



Owner: NRG Energy

Contact: Ray D'Alesandro

Phone: 404.917.3987

Email: rjdalesandro@gmail.com

Work Tasks and Services:

- Owner's Engineer
- Mechanical Engineering
- Electrical Engineering
- Structural Engineering
- Pipe Stress Analysis
- Curb Cut Application
- Landscape and Bicycle/
Automobile Parking
- Pittsburgh Water and
Sewer Authority (PWSA)
Tap-in and Termination
Plan Review
- PWSA Waterline and
Combined Sewer Line
Relocation
- Property Investigation
and Existing Conditions
Survey
- Building Location
Stakeout
- Transportation Impact
Study
- Project Management and
Schedule Support



Orlando Health Downtown Campus Central Energy Plants Orlando, Florida



Owner: Orlando Health, Facility Development

Contact: Robert Szafranski

Phone: 407.467.7702

Email:
Robert.szafranski@gaiconsultants.com

Work Tasks and Services:

- Survey
- Civil Engineering
- Mechanical Engineering
- Energy Modeling
- Community Planning
- Landscaping
- Construction Administration Assistance

As part of the original ORMC recapitalization, a South Central Energy Plant (SCEP) was developed to provide cooling and heating energy, along with emergency power resources designed to primarily serve the Arnold Palmer Hospital for Children and ORMC. Early in campus development, it was realized that the plant was limited in capacity and did not consider the abundant growth in Central Florida medical community. Reacting to the plant peak capacity condition, current GAI staff members designed an energy conscious conversion to the plant, which resulted in the ability to add the approximate 250k square feet Cancer Center to the cooling system with no increase in energy production costs. As campus development continued, it was clear that an additional energy plant facility was necessary to fortify campus assets to enable development of the Winnie Palmer Hospital and beyond.

The West Central Energy Plant (WCEP) concept was developed by GAI current staff members. This facility was intended to connect to existing energy infrastructure, paralleling the energy generated on the existing SCEP. The original south plant operated until a time at which the life cycle of the mechanical systems was realized. The south plant cooling and heating energy anticipated was absorbed into the design of the west plant, allowing the mechanical assets in the south plant to be decommissioned. The SCEP exists today only to provide emergency electrical power to a portion of the campus. The WCEP has demonstrated energy efficiencies which are far above industry baselines. The energy cost reductions have provided rapid life cycle payback of much of the west plant equipment. The plant boasts one of the most efficient condensing steam boiler systems and one of the most efficient chilled water generation systems in Central Florida today.

With each step, energy conservation targets have reached higher levels, making the campus plant one of the most sustainable and responsible energy consumers in Central Florida.

Value added: The efficient chilled water system has dropped production costs to an all-time minimum. The steam boiler system is not only one of the most efficient in the southeastern USA, its application of flue gas recirculation technology and dynamic fuel/air ratio control has lowered boiler emissions levels to one of the lowest in the country. The plant efficiency coupled with lower utility electricity and natural gas charges have resulted in a winning combination for Orlando Health.



Health and Safety

GAI believes all employees should go home in the evening just as healthy and safe as they were when they arrived in the morning. GAI is committed to a culture of safety. At GAI, project tasks are completed in accordance with all applicable state and federal regulatory requirements including Occupational Health and Safety Administration (OSHA) standards, client-specific health and safety requirements, and GAI policies and procedures. GAI employees are provided health and safety training as needed, particularly OSHA 10-hour and 30-hour construction awareness and/or SafeLand Training. New employees are introduced to GAI Health and Safety policies during the new employee orientation. GAI also provides OSHA 40-hour HAZWOPER training and the eight-hour HAZWOPER refresher classes as needed.



Completing project tasks safely and without injury is an achievable goal for all involved. As such, GAI field staff begins and ends each day with a safety discussion. Field staff wear proper personal protective equipment, including reflective vests, hard hats, safety glasses, and safety footwear. Field teams are provided a site-specific Health and Safety Plan before performing field activities.

Product Quality Assurance

GAI understands the importance of providing our clients with on-time, cost-effective, high-quality professional services. The continued success of our firm is directly related to our ability to continue to meet the cost, quality, and schedule requirements of our projects. We achieve this goal through our experienced professional staff and by utilizing our QMS. GAI's QMS is based upon a continuously improving project delivery strategy that reflects our client's needs and utilizes current technology. The Project Delivery System provides the QA and QC functions from project inception through project closeout. The Project Delivery System incorporates processes and procedures that describe how professional services are planned, executed, checked, verified, and delivered to our clients. The system is flexible so that it allows GAI to meet the needs of individual clients.

GAI is structured so that personnel whose function includes activities affecting quality have the necessary authority and organization freedom to control quality and especially to do the following: 1) initiate action to prevent occurrence of any nonconformance relating to service, process, and/or QMS; 2) Identify and record any service, process, and/or QMS problems; 3) Initiate, recommend, or provide solutions to those problems; 4) Verify the implementation of those solutions; and 5) Limit or control further processing or delivery of nonconforming services or deliverables until nonconforming conditions have been resolved; and implement corrective action to eliminate the causes of quality problems.

GAI's QMS verifies that activities which affect the quality of services are performed in a controlled manner and are documented to provide evidence of conformance to specified requirements. The Scope of the QMS includes project management, engineering, consulting, analysis, design, testing, construction monitoring, inspection, and purchasing.

Mr. Bradley F. Cellier, PE, is GAI's Director of Quality. He specializes in QMS maintenance and development, and has over 25 years of experience in engineering and QA. He is responsible for overseeing the corporate-wide QMS and QA Programs, including the ongoing implementation, success, development, and verification of compliance with the QMS initiative and GAI's QA Program.



Supplemental Information

WVDA Signed Forms

Pursuant to the EOI, GAI has provided the following signed forms, attached and incorporated as part of this submission, as **Appendix B**:

- EOI Cover Page;
- Designated Contact;
- Addendum Acknowledgement Form; and
- State of West Virginia Purchasing Affidavit.

Certificate of Authorization

GAI's Certificate of Authorization to perform Professional Engineering services in the State of WV, is provided in **Appendix C**.

GAI's license number is C00208-00.

Closing

We look forward to working with the WVDA on this important Project. Should you have any questions or require additional information regarding our EOI, please feel free to contact Mr. Michael McNabb at 412.399.5475 or via email at m.mcnabb@gaiconsultants.com.

Sincerely,
GAI Consultants, Inc.

Michael D. McNabb

Digitally signed by Michael D. McNabb
DN: C=US,
E=M.McNabb@gaiconsultants.com,
CN=Michael D. McNabb
Date: 2019.05.14 10:35:16-0400

Michael D. McNabb, MBA, PE, LEED® AP
Project Manager

MDM:MY/dro

Mark Yankech

Digitally signed by Mark Yankech
DN: C=US,
E=mark.yankech@gaiconsultants.com,
O=GAI consultants, CN=Mark
Yankech
Date: 2019.05.14 12:33:01-0400

