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Header 1

List View

General Information | Contact | Default Values | Discount | Document Information | Clarification Request

Procurement Folder: 1274101
Procurement Type: Central Contract - Fixed Amt
Vendor ID: 000000160685
Legal Name: IKM INCORPORATED
Alias/DBA:
Total Bid: $0.00
Response Date: 11/14/2023
Response Time: 10:32
Responded By User ID: joelrbernard
First Name: Joel
Last Name: Bernard
Email: jbernard@ikminc.com
Phone: 4122811337

SO Doc Code: CEOI
SO Dept: 0211
SO Doc ID: GSD2400000002
Published Date: 11/7/23
Close Date: 11/14/23
Close Time: 13:30
Status: Closed
Solicitation Description: EOI: New Consolidated State Laboratory Facility Project
Total of Header Attachments: 1
Total of All Attachments: 1

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

State of West Virginia
Solicitation Response

Proc Folder:	1274101
Solicitation Description:	EOI: New Consolidated State Laboratory Facility Project
Proc Type:	Central Contract - Fixed Amt

Solicitation Closes	Solicitation Response	Version
2023-11-14 13:30	SR 0211 ESR11142300000002336	1

VENDOR

000000160685
IKM INCORPORATED

Solicitation Number: CEOI 0211 GSD2400000002

Total Bid: 0 **Response Date:** 2023-11-14 **Response Time:** 10:32:51

Comments:

FOR INFORMATION CONTACT THE BUYER
Melissa Pettrey
(304) 558-0094
melissa.k.pettrey@wv.gov

Vendor
Signature X **FEIN#** **DATE**

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

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	EOI: New Consolidated State Laboratory Facility Project				0.00

Comm Code	Manufacturer	Specification	Model #
81101508			

Commodity Line Comments:

Extended Description:

EOI: New Consolidated State Laboratory Facility Project

ikm Architecture

State of West Virginia
New Consolidated State Laboratory Facility Project

Solicitation Number: CEOI 0211 GSD2400000002

November 14, 2023

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

State of West Virginia
Centralized Expression of Interest
Architect/Engr

Proc Folder: 1274101			**Reason for Modification:**
Doc Description: EOI: New Consolidated State Laboratory Facility Project			Addendum No.1
Proc Type: Central Contract - Fixed Amt			
Date Issued	**Solicitation Closes**	**Solicitation No**	**Version**
2023-11-07	2023-11-14 13:30	CEOI 0211 GSD2400000002	2

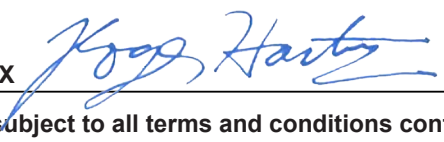
BID RECEIVING LOCATION

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

VENDOR

Vendor Customer Code: 000000160685
Vendor Name : IKM Architecture
Address :
Street : 11 Stanwix Street, Suite 2200
City : Pittsburgh
State : Pennsylvania **Country :** USA **Zip :** 15222
Principal Contact : Roger Hartung
Vendor Contact Phone: 412-281-1337 **Extension:**

FOR INFORMATION CONTACT THE BUYER
Melissa Pettrey
(304) 558-0094
melissa.k.pettrey@wv.gov

Vendor Signature X  **FEIN#** 25-1467743 **DATE** November 14, 2023

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

November 14, 2023

Selection Committee
Department of Administration
Purchasing Division
2019 Washington St. E.
Charleston WV 25305

Regarding: Professional Architectural and Engineering Services
EOI: New Consolidated State Laboratory
Solicitation No.: CEOI 0211 GSD2400000002

West Virginia Selection Committee,

We were very excited to see this EOI. This is exactly the type of work that IKM enjoys doing and finds rewarding. We recognize that this large, complex project will benefit almost everyone in the State at some point through the work that is done in these labs. Having a team with extensive expertise in the right disciplines is what will bring the greatest degree of success. IKM and our consultants are uniquely qualified and have the subject matter expertise in laboratory design to tackle the complexities of this project. Through IKM's philosophy of designing to improve the human experience, our team will work with agency stakeholders to validate the program, identify the project schedule, and deliver documents and construction administration to the State of West Virginia's standard for project delivery. Our team of experts includes:

Affiliated Engineers, Inc. (AEI): AEI will provide Mechanical, Electrical, Plumbing, and Fire Protection Engineering Services. Engineering systems are critical to any laboratory facility, and AEI's level of experience is unmatched. They will also be providing cost estimating services for the project.

ZDS Design/Consulting: ZDS will be supporting AEI as a local firm providing Mechanical, Electrical, Plumbing, and Fire Protection Engineering Services. ZDS's experience working with the State of West Virginia and convenient location are invaluable. With team members located in Scott Depot and Morgantown, ZDS will lead all Construction Administration activities.

HERA Laboratory Planners: HERA will provide laboratory consulting services. We recognize the significance of the laboratory component of this project and believe that HERA has the right knowledge and experience to supplement IKM's design expertise and support our MEP consultants.

Triad Engineering: Triad will provide Civil, Geotechnical, and Surveying services. We believe that having a firm from Scott Depot that understands the local geography, geology, soil conditions, and storm water management issues is crucial for this portion of the team.

Allegheny Design Services (ADS): ADS is also a local West Virginia firm that will serve as Structural Engineer for this project.

IKM and our team of consultants are eager to work with the State of West Virginia Agencies and prepared to begin immediately. If you need any additional information or have any questions, please feel free to contact me by email at rhartung@ikminc.com or by phone at 412-303-4398 (cell). We look forward to the next step in the selection process.

Sincerely,
IKM Architecture

Roger Hartung, AIA
Principal

ikm
Architecture

01

Our Team

Team Organization

Figure 1:
The IKM Team

Figure 1 shows an organizational chart with IKM's key personnel and our consultants. On the following pages you will find resumes for all key personnel.

ikm Architecture

Architect of Record
Architecture Lead
Interior Design Lead
Design Team Lead
Prime Contractor

Architectural Team

Roger Hartung
Principal in Charge
IKM Architecture

Brian Roth
Project Manager
**Point of Contact*
IKM Architecture

Kate Whitmore
Lab Architect
IKM Architecture

Samantha Smelko
Project Architect,
Exterior Design,
Building Envelope
IKM Architecture

Jason Shymoniak
Project Architect,
Engineering Coordinator
IKM Architecture

Whitney Livsey
Interior Designer
IKM Architecture

Consultant Team

AEI	**Affiliated Engineers, Inc.**	MEP Design Lead Laboratory Systems IKM Consultant
ZDS	**ZDS Design/Consulting Services**	MEP Designer Building Systems Engineer of Record IKM Consultant
HERA	**HERA Laboratory Planners**	Laboratory Planner IKM Consultant
Allegheny Design Services	**Allegheny Design Services**	Structural Engineer Engineer of Record Foundations & Building Structure Design IKM Consultant
TRIAD ENGINEERING, INC.	**Triad Engineering, Inc.**	Civil Engineer Engineer of Record Site Design / Infrastructure IKM Consultant
Facility Dynamics Engineering	**Facility Dynamics Engineering**	Commissioning Services IKM Consultant

About IKM Architecture:

IKM is an architectur firm that focuses on efficient and quality planning and interior and structural design. IKM is registered as an S-Corporation. Our experience in engaging a myriad of clients and markets enables us to bring a comprehensive and unique knowledge base to our design process. Our process aims to create an innovative, flexible, energized and a highly collaborative design outcome. Creating an integrated environment necessitates an approach that embodies the vision, culture and mission of an organization. Our tools for engagement help strengthen community, and create collaboration that enriches and empowers individuals to positively impact the world.

57
Employees

8
Principals

112
Years in Business

33
Licensed Architects

4
Offices: Pittsburgh Cleveland, Columbus, Tampa

75+
Lab Projects

Unique Design Solutions:
Cross-Disciplinary Practices

IKM is unique in offering design services in five separate sectors. Our firm leadership contains experts in each of these categories, which connects our practice to current trends and cutting-edge thought leadership. Our staff executes projects across all our practice markets, gaining base-line knowledge of design in each of those sectors. Our practice can cross-pollinate ideas and concepts from one market to another. We can challenge existing norms, and tie together the journey from education to research to workplace. We create environments where people can learn, discover, heal and advance their pursuits.

WVU Medicine, Children's Hospital

We Practice in Five Primary Sectors:

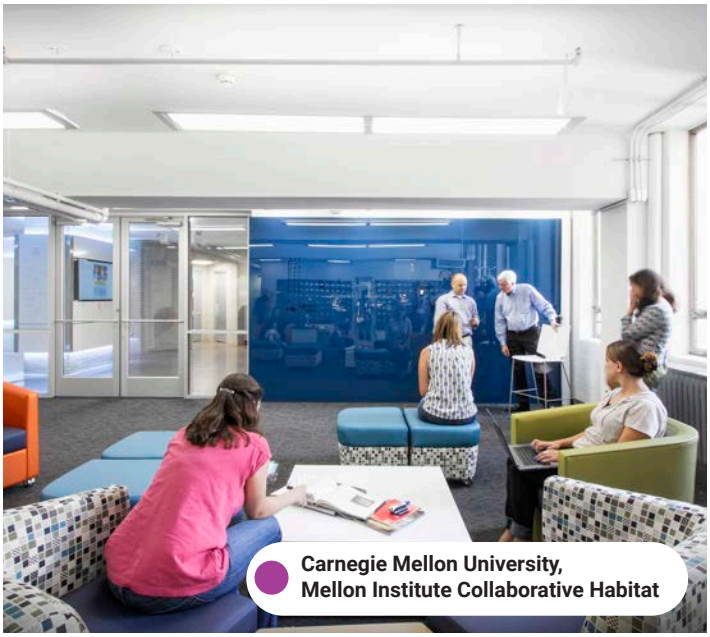
Healthcare

Education

Workplace

Science & Technology

Civic & Cultural



Carnegie Mellon University, Mellon Institute Collaborative Habitat

Carmeuse Collaborative Rooms

"We create environments where people can learn, discover, heal, and advance their pursuits."

About Affiliated Engineers, Inc.:

Engineering leadership and innovative solutions for complex projects, working with clients and colleagues to improve the world.

Affiliated Engineers, Inc. (AEI) is a leading US-based multidisciplinary consulting engineering firm that plans, designs, and delivers high performance engineered systems for technically complex building and utility infrastructure projects. AEI specializes in research, energy production and distribution, healthcare, higher education, industrial, mission critical, and sustainability markets.

AEI has been ranked among the Top 3 Science and Technology engineering firm since 2013 by Building Design + Construction's Giants 300 and Top 10 MEP Engineer for Consulting-Specifying Engineer. AEI is at the leading edge of research facility engineering across the country. Our depth of knowledge in these sophisticated facilities is further demonstrated by our receipt of 14 R&D Magazine Lab of the Year awards. Applying that experience to our work on numerous research facilities, we have significantly expanded our design expertise.

Our core values are to offer excellence in engineering, premiere service, and technical innovation across a multi-discipline culture of collaboration. We integrate the knowledge and skill of more than 800 colleagues across 20 offices. We are dedicated to effective communication which enables AEI to identify our clients' engineering needs and offer enduring strategies and technologies.

50M+
square feet of research space

5M+
square feet of containment space

6.5M+
square feet of translational research space

10M+
square feet of vivarium space

TOP 3
Science & Technology - Laboratories Engineering Firm, 2022
Building Design + Construction

TOP 10
University Engineering Firm, 2022
Building Design + Construction

TOP 12
Engineering Firm, 2022
Building Design + Construction

AEI Affiliated Engineers

About ZDS Design/ Consulting Services:

In 1983, Todd A. Zachwieja founded ZECO Consultants. In 1994, ZDS Limited Liability Company was incorporated in West Virginia using dba ZDS Design/Consulting Services, and was founded to provide design and consulting services.

Each new project is assigned to a principal in charge who will follow the project from inception through commissioning. ZDS assigns the production staff according to the nature of the project and the work force necessary to meet the schedule. The principal in charge of that project determines if consultants are needed and coordinates all areas. After bidding, a principal of ZDS coordinates visits to the job site regularly, all the way through the post-warranty inspection. ZDS believes in the team approach when providing engineering design and consulting services. We start with our client as the number one member on our team. We listen to the needs and concerns of our client and that becomes the basis for our design.

COMPANY LEGAL NAME
ZDS Limited Liability; Company dba ZDS Design/ Consulting Services

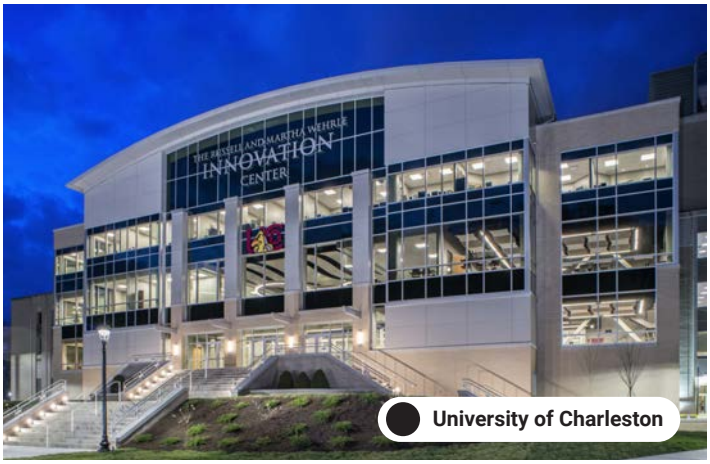
LOCATION OF INCORPORATION
West Virginia

FOUNDERS
Todd A. Zachwieja, P.E., C.E.O.
Lori L. Zachwieja, C.P.A., C.F.O.
Daniel H. Kim, Ph.D.

FIRM LOCATION
135 Corporate Center Drive, Suite 532
Scott Depot, WV 25560

EMPLOYEES
ZDS currently employs design professionals covering all aspects of our services.

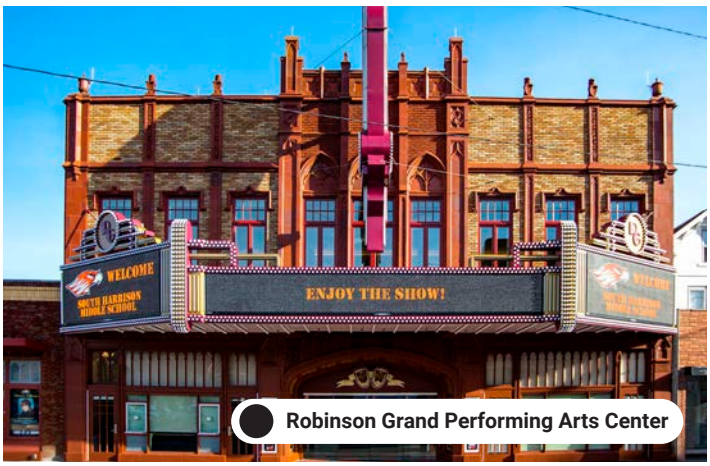
ZDS
Design/Consulting Services



University of Charleston


State of West Virginia


WV Department of Health & Human Resources



Robinson Grand Performing Arts Center

About HERA Laboratory Planners:

HERA (Health, Education and Research Associates, Inc.) laboratory planners' deep knowledge of laboratories and our real appreciation of the subtleties of good lab planning go beyond the typical limits of architectural development.

As architects who are also science planners, HERA demonstrates a deep understanding of current laboratory trends, relevant issues and operational approaches that shape science environments whether for discovery or education. Our design professionals continually research emerging trends in automation, electronic equipment, regulatory guidelines and the evolution of the work/production environment to help our clients meet their goals.

HERA has a great range and depth of experience in world-class laboratories. Our combined experience from hundreds of projects for public and private clients totals over 23 million square feet of laboratory space programmed, planned and designed. Every member of our team shares a commitment to innovative thinking and high-quality performance. Experience allows us to explore new ideas in laboratory and space planning while evaluating them against our previous experience for good lab practices.

Founded in 1996, HERA is a certified **Minority-Owned Business Enterprise** (MBE) and **Small Disadvantaged Business** (SDB) with a global reach of nearly 40 professionals from offices around the country.

OFFICE LOCATIONS

St. Louis
Philadelphia
Atlanta
Washington, DC
Tampa

OUR MARKETS

Academic
Clinical
Forensic
Government
Research & Development

5
Offices across the country

26
Years of lab planning

39
Staff members

23+
Million SF of lab space designed

INNOVATIVE THINKING

- **EQ-IPS:** This proprietary iPad-based tool is exclusively for lab equipment surveying and provides a comprehensive database.
- **3D visualization:** Allows clients to virtually walk through a full-scale version of their project.
- **Interactive laboratory model:** A physical kit of parts allows HERA and clients to work together to design their laboratory spaces.
- **Process mapping and simulation:** A simulation of the activities within labs allowing us to understand material and workflows.
- **SABER:** Space and Budgeting Estimating Resource helps clients develop a sound space and budget projection for early-stage planning.

HERA laboratory planners

About Allegheny Design Services:

Allegheny Design Services (ADS) is a consulting engineering firm specializing in structural building design and building analysis. Dedicated to serving West Virginia and the surrounding region, ADS recognizes the need for reliable and full-service engineering support. ADS provides all phases necessary for the successful completion of a building project including schematic design studies, design development, construction documents and specifications, and construction administration.