Mr. Mark Yankech, LEED® AP
Mechanical Technical Leader

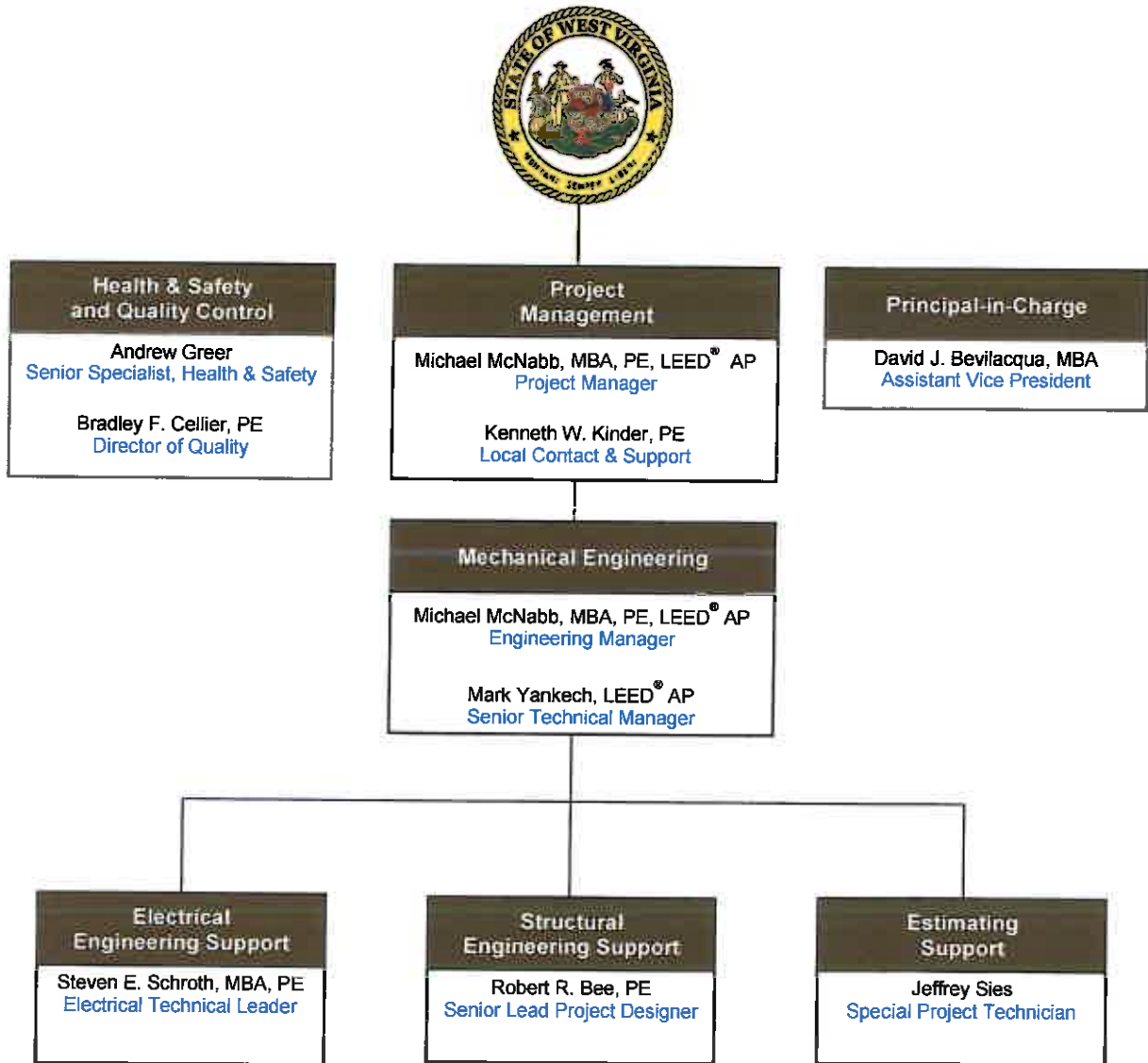
Attachments: Appendix A (Project Organizational Chart and Key Personnel Resumes), Appendix B (WVDA Signed Forms), and Appendix C (Certificate of Authorization)



Appendix A – Project Organizational Chart and Key Personnel Resumes



PROJECT ORGANIZATIONAL CHART





Michael D. McNabb, MBA, PE, LEED® AP
Engineering Manager

Education

MBA, 2003, Cleveland State University

BS, Mechanical Engineering, 1996,
University of Akron

Registrations

Leadership in Energy and Environmental
Design, Accredited Professional (LEED
AP), Pennsylvania - 2009

Professional Engineering (PE) in
Pennsylvania - 2005, Ohio - 2004, West
Virginia - 2012, Texas - 2012, New York -
2017, Florida - 2018

Skills

Project Management

Planning, Scheduling, and Implementation

HVAC System Design

Building Codes Studies

Resource Management

Plumbing System Design

Efficiency Improvements

Consultation and Integration

Industry Experience

GAI Consultants, Inc., 2016 – Present

Cintar Inc., 2012 – 2016

AE Works Ltd., 2009 – 2012

L. Robert Kimball & Associates (A CDI
Company), 2006 – 2009

Burt Hill (STANTEC), 2005 – 2006

Carter & Burgess, 2000 – 2005

Professional Summary

Mr. McNabb is a certified Professional Engineer and LEED® AP with 23 years of technical and business knowledge, comprehensive project management experience, and complex design skills. He has held prominent engineering integration and leadership roles supporting the technical and business development plans for complex HVAC systems for modern commercial and Industrial buildings. He has been involved in the successful execution of over 30 mechanical design and implementation projects, including original build and renovation completions of the three Veteran's Affairs Hospitals in Pennsylvania (PA), and the Hilton Garden Inn Hotel of Cranberry, PA. Industrial project experience includes the Veolia Antero Clearwater water treatment and reuse facility in Pennsboro, WV, and the new Alcoa 3D Printing Metal Powder Plant for the Alcoa Technology Center in New Kensington, PA.

He is proficient in the following software: AutoCAD; Autodesk Revit; Carrier EII-20 Hap Load Estimating Program; Trane Trace 600 and 700 Load Calculation Programs; Ashrae 90.1 Compliance Programs such as ENVSTD Version 2.4 & COMCHECK EZ; Engineering Modeling Software; Softdesk, Version 7.5 and 8.0; Lotus Notes and Lotus 1, 2, 3 data bases; and Microstation, Version 8 CAD software used in conjunction with Bentley Projectwise Software.

Professional Experience

- Full-Service Confidential U.S. Government Facilities Engineering Program. Mr. McNabb is a Project Engineer supporting the HVAC design efforts of over 25 projects, monitoring progress, providing analysis, and final design of HVAC, Plumbing, and Fire Protection System Design. GAI is providing facilities planning and design engineering services for building and campus, expansion, demolition and modification projects. Building sizes range from 5,000SF to 96,000 SF.
- Saint Kilian's Parish Center and Elementary School in Cranberry Township, PA. Primary Design Engineer for HVAC, Plumbing, and Fire Protection Systems. Mr. McNabb was responsible for sizing, specification, and drafting of all HVAC building systems and associated air duct distribution systems. Performed all required heat gain/heat loss and energy code envelope calculations using Carrier HAP Load estimating software and COMcheck EZ software. Responsible for sizing, selecting and specifying all HVAC related equipment such as gas fired heating hot water plant (boilers, pumps, and distribution system) air cooled chiller (unit,

pumps, ice storage tank farm, and distribution system), multiple 4-pipe fan coil units, and toilet room exhaust fan/energy recovery units. The building design also included a full service, student cafeteria/kitchen with rooftop make-up air units and grease exhaust fan systems. Mr. McNabb also completed all Construction Administration activities such as answering contractor requests for information (RFI's), reviewing and stamping contractor supplied HVAC and Plumbing Equipment shop drawings, and performing punch lists at project completion.

- Hilton Garden Inn, Cranberry Township, PA. Lead Mechanical Engineer for sizing, specification, and drafting of all HVAC building systems and associated air duct distribution systems. Performed all required heat gain/heat loss and energy code envelope calculations using Carrier HAP Load estimating software and COMcheck EZ software. Responsible for sizing, selecting and specifying all HVAC related equipment such as gas fired rooftop units, kitchen make-up air unit, kitchen and toilet room ventilation fans, hotel room PTAC units, and indoor pool dehumidification air handling units.
- Veteran's Affairs (VA) Hospital Rehab Facility Addition, located in Altoona, PA. Mr. McNabb was responsible for sizing, specification, and drafting of all HVAC building systems and associated air duct distribution systems for a new two-story VA Hospital Rehab Facility Building Addition. He sized, selected, and specified all HVAC-related equipment such as indoor, modular air handling units, toilet room ventilation fans, variable air volume (VAV) boxes with integral heating hot water reheat coils, steam to hot water plate and frame heat exchangers, unit heaters, perimeter baseboard heaters, etc. Building Size: Approximately 15,000 SF.
- Veteran's Affairs (VA) Hospital Vivarium Lab Renovation located in Philadelphia, PA. Mechanical/HVAC System Designer. Provided full mechanical, HVAC, Plumbing, Laboratory Gas Piping, and Fire Protection System Design for the existing Vivarium Animal Laboratory building. Scope of work included renovation of existing supply air and exhaust air duct distribution systems, resizing and reselecting zone air valves for various laboratory spaces, sizing and specifying a new roof mounted, high plume laboratory exhaust fan with bypass. Mr. McNabb was also responsible for all required mechanical specifications and project construction administration tasks such as answering RFI's, approving shop drawings, and performing an on-site punch list.
- Allegheny County Sanitary Authority (ALCOSAN) Operations and Maintenance Building, located in Pittsburgh, PA. Fire Protection System Designer/Engineer. Provided full mechanical HVAC, Plumbing, and Fire Protection System that was part of the design team for the new office/maintenance building. The project was LEED certified and included design of multiple engineering system types.
- Veolia Antero Wastewater Treatment Plant, located in Pennsboro, West Virginia. Engineer responsible for the design of HVAC, Plumbing, and Fire Protection systems serving the Plant MCC/Electrical Data Center, Boiler Equipment Building, Filter Press Building, Centrifuge Building, and Office Building. Mr. McNabb was responsible for the sizing, specification, and creation of all construction documents for related HVAC equipment such as packaged, indirect, evaporative cooling ventilation units; split system air conditioning units; packaged rooftop units, roof/wall mounted ventilation fans, and electric unit heaters.
- Alcoa 3D Printing Metal Powder Plant for the Alcoa Technology Center in New Kensington, PA. Primary HVAC, Process Cooling Water, and Plumbing systems designer for the new facility. Systems included in the scope of work included modular, corrosive resistant cooling towers, plate and frame heat exchangers, vertical turbine pumps, gas fired, 100% outside air units and exhaust fans with explosion proof motors, electric unit heaters with explosion proof motors, gas fired heating hot water boilers (lead/lag) and associated pumps and piping distribution system.
- Lead coordinator for project team, frequently interfacing with clients, contractors, and architects during each phase of projects to ensure the satisfaction of project requirements and successful accomplishment of milestones.
- Project team leader and integrator for design ventures including: boiler/chiller plant replacements, building energy and life cycle cost analyses, existing system retrofits, and HVAC system comparison studies.



Mark Yankech, LEED® AP
Senior Technical Manager

Education

Community College of Allegheny County

Certifications

Leadership in Energy and Environmental Design, Accredited Professional (LEED AP)

Skills

Steam/Condensate Systems

Steam Boiler House Design

Hydronic Heating Hot Water

Heat Recovery Systems

Chilled/Condenser Water Systems

District Chilled/Steam

Fuel Oil Systems

Control Systems Design and Integration

Airside HVAC Design

Life-Cycle Cost Analysis

Building Deficiency Tabulations

Site Infrastructure Design

Industry Experience

GAI Consultants, Inc., 2018 – Present

RLF, 1988-2018

MP Engineering – 1986-1988

Meucci Engineering – 1975-1985

Professional Summary

Mr. Yankech is a Leadership in Energy and Environmental Design Accredited Professional (LEED® AP), specializing in mechanical engineering, design, and construction in Educational Facilities HVAC, Central Energy Facilities and District Piping. He has more than 40 years of experience in design and management, and has an in-depth understanding of architectural, electrical, structural, and civil disciplines. He is adept at leading multi-discipline design teams to develop and present innovative facility solutions from design, project construction, commissioning, to Client post-occupancy satisfaction.

He has had the opportunity to be involved in central energy plant facility assessment and design on the University of Central Florida main campus, recently developed downtown Orlando campus, for DoD and VA design agencies, and many civilian health care Clients.

Professional Experience

- Dr. Phillips Academic Commons, Central Energy Plant, UCF Downtown Campus, Orlando, Florida. Associate Project Manager/Senior Engineer. At the University of Central Florida downtown campus, generated advanced schematic and design development of a 4,500 refrigerated tons capacity central cooling plant. The plant, along with underground district cooling water piping was provided to serve the campus academic facilities. Project challenges included central plant design in a space restricted urban environment, aesthetic and noise generation compatibility with surrounding academic facilities and a cost compromised construction budget. The facility was designed to enable phased growth of the campus through the phased installation of multiple water-cooled chillers and accessory equipment.
- Dr. Phillips Academic Commons, Trigeneration Facility, UCF Downtown Campus, Orlando, Florida. Associate Project Manager/Sr. Engineer/Designer. Provided the detailed study and advanced schematic design of a 6,000 tons cooling, heating and 5 MW electrical power generation plant to serve the downtown campus facilities. The mission was to avoid the charges normally related to utility company generated electricity and chilled water by utility islanding and micro-grid electricity technology. The scope included reciprocating engine-generators, absorption water chillers, centrifugal water chillers and natural gas condensing boilers. Life cycle cost studies and construction cost limitations

demonstrated an inability to generate an effective investment payback, resulting in the construction of the cooling only central energy plant above.