ADS's experience in Design and Project Management includes:

- Commercial Facilities
- Industrial Facilities
- Institutional Facilities
- Educational Facilities

ADS was established by David Simpson, PE, MBA, in 2002 as a result of a need in North Central West Virginia for reliable structural engineering services. ADS utilizes a combination of office technology and a motivated staff capable of delivering projects of all sizes and complexities. Our clients include architects, contractors, developers, attorneys and insurance companies.

ADS currently utilizes the latest engineering design and BIM software for the development of project work.

STRUCTURAL ENGINEERS

"Providing reliable, responsible services of building system design and analysis."

Allegheny Design Services
Consulting Engineers

GSD Fairmont State Office Building


Mon Power Regional Headquarters

- Dorms, Student Housing & Apartments
- Athletic & Recreation
- Religious & Non-Profit
- Health Care
- Higher Education
- Historic Restoration
- Industrial
- K-12
- Government
- Office Buildings
- Parking Garages
- Retail & Commercial
- Metal Building Systems
- Hotels & Resorts
- Pedestrian Bridges

About Triad Engineering:

Triad Engineering, Inc. is a multi-disciplinary engineering firm based in the Mid-Atlantic region specializing in the areas of geotechnical engineering, civil and utility engineering, surveying, construction materials engineering and testing and inspection, environmental consulting services, drilling, and other earth science related disciplines. Since its founding in Morgantown, West Virginia in 1975, Triad has provided engineering consulting services on thousands of projects of varying size and complexity. Triad is 100% employee-owned, with every employee taking part in Triad's ESOP from field support staff to senior managers.

"Triad is small enough to be responsive to the needs of our customers and large enough to remain at the forefront of scientific solutions"
- Brad Reynolds, CEO

Triad currently employs approximately 170 professional, technical and administrative personnel in nine offices across five states. Our work force includes environmental scientists, geologists, hydrologists, civil, geotechnical and mining engineers, landscape architects, chemists, surveyors, trained Computer-Aided Design (CADD) draftsmen, field and laboratory technicians, drillers, and support personnel. We pride ourselves on a very low turnover rate, which adds to continuity and enhances the level of productivity and experience afforded by Triad.

With over 46 years of service in West Virginia and surrounding states, both the number and complexity of our projects have grown. Our clients include federal, state and local governmental agencies, contractors, architects, engineers, attorneys, developers, commercial organizations, and mining and industrial corporations.

Facilities and equipment available to support our staff have continued to evolve through the years to adapt to the changing needs of the market. We have developed a fleet of drill rigs and support vehicles to meet the needs of our field operations. Well-equipped material testing laboratories are maintained to provide support for our geotechnical engineering and construction monitoring projects.

Each office maintains networks to support CADD functions, hydrogeologic evaluations, water balance modeling, roadway design, storm water management and surface water drainage, design, stability analyses, risk assessment, survey data reduction, and mapping. These broad, in-house capabilities give Triad better control over project schedule, quality and cost, thereby minimizing problems that can occur during the various contract phases.

TRIAD ENGINEERING, INC.

About Facility Dynamics Engineering:

COLLABORATION. INNOVATION. PERSISTENCE.

FDE was founded in 1989 to bridge the gap between construction and facility operation and to address the challenges of sustainable efficient facility operation. We have maintained that focus with our team of senior professionals who have extensive experience in systems design, construction, training, and operation of mechanical, electrical, and building controls/ automation systems.

Our culture is to foster collaboration and inject our unique expertise to help the project team deliver successful facilities. As pioneers in the building commissioning industry, we have an unparalleled resume of successful highly complex facilities.

THE TEAM

We believe, and our actions and history show, that it is essential for the commissioning engineer to be a collaborative and constructive team member. Our comprehensive approach combines analysis with state-ofthe-art software to create a thorough, efficient, and superior building commissioning process.

Our highly skilled staff have complementary expertise in mechanical and electrical systems design, HVAC controls, electrical testing, systems balancing, training, operations and maintenance, and remedial system analysis. We believe in a process that actively includes our engineers and technicians.

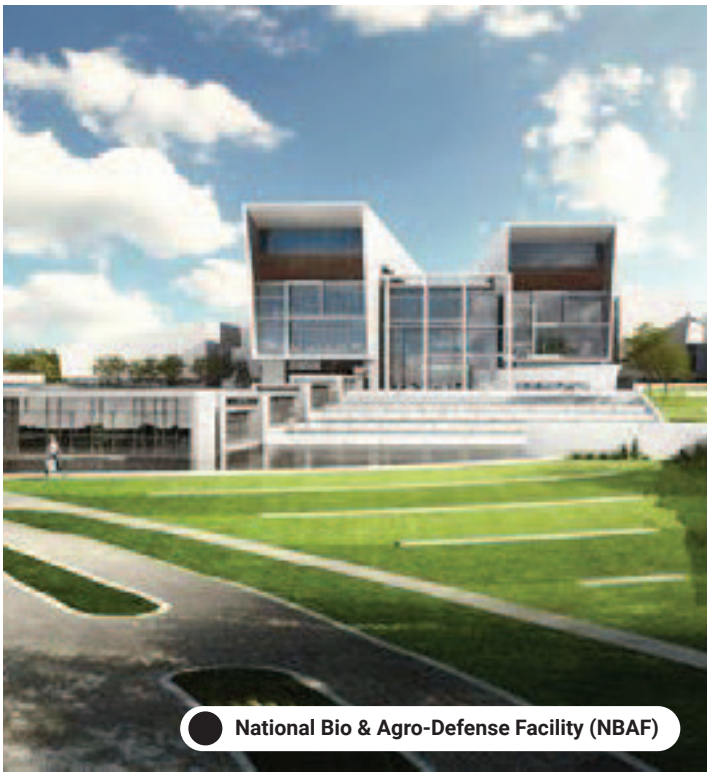
"WE ARE GLAD FDE IS HERE"

FDE embraces the attitude that the primary goal of commissioning is to deliver:

- High performance and properly operating facility to the Owner
- Well-trained Operations and Maintenance staff
- High quality and continually useful documentation of the facility and of the commissioning process.

Facility Dynamics ENGINEERING

Further, we approach our commissioning activities with the highest respect for the various parties in the design and construction processes and their roles. The words 'we are glad FDE is here' is heard often from contractors and owners alike, and we take great pride in compliments like this.



National Bio & Agro-Defense Facility (NBAF)

FOUNDERS

Lon Brightbill, PE
Jay Santos, PE

WHERE WE ARE

Corporate
6760 Alexander Bell Drive
Suite 200
Columbia, MD 21046
410.290.0900

Local Presence in 19 states,50 cities

WHAT WE DO

Building Commissioning
Controls Engineering
Remedial Engineering
Training
Fault Detection Diagnostics

CONTACT

Lon Brightbill, PE
Principal, Co-Founder
410.290.0900
lonb@facilitydynamics.com

Jay Santos, PE
Principal, Co-Founder
410.290.0900
jays@facilitydynamics.com

ikm
Architecture

02

Project Goals & Objectives

2. Projects and Goals:

IKM, in conjunction with ZDS Design Consulting (ZDS) and Affiliated Engineers Inc. (AEI), as well as additional specialized consultants, has reviewed the project goals and objectives that the Acquisitions and Contract Administration Section of the Purchasing Division (Purchasing Division) and the WV Department of Administration, General Services Division (Agency) have provided in the Expression of Interest (EOI). We have carefully analyzed the report from the Performance Evaluation and Research Division (PERD) to understand the current site of each facility, facility pain points, and the overall recommendations. The content that follows is responsive to the stated goals of the project as expressed in the solicitation.

2.1 Goal/Objective 1:

OUR DESIGN TEAM'S LAB EXPERIENCE

Engineering systems in a project like this are critical. The management of air systems, air cleanliness, volume of supply and return, building pressurization, and the elimination of air contamination to enhance the safety of building personnel are essential to the design of your facility. This is why AEI is part of our team and we further elaborate on their experience below.

IKM also has significant lab experience. We designed the 355,000 square foot UPMC Hillman Cancer Center, which has 154,000 square feet of lab space, all of which is BSL-2 except for the GMP Lab and an animal facility within this building, which were designed to BSL-3 standards. IKM also designed the WVU Medicine Morgue, comprising a Molecular Diagnostics Laboratory and a full-service autopsy suite with 24-hour access. As mentioned on page 38 of the PERD report, this morgue previously facilitated a State autopsy program through a partnership between the Medical Examiner and WVU Medicine.

IKM has designed over 20 biology and chemistry labs within the 450,000 square foot Mellon Institute for Carnegie Mellon University, including installation of specialized equipment, incorporation of hazardous exhaust system for emergency situations, design of holding rooms for small animals, and creation of collaborative research space. We also have experience working on projects for government entities, including the Public Health Laboratory building for Allegheny County's Clack Campus which includes a BSL-3 lab as well as routine infectious disease testing, food borne illnesses, rabies, and other public health conditions.

WVU Medicine Morgue

CMU Mellon Institute Labs

Allegheny County Clack Lab

BIOSAFETY LEVEL (BSL) LAB EXPERIENCE

We understand that the existing Gus Douglass Agricultural Center is unprepared to accommodate a BSL-3 laboratory despite the Department of Agriculture having need of one. Our team is well-equipped to provide this specialized environment in the new facility. AEI offers unparalleled national expertise in biomedical research laboratories including BSL-3, BSL-3Ag, and BSL-4 containment facilities. AEI's staff have worked on over 40 projects involving high containment facilities at biosafety level 3 and have provided both direct design and peer review for National and Regional Biocontainment Laboratory projects funded through the National Institute of Allergies and Infectious Diseases (NIAID) nationwide.

The firm's emphasis on technically complex building types has resulted in a resume of over 45 million square feet of research space designed for medical science, federal government, pharma/biotech, and higher education clients. The types of research are vast and require support spaces such as biocontainment, vivarium, and clean rooms. AEI is fully fluent and experienced with biocontainment codes and standards, including the current Center for Disease Control (CDC) Biosafety in Microbiological and Biomedical Laboratories (BMBL) design standards and the National Institutes of Health Design Requirements Manual.

The higher the classification of space, the more stringent the guidelines become as building codes do not recognize the design criteria for these spaces. For BSL-3 laboratories, guidelines include but are not limited to:

- Occupational Health and Safety Standards (OSHA)
- National Institutes for Health (NIH)
- Center for Disease Control (CDC)
- Biosafety in Microbiological and Biomedical Laboratories (BMBL)
- Public Health Agency of Canada Laboratory Biosafety Guidelines
- ANSI Z9.14

AEI serves in nationwide technical support roles for our clients which includes:

- Developing national standards for laboratory and animal facility designs, including participation in working groups updating the NIH Design Requirements Manual (DRM).
- Performing third party peer design review of laboratory and vivarium design and construction documents, including peer review of the NIH Regional Biocontainment Laboratories (BSL-3/ABSL-3) and National Biocontainment Laboratories (BSL-3, BSL-4/ABSL-3, ABSL-4).
- Direct design for BSL-3, BSL-3E, BSL-3Ag, and BSL-4 biocontainment laboratories constructed for the Federal Government and academic institutions.

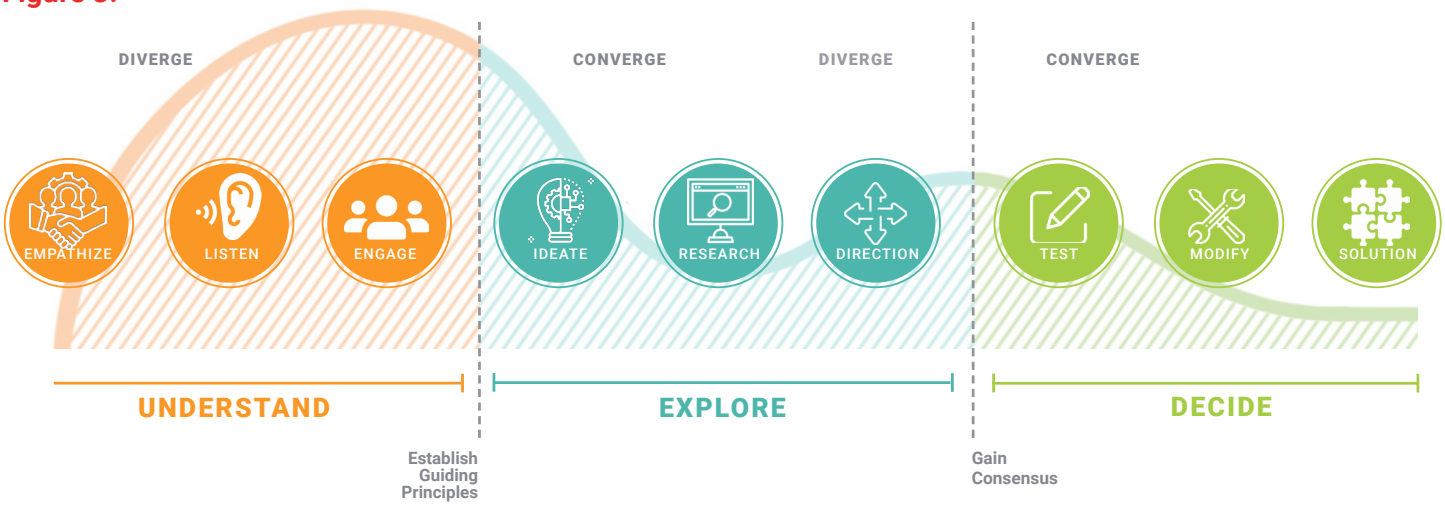
The design of a BSL-3 space can be more challenging than other containment spaces, as the space requirements need to be defined based on the biological risk assessment for the agents within the space. The final design criteria will be agreed upon by the Biosafety Officer and the researchers in conjunction with the design team. Considerations that MEP engineers address for BSL-3 facilities include access restriction; air, HVAC, and exhaust systems; pressurization; mechanical and electrical equipment access; HEPA filters; air flow alarms; standby generators; and more.

US Dept. of Homeland Security National Bio & Agro Defense Facility BSL-4 Lab

2.2 Goal/Objective 2:

Figure 3 shows IKM's three-step stakeholder engagement process.

Figure 3:



STAKEHOLDER ENGAGEMENT APPROACH

IKM specializes in helping institutional clients design and realize their visions for large, complex, and technically sophisticated facilities. Most of these projects include a consortium of stakeholders with priorities, preferences, and preconceptions which may align in a unified fashion, but usually do not. Our services include a vital component of stakeholder engagement which brings our clients' diverse constituencies together early in the project in a structured process. We envision deploying this proven method to engage with each of the agencies that will enjoy the newly consolidated laboratory facility to be delivered by the project.

We seek to begin large complex projects by first having a clear definition of the goals and expectations of stakeholders. Often, this involves us assisting our clients' decision makers and their various user groups by expanding their comprehension of the spectrum of views and opinions of project influencers. We do this by inviting them into the conversation and ask that they share those views. This **"big room" approach** allows us to uncover and better understand these multiple perspectives as a group. Once the aspirations and potential trepidations of individual stakeholders are expressed and shared, we are equipped and informed to make better decisions holistically on behalf of the project.

Our design approach is predicated on the idea that collaboration, open dialogue, and client participation are fundamental to a successful project outcome.

The approach we propose is interactive. Before lines are drawn on paper, **our goal is to learn about your agencies**, how they work, who their stakeholders are, their goals, aspirations, concerns, and how they might choose to involve their staffs, patients, and communities.

The most successful outcomes follow a sequence of **interactive visioning and concept design workshops**, designed to build on one another as the development of the project program and design proceeds. The format of our workshops varies and may consist of a portion of a day, a full day, or carry over several days in which the design team "sets up shop" on site and engages with agency leadership, administration, individual user groups, and, if desired, the broader community. It is in this process that we uncover and **define the guiding principles** and vision for the project, which are jointly held by all. We also define and verify programmatic needs and synergies between agencies, and discuss the potential to collaborate and share resources and space for economy and efficiency. Importantly, we also review and discuss project constraints and limitations which may be actual or perceived by stakeholders. The sequence of workshops we propose would follow a three-step process of:

(1) **UNDERSTANDING**

(2) **EXPLORING**

(3) **DECIDING**

Understanding — we seek to learn about your agencies' vision for the project, the physical characteristics imposed by the site and context, programmatic needs, and budgetary limitations. In effect, the goal is to identify strengths and weaknesses and understand the goals and design principles that should guide the project.

Exploring — involves the evaluation of alternative "solutions" based on the information that has been gathered and analyzed. These solutions address not only the design of physical space, but also the design of the experience within that space. This includes the interactions that users of the facility want to promote and encourage. As with any laboratory facility, functional and operational characteristics will be explored to maximize the efficient use of space, determine proper workflows, and identify opportunities to share resources and collaborate. Design alternatives are reviewed with stakeholders and compared. Comparison with "benchmark" facilities researched by the design team could be brought into play at this point if the team feels that this would facilitate homing in on the most appropriate solution. Each option is evaluated for strengths and weaknesses based on the agreed goals and design principles.

Deciding — based on the evaluation of alternatives by stakeholders, the design team prepares a "final draft" concept plan and program for discussion and review. This plan, crafted to reflect the consensus input of stakeholders, becomes the basis for further development of the project.