- Health Central Hospital Central Energy Plant Addition and Renovation, Health Central Hospital, Ocoee Florida. Sr. Engineer/Designer. Through affiliation to Orlando Health, designed the construction-phased recapitalization of the cooling plant which serves the hospital. The system was converted to a variable-primary chilled water system which saved net energy adequate to provide cooling to the following emergency department and patient tower expansion, without an increase in energy cost. The successful design was installed with no interruption to cooling for the facility.
- UCF University Energy Services, Chilled Water Studies, UCF Main Campus, Orlando Florida. Conducted multiple hydraulic studies to enable facility growth potential on campus, while maintaining connectivity to the existing district chilled water system. The studies considered cooling loads from over 9 mil sqft of campus facilities, 17,000 tons of refrigeration capacity, a chilled water TES and miles of underground district chilled water piping. Fathom software was used for modeling exercises and is kept current for UCF at GAI.
- District Energy Plant IV, UCF Main Campus, Orlando, Florida. Associate Project Manager/Sr. Engineer/Lead designer. Designed 8,000 tons of chilled water capacity and 360 tons of heat recovery water chiller capacity to augment the current 17,000 tons of campus cooling capacity and chilled water TES. The new plant location and piping systems required extensive hydraulic modeling to not only integrate to the existing district piping systems, but also consider future campus growth. The process utilized detailed life cycle cost studies to determine the best water chiller purchase value to the university. DEP IV is the first LEED Gold Industrial building on campus.
- Joint Base Langley-Eustis Hospital Project for the DOD USACE. Sr. Mechanical Design Engineer. Generated a design-build RFP including the demolition of an existing energy plant, the design of a replacement cooling and heating energy plant, and the design of a district chilled water and hydronic heating hot water systems to serve a 300,000 SF clinical and general hospital health care facility. The series of below ground piping systems were required to parallel existing systems and define piping connections to existing clinic and hospital hydronic systems eliminating shutdowns.
- Uniform Services University Addition Project for the DOD Naval Facilities Engineering Command (NAVFAC). Associate Project Manager/Sr. Engineer. Programed the design of district chilled water, steam and condensate systems to serve a 450,000 SF addition to the Bethesda Naval Campus medical school located near Washington, DC. The medical school addition expands the current academic platform and includes space for research, academic studies and faculty. The chilled water, steam and condensate below ground piping system solutions required significant elevation change considerations. Paralleling new systems to the existing minimized required connectivity shutdowns.
- Irwin Army Community Hospital Project for the Department of Defense (DOD), United States Army Corps of Engineers (USACE). Sr. Mechanical Design Engineer. Managed and mentored a multi-person mechanical team in the design of a replacement hospital and clinic facility which included a conjoined central plant. The facility's 600,000 SF comprehensive community hospital included spaces for ED, surgery, LDR, C-section, behavioral health and numerous clinical functions. The design ensured a minimum 30 percent energy cost reduction from ASHRAE baselines through airside economizer, hydronic heat recovery and variable volume systems. The project enabled the USACE to acquire a LEED Silver certification.
- New V.A. Medical Center, Orlando Florida. Sr. Mechanical Engineer/Designer. Designed the Central Energy Plant and district piping systems which serve the new V.A. hospital located in the Lake Nona area of Orlando. The facility was designed to provide 10,000 tons of cooling energy and heating energy through 103,000 lbs/hr of high pressure steam boiler and boiler system equipment. The project included district piping systems and multiple intervening valve vaults to serve the Hospital, Clinic, Long Term Care facility, Domiciliary, Chapel and Logistic Warehouse.

- West Central Plant Phase 1 for the Orlando Health Downtown Campus, Orlando, Florida. Sr. Engineer/Lead designer. Designed the plant facility which was required to replace inefficient equipment in the original South Central Energy Plant, accommodate additional cooling needs of the Winnie Palmer Hospital and APH Surgery Addition. The facility was designed to be constructed in phases. Located at the west side of CSX railways, it required piping to be installed below the tracks and created new district piping systems to enable planned campus growth. The facility was designed to provide 15,000 tons of cooling energy and 124,200 lbs/hr high pressure steam boiler house to serve up to 3 mm SF of campus including APH, ORMC, Thorsen, Louis Pavilion, WPH, and the APH Surgery Expansion. Plant supplies cooling, heating energy and standby electrical power. Cultivated positive client experience from design through post occupancy.
- Kessler Air Force Project for the DOD NAVFAC. Sr. Mechanical Design Engineer. Prepared a design–build RFP for the construct of an energy plant with 3,000 tons of centrifugal water chiller, 30,129 mbh hydronic hot water boiler and 3.6 MW standby electrical power with connecting transmission piping to serve a 750,000 SF Air Force Hospital. The design converted steam consuming equipment and eliminated an aged boiler house serving the hospital. Both the chilled and heating hot water systems were designed as variable–primary, generating a significant return on investment.
- South Central Energy Plant Modification for the Orlando Health Downtown Campus. Converted the existing chilled water system to a variable-primary system which saved net energy adequate to provide cooling to the entire UF Cancer Center/Louis Pavilion without an increase in energy cost. The recapitalization captured a nominal 800 tons of cooling energy which unnecessarily circulated without use within the plant. Follow on projects at the plant included the replacement of failing underground fuel oil storage tanks, replacement of an aged steam boiler and replacement of the boiler feedwater systems.



Kenneth W. Kinder, PE, CFM
Engineering Manager

Education

BS, Civil Engineering, 2003, West Virginia University Institute of Technology

Registrations

Professional Engineer (PE): WV : [REDACTED]
2007

Certified Floodplain Manager (CFM)

Skills

Civil Engineering

CCR Landfill and Impoundment Design

Hydraulic Design and Floodplain Management

Construction Management

Certifications / Training

Troxler Nuclear Density Operator, 2001

MSHA 8-Hour Safety Refresher, 2011

HAZWOPER 40-Hour Safety Training, 2012

HEC-RAS Course, National Highway Institute

Industry Experience

GAI Consultants, Inc., 2014-Present

Potesta & Associates, Inc., 2000-2014

Eagle Surveying, Inc., 1996-2000

Professional Summary

Mr. Kinder specializes in civil engineering design for civil engineering projects including civil site design, erosion and sediment control, stormwater management, hydraulic modeling, floodplain permitting, coal permitting, limestone quarry permitting, and solid waste landfill design.

Mr. Kinder ensures accuracy of work, meets schedule requirements, and maintains excellent client relationships. He develops engineering calculations, prepares project drawings, generates contract documents and specifications, and completes engineering reports. He also has experience with construction oversight and construction management, site inspections, landfill inspections, and levee and dam inspections.

His software skills include AutoCAD, Flowmaster, Culvertmaster, StormCad, PondPack, SedCad, Win TR-55, HEC-HMS, and HEC-RAS.

Professional Experience

- Coal Combustion Residuals (CCR) Surface Impoundment Closures, Confidential Client, Virginia (VA). Assistant Project Manager. Responsible for providing permitting and construction engineering support for the closure of multiple CCR Surface Impoundments. The ponds covered a combined area of more than 100 acres and are being closed by removing the CCR in most of the ponds and consolidating it into a single CCR Surface Impoundment. The remaining impoundment will be closed using a geosynthetic and soil cover system, in accordance with the VA Solid Waste Management Regulations and the Environmental Protection Agency's CCR Rule. Developed Closure Plans, Post-Closure Care Plans, Groundwater Monitoring Plans, Construction Drawings, Technical Specifications and Construction Quality Assurance (CQA) Plans for the VA Solid Waste and CCR Rule permitting of the project. Prepared a dam alteration permit application that was approved by the VA Department of Conservation and Recreation to permit the modification of the dams that form the five surface impoundments. The dam alteration permits include design plans, technical specifications, geotechnical and hydrologic and hydraulic calculations required for the closure.

- Bottom Ash Settling Ponds Retrofit, Confidential Client, PA. Assistant Project Manager. Completed conceptual engineering, design and permitting for the power station to replace their existing bottom ash settling ponds for CCR Rule compliance. The ponds consist of three CCR surface impoundments that are approximately one-acre each. The design approach involved sequencing the construction to allow for two ponds to be functional at all times for plant operation. The design includes a PA Department of Environmental Protection (PaDEP) compliant Class 1 liner system and concrete protective cover system designed to facilitate future cleaning operations. The design included new leak detection manholes, new outlet structure with overflow weir troughs, new inlet flow splitter box, and new stainless steel piping to sluice bottom ash from the station's hydrobins. Completed a Water Quality Management Permit Modification that was approved by the PaDEP to modify the ponds. Completed construction drawings and bid documents for construction.
- CCR Landfill Design and Permitting, Confidential Client, West Virginia (WV). Project Engineer. Assisted with the preparation of the design, permitting and construction documents for a 94-acre expansion of a Class F Industrial CCR Landfill Facility. The project expanded an existing landfill and would allow for disposal of fly ash, bottom ash, and gypsum. The project included two additional sedimentation ponds and the expansion of a force main leachate pumping station. Design tasks included preparation of permitting documents, preparation of construction drawings for two separate phases of landfill construction, and preparing construction certifications for preparation of subgrade and placement of geosynthetics.
- Annual CCR Landfill and Dam Inspections, Confidential Clients, WV. Performed annual CCR inspections for three CCR landfills and one CCR impoundment in WV to verify compliance with state and federal regulations.
- City of Petersburg Lunice Creek Levee, Grant County, WV. Project Engineer. Performed services to assist the community with applying to Federal Emergency Management Agency (FEMA) for accreditation of a 4,500 linear feet levee system. The levee system provided flood protection several dozen homes. Tasks included an in-depth inspection of the current levee system to evaluate stability, evidence of erosion and scour, settlement, vegetation, available freeboard, seepage, and interior drainage design.
- Buffalo Creek and Gauley Railroad, Clay, WV | Clay County Business Development Authority. Project Manager. GAI performed damage assessments for the 18.6-mile long rail line that was damaged during severe floods (10 inches of rainfall during a 12-hour period). Damages varied from debris removal, bank stabilization for rail bed support, and even replacing bridges that were washed out. The GAI Team assessed the damage for the entire length of the project, performed initial design to provide an estimate of the damage that was caused by the flood. This was used for the client's FEMA application for flood mitigation assistance. Upon approval, GAI will finalize the design and provide construction documents for restoring this historic rail line.
- Engineer responsible for preparing civil site design on numerous projects. Tasks included: preparing erosion and sediment control plans, designing utility systems, site layouts and grading plans, and designing surface drainage including storm sewer systems and stormwater detention and retention ponds. Prepared permit applications for the WV Department of Environmental Protection construction stormwater permits, WV Department of Transportation, Division of Highway MM-109 permits, and floodplain development permits as required.
- Staff Engineer responsible for designing gas well drilling pads and impoundments. Work included coordinating geotechnical drilling and using gathered subsurface information to assist with design. Prepared erosion and sediment control plans, completed HEC-RAS analyses and floodplain permitting for several temporary and permanent bridges. Designed impoundments including the development of grading plans to maintain an earthwork balance while achieving the required storage volume, design of a liner system and preparation of Emergency Response Plans.



David J. Bevilacqua, MBA

Assistant Vice President

Education

MBA, Point Park University, 2017

BS, Mechanical Engineering, 1982,
University of Pittsburgh

Skills

Mechanical Engineering

Electric Utility Management, Operations
and Maintenance

Construction Management

Project / Program Management

Power Plant Infrastructure Operations,
Studies, Design

Certifications / Training

Harvard Leadership Development Training,
GAI Consultants 2014

Advanced Project Management Training,
GAI Consultants 2014

Toshiba Generator School, Tokyo Japan

Effective Contract and Claims
Administration for the Construction Owner,
Watt, Teider, Hoffer & Fitzgerald

Antitrust Seminar and the Art of
Negotiations, Condor Group

Mergers and Acquisitions – Darden School
of Business, University of Virginia

Organic Growth for Development - Darden
School of Business, University of Virginia

Industry Experience

GAI Consultants, Inc., 2013-Present

Westinghouse Electric Co., 2007-2013

Allegheny Energy (FirstEnergy), 1982-2006

Professional Summary

Mr. Bevilacqua leads the Nuclear and Industry Market Sector for GAI Consultants. In this role he leads engineering and design efforts for small and large scale maintenance, operation and capital projects for our clients. Mr. Bevilacqua specializes in engineering and construction management as well as program and project management, primarily for industrial and power generation facilities. He has more than 33 years of broad experience managing engineering and construction projects for nuclear, fossil and hydro generation power plants. He has also provided engineering and program management for industrial facilities.

Mr. Bevilacqua is proficient in contract negotiation and leading project teams for large EPC projects including the design engineering and construction of gas turbine generation facilities. He has successfully managed multi-discipline engineering projects for coal, hydro, gas turbine and nuclear power generation facilities up to \$400 million in installed cost, and NAQS programs up to \$1.3 billion in installed cost.

Select Professional Experience

- Program Manager for a Confidential US Government Laboratory, Architect-Engineering Services Contract. GAI is providing engineering services in support of the Laboratory operations and facilities, including: mechanical, electrical, structural, piping, civil, permitting, and geotechnical engineering services for design and maintenance of facilities on the Laboratory Campus. Buildings range in size from 5,000 square feet to 50,000 square feet. Responsible for the overall contract administration and execution of over 60 projects performed under this contract. He interfaces with the client senior management to implement contract additions, deletions, and resolve any issues.
- Supervisor, NRG Uptown District Energy Center, located in Pittsburgh, Pennsylvania (PA), for NRG Energy. Project Manager responsible for client interface to define scope, schedule, and budget to assure design, permitting, and construction management assignments are completed in accordance with the project. He is the primary contact with client senior management, and he oversees design modifications, as requested by the client.

- Supervisor, ALCOSAN Water Treatment Demineralizer Upgrade Project, located in Pittsburgh, PA, for the Allegheny County Sanitary Authority. GAI provided electrical, mechanical, design, and detailing support of the replacement of an existing demineralization system for the boiler feed-water treatment.
- Director, Installation and Modification Services (IMS), Westinghouse Electric Company. Directed engineering and construction services for design and installation of modifications to Nuclear Power Plants worldwide. Led 350 professionals, providing engineering, manufacturing, welding, machining, construction and project management services for both nuclear and non-nuclear equipment and systems. Developed an operating and strategic plan for IMS-Americas and Asia business unit, and assisted in integrating this plan with IMS' global operations. Provided design and installation services in support of Westinghouse's AP1000, next generation power plant being designed and built in four locations around the world.
- Director, Plant Engineering U.S., Westinghouse Electric Company. Directed engineering and construction services for design and installation of modifications to Nuclear Power Plants worldwide. Managed large capital projects from supporting sales and budgetary estimates through engineering construction and start-up. Developed, monitored and controlled annual expense budgets, and established contracting strategies, directed contract negotiations and managed contracts to minimize disputes and change orders. Provided dispute resolution to resolve all issues at both the project and executive level. Supported the Global Plant Engineering portfolio offices in Germany, Spain and South Africa as necessary. Selected as a member of the Guiding Coalition to establish the growth strategy for Westinghouse Electric Company. Support the implementation of the strategic initiatives established by the Guiding Coalition and the Global Growth & Innovation organization.
- Manager, Strategic Projects, Westinghouse Electric Corporation. Growth Leader for Toshiba turbine and generator equipment (TG) responsible for introducing Toshiba TG equipment to the global nuclear market. Liaison between the customer and Toshiba sales and design engineers. Prepared proposals for TG equipment in response to customer RFQs, including introducing customers to Toshiba's manufacturing facilities in Japan to review Toshiba qualifications. Evaluated methods of developing TG services in the US market including identifying targets for acquisitions. Participated in the One Month Analysis (OMA) process that set many of the guidelines and initiatives for the future growth of Westinghouse.
- Vice President Supply Services, Allegheny Energy Supply, LLC. Directed engineering, construction, technical services, and operations support groups for Allegheny Energy. Led ninety two professionals in providing engineering services, construction management, project management, and technical specialist services for over 11,000 MWs of electrical generation capacity located in 29 power generation facilities. Officer of 15 Allegheny Energy subsidiaries. Interfaced with Senior Management regarding day-to-day operations of Allegheny Energy and the power generating facilities. Managed large capital projects including the siting, design, and construction of new generation facilities, FGD system retrofits, and maintenance projects from inception through engineering construction and start-up.
- Director, Engineering and Construction, Allegheny Energy Supply, LLC. Directed ninety professionals in the engineering, construction, and technical services departments. Established scope, budgets, and schedules for both capital and expense projects for all generating stations. Developed, monitored and controlled \$6M expense budget. Contracted for external engineering and construction services and maintenance services for unit outages, supplying support services and technical expertise. Provided management oversight for installation of five (5) Selective Catalytic Reduction systems projects totaling over \$370M which were completed on schedule and within budget. Directed engineering oversight for design, installation, and start-up of \$318M natural gas-fired combined cycle power plant. The plant was completed ahead of schedule and within budget.
- Director, Development, Allegheny Energy Supply, LLC. Developed strategy to expand Allegheny Energy's generation portfolio. Led complex development activities, financial analysis and contract negotiations for the financing and purchase of electric generation facilities. Executed Allegheny Energy's expansion strategy, adding over 2686MWs of electric generation facilities to Allegheny Energy's portfolio with a value in excess of \$1.6 billion.