STAKEHOLDER ENGAGEMENT WITH LABORATORY USERS

IKM has successfully deployed the stakeholder engagement process outlined above with our laboratory user clients over the years. We work closely with Principal Investigators, post-doc research assistants, lab managers, facility management, and other stakeholders in nearly every lab project we design. IKM works with university clients to assess and, in some cases, consolidate or reallocate laboratories for departments.

EXPERIENCE WORKING WITH WEST VIRGINIA AGENCIES

IKM is familiar with managing large projects in the state of West Virginia. We recently designed the 330,000 square foot WVU Medicine Children's Hospital and 320,000 square foot WVU Medicine Southeast Patient Tower. We have partnered with ZDS, a local MEP firm with extensive experience in West Virginia. ZDS has successfully worked with the WV State Purchasing Division in preparation of documents to procure competitive bids from potential contractors, and provided Construction Administration services through the completion of the projects. Members of the project team have completed hundreds of projects over many decades through WV governmental agencies which include, but are not limited to, the following:

- WV General Services Division
- WV Department of Education
- WV Department of Health and Human Resources (DHHR)
- WV Division of Natural Resources
- WV Air National Guard
- WV Army National Guard
- WV Higher Education Policy Commission
- WV Public Service Commission
- WV Division of Highways
- WV Department of Environmental Protection

ZDS currently has ongoing projects with the State of West Virginia for renovations and additions at the Capitol Complex and with the West Virginia Department of Health and Human Resources for the upgrades at the Chief Medical Examiner's facility in Charleston. A critical component of this project is understanding the different needs of each agency and working closely with each to determine how best to integrate solutions so that needs are met. Our team's long-term relationships and working histories with the various agencies will improve the quality of the outcome when determining solutions.

2.3 Goal/Objective 3:

EXPERIENCE WITH CONSTRUCTION PHASING

A vast majority of IKM's work is delivered through multiple bid packages to expedite schedules. It is a standard part of our planning and design process to identify long lead items and work backwards from when they need to be on site to establish deadlines for completion of early bid packages. This has resulted from ongoing inventory shortages, supply chain issues, and labor availability. Almost all of our work is built through the **Construction Manager at Risk (CMAR)** delivery method, which allows both market competition and a fast-track process. Most of our clients are hiring a Construction Manager through a competitive process at the same time or soon after the Architect is hired. Competitive Construction Manager fee proposals are solicited, and the Construction Manager bids all trades through an open book process. The CMAR process allows for **continual iterative cost estimating** and helps identify long lead items that would benefit the project as early bid backages. The CM attends design meetings and provides input regarding costs, material availability, and schedule.

Both the 330,000 square foot WVU Medicine Children's Hospital and 320,000 square foot WVU Medicine Southeast Patient Tower designed by IKM were complicated phased projects that had to allow for the continuous operation of the Hospital while being constructed. Both of these projects were delivered under the CMAR process.

EXPERIENCE WITH HIGHLY SPECIALIZED EQUIPMENT

Laboratories are increasingly highly technical spaces where scientists rely on expensive and sensitive equipment to perform their work. Data integrity and reliability are primary concerns and the spaces we design are tailored to meet exacting specifications for quality work to be performed. IKM frequently works with researchers and equipment planners to coordinate and develop design criteria for installation, including equipment weights, physical size, delivery routes, sizes of openings through which equipment must be moved, as well as environmental criteria, including temperature and humidity ranges, vibration and electromagnetic interference criteria, power quality, and other required building services. **Commissioning of space** prior to the installation or

WVU Medicine Children's Hospital


WVU Medicine Southeast Patient Tower

relocation of equipment is an important component to ensure new or upgraded buildings and systems are qualified before equipment is set up. It is much easier to remedy a building or system problem without having to work around a very expensive and sensitive scientific instrument which itself must be calibrated in its environment.

Procurement of equipment, both scientific and building system equipment, has been challenging and a persistent issue since the global pandemic. To mitigate these supply-chain or material scarcity issues, we encourage our clients to participate in **pull-planning** where we start with the future end-date of occupancy and use in mind and work backwards towards the present day. This allows us to determine the number of precedent steps required to achieve the end goal and the timing of each. This is an excellent tool to pinpoint when specific decisions are required. Frequently, we have found that project teams can no longer rely on Contractors procuring needed equipment within the bounds of their contract duration to meet schedule goals, and instead owners may direct-purchase specific items such as custom air handling units, electrical switch gear, transformers, or emergency generators prior to awarding contracts for construction. In these cases, the Contractor is assigned the responsibility to coordinate and install owner-furnished items at the appropriate stage in construction.

2.4 Goal/Objective 4:

OUR TEAM'S UNDERSTANDING OF THE PROJECT

The work conducted by the West Virginia state laboratory agencies is mission critical and important for maintaining the health, safety, and welfare of citizens across the state. As design professionals, we understand that facilities and their efficient operation play a large role in the effectiveness of institutions to deliver services. In the case of state laboratories, facilities play an even greater role due to their specialization and limited opportunities to outsource the work they do due to regulatory constraints, security, or safety concerns. When existing facilities have reached the end of their service life, are deficient, outmoded, and inflexible for future adaptation, it becomes imperative to replace them and to do so as expeditiously as possible to continue the mission of each agency. IKM and our design partners are prepared and committed to begin work on this project immediately and to proactively and cooperatively work with the Agency to explore ways to accelerate the project's development and construction with the goal of transitioning laboratory services to a state of the art facility as soon as possible.

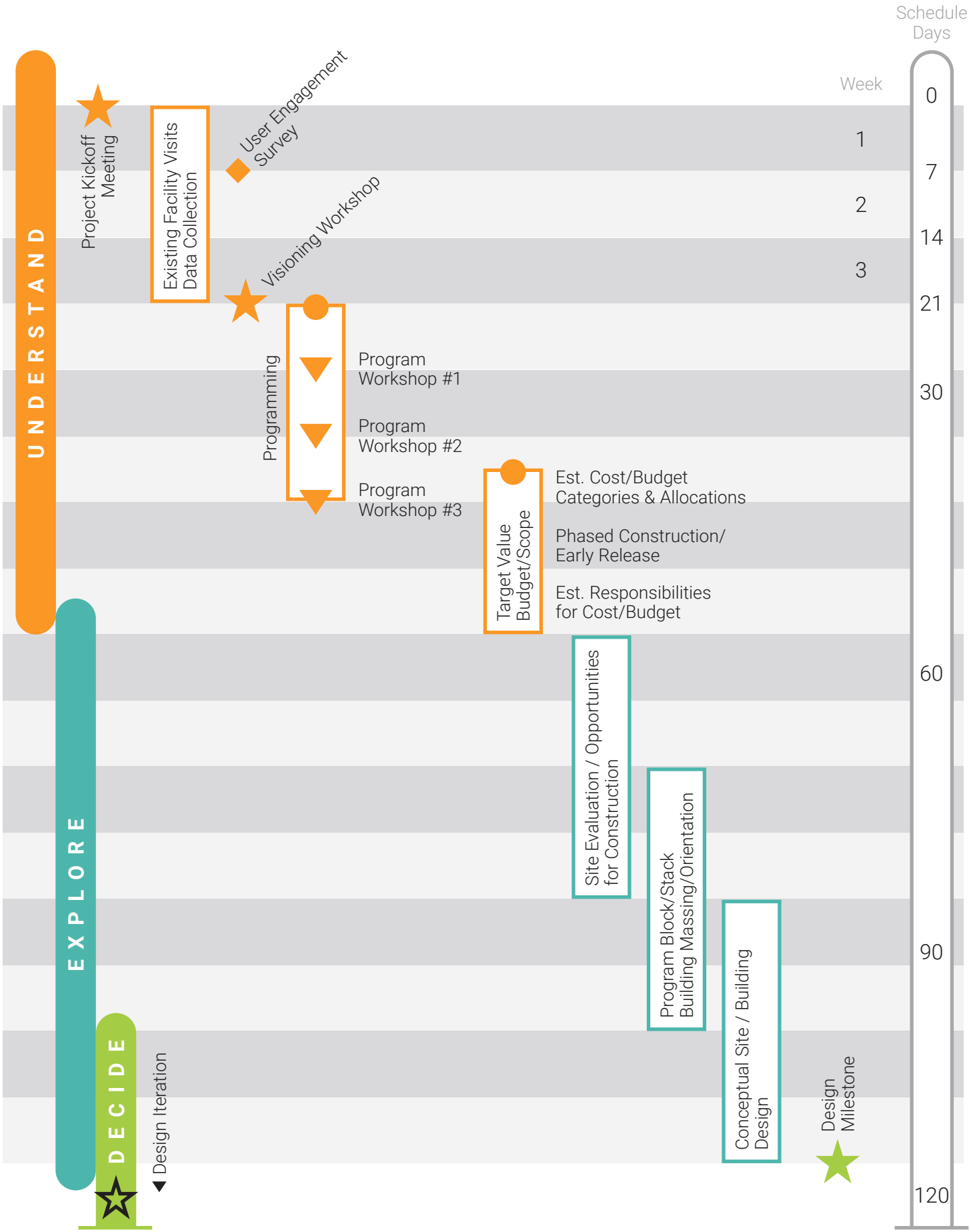
Dept. of Agriculture Labs

DHHR Public Health Lab

Project Schedule:

We have developed a "First 120 Days Schedule" indicating how our team will proactively approach the kickoff and early phase activities as the project commences. This schedule demonstrates how our project approach would be deployed to initiate the programming and early design phases. On the following page, **Figure 4** outlines an initial plan for the first 120 days of the project.

Figure 4: Proposed schedule for the first 120 days of the project.



Project Schedule:

Project Kickoff Meeting — We would expect this meeting to be attended by key personnel from IKM and the complete team of consultants (the Design Team), the Agency, and its stakeholders. The meeting is intended to introduce project team members, their roles and responsibilities, and to discuss items such as points of contact, communication protocols, identify decision makers, and review the proposed design schedule for the project.

UNDERSTAND

Existing Facility Visits / Data Collection — We propose to begin the "understand" phase by initiating a user group engagement survey as a precursor and means to collect information that will shape and inform future stakeholder meetings. This online survey will be sent to stakeholders to solicit direct feedback and assist us in developing a more comprehensive view of those doing the work in the spaces to be designed. We also will conduct a series of site visits to each of the state laboratories identified for consolidation to meet with users, discuss survey responses, and tour their existing facilities and have them explain needs, workflows, equipment, deficiencies, and opportunities for improvement and optimization.

Visioning Workshop — The purpose of this workshop is to have project stakeholders engage one another to share aspirations, goals, and opportunities that this project affords as potentials, as well as concerns, issues, and trepidations they may have when facing a significant change in how they operate. The outcome of the workshop will be a shared vision for the new facility and a set of guiding principles that are deemed critical to the success of the project by its stakeholders. It is intended that the project vision and guiding principles are committed to by the entire project team and are frequently revisited to ensure that the project remains true to them throughout the process. Guiding principles also assist in providing clarity during times when difficult decisions must be made in the course of the project.

Programming Phase — Over a series of workshops, we will develop and refine an architectural space program for the new facility. The programming phase is where the project team works together to determine or vet the physical space requirements for the project, considering square footage, adjacencies, and types of spaces. We will begin in Workshop #1 by accumulating the space needs of each stakeholder on an individual basis and to begin to clarify needs versus wants. Our activities in Workshop #2 will be focused on exploring synergies and opportunities for sharing of resources and development of a draft program statement. Workshop #3 will build consensus and finalize decisions required to adopt an approved program statement that provides direction for the design team to move forward in planning the facility.

Target Value Design / Budget and Scope — In this activity we will break down the project construction cost and develop scope categories with the intent of allocating construction cost budgets with specific project scope categories. Some example categories may include:

- Site / Civil / Landscape / Infrastructure
- Building Structure
- Architecture / Building Enclosure
- Interior Design
- Laboratory Design
- MEP+FP Systems
- Technology / Security

The intent is to identify cost centers for the project and agree on appropriate allocations for each, which will total up to the construction cost budget. At the same time, we will identify those responsible (including both on the Design Team and Agency stakeholders) for maintaining design value aligned with the budget allocations. In this way, we are better able to estimate cost trends for the design, project scope, and overall cost projections. Changes to the established scopes or allocations will require agreement from the project decision makers throughout the design process for full accountability and transparency.

A part of the discussion of Target Value Design, Budget, and Scope includes discussing potential fast-track construction delivery wherein discreet construction document packages, such as sitework and foundations, are prepared and released for early procurement and construction before the design of the entire facility is complete. This would be done to meet Agency goals for completing and occupying the new facility more quickly that could otherwise be achieved with a Design-Bid-Build delivery method. By

overlapping portions of the construction and design schedules, overall project time is condensed.

EXPLORE

The exploration phase is when the design team begins to synthesize design alternatives for presentation and consideration. We will begin with an evaluation of site design issues.

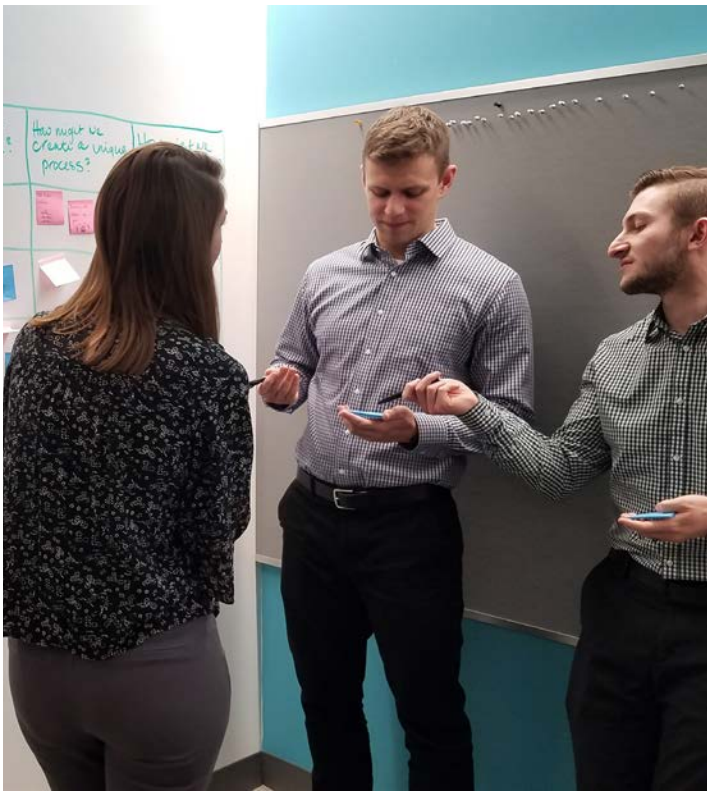
Site Evaluation / Opportunities & Constraints — Every building site is unique, and to some extent will drive design approaches and solutions. The site evaluation will include factors such as available utility services (types and capacities), access, adjacencies / neighbors, environmental concerns, subsurface investigations, vehicular access / transportation, solar access, prevailing wind directions, views, topography, etc.

Building Massing / Orientation — Information gathered and reviewed in the site evaluation step may inform building configuration, footprint, layout, and orientation. We will explore potential blocking and stacking of the building program and review opportunities and constraints and how they may manifest themselves in conceptual building forms. Alternative concepts will be developed and the pros and cons of each discussed.

Conceptual Site / Building Design — During this activity, we bring together the parts and pieces which were focal points in the preceding weeks. We will present conceptual building designs that incorporate the program, blocking, stacking, and massing, placed and oriented on the site with site elements including security, vehicle and pedestrian circulation routes, utility service connections, conceptual stormwater management strategies, and so on. We will also provide a cost / budget checkpoint to evaluate the relative costs of multiple approaches and maintain alignment with target value design goals.

DECIDE

The project team will be expected to reach many decisions throughout the project, and at this point, the Design Team will be looking for a decision on which direction to proceed moving to the Schematic Design phase. Reaching this decision milestone will require effort and cooperation of the entire team for the first 120 days. As we iterate and move through subsequent phases, there will be many more decision milestones, each with increasing granularity and refinement as the project evolves and is developed.



2.5 Goal/Objective 5:

PURCHASING DIVISION REGULATIONS

Our ability to follow the State of West Virginia's purchasing requirements will allow the project to run smoothly. This is one of several reasons ZDS Design/Consulting Services is on our team. They have been through this process countless times for both the West Virginia General Services Division and the DHHR. IKM also has experience with the purchasing requirements through the design and construction of the 50-bed addition to William Sharpe Hospital for the DHHR. We found the process clear and easy to follow.

CONSTRUCTION ADMINISTRATION

ZDS has personnel available minutes from both Morgantown and Charleston near each location discussed in the PERD report, and can respond quickly to be onsite as requested or needed. Our team's proximity to these locations will allow our personnel to provide the level of service necessary for this critical project. Accessibility to the project will be useful during the construction phase and allow for commissioning services if the pertinent State agencies desire those.

Our personnel assigned to Construction Administration tasks understand both the construction phase and the design process which will aid in monitoring construction and resolving problems effectively. Their efforts consistently avoid unnecessary deletions, substitutions, and change orders. Our Construction Administration services include coordination and close collaboration with the Contractors and the Owner throughout the multiple phases of the construction schedule.

Construction schedules must be prepared by the Contractor(s) and updated regularly to identify potential conflicts and opportunities that, when addressed early enough in the process, provide for a successful project completed within the desired period. Schedules must include milestone dates which are used to monitor construction.