Steven E. Schroth, MBA, PE

Project Manager / Electrical Technical Leader

Education

MBA, Management, Robert Morris University

BS, Electrical Engineering – Power Emphasis, Penn State University

Registrations

Professional Engineer (PE): WV, PA, OH, GA, VT, RI, ME, WI, NV

Skills

Electrical Engineering

Project Management

Industry Experience

GAI Consultants, Inc., 2017-Present

Eaton Corporation, 2015-2017

Schneider Electric/Square D, 2008-2015

Bombardier Transportation, 2005-2008

H.F. Lenz Company, 2002-2005

Burt Hill Kosar Rittelmann Associates, 2000-2002

Duquesne Light Co., 1997-2000

Strategic Energy Ltd., 1994-1996

Galletta Engineering Corp, 1992-1993

Centerline Engineering Corp., 1989-1992

Westinghouse Electric Corp., 1987-1989

Professional Summary

Mr. Schroth is an Electrical Technical Leader with GAI with over 28 years of experience specializing in project management and electrical engineering. He is a licensed Professional Engineer (PE) in WV, PA, OH, GA, VT, RI, ME, WI, and NV, and has performed studies and design for numerous industrial and commercial facilities, including wastewater treatment plants, hospitals, school, commercial office buildings, and laboratories. Mr. Schroth's experience includes designing electrical systems, power distribution systems, fire alarm and telecommunication systems, and emergency power systems. He has performed power system studies, harmonic analysis, short circuit, voltage drop calculations, arc flash, and load flow analysis, relay coordination, power factor correction, as well as the protective device coordination, and determined device settings for the AC and DC power distribution systems. Additionally, he is proficient in SKM, ETAP, EasyPower, Micro Station, and AutoCAD.

Select Professional Experience

- Full Service Facilities Engineering Program, located in United States. Electrical Technical Leader. GAI is providing facilities planning and design engineering services for building and campus expansion, demolition, and modification projects. Mr. Schroth's responsibilities include: facilities electrical upgrades, laboratory instrumentation and control systems, networking cabling, fire protection systems, and computer electrical systems. Building sizes range from 5,000 SF to 50,000 SF. Type of buildings include office/computer space, security, library, cafeteria, laboratories, and firing range.
- Intake Structure Modifications for a Confidential Client located in Nevada. Lead Electrical Engineer. GAI assisted our client in the evaluation of options to extend intake piping approximately 80 feet further into a lake. GAI conducted a site visit to make observations and take photographs of the existing intake facility and developed cost estimates based on preliminary structural and geotechnical calculations. The services were provided to support development of a preliminary professional opinion and recommendation(s) relative to a preferred option, based on available reference information. Mr. Schroth's responsibilities included reviewing drawings and the Power System and Load Flow Studies.

- K&L Gates Building Arc Flash Study, located in Pittsburgh, Pennsylvania. Senior Power Systems Engineer. Performed short circuit, device coordination and arc flash study for a large commercial office building. Performed detailed data collection on site and provided arc flash training to the customer. Provided arc flash labels and installed them at each piece of electrical equipment on site.
- Veterans Administration Hospital Arc Flash Study, located in Long Island, New York. Senior Power System Engineer. Performed short circuit device coordination and arc flash study for a large Veterans Administration Hospital. Performed detailed data collection on site and provided arc flash training to the customer. Provided arc flash labels and installed them at each piece of electrical equipment on site.
- UPMC Animal Research Laboratory, located in Pittsburgh, Pennsylvania. Electrical Design Engineer. Responsible for designing power distribution, fire alarm, telecommunication, and emergency power systems. Provided drawings and specifications to the contractor. Performed field data collection and construction engineering support. Met with the client to review project requirements and kept the client informed of any design changes.
- Wheeling Hospital, located in Wheeling, West Virginia. Electrical Design Engineer. Performed power distribution system design for an emergency power system upgrade. Provided pre-bidding and post-bidding engineering support. Provided construction management in dealing with contractor Requests for Information. Performed a post-installation checklist to determine any electrical construction issues.
- Pennsylvania State University, University Park, Pennsylvania, Power System Studies. Lead Electrical Engineer performing power system studies for PSU's Main Campus. He performed short circuit, device coordination, and arc flash studies.
- David L. Lawrence Convention Center, Pittsburgh, Pennsylvania. Lead Electrical Engineer responsible for guiding an Electrical Contractor to perform data collection for the purposes of performing a Power System Study that included a short circuit device coordination and arc flash study.
- Responsible for performing power systems studies on various industrial, commercial, healthcare, data centers, wastewater treatment facilities, colleges and universities, K-12 schools and numerous governmental facilities. His studies included short circuit, protective device coordination including ground fault, arc flash, and reliability analysis. He supervised and performed data collection for the purposes of arc flash analysis as well as risk assessments. He also created one line diagrams and performed electrical power system risk assessments to determine the probability of crucial electrical system failures.
- Responsible for the power distribution system design for various electric transportation systems. He also performed harmonics, short circuit, voltage drop, arc flash and load flow analysis as well as the protective device coordination and determined the device settings for the AC and DC power distribution systems.
- Responsible for the design of electrical systems including lighting, fire detection, telecommunications, and emergency power for commercial, institutional and health care facilities. He performed power systems studies including short circuit, load flow, voltage drop, power factor correction and harmonic analysis for various types of facilities.
- Developed an internet-based system where commercial and industrial customers could monitor their electricity consumption and track electricity costs at their location. He also developed a real time system where customers could control their electricity demand through an internet based communications link. Additionally, he developed new products and services that helped to position Duquesne Light as a progressive growth utility.
- Performed a power systems study for a major northeast Ohio steel manufacturer that included a short circuit, power flow, relay coordination, power factor correction and harmonics analysis.
- Designed power distribution systems for various large metals producing companies and designed lighting systems. He also prepared specifications for Motor Control Centers. He also prepared single-line diagrams and ladder logic diagrams.



Robert R. Bee, PE
Senior Engineering Manager

Education

BS, Structural Design and Engineering
Technology, 1983, The Pennsylvania State
University

Registrations

Professional Engineer (PE): PA
[REDACTED]

Skills

Structural Engineering and Design

Industrial and Environmental Facilities

Fossil Fuel and Nuclear Power Plants

Commercial Buildings

Certifications / Training

ASFE Fundamentals of Professional
Practice, 2003

Industry Experience

GAI Consultants, Inc., 1987-Present

Professional Summary

Mr. Bee specializes in Project Management and structural engineering design for industrial and environmental facilities, power plants, commercial buildings and other structures. He is GAI's Technical Lead and Subject Matter Expert in structural engineering and the design of nuclear power plants. He provides analysis and design for major structural component within the plants, including structural steel design to AISC N690 and reinforced concrete design to ACI 318 and ACI 349, and reinforced concrete design to ACI 350 Code Requirements for Environmental Engineering Concrete Structures.

Mr. Bee's experience with structures and structural components includes: structural steel, reinforced concrete, masonry, steel decks, pre-stressed and post tensioned concrete, lateral load resisting systems (wind and seismic), shear walls, ridge frame building systems. He has experience with bridge and retaining wall structures, including pre-stressed AASHTO beams, flat slab, pile caps, piling, slab, and abutment.

Mr. Bee's experience with retaining wall structures includes: masonry, sheet piling, reinforced concrete, reinforced earth, and gravity walls. Additionally, he is well versed in structural computer analysis and design.

Professional Experience

- Technology Development Center Expansion and Fundamental Shock and Vibration Test Laboratory Relocation Project, located in Pennsylvania (PA) for Confidential Client. Project Manager for Architect-Engineer Facility Services to support the design efforts, monitor progress, and evaluate technical details of the ongoing design. GAI is providing the pre-conceptual design package, including pre-conceptual layout drawings of the facilities, and a pre-conceptual building specification with design details (including recommendations for necessary utility upgrades to support the equipment).
- Pickling Building, located in Pennsylvania. Senior Engineering Manager. GAI provided structural engineering services, including performing the Structural Existing Condition Evaluation of an existing 92,000 SF Pickling Building. Services included analysis of the existing building with respect to its required rehabilitation for reuse and the recommendation of the feasibility and practicality of the rehabilitation.

- NRG Uptown District Energy Center, located in Pittsburgh, Pennsylvania (PA), for NRG Energy. Lead Structural Engineer. GAI is providing engineering, permitting, construction monitoring, and scheduling support for the Uptown District Energy Center. The new Energy Center is a district heating and cooling facility that will deliver steam, chilled water, and backup power to the University of Pittsburgh Medical Center, Mercy Hospital, and future customers, in an inner-city environment with higher efficiency, lower carbon emissions, and lower capital and operating costs compared to multiple stand-alone systems. It will consist of a new two-story steel framed structure with an additional mezzanine level, reinforced masonry and reinforced concrete walls, and cast-in-place slab-on-grade, and suspended slabs on metal decking, all supported on a combination of drilled-pier deep foundations and grade beams.
- Wastewater Treatment Plant located in Maryland for a Confidential Client. Structural Engineering Manager. GAI is providing permitting, engineering, and construction phase services to a confidential client for the construction of a pre-engineered industrial metal building at an existing facility located in Maryland. Services associated with this project include: stormwater management concept plan; site development plan; erosion and sedimentation control plan permit; grading permit; building permit; surveying; mechanical, electrical, structural, and geotechnical engineering services; contractors performance specifications and construction documents; bidding services; and construction phase services.
- Waste Water Wet Well Tank, Valve Vaults and addition Valve Vault to Existing Wet Well Tank, West Virginia (WV). Designed a new 40,000 Gal reinforced concrete Wet Well structure to be constructed with and existing Power Generating Plant. As part of the project an existing Wet Well was modified to add a valve Vault and new pipe penetrations.
- Capitol Complex Parking Garage Water Intrusion and Structural Conditions Review; Columbia, South Carolina. Project Manager. GAI provided structural engineering services to review and report on the existing condition and recommend an approach for a structural and water intrusion remediation plan for the parking structure. The below grade parking structure has three levels and is reinforced concrete, cast-in-place construction.
- Orange County Public School Administration Building Parking Garage Assessment; Orlando, Florida. Project Manager. GAI provided a structural assessment of the existing four-story pre-cast concrete parking structure, including the stairwells, elevator, and membrane roofing. The assessment reviewed all elements of the garage, including structural condition and recommended repairs.
- Design of the AT Building Hot Quiet Test Facility (HQTF) Work Platform for High Pressure Drain Testing, located in West Mifflin, PA for Bechtel Marine Propulsion Corporation. GAI is completing the design and performing a complete structural steel stress analysis to determine if the installation of the test vessel and pipe support stands require additional work platform modifications.
- Structural Evaluation of Existing Bake Building located in PA. GAI conducted an existing condition study on an existing rigid frame metal building to determine the feasibility of reuse and repurposing the structure. Site visits were made to investigate the existing conditions and original design plans were reviewed for current code compliance. A detailed report was produced and provided to the client.
- Flare Stack Structural Design and Production of Fabrication Drawings, MI. The Flare stack was 100 feet in height, free standing, steel plate and steel collar design. The Flare Stack was designs to Local Design Codes and ASME Standards. Complete General Arrangement and structural steel fabrication drawings were produced. Foundation loads were calculated and provide on the design drawings for be utilized in the stack foundation design.
- Wastewater Treatment Plant Expansion, located in North Fort Myers, FL for North Fort Myers Utility, Inc.: Structural design of the following: pretreatment structure, flow equalization basin modifications, flow equalization basin pumping station, deniter anoxic BNR basins, deniter nitrification BNR basin, clarifier splitter box, effluent filter splitter box, RAS, WAS pumping stations, effluent disc filters, chlorine contact chambers, sodium hypochlorite storage, deep injection wells, reuse high service pumping station, sludge processing facility, and emergency generator and fuel storage



Jeffrey Sies

Special Project Technician

Education

Associates of Art – Technical
Illustrating/Drafting, Graphic Arts/Visual
communications, Art Institute of Pittsburgh

Undergraduate Studies – Business
Administration, Pennsylvania State
University

Skills

Project Controls

Cost Estimating

Scheduling

Primavera P3

Certifications / Training

Westinghouse Electric Company –
Effective Project Management and Project
Controls Training

Bayer Corporation – Icarus Cost
Estimating, Effective Project Management
and Pharmaceutical GMP/Validation
Training, Construction Industry Institute,
Corporate Representative

Industry Experience

McKamish, Inc., 2013-2015

Westinghouse Electric Co., 2010-2013

Siemens Water Technologies Corp., 2003-
2010

Allegheny Energy Supply, LLC, 2002-2003

Bayer Corporation, 1995-2001

Professional Summary

Mr. Sies has over 20 years of experience in engineering and project controls; primarily in the cost estimating of hard-money competitive bids, conceptual/budgetary cost appropriation estimates, construction performance tracking, scope compliance, scheduling, and field support assignments. He was involved in a wide variety of industries including nuclear and fossil fuel power plants, industrial wastewater treatment, chemical and pharmaceutical processes, steel mills, and plant infrastructure.

Professional Experience

- Cost Estimator, McKamish, Incorporated, Power & Industrial Group, Lawrenceville, Pennsylvania (PA). Mr. Sies was responsible for firm price (hard-money competitive bidding) and budgetary cost proposals for industrial projects involving steel and coke oven facilities, oil and gas production, power generation, and other various specialized production processes. He reviewed proposal requirements and distributed and assigned scope takeoffs among other estimators as necessary. He also performed quantity takeoffs and prepared and solicited quotations for equipment and material costs, analyzed subcontract and in-house bid packages, adjusted for field labor productivity issues, and assisted in schedule requirements and final recaps. Mr. Sies was initially hired to provide estimating services for numerous project change orders for piping, equipment, and instrumentation installations at the Allegheny Technologies' (ATI) new hot rolling and processing facility in Brackenridge, PA. He was later retained and transferred to the main office estimating group upon successful completion of the assignment and provided training to peers on construction installation and general estimating techniques. Additionally, he developed Excel cost assessment spreadsheets for detailed takeoffs and summarization of shop and field cost estimates.
- Senior Cost Estimator, Westinghouse Electric Company – Nuclear Power Plants Division, Cranberry Township, PA. Mr. Sies provided firm price comparative, budgetary, and conceptual rough order of magnitude (RoM) cost estimates for proposed design finalization modifications, equipment installations, change orders, and extra work claims, including engineering impacts, equipment, and material and shop fabrication and field installation costs and their impact on delivery and installation schedules. He performed bid analysis for nuclear plant construction estimates as submitted by third party contractors. He

also pre-screened and peer reviewed in-house design change proposals for potential issues and general practicality. He provided training to peers on construction installation and general estimating techniques. Additionally he developed job specific Excel cost estimating and assessment spreadsheets.