A project of this size and scope will require the services of multiple team members. The Project Manager(s), being most familiar with the project, will oversee and participate in all Construction Administration duties, both office and field.

Our team utilizes digital technology for receiving, tracking, managing, and submitting documents during the Construction Administration process. The digital technology-assisted process provides automated notifications, detailed tracking metrics, overall project portal document control, and a centralized communication methodology. Our proven process is schedule-focused to ensure information is readily available when needed. All project documents are received and logged in by our personnel and distributed to the Project Managers and applicable team members.

William Sharpe Hospital 50-Bed Addition

MEP Approach:

The most successful approach to technically demanding facility projects requires active and meaningful engagement of the mechanical, electrical, and plumbing (MEP) design team. Whether renovating existing building systems or designing a new co-located lab, it is critical to understand the limitations and the programmatic requirements; offer informed options on redundancy, resiliency, flexibility, and operability; and share meaningful benchmark data. Our team's engineers are committed to assisting the State of West Virginia in determining the right approach for the Consolidated State Laboratory Facility Project. Critical to this endeavor will be finding solutions that allow spaces to function as required and be easily maintained for long-term reliability.

The following critical MEP issues should be addressed:

- **Systems Adaptability and Flexibility.** MEP systems need to be planned and designed to accommodate programmatic changes. For example, how will systems be created and zoned to meet various functional needs? Each function has differing air quantity and quality needs. The critical issue is really programmatic definition; ask the right questions early so systems can be planned to be flexible and adaptable to your needs while meeting code.
- **Energy and Water Conservation Programming and Design.** Energy and water conservation must be addressed during programming as well. AEI has created modeling tools that allow a client to understand their "environmental" decisions before design begins.
- **Systems Operability and Maintainability.** Systems must be designed to accommodate the needs and capabilities of the current O&M staff. Although the program is yet to be defined, we believe, based upon our knowledge of similar buildings, that the facility must be responsive to interdisciplinary research.

HIGH PERFORMANCE DESIGN

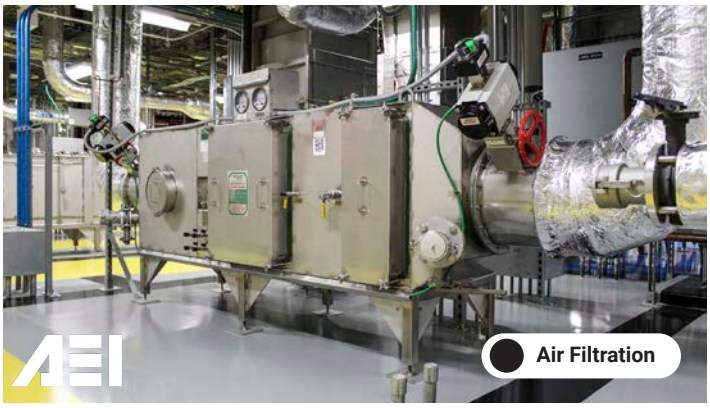
High performance design addresses each stage of a building's life cycle through an approach that integrates planning and design. It establishes a suite of performance goals – looking to optimize use of energy and water, achieve excellence in occupant experience, mitigate climate impacts while adapting to climate change, provide for durability and flexibility, and be cost-effective. These goals are tested through dialogue and exploration and by using the metrics provided through tools such as building energy and water modeling, life cycle cost analysis, and risk analysis.

High performance design integrates the fundamental sustainable attributes of building design and applies their consideration across the life of the building with energy use reduction as the key driver.

Total energy optimization incorporates the following:

- **Planning** – Framing possibilities informed by engineering.
- **Water** – Rapidly escalating cost and concern about future availability.
- **Energy** – Bettering the energy performance of comparable benchmark buildings.
- **Occupant Experience** – Air, light, temperature, sound, and cost.
- **Resilience** – The occurrence of increasing temperature and changing precipitation patterns impact facility design.
- **Operation** – Engineered "smart" to leave nothing on the table.

Our MEP team has in-depth experience introducing and incorporating innovative design solutions into a range of facility types, including research and science buildings. Energy recovery for the mix of programs in this project is a major focus.



In addition, our team has experience incorporating the following innovations based on the best solution for each project:

- High performance façade
- Chilled beams and radiant systems
- Geoexchange heating and cooling systems
- Solar hot water heating
- Supplemental photovoltaic power
- Advanced lighting/daylighting systems, including integration with electrochromic glazing
- Water collection/treatment/reuse systems (for flushing, sub-surface irrigation, and tower makeup)

COST SAVINGS

Our team is experienced at navigating value engineering exercises driven largely by inflation and supply chain logistics. The MEP consultants will work collaboratively with the owner, design team, cost estimator, and/or the contracting team early in the design to establish and assess value engineering opportunities that retain the functionality of the design. Starting the process early allows for larger design changes to be made without impacting the overall project schedule. It's important that value engineering doesn't undermine sustainability goals or equipment reliability and redundancy requirements that have been established. We leverage our experience to advise the owner on potential operational impacts of value engineering items that have been proposed.

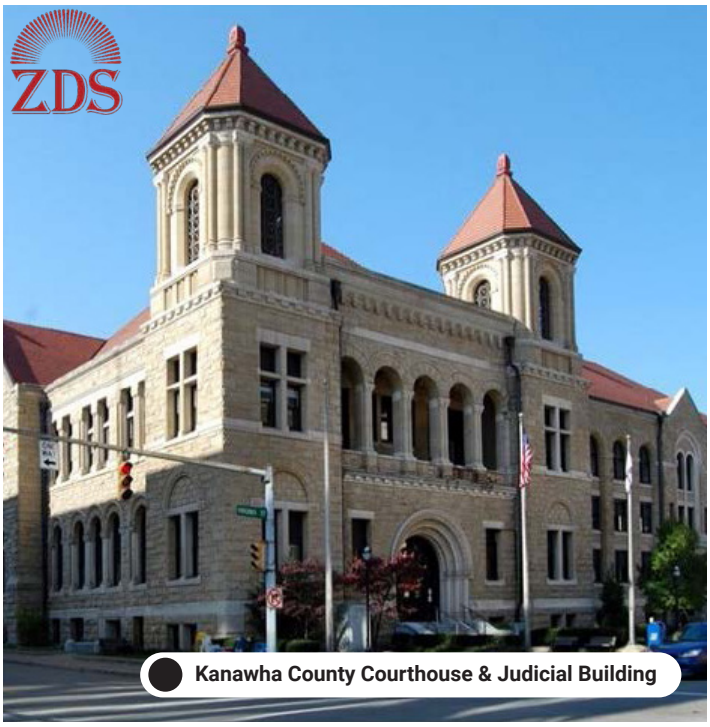
INNOVATIVE DESIGN

Our team includes experts at AEI with experience designing innovative mechanical systems that are tailored to meet the specific requirements of each unique project. Applying new technology and design concepts excites us but we are careful to do our due diligence to ensure the project won't run into issues down the road. This can include helping to facilitate mockup tests, working closely with equipment reps, visiting factories, discussing with internal subject matter experts, and engaging contractors to feel out any concerns with constructability or control sequences. We will also make sure to involve the client so we can collectively calculate risks.

3D SCANNING

If the best solution is to renovate existing buildings in lieu of constructing a new facility, ZDS can provide SCAN-TO-BIM service which allows for built conditions to be documented through 3D scanning of the facility. This service is valuable in preparing the design documents to avoid major conflicts with the infrastructure and between the various trades. On previous projects, it has been proven to lower contractor bids when the scans are shared with potential bidders.

US Army Corps of Engineers Public Health Command



Kanawha County Courthouse & Judicial Building

COMMISSIONING

ZDS has provided commissioning services on many new facilities and renovation projects. By commissioning the systems, we verified operations in accordance with design intent, fine-tuned the equipment to actual building conditions, and assisted the Owner's personnel with training. This process aims to maximize the efficiency of the system(s), improve comfort, and lower operating costs.

Our team can assist in the preparation of the **Owner's Project Requirements** (OPR) and **Basis of Design** (BOD) and provide comments or recommendations and develop a preliminary commissioning plan to define the process and participation of parties involved in performing commissioning activities. We prepare commissioning specifications for incorporation into the construction documents to define the commissioning process and requirements of all parties involved in the process.

During the project's construction phase, we review pertinent equipment submittals and utilize them in developing **project-specific pre-functional checklists** and **functional performance testing criteria**. We maintain a log of issues and continually track the progress of resolving issues by working with the Owner, design team, and contractors. Our team will coordinate the commissioning process through meetings, integration of commissioning into the construction schedule, witnessing installations and testing, and submission of reports. ZDS has a database of over 3,000 commissioning projects with the experience and expertise of issues encountered and solutions that we can access when we need additional resources to assist in overcoming challenges that occur. We believe this database of knowledge accumulated over the last two decades provides you with an excellent resource and the best value for your project.

We will witness the commissioning of systems and equipment testing identified for the project witness and/or verify functional testing of the identified systems and equipment, emphasizing the HVAC equipment and controls. **We will maintain an issues log, review training procedures and O&M manuals, and provide comments to assist in the training process.** We will document issues and report findings that the Contractor or others may need to address while the project is still under warranty.

Representative(s) from our team will attend all required project meetings and perform the on-site witnessing and verifications. Various individuals will be fully involved in developing and completing the documentation required for the commissioning of the project and the final commissioning report prepared in accordance with the standard of care for the industry. Due to the vast knowledge and expertise our team possesses, tasks will be distributed to the individuals whose strengths are ideally matched to provide the most efficient and effective results coinciding with the timing the tasks need to be performed. Having access

University of Iowa at Coralville State Hygienic Laboratory

to a solid team provides greater flexibility to have the appropriate staff involved as needed during the commissioning process.

ZDS typically works with designers, contractors, and Owners to weave in the commissioning process and integrate activities into the construction schedule to not adversely affect the construction process. We also can "flex up" with staff, if necessary, to accommodate a **compressed commissioning schedule** toward the end of a project.

Our team embraces the attitude that the primary goal of commissioning is to deliver (i) a **high-performance and efficiently operating facility** to the Owner, (ii) a **well-trained Operations and Maintenance staff**, and (iii) **high-quality and continually useful documentation** of the facility and of the commissioning process. Our approach strives to solve problems before they occur, working closely with contractors and technicians to identify and address them.

We will work with the Owner's representatives to define the appropriate level of commissioning services and sampling for all systems and equipment to achieve the desired goals of the commissioning process. Through our many years of commissioning experience, we have honed our approach and fine-tuned our procedures for commissioning common equipment and systems seen on similar projects. This experience allows us to assign the appropriate duration of time and level of effort needed to achieve an elevated level of performance and results for our projects.

Our team can commission 100% of the important systems in critical areas and then employ a **"sampling" strategy for non-critical systems/ equipment**. This sampling strategy sets forth a means for limiting the scope of actual testing (usually for time and/or budgetary reasons) to ensure the quality of the installed work does not suffer. We employ a randomly chosen percent-based sampling strategy for repetitive equipment such as VAV boxes, fan coils, VRF units, etc. in non-critical areas depending on the Owner's needs and requirements. Sampling is effective for repetitive equipment because problems that generally occur with these items tend to be pervasive across the project.

Maryland Public Health Laboratory

By employing staff familiar with controls, troubleshooting, and facility operations, we prefer to approach the commissioning process by first allowing the contractor to ensure the system is properly started and ready for functional testing. The contractor is responsible for documenting the start-up procedure, after which ZDS engineers and technicians take the lead and guide the contractors through the process of performing the functional tests while we observe and document the results. When problems are identified, we work with the corresponding contractor and together devise a means for correcting the problem as rapidly and cost-effectively as possible. We will frequently **develop a relationship with the construction team and Owner**, allowing us to perform common corrective measures in a 'real-time' fashion. Field corrections that are routinely identified and performed in coordination with the contractors include:

- Sensor calibrations.
- Minor BAS programming changes.
- BAS control loop tuning and stabilization.
- Minor mechanical corrections (damper linkages and positive positioners).

PROGRAMMING THROUGH DESIGN DEVELOPMENT

Subject Matter Experts Jeffery Owens and Carlos Perez-Rubio will lead the West Virginia Consolidated HERA Laboratory Design team focusing on the Public Health, Agriculture, Environmental Protection and Commerce labs. Ken Mohr will lead the Crime Lab Design (CLD) team focusing on the Homeland Security and Chief Medical Examiner labs. Each SME will address the Programming and Design in an efficient manner. See provided resumes for additional information.

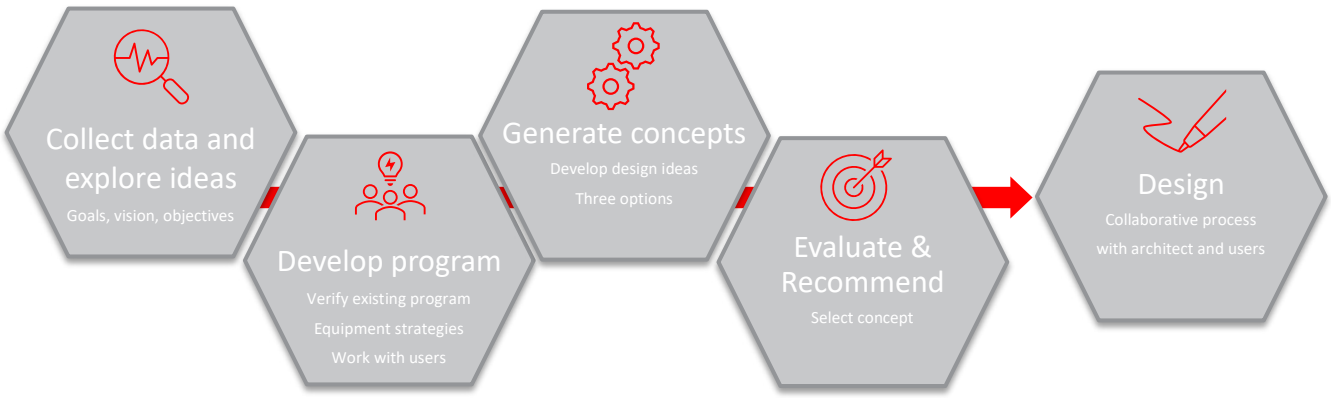
APPROACH PHILOSOPHY

All too often labs are designed by looking at what was done in the past, and then designed "to the average." This database-centric approach results in average facilities, even "cookie-cutter" design. HERA and CLD take a different approach. Instead of asking, "What do you want?" We ask, "What do you do?" "How do you do it?" and "What to you want to be doing in the future?" We get to the heart of the activities in the space and then plan accordingly.

FOUR-STEP PROGRAMMING PROCESS

The HERA/CLD programming process allows us to program for the ideal state and develop lab typology concepts for a comprehensive operation. Our stakeholder workshops facilitate an interactive process of engagement. Deliverables include summary of goals and drivers, a full program of space needs, lean flow diagrams and scenario development.

Figure 5 shows the four steps of the HERA/CLD programming process.



STEP ONE: DATA COLLECTION AND ANALYSIS

We collect pertinent information before the initial interactive user work session with your stakeholders. We review volume data, current state plans, org charts and staffing by discipline so we come prepared for the initial workshop. At the first meeting we introduce the planning process to the team and set project goals together in an interactive session.

STEP TWO: PROGRAM DEVELOPMENT AND LEAN FLOW

The WV Consolidated Lab facility drivers are many, and we will develop a program considering the degree of automation, volume of high through-put processes, type of manual testing, type of research and biocontainment needs and the governmental departments' missions. This step focuses on program validation using in-depth knowledge of lab processes, equipment, and goals. We use these factors, as well as our own benchmarking, to validate and produce a final program of spaces. Lean flow diagrams are generated to visualize adjacencies, connections and movement.

STEP THREE: GENERATE OPTIONS

The HERA/CLD team will generate scenarios that incorporate blocking diagrams of major lab components based on work and specimen flow, turnaround time, major equipment, staff needs, efficient circulation, required containment and material management.

STEP FOUR: SELECT OPTION

The final step is the evaluation of concept options, soliciting feedback from all stakeholders. The entire team will provide feedback in the review of the options. The recommended option can be used for budget modelling and development of a schematic design solution. In either case, it allows you to move forward confidently to the next phase of the project.

SCHEMATIC DESIGN

The Schematic Design workshops are intended to look at lab plans that further develop the flow, adjacencies and character of the lab types to allow the user groups to see how the overall lab designs meet the needs of all the unique moving parts of a consolidated lab facility. We will review Schematic Design options to ensure they appropriately address your operations and intended capacities, both standard and surge, incorporating key elements of tomorrow's comprehensive labs.

- **Provide flexible zones** for changes in processes, equipment, and transition to automation.
- **Connect computational lab spaces** for increases in bioinformation and data analysis results and computational needs, especially as labs move from wet to dry; and manual to automated processes.
- **Accommodate increases in molecular diagnostics**, including opportunities for automated, closed systems for extraction and amplification.
- **Facilitate efficiencies** and accommodate Lean processes to benefit lab operations, reducing unnecessary steps and travel time in laboratories. Planning for efficient operational techniques as centralized receiving and supplies; back loading and stock rotation methods; sample distribution and storage; and material and waste management help improve performance in processing heavy, diagnostic analytical labs.
- **Ensure specialty lab designs address response and readiness plans**, including decisions related to surge preparedness and research and emergency preparedness planning and processes.
- **Project Management meetings** will ensure that the project cadence and milestones are met. Internal design team work sessions will address the many facets of a complex consolidation project. Deliverables include Revit floor plans, indicating major equipment, sinks and workstations, and detailed room data sheets.

DESIGN DEVELOPMENT

Design Development will progress the spatial designs solidified in the Schematic Phase. Placement of owner furnished equipment and workstations will be further refined by HERA/CLD. Casework configurations and types will be illustrated in interior elevations and axonometrics. Materials and finishes will be evaluated and recommended. Stakeholder workshops will allow for engagement and feedback in the development of the design documents.

Project Management meetings will continue to address complex issues. Ongoing internal design team work sessions will evaluate and bring forward recommendations on systems, containment, products and details. Deliverables will include draft laboratory specifications, laboratory Revit floor plans, equipment plans, interior elevations, axonometrics, contractor furnished equipment schedules and sink schedules.

IKM will shadow the design process during DD and begin developing specialty casework and service panel details with vendors. At the conclusion of DD, the Revit model will be transferred to IKM.

ikm
Architecture

03
Qualifications, Experience, and Past Performance

Team Qualifications

Roger Hartung AIA, NCARB

Principal in Charge

Mr. Hartung has over 35 years of architectural experience encompassing all areas of design, management, administration, and production. He has significant experience with large capital projects as well as sophisticated healthcare projects which often involve complex environments and phased construction schedules. As Principal in Charge, he ensures that IKM is responsive to the client and that the project stays on schedule and on budget.

Education:
Carnegie Mellon University
Bachelor of Architecture

Professional Registration:
Architecture: WV, PA, VA, IL, NY, MD

Memberships:
American Institute of Architects (AIA)

Allegheny County Clack Campus Public Health Laboratory
Pittsburgh, PA
Completed: 2008
Contract Value: $3.6 Million
Role: Principal in Charge
New 10,000 SF facility including analytical labs, BSL-3 containment labs, and administrative and conferencing areas.

UPMC Hillman Cancer Center Research Pavilion
Pittsburgh, PA
Completed: 2002
Contract Value: $98 Million
Role: Project Architect
Three-level research pavilion accommodating 450 lab personnel. Includes collaboration space and approx. 154,000 SF of laboratories.

Carnegie Mellon University Mellon Institute Laboratories
Pittsburgh, PA
Completed: 2018
Contract Value: $2.3 Million
Role: Principal in Charge
Renovation to multiple laboratories within the Mellon Institute, including the Noonan Pyrophoric Lab, Guo Biochemistry Lab, and Yttri Biological Sciences Lab.

Calgon Carbon Innovation Center
Pittsburgh, PA
Completed: 2015
Contract Value: $4.1 Million
Role: Principal in Charge
Interior architecture to house the facilities where Calgon conducts research and development. Includes thermal and acoustic resistance, clean/dirty separation, and pressurization.

AHN Allegheny General Hospital Center for Surgical Arts Anatomy Lab
Pittsburgh, PA
Completed: 2015
Contract Value: $2.1 Million
Role: Principal in Charge
Teaching lab of 7,400 SF for neurosurgery. Includes audio/visual equipment, cold room for 21 cadavers, cold rooms for head storage, offices, lounge, and locker rooms.

Krystal Biotech
Pittsburgh, PA
Completed: 2020
Contract Value: $550,000
Role: Principal in Charge
Laboratory of 2,200 SF for process testing and quality control in support of a small scale GMP lab focused on product development. Open ceiling accommodates nine Biosafety cabinets and two fume hoods.

Brian Roth AIA, LEED AP

Project Manager

Mr. Roth has over 30 years of experience as a design architect and project manager in a wide variety of project types. He specializes in science and technology projects, focusing on bringing quality design and functionality to laboratory environments. As Project Manager and main point of contact, he represents the firm in all detailed communications with the client, consultants, and contractors. He manages the overall design team to ensure the project's completion.

Education:
Carnegie Mellon University
Bachelor of Architecture

Professional Registration:
Architecture: PA

LEED Accredited Professional

Memberships:
American Institute of Architects (AIA)

International Institute for Sustainable Laboratories (I2SL)

WVU Medicine Rockefeller Neuroscience Institute
Morgantown, WV
Completed: 2019
Contract Value: $25 Million
Role: Lab Planner
New facility for neurological research, learning, and treatment. Includes research labs, small animal vivarium, wet labs, LIFU, HIFU, and offices.

Penn State University College of Medicine Microbiology & Immunology Laboratory
Hershey, PA
Completed: 2018
Contract Value: $900,000
Role: Lab Planner
Laboratory renovations which provide state-of-the-art research spaces to faculty researchers. Phased renovation of existing labs and support areas.

Case Western Reserve University Cryo EM Lab Renovation
Cleveland, OH
Completed: 2019
Contract Value: $800,000
Role: Project Manager, Lab Planner
Decommission of existing EM lab to renovate for the installation of an FEI Titan Krios model. Evaluated existing space and requirements for new equipment.

Penn State University College of Medicine NMR Research Facility
Hershey, PA
Completed: 2018
Contract Value: $1.4 Million
Role: Lab Planner
Three-phase project including renovations to accommodate a new Cryo EM, upgrades to the NMR facility, and addition of 2,500 SF for collaborative workspace.

Penn State University College of Medicine Biochemistry & Molecular Biology Laboratory
Hershey, PA
Completed: 2019
Contract Value: $1.6 Million
Role: Project Manager, Lab Planner
Design of 6,800 SF of lab space for academic biomedical research. Includes flexible, modular lab design, space for lab technicians, and specialized labs for animal research.

Carnegie Mellon University Mellon Institute Yttri Laboratory
Pittsburgh, PA
Completed: 2018
Contract Value: $622,000
Role: Lab Planner
Renovation of four existing labs into a highly computational lab and research space. Includes work areas, three labs with holding rooms for mice, and office.

Kate Whitmore AIA

Project Architect, Lab Design

Ms. Whitmore is a project designer and architect with over ten years of experience completing technically complex projects for both research and healthcare facilities. Kate has completed multiple projects for healthcare clients such as Allegheny Health Network and WVU Medicine. As Project Architect, she works with the architectural staff and consultants to execute the project design and documentation, focusing on design of laboratory spaces.

Education:
Syracuse University
Bachelor of Architecture

Professional Registration:
Architecture: PA

Memberships:
American Institute of Architects (AIA)

AHN Allegheny General Hospital Center for Surgical Arts Anatomy Lab
Pittsburgh, PA
Completed: 2015
Contract Value: $2.1 Million
Role: Project Architect
Teaching lab of 7,400 SF for neurosurgery. Includes audio/visual equipment, cold room for 21 cadavers, cold rooms for head storage, offices, lounge, and locker rooms.

Calgon Carbon Innovation Center
Pittsburgh, PA
Completed: 2015
Contract Value: $4.1 Million
Role: Project Architect
Interior architecture to house the facilities where Calgon conducts research and development. Includes thermal and acoustic resistance, clean/dirty separation, and pressurization.

UPMC Mercy Pavilion
Pittsburgh, PA
Completed: 2022
Contract Value: $450 Million
Role: Project Architect, Clinical Spaces
Four-story clinical base with five-story tower dedicated to research, clinical trials, and a vivarium. Exterior collaborative stair links all research floors.

Krystal Biotech
Pittsburgh, PA
Completed: 2020
Contract Value: $550,000
Role: Project Architect
Laboratory of 2,200 SF for process testing and quality control in support of a small scale GMP lab focused on product development. Open ceiling accommodates nine Biosafety cabinets and two fume hoods.

Penn State University College of Medicine NMR Research Facility
Hershey, PA
Completed: 2018
Contract Value: $1.4 Million
Role: Project Architect
Three-phase project including renovations to accommodate a new Cryo EM, upgrades to the NMR facility, and addition of 2,500 SF for collaborative workspace.

Confidential Lab Client
Pittsburgh, PA
Completed: 2021
Contract Value: $1 Million
Role: Project Architect
Programming and space planning study to combine lab programs into a different facility. Relocation of Blood Analysis Lab and creation of Quality Control Lab.

Samantha Smelko AIA, LEED AP BD+C

Project Architect, Exterior Design, Building Envelope

Ms. Smelko has 16 years of experience working on healthcare facilities during all phases of design and construction for both new and renovation projects. She has extensive experience navigating coordination efforts between partner firms for large, multi-phase projects. As Project Architect, she works with the architectural staff and consultants to execute the design and documentation, focusing on exterior design of the building envelope.

Education:
Pennsylvania State University
Bachelor of Architecture

Professional Registration:
Architecture: PA

LEED Accredited Professional

Memberships:
American Institute of Architects (AIA)

UPMC Mercy Pavilion
Pittsburgh, PA
Completed: 2022
Contract Value: $450 Million
Role: Project Architect
Four-story clinical base with five-story tower dedicated to research, clinical trials, and a vivarium. Exterior collaborative stair links all research floors.

WVU Medicine Children's Hospital
Morgantown, WV
Completed: 2022
Contract Value: $176 Million
Role: Project Architect
Eight-story, 155-bed pediatric tower, women's pavilion, and medical office building. Includes neonatal ICU, pediatric ACU, pediatric ICU, operating rooms, radiology suites, and pharmacy.

UPMC Presbyterian Heart & Transplant Tower
Pittsburgh, PA
Completion Date: 2023
Contract Value: $800 Million
Role: Project Architect
Inpatient tower of 18 stories and 624 private rooms focused on revolutionary and humanizing technology to enhance patient care.

UPMC Hampton Outpatient Center
Pittsburgh, PA
Completion Date: 2017
Contract Value: $14 Million
Role: Project Architect
New three-story, 46,000 SF outpatient ambulatory care center with imaging and laboratory services to support the physician practices in the building.

Penn State Health Children's Lancaster Pediatric Center
Lancaster, PA
Completion Date: 2023
Contract Value: $12 Million
Role: Project Architect
Conversion of former big-box store into a pediatric outpatient center. Includes specialties, behavioral health, imaging, primary care, and Point of Care Lab.

Confidential Healthcare Client
Location Confidential
Completion Date: Ongoing
Contract Value: $125 Million
Role: Project Architect
Seven-story, 240-bed addition to a regional medical center. Include private rooms, 20-bed adult behavioral health unit, and new obstetric floor.

Jason Shymoniak AIA, NCARB

Project Architect, Engineering Coordinator

Mr. Shymoniak is a Project Architect with 16 years of experience working on a variety of projects from initial planning and design through completion of construction. As Project Architect, he works with the architectural staff and consultants to execute the design and documentation, focusing on coordinating with engineering consultants.

Education:
Kent State University
Master of Architecture

Professional Registration:
Architecture: PA

National Council of Architectural Review Boards (NCARB)

Memberships:
American Institute of Architects (AIA)

WVU Medicine Rockefeller Neuroscience Institute
Morgantown, WV
Completed: 2019
Contract Value: $25 Million
Role: Project Architect
New facility for neurological research, learning, and treatment. Includes research labs, small animal vivarium, wet labs, LIFU, HIFU, and offices.

UPMC Presbyterian Heart & Transplant Tower
Pittsburgh, PA
Completion Date: 2023
Contract Value: $800 Million
Role: Project Architect
Inpatient tower of 18 stories and 624 private rooms focused on revolutionary and humanizing technology to enhance patient care.

WVU Medicine Physician Office Center Vertical Addition
Morgantown, WV
Completed: 2020
Contract Value: $20 Million
Role: Project Architect
Addition of 50,000 SF over two floors to accommodate clinic and administrative services associated with the Rockefeller Neuroscience Institute.

WVU Medicine L2-L5 Perioperative Renovation
Morgantown, WV
Completed: 2020
Contract Value: N/A
Role: Project Manager
Renovation and expansion on Levels 2 & 5 including 20 patient bays, nurse stations, nourishment, clean room, soiled utility, and employee support.

UPMC Presbyterian Heart & Vascular Institute PET Scanner
Pittsburgh, PA
Completed: 2021
Contract Value: $270,000
Role: Project Architect
Renovation of existing decommissioned CT room to accommodate new non-invasive Cardiac PET scanner.

UPMC Presbyterian Outpatient Dialysis
Pittsburgh, PA
Completed: 2022
Contract Value: $250,000
Role: Project Architect
Renovation and reorganization of the existing short stay unit to convert into an outpatient dialysis unit with six bays, equipment storage, soiled holding, nourishment, and staff workstations.

Whitney Livsey NCIDQ, Associate IIDA, LEED AP ID+C

Interior Designer

ikm Architecture

Ms. Livsey has over 12 years of experience design for the workplace and higher education sectors. Working on numerous corporate and institutional projects, she has a developed an understanding of the design and construction process which allows her to create unique, rewarding spaces for her clients.As Interior Designer, she identifies and creatively solves problems in order to enhance the function and quality of interior environments.

Education:
Kent State University
Bachelor of Interior Design

Professional Registration:
National Council for Interior Design Qualification (NCIDQ)

LEED Accredited Professional Interior Design + Construction

Memberships:
International Interior Design Association (IIDA)

Carnegie Mellon University Mellon Institute Yttri Laboratory
Pittsburgh, PA
Completed: 2018
Contract Value: $622,000
Role: Interior Designer
Renovation of four existing labs into a highly computational lab and research space. Includes work areas, three labs with holding rooms for mice, and office.

WVU Medicine Children's Hospital
Morgantown, WV
Completed: 2022
Contract Value: $176 Million
Role: Interior Designer
Eight-story, 155-bed pediatric tower, women's pavilion, and medical office building. Includes neonatal ICU, pediatric ACU, pediatric ICU, operating rooms, radiology suites, and pharmacy.

Confidential Science & Technology Client
Clinton, PA
Completed: 2021
Contract Value: $19.5 Million
Role: Interior Designer
Tenant improvements for 200,000 SF of space, including research and development labs, expanded metrology lab, open office environment, and employee canteen. ISO 8 standards.

Covestro Pittsburgh Building 2 Lab Renovation & Machine Area Update
Pittsburgh, PA
Completed: 2022
Contract Value: $7.5 Million
Role: Interior Designer
Renovation of 8,300 SF of existing lab space and 6,000 SF of workspace. Upgrades to existing infrastructure to accommodate new equipment.

Confidential Lab Client
Pittsburgh, PA
Completed: 2021
Contract Value: $1 Million
Role: Interior Designer
Programming and space planning study to combine lab programs into a different facility. Relocation of Blood Analysis Lab and creation of Quality Control Lab.

UPMC Pinnacle Heart & Vascular Institute
Mechanicsburg, PA
Completed: 2022
Contract Value: $9.5 Million
Role: Interior Designer
Suite of 46,000 SF to accommodate the expandion of the Heart & Vascular Institute services. Highly compressed nine month schedule required close coordination with client and contractor.

ROLE ON PROJECT
Principal-In-Charge

LUCY LOUKANOVA PE | PRINCIPAL

Lucy is a principal specializing in mechanical engineering. Throughout her 20+ year tenure, she has worked on a variety of projects for research and development, federal, higher education, infrastructure and healthcare clients. Lucy's experience includes coordinating activities of design team members, layout, completing plans and specifications, performing load calculations, selecting mechanical equipment and performing surveys of project sites. She works closely with other disciplines to coordinate mechanical requirements with architectural and structural designs.

EDUCATION

Master of Science
Water Supply and Sewerage
University of Architecture, Civil Engineering, and Geodesy

REGISTRATION/CERTIFICATION

Registered Professional Engineer:
Maryland (#36084)

RELEVANT PROJECTS

US Department of Homeland Security - National Bio and Agro Defense Facility (NBAF) - Manhattan, KS
Mechanical Engineer for the feasibility study and resultant design of this 520,000 SF facility which integrates human, foreign animal, and zoonotic disease research, development and testing that allows for research to enhance agricultural and public health. NBAF contains significant space devoted to biocontainment labs, rated BSL-2, -3E, -3AG, and -4. Research support spaces include cold rooms, fermentation rooms, imaging, and a 70,000 SF vivarium. The CUP design included 7,000 tons of chilled water, 25,750 PPH of steam, and all distribution. Designed and delivered using BIM.

US Army Corps of Engineers, Baltimore District - Public Health Command - Aberdeen Proving Grounds, MD
Mechanical Engineer for the construction of a new 275,000 SF replacement laboratory, which consists of field, wet, and BSL-2 laboratories; ABSL-2 animal holding; test and evaluation areas; and administration space. A new central utility plant was provided which features 4,200 tons of chilled water and 1,750 BHP steam and all distribution. Project responsibilities included overall MEP project management, client meetings and presentations, preliminary load calculations and equipment selections, and interdisciplinary coordination. The project was designed and delivered in accordance with the NIH DRM requirements and utilized BIM. The project was designed to achieve LEED® Gold certification. AEI's services included mechanical, electrical, plumbing, IT and instrumentation and controls design; energy modeling; LEED Consulting; and BIM Revit.

US Army Corps of Engineers, Baltimore District - Medical Research Institute of Chemical Defense (MRICD) - Aberdeen Proving Grounds, MD
Lead Mechanical Engineer for these 526,255 SF highly sophisticated and technically complex medical chemical countermeasures research and development complex. The project includes a 52,000 SF vivarium for non-human primates and a 40,000 SF central utility plant. The project is registered for LEED Silver certification.