- Senior Cost Estimator, Siemens Water Technologies Corporation (formerly USFilter Corporation), Warrendale, PA. Mr. Sies provided conceptual / budgetary and firm cost estimates that included engineering, equipment supply, and material and installation estimates for wastewater treatment systems such as conventional aerobic, anaerobic, bioreaction, and microfiltration within the processes of chemicals, electronics, food processing, and flue gas desulphurization. He performed bid analysis for wastewater treatment construction estimates which were submitted by third party contractors. He also solicited vendor quotes for field and shop fabricated tanks, piping, valves, and other system equipment or material components. Additionally, he developed Excel estimating spreadsheets, both project and client specific, inclusive of accounting and work breakdown codes.
- Senior Project Controls Estimator, Allegheny Energy Supply, LLC – Projects Division, Monroeville, PA. Mr. Sies was responsible for providing conceptual and hard-money comparative labor and material estimates, including contractor bid analysis for new and retro-fit outage work for simple cycle, combined cycle, power-barge, and fossil fuel power plants. He was also responsible for implementing site-specific services for estimating, reviewing scope compliance, and construction progress tracking. He assisted the project controls manager in creating the estimating function within the project controls group. Mr. Sies also produced written procedures, Excel estimate spreadsheets, and participated in orientation meetings.
- Project Controls Estimator, Bayer Corporation – Technology Division, Corporate Engineering, Pittsburgh, PA. Mr. Sies was responsible for conceptual and budgetary cost estimating for greenfield and retrofit capital improvement among industrial chemical and pharmaceutical infrastructure construction projects. He was responsible for implementing site-specific estimating services for accurate and accountable manhour and material expenditures. He performed "In-Progress" assessments on existing projects to determine performance impacts as a result of deviations from the original work scope, including recommending recovery efforts. He also developed spreadsheet tools for construction progress tracking.

Affiliations

Association for the Advancement of Cost Engineering (AACE)

American Nuclear Society (ANS)

Appendix B – WVDA Signed Forms





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

State of West Virginia
 Centralized Expression of Interest
 34 – Service - Prof

Proc Folder: 569921

Doc Description: EOI: Central Chiller Plant Ice Farm and Upgrades

Proc Type: Central Contract - Fixed Amt

Date Issued	Solicitation Closes	Solicitation No	Version
2019-04-18	2019-05-15 13:30:00	CEOI 0211 GSD1900000008	1

LOCATION

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

VENDOR

Vendor Name, Address and Telephone Number:

GAI Consultants, Inc.
 300 Summers Street, Suite 1100
 Charleston, WV 25301
 Phone: 304.926.8100

FOR INFORMATION CONTACT THE BUYER

Melissa Pettrey
 (304) 558-0094
 melissa.k.pettrey@wv.gov

d.bevilacqua@ga
 iconsultants.com

Digitally signed by
 d.bevilacqua@gaiconsultants.com
 DN: cn=d.bevilacqua@gaiconsultants.com
 Date: 2019.05.14.09:22:52 -0400

FEIN # 25-1260999

DATE May 13, 2019

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

Expression of Interest

The West Virginia Purchasing Division is soliciting Expressions of Interest ("EOI") for the West Virginia Department of Administration, General Services Division ("Agency"), from qualified firms("Vendors") to provide architectural/engineering evaluation and design services for The Campus Central Chiller Plant, WV State Building #11, per the bid requirements, specifications, terms and conditions attached to this solicitation.

		SHIP TO	
DEPARTMENT OF ADMINISTRATION GENERAL SERVICES DIVISION 112 CALIFORNIA AVENUE, 5TH FLOOR CHARLESTON WV25305 US		DEPARTMENT OF ADMINISTRATION GENERAL SERVICES DIVISION BLDG 22 - TAX AND REVENUE 1001 LEE ST CHARLESTON WV 25301 US	

Line	Comm Ln Desc	Qty	Unit Issue
1	EOI: Central Chiller Plant Ice Farm and Upgrades		

Comm Code	Manufacturer	Specification	Model #
81100000			

Extended Description :

EOI: Central Chiller Plant Ice Farm and Upgrades

GSD1900000008	Document Phase Final	Document Description EOI: Central Chiller Plant Ice Farm and Upgrades	Page 3 of 3
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ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

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

d.bevilacqua@gaiconsultants.com
ts.com

Digitally signed by d.bevilacqua@gaiconsultants.com
DN: cn=d.bevilacqua@gaiconsultants.com
Date: 2019.05.14 09:33:09 -04'00'

(Name, Title)
David J. Bevilacqua, MBA

(Printed Name and Title)
Assistant Vice President

(Address)
300 Summers Street, Suite 100, Charleston, WV 25301

(Phone Number) / (Fax Number)
304.926.8100

(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.

GAI Consultants, Inc.

(Company)

d.bevilacqua@gaiconsultants.com

Digitally signed by
d.bevilacqua@gaiconsultants.com
DN: cn=d.bevilacqua@gaiconsultants.com
Date: 2019.05.14 09:33:23 -04'00'

(Authorized Signature) (Representative Name, Title)

David J. Bevilacqua, MBA, Assistant Vice President

(Printed Name and Title of Authorized Representative)

May 14, 2019

(Date)

T- 304.926.8100, F- 304.926.8180

(Phone Number) (Fax Number)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.:

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

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

Addendum Numbers Received:

(Check the box next to each addendum received)

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

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

GAI Consultants, inc.

Company

d.bevilacqua@ga
iconsultants.com

Digitally signed by
d.bevilacqua@gaiconsultants.com
DN: cn=d.bevilacqua@gaiconsultants.com
Date: 2019.05.14 09:33:08 -0400

Authorized Signature

May 14, 2019

Date

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

Appendix C – Certificate of Authorization



CERTIFICATE OF *Authorization*

STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS

*The West Virginia State Board of Registration for Professional Engineers
having verified the person in responsible charge is registered in
West Virginia as a professional engineer for the noted firm, hereby certifies*

GAI CONSULTANTS, INC.

C00208-00

*Engineer in Responsible Charge: ANTHONY F MORROCCO - WV PE 012843
has complied with section §30-13-17 of the West Virginia Code governing
the issuance of a Certificate of Authorization. The Board hereby notifies you of its
certification with issuance of this Certification of Authorization for the period of:*

January 1, 2018 - December 31, 2019

providing for the practice of engineering services in the State of West Virginia.

IF YOU ARE REQUIRED TO REGISTER WITH THE SECRETARY OF STATE'S OFFICE,
PLEASE SUBMIT THIS CERTIFICATE WITH YOUR APPLICATION.



IN TESTIMONY WHEREOF, THE WEST VIRGINIA STATE BOARD OF
REGISTRATION FOR PROFESSIONAL ENGINEERS HAS ISSUED THIS COA
UNDER ITS SEAL, AND SIGNED BY THE PRESIDENT OF SAID BOARD.

BOARD PRESIDENT