National Institutes of Health - A/E Services to Renovate Building 10 E-Wing - Bethesda, MD
Mechanical Engineer for the conversion of approximately 249,500 SF of former patient care and laboratory areas and support space to a new clinical service area, laboratory, lab support, teaching facilities, office space, and building support space. The project includes 25,000 SF state-of-the-art CGMP facilities. The renovation includes a full interior and complete systems upgrades. AEI's services included mechanical, electrical, plumbing, architectural lighting and IT design; and BIM Revit.

University of Maryland, Baltimore - Health Sciences Research Facility III - Baltimore, MD
Mechanical Engineer for the 434,930 SF state-of-the-art facility which was designed to house the most well-funded investigators working to answer "big science" research questions using a multi-disciplinary approach. It provides inter-disciplinary and collaborative research space for the Schools of Dentistry, Medicine, and Pharmacy at The University of Maryland, Baltimore. The project comprised the design and installation of wet, dry and BSL-2 laboratories; an animal research facility; an imaging suite; and nanomedicine. The project achieved LEED® Gold certification and was designed and delivered using BIM. AEI's services included mechanical, electrical, plumbing, IT, sustainable, instrumentation and controls design; construction administration; BIM Revit; construction field services; BIM; LEED® consulting; and energy modeling.

ROLE ON PROJECT
Subject Matter Expert - Cleanrooms

RICK FLOCK PE | PRINCIPAL

A principal and project manager, Rick leads projects for pharmaceutical/biotechnology, federal, industrial/manufacturing, and higher education clients. During his 30+ years with AEI, he's provided mechanical design expertise for facilities containing vivaria, cleanrooms, and biohazard safety level (BSL) laboratories. Clients have included Takeda Pharmaceutical Company, Exact Sciences, Battelle Memorial Institute, MilliporeSigma, Promega, U.S. Army Corps of Engineers, and U.S. Department of Homeland Security.

EDUCATION

Bachelor of Science
Architectural Engineering
Milwaukee School of Engineering

REGISTRATION/CERTIFICATION

Registered Professional Engineer:
Wisconsin (#38762)

PROFESSIONAL SOCIETIES AND ACTIVITIES

Member – American Society of Heating, Refrigerating, & Air Conditioning Engineers

Member – International Society for Pharmaceutical Engineering

Speaker – "Life-Cycle Driven Master Planning: A Case Study of Repurposing Campus Buildings" – I2SL Annual (2018)

RELEVANT PROJECTS

US Department of Homeland Security - National Bio and Agro Defense Facility (NBAF) - Manhattan, KS

Mechanical Engineer for the feasibility study and resultant design of this 520,000 SF facility which integrates human, foreign animal, and zoonotic disease research, development and testing that allows for research to enhance agricultural and public health. NBAF contains significant space devoted to biocontainment labs, rated BSL-2, -3E, -3AG, and -4. Research support spaces include cold rooms, fermentation rooms, imaging, and a 70,000 SF vivarium. The CUP design included 7,000 tons of chilled water, 25,750 PPH of steam, and all distribution. Designed and delivered using BIM.

US Army Corps of Engineers, Baltimore District - Medical Research Institute of Chemical Defense (MRICD) - Aberdeen Proving Grounds, MD

Lead Mechanical Engineer for these 526,255 SF highly sophisticated and technically complex medical chemical countermeasures research and development complex. The project includes a 52,000 SF vivarium for non-human primates and a 40,000 SF central utility plant. The project is registered for LEED Silver certification.

Confidential Client – Midwest U.S

- Building 82 Corporate Standards Lab Renovation: Project Manager and Mechanical Engineer for a metrology lab renovation, which focused on upgrading the current lab to meet GMP compliance requirements.
- Building 104 – Project G: Mechanical Engineer for consolidating various lab and office functions into one location and moving them closer to parenteral manufacturing. The total building area is 177,000 sf, including a 77,600 sf quality-control lab wing and 100,200 sf of administration offices.
- Building 110 – Project H: Mechanical Engineer for this three-story, 266,000 sf addition to the existing building. This facility provides 120 new discovery chemistry labs and associated support for the campus, while consolidating and renovating existing functions for a more efficient workplace.

Battelle Memorial Institute – Multiple Locations

- Health and Life Sciences Vivarium Expansion, Greenfield Toxicology Facility – West Jefferson, OH: Lead Mechanical Engineer for the design of a new 170,000 sf single-story facility comprised of a toxicology vivarium (non-human primates, canines, and rodents), associated analytical laboratories, offices, support spaces, and three mechanical penthouses. Rick led the mechanical design effort for this project, responsible for review and oversight of all engineering calculations, equipment selection, specifications, and documentation. He coordinated the overall engineering design with other discipline engineers and architectural team members.
- Preliminary Design Services for the Health and Life Sciences Laboratory Expansion – Columbus, OH: Mechanical Engineer for a preliminary siting feasibility study for two potential space scenarios and air dispersion modeling for each scenario. AEI studied the feasibility of a phased renovation and expansion of existing laboratory and office space at Battelle's main campus in Columbus, Ohio, as well as the phased construction of a new facility located on a greenfield site on its West Jefferson, Ohio campus.

Northwestern University – Basic Industry Research Laboratory – Chicago, IL

- Lead Mechanical Engineer for this130,000 sf renovation of lab and office spaces to accommodate animal rooms, procedure rooms, necropsy and surgery spaces and a new cage wash.

ROLE ON PROJECT
Subject Matter Expert - Building Performance

PAUL ERICKSON LEED AP BD+C | PRINCIPAL

Leading AEI's Building Performance Practice (BPP), Paul provides valuable consultation to clients across the science and technology sector seeking to create sophisticated research and development facilities that minimize environmental and economic impact. He collaborates with project partners — setting the tone as principal-in-charge and project manager — to facilitate integrated design efforts that utilize a host of performance simulation and energy modeling tools to drive innovative, technologically advanced solutions that ensure long-term operational reliability.

EDUCATION

Master of Science
Civil Engineering – Building Systems
University of Colorado (2005)

Bachelor of Science
Environmental Geosciences
Michigan State University (2000)

REGISTRATION/CERTIFICATION

LEED Accredited Professional Building Design+Construction (2006)

AWARDS

Consulting-Specifying Engineering "40 Under 40" Award (2016)

ENR Midwest – "Top 20 Under 40" Award (2013)

PROFESSIONAL SOCIETIES AND ACTIVITIES

Speaker – "Examining the Impact of Sustainability Targets on Life Science Projects & Facilities" – Advancing Life Science Construction (2023)

Speaker – "Largest On-Site Net-Zero Energy Building in the US: California Air Resources Board Headquarters" – Tradeline Research Facilities (2022)

Speaker – "Lab energy tipping points: Two critical transitions you need to anticipate for your research facility future" – Tradeline Research Facilities (2021)

Speaker – "Zero Net Energy and Carbon, the New Normal for California State Buildings" – NASFA Virtual National Conference: Building Back to Normal (2021)

RELEVANT PROJECTS

University of Pittsburgh Medical Center – Center for Innovative Science Programming – Pittsburgh, PA
Project Manager and Sustainability Planner for MEP/FP/Sustainable systems programming and design of this cancer and biomedical research complex consisting of the renovation of a 211,400 sf existing building and the new construction of a 174,800 sf building over a 115,600 sf sub-grade parking/ service facility. The study located major equipment, evaluated options to reduce operating/utility costs, and determined the building systems' flexibility.

Wexford Science + Technology, LLC – The Assembly – Pittsburgh, PA
Project Manager for the design of a 355,000 sf biomedical research complex in Pittsburgh's historic Automobile Row. Transforming a former industrial manufacturing facility, the project consists of a 245,000 sf renovation, 110,000 sf new construction, and in-building parking with 324 spaces and electric charging stations. AEI provided planning, MEP/I&C/sustainable and architectural design.

Johnson & Johnson – Pharmaceutical Research & Development Laboratory, Building 42 – Spring House, PA
Sustainable Design Specialist for the Research Complex I (RCI), a 150,000 sf chemistry and biology research facility, and for the 80,000 sf of renovated space in the existing research building (ERB). The project utilized whole-building energy modeling as the evaluation tool for design decisions. The evaluation of various MEP systems and architectural components is considered from an annual operating and maintenance perspective, as well as from a carbon

California Institute of Technology – Resnick Sustainability Institute — Pasadena, CA
Sustainability Engineer for conceptually developing and defining proposed renovations and/ or modifications of the existing MEP systems (both below and above grade) within the proposed site boundaries for the new Caltech Resnick Sustainability Institute. As part of the new Resnick Sustainability Institute, the existing MEAD building will be razed. AEI understands that many of the existing MEP systems serving MEAD originate and/or are extended from the existing Noyes Laboratory. In addition to impacts to existing MEP systems within Noyes and Braun Laboratories, modifications to existing below grade thermal (steam, condensate, and chilled water) and power utilities may also be required. AEI is providing MEP conceptual design engineering services.

Wexford Science + Technology, LLC – Aggie Square Phase1– Sacramento, CA
Project Manager for Phase One creating 843,719 sf of shell and core space in four new buildings, featuring lab, classroom, and research space, retail and student housing, community spaces, a 1700-stall parking structure, and other public spaces. The 326,735 sf seven-story Life Sciences Technology Engineering East building is being planned for new laboratory, office, support space, retail, top-floor vivarium, loading dock, and screened-roof mechanical equipment. The 247,006 sf seven-story LSTE West is being designed to support new laboratory, office, support space, retail, top-floor cGMP space, loading dock, and screened-roof mechanical equipment. The eight-story high rise, 269,978 sf Lifelong Learning Tower building will house office, dry research, classrooms, public and conference space, with connections to LSTE East on the first and second floors. These floors include the Cambridge Innovation Center District Hall, continuing and professional education classrooms, and a community hub open to both private and public uses. AEI's responsibilities for the project included: mechanical, electrical, piping, fire protection, lighting design, technology and security. The building design complies with office of the president requirements for 100% electrification and ambitious EUI requirements.

ROLE ON PROJECT
Lead Mechanical Engineer

MICHELLE BLOSHTEYN PE, LEED AP | MECHANICAL ENGINEER

Michelle has more than 28 years of experience as a professional engineer. Throughout her career, she has been responsible for the design and project management of mechanical systems associated with a variety of facility types including higher education, healthcare, research, and federal. Michelle's experience includes providing analysis and design of HVAC systems including load calculations, equipment/material selection, layout, sizing, control and other design considerations associated with a particular project.

EDUCATION

Master of Science Mechanical Engineering
University of Maryland (1999)

Bachelor of Science Mechanical Engineering
University of Michigan (1994

REGISTRATION/CERTIFICATION

Professional Engineer:
Maryland #26572
Virginia #0402041572
District of Columbia #PE904430

USGBC LEED Accredited Professional (2011)

NCEES

PROFESSIONAL SOCIETIES AND ACTIVITIES

ASHRAE

RELEVANT PROJECTS

Howard University - New Stem Complex Programming & Design Services - Washington, DC
Lead Mechanical Engineer for a new 454,357 SF, seven-story lab-intensive STEM Center at Howard University. The interdisciplinary STEM facility will embrace the existing, historically significant C.B. Powell (Freedmen's Hospital) building. The project will also include the renovation of a historic structure that will be connected to the new facility. The renovated portion will provide space for "dry" uses such as offices, classrooms, and administrative support spaces. The proposed new STEM facility will cluster programs requiring access to specialized labs and instructional spaces that create opportunities for interdisciplinary collaboration. The proposed building co-locates science, technology, engineering and mathematics programs to foster interdisciplinary collaboration, innovation, and discovery. **This program enables STEM programs that are currently spread across various parts of the campus to be consolidated into one contiguous, state-of-the-art location providing one-stop access to teaching and research labs, office and administrative functions, classrooms, meeting spaces, and other academic and campus support resources.** AEI will be providing mechanical and electrical engineering design services during the project's programming and design phases.

National Institutes Of Health - A/E Services To Renovate Building 10 E-Wing - Bethesda, MD
Mechanical Engineer for the conversion of approximately 249,500 SF of former patient care and laboratory areas and support space to a new clinical service area, laboratory, lab support, teaching facilities, office space, and building support space. The project includes 25,000 SF state-of-the-art CGMP facilities. **The renovation includes a full interior and complete systems upgrades. AEI's services included mechanical, electrical, plumbing, architectural lighting and IT design; and BIM Revit.**

United States Army Corps of Engineers Public Health Command - Aberdeen Proving Grounds, MD
Mechanical Engineer for the construction of a new 275,000 SF replacement laboratory, which consists of field, wet, and BSL-2 laboratories; ABSL-2 animal holding; test and evaluation areas; and administration space. A new central utility plant was provided which features 4,200 tons of chilled water and 1,750 BHP steam and all distribution. Project responsibilities included overall MEP project management, client meetings and presentations, preliminary load calculations and equipment selections, and interdisciplinary coordination. The project was designed and delivered in accordance with the NIH DRM requirements and utilized BIM. The project was designed to achieve LEED® Gold certification. AEI's services included mechanical, electrical, plumbing, IT and instrumentation and controls design; energy modeling; LEED Consulting; and BIM Revit.

United States Naval Academy - Center For Cyber Security Studies - Annapolis, MD
Mechanical Engineer for the Center for Cyber Security Studies building project for the U.S. Naval Academy in Annapolis, MD. The 206,400 SF academic building is dedicated to the education of midshipmen in all areas of cyber warfare. The building includes classrooms and lecture halls, teaching and research laboratories, a research and testing tank to support the engineering and weapons laboratories, an observatory, offices, and multi-purpose collaborative space for students and faculty. Features include DOAS with fan-powered terminal control and heat recovery, high efficiency condensing boilers, energy-efficient lighting control, demand control ventilation, and onsite renewable systems such as photovoltaics, wind farm, and fuel cells. The project was designed and delivered using BIM and is LEED® Silver certified. AEI's services included mechanical, electrical, plumbing, sustainable and fire protection design; BIM Revit; and energy modeling.

ROLE ON PROJECT
Lead Electrical Engineer

CHAD DUNBAR PE | ELECTRICAL ENGINEER

Chad is a registered professional engineer with more than 20 years of diverse project experience in the industry. He has served on projects involving healthcare, research laboratory, low- and high-rise commercial/office buildings, mixed use retail, higher education, radio/television broadcast, and state/federal government facilities. Chad is experienced in building level power distribution, emergency power systems, interior/exterior lighting design and illumination calculations, lightning protection systems, fire alarm design, telecom pathways infrastructure design, and critical operations power systems (COPS) facility design. In addition, he has provided services for peer reviews, survey and documentation of existing systems, electrical systems feasibility and improvement studies, and general electrical short-circuit calculations using standard industry software packages.

EDUCATION

Bachelor of Science, Electrical Engineering, Georgia Institute of Technology, 2002

REGISTRATION/CERTIFICATION

Registered Professional Engineer:
Maryland (#44677)
Virginia (#0402055272)
Washington DC (#908209)

PROFESSIONAL SOCIETIES AND ACTIVITIES

Institution of Electrical & Electronics Engineers (IEEE)

RELEVANT PROJECTS

Howard University - New Stem Complex Programming & Design Services - Washington, DC
Electrical Engineer for a new 454,357 SF, seven-story lab-intensive STEM Center at Howard University. The interdisciplinary STEM facility will embrace the existing, historically significant C.B. Powell (Freedmen's Hospital) building. The project will also include the renovation of a historic structure that will be connected to the new facility. The renovated portion will provide space for "dry" uses such as offices, classrooms, and administrative support spaces. The proposed new STEM facility will cluster programs requiring access to specialized labs and instructional spaces that create opportunities for interdisciplinary collaboration. The proposed building co-locates science, technology, engineering and mathematics programs to foster interdisciplinary collaboration, innovation, and discovery. This program enables STEM programs that are currently spread across various parts of the campus to be consolidated into one contiguous, state-of-the-art location providing one-stop access to teaching and research labs, office and administrative functions, classrooms, meeting spaces, and other academic and campus support resources. AEI will be providing mechanical and electrical engineering design services.

National Institutes Of Health - A/E Services To Renovate Building 10 E-Wing - Bethesda, MD
Electrical Engineer for the conversion of approximately 249,500 SF of former patient care and laboratory areas and support space to a new clinical service area, laboratory, lab support, teaching facilities, office space, and building support space. The project includes 25,000 SF state-of-the-art CGMP facilities. The renovation includes a full interior and complete systems upgrades. AEI's services included mechanical, electrical, plumbing, architectural lighting and IT design; and BIM Revit.

University Of Maryland Medical Center - Comprehensive Clinical Cancer Center - Roslyn And Leonard Stoler Center For Advanced Medicine - Baltimore, MD
Lead Electrical Engineer for a projected 228,000 SF building (155,000 SF new addition and 73,000 SF renovations). The project's goal is to consolidate the new and renovated facilities to become the home of UMMC's cancer care services in downtown Baltimore. The center's services include outpatient consulting, diagnosis and treatment, and inpatient treatment and boarding. The new facilities will be connected to and integrated with the existing support, and electrical, mechanical and plumbing services are receiving some level of modification and augmentation to support the expanded footprint of the hospital and new demands. Central utilities will require augmentation at the South Hospital chiller plant and emergency power generator systems. Heating capacities will require augmentation in the North Hospital basement. The project is targeting a LEED® Silver rating. AEI's services include mechanical, electrical, plumbing and fire protection design.

U.s. Army Corps Of Engineers - Walter Reed Army Institute Of Research Building 501 Vaccine Facility, Silver Spring, MD
Electrical Engineer for the renovation and expansion of a 23,097 SF vaccine production facility. The complete rebuild established a state-of-the-art cGMP vaccine production facility capable of producing 50,000 to 100,000 vials per batch and producing products beyond Phase 1 trials. The facility features biological, chemical, and viral BSL-2 testing laboratories; ISO class 7, 8, and 9 clean production areas; decontamination and sterilization areas; and cryogenic storage and freezer sample storage areas. The facility also includes high-bay, general, chemical, and BSL-2 laboratories; cleanrooms; and bio-storage. This project was designed to meet LEED® Silver certification. AEI's services included mechanical, electrical, plumbing, fire alarm, fire protection, IT, and instrumentation and controls design; mechanical, electrical, piping/plumbing and process engineering design; BIM Revit; construction administration; energy modeling; LEED® consulting; and BIM Revit.

ROLE ON PROJECT
Lead Piping/Plumbing Engineer

SIMBAT MOVSESSIAN | PLUMBING/PIPING DEPT. HEAD

Simbat has experience in designing plumbing and fire protection systems that include the renovation and new construction of laboratories, higher education, health science and institutional facilities. He is skilled in designing/calculating various plumbing systems including domestic water, sanitary waste and vent, storm, fuel-oil and fuel-gas, medical gas, pure water and fire protection and other specialty systems as required. Simbat is the head of AEI Metro DC's plumbing department and has a unique combination of technical, management, and client relation skills to bring together any type of project from start to finish.

EDUCATION

Plumbing and Fire Protection Design
Northern Virginia Community College (1996)

Computer Hardware Technology
and Programming
Montgomery College (1992)

Bachelors of Science and Engineering Studies
Polytechnic University, Tehran (1987)

RELEVANT PROJECTS

University of Pittsburgh – Mid Campus Complex Pittsburgh, PA

Plumbing Engineer for the evaluation of Nuclear Physics Laboratory and Space Research Coordination Center buildings to develop a plan for a series of phased renovations and moves to be implemented over a 10-12 year redevelopment horizon. The study led to the 140,056 sf renovation of 13 experimental physics laboratories. The project laboratories included the following elements: SPM cryostats, optics, sputter deposition, laser, and high energy physics. The project involved design for clean rooms and dust free environments using 1,000, 10,000, and 100,000 class HVAC design. Modifications and upgrades to the building electrical distribution, lighting and systems to include power conditioning and UPS were also included. Point-by-point lighting calculations and complete power studies for fault currents, breaker coordination, and arc flash hazard were performed. The project had two major phases within three buildings as well as numerous micro phases to minimize shut downs to on-going research.

US Army Corps of Engineers – Aberdeen Proving Ground, MD

» Public Health Command: Plumbing Engineer for the new construction replacement laboratory. The project consists of field laboratories; wet laboratories; BSL-2 laboratories; ABSL-2 animal holding, test and evaluation areas; administration space; and central utility plant. Supporting facilities include utilities, storm drainage, parking, and site improvements. A building waste treatment system study was performed for this project and will collect 100% of the sanitary and lab waste, treating and reusing the water for non-potable uses. Autodesk Revit software is being used for BIM coordination. The project is being designed to LEED Silver.

» Walter Reed Army Institute of Research Building 501 Vaccine Facility: This project is for the renovation and expansion of this vaccine production facility. It will bring it up to current cGMP criteria and function efficiently, with built-in flexibility and modularity to accommodate future needs. The complete rebuild is to establish a state-of-the-art cGMP vaccine production facility capable of producing 50,000 to 100,000 vials per batch and producing products beyond Phase 1 trials. The facility features: biological, chemical, and viral BSL-2 testing laboratories; ISO class 7, 8, and 9 clean production areas; decontamination and sterilization areas; and cryogenic storage and freezer sample storage areas. This project is being designed to meet LEED Silver.

United States Department of Homeland Security – National Bio and Agro Defense Facility (NBAF) - Manhattan, KS

Plumbing and Fire Protection Engineer for the conceptual planning and resultant design of this biocontainment research facility and central utility plant which integrates human, foreign animal, and zoonotic disease research, development and testing that allows for research to enhance agricultural and public health. Due to the nature of the research, the strict use of design guidelines is in place, ranging from Biosafety in Microbiological Laboratories, ARS Facilities Design Standards (242.1-ARS), CDC Design and Construction Standards, and the Unified Facilities Criteria. AEI's design ensures the containment of the facility through pressurization and airflow strategies, HEPA filtration, dedicated piping systems to containment areas, and properly sealing MEP systems at the containment barrier. The program includes cGMP and BSL -2, -3, -3E, -3Ag, and -4 laboratories. This project was designed and delivered using BIM and is pursuing LEED certification.

MICHAEL CASSIDY | COST ESTIMATING

With a background in estimating and computer-aided drafting, Michael understands the essential components required for producing quality cost estimates. Working closely with the project team, he provides detailed pricing estimates from conceptual design through construction.

EDUCATION

Bachelor of Science
Geography with an emphasis in
Cartography and Geotechniques
University of Wisconsin-Platteville (1986)

Associate Degree
Computer-aided Drafting
Madison Area Technical College
(1988)

PROFESSIONAL ACTIVITIES

Instructor – Electrical Systems for Construction – University of Wisconsin – Madison (2016)

RELEVANT PROJECTS

U.S. Department of Homeland Security – National Bio and Agro Defense Facility – Manhattan, KS

Cost Estimator for this 520,000 sf facility, and its supporting central utility plant, which integrates human, foreign animal, and zoonotic disease research, development and testing that allows for research to enhance agricultural and public health. NBAF contains significant space devoted to biocontainment labs, rated BSL-2, -3E, -3AG, and -4. Research support spaces include cold rooms, fermentation rooms, imaging, and a 70,000 sf vivarium. AEI provided MEP/FP/T/I&C/Lighting design services.

Pacific Northwest National Laboratory – Building 325 Radiation Products Laboratory (RPL) Remodeling Projects – Richland, WA

Cost Estimator for estimating/support services of building construction costs to aid in the development of future renovation projects. AEI provided estimates for 15 to 20 individual, standalone projects including architectural as well as MEP systems costs.

City of Hope – Laboratory & Vivarium Renovation – Los Angeles, CA

Cost Estimator for the development of MEP/FP/T bridging documents for the renovation of an existing building to house a 20,000 sf vivarium and 50,000 sf biological research space. Program also included open laboratory, laboratory support, linear equipment, and write-up areas.

California Institute for Technology – Electrical Reliability Study – Pasadena, CA

Cost Estimator for this study to generate statistical reliability and availability data points on the 17kV distribution system from three incoming utility feeders from Pasadena Water and Power to the main electrical equipment of each building directly tied to the 17kV system. The information derived from this study is being incorporated into the Campus Utility Master Plan document. While the statistical data will not predict specific utility outages within the system, it will be used for comparing options and identifying potential upgrade opportunities to improve overall reliability and availability of the campus electrical distribution system. AEI's scope also included a Failure Mode Effects Analysis and Criticality Analysis, Spare Cost Analysis, and creation of a preventive maintenance program for medium voltage distribution components.

Oak Ridge National Laboratory – Indefinite Delivery Indefinite Quantity Contract (2005-2010) Projects – Oak Ridge, TN

Cost Estimator for multiple task orders under this five-year IDIQ contract for which AEI provided engineering and planning and design services as a subconsultant. Projects included:

- Central Lab Office 2nd Floor Fitout Design
- Nano Materials Laboratories
- 1005 Mouse House Renovation
- Translational Research Facility (MLF II)
- Climatic Change Research in Terrestrial Ecosystems
- 3500 Modernization
- Carbon Fiber Technology Center Concept Design Report
- Building 1005 Renovation Feasibility Study
- Maximum Energy Efficiency Building Research Laboratory (MAXLAB)
- 4500 Complex Space Loading Plan

ROLE ON PROJECT
QA/QC

JASON ATKISSON PE NCEES | PRINCIPAL

Jason is a Principal with the firm and a leader in its Science & Technology practice. He specializes in managing complex projects supporting sophisticated research programs with clients, such as The University of Chicago, Northwestern University, California Institute of Technology (Caltech), the University of Wisconsin-Madison, and Princeton University. Jason brings his client specific expertise in high-performance laboratory design, including the design of precision laser/optic laboratory environments. Jason is very active in multiple ASHRAE technical committees and has served as contributing author/editor of several chapters in the ASHRAE handbooks.

EDUCATION

Bachelor of Science
Mechanical Engineering &
Energy Processes
Southern Illinois University

REGISTRATION/CERTIFICATION

Registered Professional Engineer
AL #37734-E (2018)
GA #036867 (2012)
IL #062056180 (2003)
IN #10809870 (2008)
IA #20560 (2011)
KS #PE24731 (2015)
MA #57665 (2022)
MN #53431 (2015)
MO #2010022392 (2010)
MT #19912 (2010)
NJ #24GE05738000 (2021)
WI #37206-6 (2004)

NCEES #41376
(National Council of Examiners for Engineering and Surveying) (2010)

PROFESSIONAL SOCIETIES AND ACTIVITIES

Member – ASHRAE

Past Member – ASHRAE Handbook/2021 Fundamentals Volume Subcommittee

Past Chair – ASHRAE TC 6.1 Hydronic and Steam Equipment Systems

Member – ASHRAE TC 7.1
Integrated Building Design

Member – ASHRAE TC 9.10
Laboratory Systems

Member – ASHRAE TC 9.7
Educational Facilities

Co-Author – "Chilled Water System Design Issues", Trane Engineers Newsletter, Volume 43-2 (May 2014)

RELEVANT PROJECTS

University of Wisconsin – Chemistry Instructional Facilities Addition and Renovation Design Madison, WI

Principal-in-Charge and Project Manager for the 180,000 sf, nine-story tower addition and 60,840 sf renovation of the Daniels Building, one of three structures comprising the UW-Madison chemistry complex. Additionally, inefficient HVAC systems in the existing Daniels and Mathews Buildings are being consolidated into a new centralized system. Built to Wisconsin high-rise code standards, the new tower includes two high-capacity lecture halls, an active learning studio with flexible configuration, an information commons, three floors of undergraduate teaching labs, and one floor of research labs, and support spaces (offices, meeting rooms, classrooms, chemical storerooms, and informal student spaces). The renovation of the Daniels Building modernizes six undergraduate teaching labs original to the 1964 building and provides additional classrooms, student study spaces, and offices. AEI is providing M/E/FP/Controls/T engineering design and energy modeling services.

Western Michigan University – School of Medicine – Kalamazoo, MI

Mechanical Engineer for the newly established medical school including the renovation of an existing 320,000 sf former laboratory building and construction of a 30,000 sf addition. The building's below-grade level contains a simulation center with procedure laboratories, trainer and patient exam rooms, classrooms, and eight simulation rooms. Other features of the project include a two-story auditorium, classrooms and faculty offices, wet and dry laboratories, a small-animal vivarium, and a plastination facility. The addition houses two 110-seat circular lecture halls. AEI provided MEP/T engineering, building performance, energy modeling, and utility master planning services during the planning and schematic design phases.

Purdue University – Agricultural and Biological Engineering Renovation & Addition West Lafayette, IN

Principal-in-Charge and Project Manager for the 37,200 sf renovation of an existing facility and a 125,550 sf addition to provide a new home for the College of Agricultural and Biological Engineering. AEI is providing MEP/FP/I&C and building performance design services. LEED Silver certified.

Promega Corporation – Kornberg Center – Fitchburg, WI

Project Manager for the planning and design of an existing campus' research and development expansion to include a 280,000 sf research & development building, a 6,000 sf expansion to the existing central utility plant, and the addition of two levels to an existing parking garage. Multiple sustainability measures such as mass timber, double skin façade, radiant heating and cooling, active chilled beams, natural ventilation in open workspace areas and non-laboratory areas, and a geo-exchange system were also added. The combined effect of each measure resulted in a 65% reduction of overall energy use when compared to similar facilities.

The University of Chicago – William Eckhardt Research Center - Chicago, IL

Project Manager for the design of this 265,000 sf high-performance building supporting multidisciplinary research programs in molecular engineering, as well as traditional biological and physical sciences. The building includes five stories above grade and two below-grade levels -- the latter designed to accommodate high-performance laser and optics labs with strict tolerances for temperature and humidity controls. Additionally, the two high-performance optics labs support Class 10,000 clean spaces. AEI provided MEP/I&C engineering and building performance design services. LEED Silver.

ROLE ON PROJECT
Engineer of Record

SAMUEL BUTZER PE LEED AP BD+C NCEES | MECHANICAL ENGINEER

Samuel has extensive design experience in HVAC, piping/plumbing (mechanical, industrial, laboratory, medical gas), fire protection, and electrical systems for a wide range of building types, including healthcare, laboratories, civic complexes, higher education, K-12 schools, assisted living, medical, dental, government, retail, military, churches, restaurants, pharmaceutical manufacturing, natatoriums, and historical renovations. His background in design-build engineering, 3D design, and BIM coordination provides him with extensive experience in MEP system constructability, allowing him to serve as a leader at the integration of all construction disciplines and numerous building types. Samuel's expertise also includes commissioning, retrocommissioning, and energy modeling.

EDUCATION

Bachelor of Science
Mechanical Engineering
University of Wisconsin-Madison

Associate of Science
Liberal Arts
Madison Area Technical College

REGISTRATION/CERTIFICATION

Registered Professional Engineer
KY #36225 (2020)
VA #0402062333 (2020)
WI #42131-6 (2012)
WV#020417 (2013)

LEED Accredited Professional (2008)

LEED Accredited Professional Building Design and Construction (2010)

NCEES (13-236-34)
(National Council of Examiners for Engineering and Surveying)

AWARDS

2017 ASHRAE Region VII
David Levine Award

PROFESSIONAL SOCIETIES AND ACTIVITIES

Member – American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)

Member – West Virginia Society for Healthcare Engineering (WVSHE)

RELEVANT PROJECTS

City of Charleston – Charleston Coliseum & Convention Center – Charleston, WV**
Lead Mechanical Engineer for the expansion and renovation of a 530,000 sf facility. The $100M project included 154,000 sf of new space for meeting rooms, a kitchen, and support spaces with an updated mechanical design that reduced electrical usage by 26%. Additional energy conservation measures included increased wall/roof insulation, variable speed air distribution, coil design, economizer cooling, kitchen hoods with variable speed exhaust and makeup air, and low-flow plumbing fixtures which reduced water consumption by 45%. Project achieved LEED Silver.

Marshall University – Smith Hall – Huntington, WV**
Lead Mechanical Engineer for the renovation of this higher education facility comprising classrooms, offices, rehearsal areas, and storage space for musical equipment. The project featured the installation of new variable airflow (VAV) terminal units within the reused, resealed, reinsulated cold deck ductwork. Additional HVAC zones were also added for occupant thermal comfort, and the majority of the existing low-pressure ductwork was reused. Renovations also included the removal of the existing electric heater (hot deck) in the air handling unit, and the installation of a smaller electric duct heater in the discharge ductwork.

Confidential Healthcare Client – Cole Eye Institute Expansion – Cleveland, OH
Mechanical Engineer for the expansion of a state-of-the-art eye facility doubling the existing facility's size. To meet growing patient needs, this project features approximately 140,000 to 170,000 sf of new construction and 131,000 sf of renovation or replacement of the main hospital building connections. The project also includes additional space for clinics (including pediatric outpatient), administration, conference areas, education, small retail, optometry and refraction, OR expansion and recapitalization, diagnostic imaging, research, and separate loading docks for human and non-human functions. AEI provided MEP/FP/T/I&C/sustainable design engineering services. Goal: LEED Gold

Cornell University – Ithaca, NY
- Multi-Disciplinary Building: Mechanical Engineer for a new, four-story, 88,000 sf building, campus hub for multidisciplinary sustainability research programs. This facility includes 21,000 sf wet and dry research labs, biological research space, offices, meeting rooms, and collaborative workspaces for studying the fields of energy, the environment, and economic development. The facility will house the David R. Atkinson Center for a Sustainable Future, Biomedical Engineering, Computational Biology, Cancer Biology, and Immunology programs. AEI provided MEP/FP/I&C/sustainable/architectural lighting design, and energy modeling services. Goal: LEED Gold.
- New Interdisciplinary Building for Cornell: Mechanical Engineer for the feasibility study that will build upon existing preliminary program data, and will determine the preliminary conceptual design of a new 88,000 sf building to house the Atkinson Center and several other critical research programs. Other programs include Master of Public Health, Computational Biology, Center for Cancer Biology, and Immunology.

Usona Institute – Research & Training Campus – Madison, WI
Mechanical Engineer for multiple campus facilities, including a 49,000 sf main facility and four short-term stay residences. Featuring office and training environments, the project encompasses modern meeting and treatment spaces, as well as on-site amenities and small, short-term, hotel-like suites. AEI provided MEP/FP/T and sustainable design services.

****Experience Prior to AEI**

Todd Zachwieja, PE, CEM, LEED AP

ZDS Design/Consulting Services

Todd has over 45 years of experience involving the analysis, design, construction management and specifications for mechanical engineering, heating, ventilating, air conditioning, plumbing, fire protection, electrical and lighting, as well as indoor environmental quality analysis, building system commissioning and forensic engineering for educational, governmental, military, commercial, industrial and health care clients. He is also recognized as a campus master planner for utility infrastructure providing master planning for the Technology Park in South Charleston and at many Universities, hospitals and the State of WV Capitol Complex.

Prior to starting a consulting engineering firm, Todd Zachwieja coordinated comprehensive energy conservation programs resulting in annual energy savings of millions of dollars. He has managed a profitable regional office for one of the country's largest energy companies that service the southeastern United States. Todd also developed computer modeling programs for building energy analysis and monitoring. He has been invited as an industry leader to present technical papers and speak at professional conferences both regionally and nationally.

Todd selected and designed the pilot project for one of the largest geothermal heat pump applications in the Eastern US including designing custom geothermal rooftop AHU's. He has retro-commissioned HVAC systems for millions of square-feet for facilities located in 10 states. He has been involved with many commercial, heathcare and industrial structures including high-rise building renovations. Todd designed renovations to many facilities which received ***Energy Star Certifications*** placing them in the nation's top 25% for energy efficiency . *The College Planning and Management Magazine* featured Todd and his work with a major University for the performance contracting programs that save millions of dollars in energy and operating costs. Most projects also qualified for EPAct which requires buildings use over 50% less energy than buildings designed using ASHRAE 90.1.

GOVERNMENT/COMMERCIAL PROJECT EXPERIENCE

- Bank One
- Bayer Material Science
- Calvert County Aquatic Center, MD
- Charleston Area Medical Center
- Chief Medical Examiners Office Retrofit
- Culture Center, HVAC & Fire Protection, WV State Capitol Complex
- General Motors Corp. Re-commissioning
- Harvard University Research Laboratory
- Hopemont Hospital, WVDHHR
- Jackie Withrow Hospital, WVDHHR
- Jackson County Courthouse Annex
- Kanawha County Commission: Judicial Annex additions/renovations
- Kanawha County Courthouse
- Mercer County Schools
- Kanawha County Public Library
- Kanawha County Schools
- Laidley Towers
- Marshall University
- Mercer County Courthouse Annex
- Olin Corporation
- Pocahontas County 911/EMS Center
- Public Service Commission of WV
- Rhone-Poulenc
- Roane General Hospital
- Robinson Grand Performing Arts Theatre
- Santa Anna Federal Building, CA
- Tyler County Courthouse
- Tyler County 911 Center ***- Net Zero***
- Tyler County Schools
- Toyota Motor Manufacturer, WV Inc.
- UC Davis Veterinary Medicine, CA
- Union Carbide/DOW
- United Center
- University of Charleston Innovation Ctr
- William R. Sharpe, Jr. Hospital, WVDHHR
- Word Trade Center, MD
- WV Air National Guard including Cx Fuel Cell/ Maintenance Hangars at Yeager Airport – ***LEED Silver Certified***
- WV Army National Guard
- WV Capitol Complex Renovations
- WVDHHR—State-wide hospitals
- WV Department of Transportation/DOH
- WV Division of Natural Resources
- WV Division of Protective Services
- WV Higher Education Authority
- WV General Services Division
- WV State Capitol Complex renovations
- WVU Health System
- West Virginia University

PROFESSIONAL REGISTRATIONS

Professional Engineer:

Florida 80814
Georgia 18253
Kentucky 17961
Maryland 47188
North Carolina 017445
Ohio 53587
Pennsylvania 040929-R
South Carolina 25985
Virginia 0402 025427
West Virginia 10127

Fire Investigation Certification under the direction of Peter Vallas, Sr.

CEM® Certified Energy Manager (C.E.M.) National Certification No. 2205

LEED AP LEED Accredited Professional, National Certification through USGBC No. 10083891

EDUCATION

Masters of Science in Engineering Management from West Virginia University College of Graduate Studies.

Bachelor of Science in Mechanical Engineering from West Virginia Institute of Technology.

Ted Zachwieja III, PE, CEM

ZDS Design/Consulting Services

Ted has over 20 years of experience in building construction design industry. His strategic thinking and development of technical resources at ZDS has helped streamline design processes and improve quality of work office wide. Ted is an innovative problem solver in engineering design, communication methods and management of BIM models between stakeholders during a design project. As a pioneer and a believer in technological processes Ted has championed Integrated Design Practices that has become the fabric of ZDS's day to day operations.

Ted developed ZDS's 3D Scanning services which have assisted in collecting key existing conditions for renovation projects, forensic engineering, historical preservation, and high definition reality capture. Ted has in depth experience on collection, registration, and scan to BIM processes. He has provided training and developed materials for best practices when using 3D scan data. Ted's 3D scanning experience includes governmental, educational, health care, industrial, and commercial facilities. He also has experience in speaking on how 3D laser scanning impacts our industry today.

Ted develops, designs and manages the Production Processes at ZDS. The experience encompasses development and deployment of central server systems to networked client computer systems, strategic development for ZDS' Integrated Design Processes, and research and development into new technologies to continue staying on the cutting edge for ZDS and others.

Ted's project experience includes design and commissioning for heating, ventilating, air conditioning, plumbing, fire protection, electrical and lighting systems for educational, health care, industrial and commercial facilities. His experience encompasses working both on new construction and renovation projects. He also is experienced in historical facilities including theatrical.

Ted maintains an active membership to the ASHRAE professional society and also has a lifetime membership to the Association of Energy Engineers. He maintains an active continuing education towards today's standards and codes as well as participates in ASHRAE at both a local and society level.

Ted has designed renovations to existing facilities which received ***Energy Star Certifications*** placing them in the nation's top 25% of energy efficiency facilities.

GOVERNMENT/COMMERCIAL PROJECT EXPERIENCE

- WV Air National Guard Maintenance Hangar and Fuel Cell Hangar, Charleston, WV – ***LEED Silver Certified***
- Adams Morgan Historic Hotel, DC
- Bayer Material Science
- Catholic Church of Ascension, Parish Hall Renovations
- Coal Heritage Discovery Center
- Culture Center, WV State Capitol Complex
- Highland Museum, KY
- Hopemont Hospital, WVDHHR
- Jackie Withrow Hospital, WVDHHR
- Kanawha County Judicial Annex HVAC Renovations
- Laidley Towers
- Meadowbrook Rest Areas
- CASCI Building, Charleston WV
- Morgantown Welcome Center
- Pocahontas County Community Center
- Pocahontas County 911/EMS Center
- Redmond House, WVDOT
- Office of Chief Medical Examiners CT Scanner Renovations
- Robinson Grand Performing Arts Theatre
- Servia Rest Areas
- St. Patrick's Church, Weston WV
- Stonewall Jackson Marina
- Tyler County 911 Center - ***Net Zero***
- Tyler County Courthouse
- University of Charleston Innovation Center Additions/Renovations
- William R. Sharpe, Jr. Hospital Additions/Renovations, WVDHHR
- World Trade Center, Renovations, MD
- WV Children's Home, WVDHHR
- WV Parkways Authority, Toll Booth Plazas
- WV State Capital Complex Central Heating Plant
- WVU Wise Library
- White Sulfur Springs Rest Area
- Numerous K-12 School Renovations
- Kanawha Co. Judicial Bldg. Commissioning
- WV State Capitol Complex Bldgs. 3 & 4 Commissioning

PROFESSIONAL REGISTRATIONS

Professional Engineer:

Florida 81011

West Virginia 21677

Certified Energy Manager (C.E.M.)

National Certificate

No. 22411

CEM®

EDUCATION

Bachelor of Science in Mechanical Engineering from Rochester Institute of Technology, Rochester, NY

AWARDS AND RECOGNITIONS

Awarded 2012 Legend in Energy by the Association of Energy Engineers

Awarded acceptance into ASHRAE's 2015 Leadership University

1st Place 2023 ASHRAE Technology Award, Region VII

ASHRAE Blue Ribbon Award of Excellence Co-Author at Autodesk University

ENERGY STAR

Energy Star Certified for facilities in the Nation's top 25% of energy efficiency

David Cotton, PE, LEED AP BD +C

ZDS Design/Consulting Services

David is a professional Mechanical Engineer with over 17 years of experience in the design and construction of over 500 projects having construction values up to $35 million. His commissioning/ design experience ranges from commercial, industrial, institutional, healthcare, education, restaurant, retail, government, airport, and recreational facilities.

David collaborates well with fellow engineers, architects, owners, contractors, code officials and vendors to meet the goals and objectives. As a project manager he successfully manages projects from start to finish in design, bidding, and construction administration.

PERSONAL PROJECT EXPERIENCE

- Tyler County Courthouse Additions/ Renovations
- New Spencer Middle Commissioning
- New Stratton Elem Commissioning
- New Clendenin Elem Commissioning
- Mabscott Elem Renovations/Cx
- Independence Middle HVAC/Roof Renovations and Commission
- Shady Spring Middle School HVAC Renovations & Cx, Shady Spring, WV
- Maxwell Hill Elementary School HVAC Renovations & Cx, Beckley, WV
- Saint Marys K-8 School Renovations
- Peterson Elementary School
- Tyler Consolidated MSHS Commissioning
- Dominion Office Building—LEED Gold, Bridgeport, WV
- Mon General Hospital Echo Renovations, Morgantown, WV
- Mon Health LTAC for Acuity, Morgantown, WV
- United Hospital Center POB 4th Floor Renovations
- Clarksburg Comprehensive Care Clinic Renovations, Clarksburg, WV
- Jerry Dove Medical Office Building, Bridgeport, WV
- Medbrook Building HVAC Replacement, Bridgeport, WV
- Mylan Pharmaceuticals, Morgantown, WV
- Beckley Police Station, Beckley, WV
- Doddridge County Athletic Complex, Doddridge County, WV
- Boy Scouts of America, Rex W. Tillerson Leadership Center, Fayette County, WV
- White Hall Public Safety Building, White Hall, WV
- Beitzel/Pillar Innovations Office Building, Garrett County, MD
- Percival Hall Absorption Chiller and Cooling Tower Replacement
- Thrasher Engineering Office Building, Bridgeport, WV
- WVU Creative Arts Center Rehearsal Hall, Morgantown, WV
- WVU Towers Dining Hall Renovations, Morgantown, WV
- WVU Athletic Performance Center, Morgantown, WV
- HP Hood Addition/Renovations, Winchester, VA
- Dominion Office Building, Delmont, PA
- University of Pittsburgh Softball Practice Facility, Pittsburgh, PA
- Westmoreland Community and Technical College, Indiana, PA
- WVU Alumni Center, Morgantown, WV
- WVU Biomedical Research Facility, Morgantown, WV
- WVU Milan Puskar Locker Room Renovations, Morgantown, WV
- NOAA GOES-R Supercomputing Center, Fairmont, WV
- WV Capitol Complex Bldg. #3 & #4 Renovations and Commissioning

PROFESSIONAL REGISTRATIONS

Professional Engineer:

West Virginia 18938

Maryland 44405

Virginia 402055556

Ohio 77729

Pennsylvania PE078915

LEED AP BD+C Professional Accreditation

NCEES Record Certificate

EDUCATION

Bachelor of Science

Mechanical Engineering

WV Institute of Technology

MEMBERSHIPS

WV ASHRAE, Current President

National Fire Protection Association

WV Society of Healthcare Engineers

Mike Chancey, PE, LEED AP

ZDS Design/Consulting Services

Mike has over 35 years of experience in electrical design and project management for industrial, commercial, residential, institutional, educational and recreational facilities. Building system design includes lighting, site lighting, power distribution, communications, surveillance, access control, and fire protection. Past accomplishments include design and construction administration of health care facilities, schools, municipal, sports, commercial and retail facilities.

PERSONAL PROJECT EXPERIENCE

- Jefferson Co., OH Courthouse Courtroom Renovations
- Mon Co. Courthouse Entry Plaza
- Morgantown Public Safety Building
- Whitehall Public Safety Building
- Pocahontas Co. Courthouse Lighting Upgrade
- Davis & Elkins College Hermanson Center Renovations, Elkins, WV
- Clarksburg Aquatic Center, Clarksburg, WV
- Harrison County Recreation Complex 4-H Center, Bridgeport, WV
- East Marion Pool Renovations, Fairmont, WV
- WVU Mountaineer Station Phase II, Morgantown, WV
- WVU Wrestling Locker Room Renovation, Morgantown, WV
- WVU Milan Puskar Stadium Ad Board Upgrades, Morgantown, WV
- WVUH Residential Treatment Center at Mylan Park, Morgantown, WV
- WVU Milan Puskar Stadium (AD) Athletic Director's Suite Renovations, Morgantown, WV
- WVU Marina Tower Fitout, Morgantown, WV
- WVU Honors Dormitory, Morgantown, WV
- WVU CAC Rehearsal Hall, Morgantown, WV
- WVU Visitor's Resource Center, Morgantown, WV
- WVU College Park Apartments, Morgantown, WV
- Boy Scouts of America, Rex W. Tillerson Leadership Center. Glen Jean, WV
- Mountaineer Medical Office Building, Bridgeport, WV
- Morgantown Event Center, Morgantown, WV
- Morgantown Event Center Parking Garage, Morgantown, WV
- The Health Plan, Wheeling, WV
- West Virginia State Police, Fairmont, WV
- White Hall Public Safety Building, White Hall, WV
- Pocahontas Co. Courthouse Lighting Upgrade, Marlinton, WV
- Mon County Extension Building, Morgantown, WV
- Beckley Police Department, Beckley, WV
- Beckley Fire Station # 3, Beckley, WV
- Morgantown Public Safety Building, Morgantown, WV
- Mon County Courthouse Plaza, Morgantown, WV

PROFESSIONAL REGISTRATIONS

Professional Engineer:
West Virginia 013460
Maryland 44965
Virginia 0402057390
Ohio 61654
Pennsylvania PE080088
LEED Professional Accreditation

EDUCATION

Bachelor of Science
Electrical Engineering
WV Institute of Technology

MEMBERSHIPS

National Society of Professional Engineers
WV Society of Professional Engineers
WV American Institute of Architect

Paul O'Dell, PE

ZDS Design/Consulting Services

Paul has 30 years of engineering experience involving the analysis, design, project management, specifications' writing and construction management on many projects throughout the region. This experience includes heating, ventilation, air conditioning (HVAC), plumbing, electrical systems and lighting for governmental, commercial, educational, healthcare, industrial and military facilities. He also has knowledge and experience with indoor environmental quality assessment, recommended remedial work and design of the necessary modifications in various types of buildings.

Paul assisted in the design and implementation of the pilot project for one of the largest geothermal heat pump systems in the mid-Atlantic region. He has also been involved in the design of facilities that have received the Energy Star Certification placing them in the nation's top 25% in energy savings for similar buildings and systems as well as his contribution as part of a large team effort performing mechanical systems' retro-commissioning at numerous automotive manufacturing facilities in North America.

His project experience is wide-ranging and includes the development of scope, design criteria and budget conscious designs. Working with other design professionals and through rapport with the clients he has conducted design peer reviews, construction budget and project schedule overview, Construction Administration and closeout of projects.

GOVERNMENT/COMMERCIAL PROJECT EXPERIENCE

- WVARNG Armory/Annex Bluefield
- WV Capitol Complex Central Bldg. #3 Renovations and Campus Central Boiler Plant
- Bruceton Bank
- Bank One
- Culture Center, WV State Capitol Complex
- Cuissets Residence
- Camp Dawson barrack/mess hall
- DOT Huntington District II Headquarters Renovations
- Yeager Airport Terminal Expansion/ Renovation
- DOH Testing Lab
- GMC Assembly Plants in Lordstown OH, Janesville WI, Pontiac East MI, Bowling Green KY, Arlington TX
- Harrison County Bank
- IMC Office Bldg.
- Riverside High School Renovations
- Chief Medical Examiners Lodox CT Scanner Renovations
- Kanawha County Commission, Judicial Annex Renovations
- Mercer County Courthouse
- Tyler County Courthouse Additions/ Renovations
- Tyler County 911 Center—**NET ZERO**
- Appalachian Tire
- Laidley Towers
- Robinson Grand Performing Arts Theatre
- USDA Forestry Building
- University of Charleston Innovation Center Additions/Renovations
- World Trade Center, MD
- William R. Sharpe, Jr. Hospital Additions/Renovations, WVDHHR
- WV Capitol Complex Bldg. #3 Central Boiler Plant Additions/Renovations
- Numerous K-12 School Renovations including for Mercer, McDowell, Raleigh, Kanawha, Clay, Grant, Harrison, Marion, Pleasants, Pocahontas, Putnam, Summers, Tyler, Tucker, Upshur, Webster County Schools.

PROFESSIONAL REGISTRATIONS

Professional Engineer:
West Virginia 13231

EDUCATION

Bachelor of Science in Mechanical Engineering from WV Institute of Technology, Montgomery, WV (Graduated Cum Laude)

PROFESSIONAL AFFILIATIONS

Member American Society of Mechanical Engineers

Member ASHRAE

AWARDS AND RECOGNITIONS

1st Place 2023 ASHRAE Technology Award, Region VII

ENERGY STAR

Mark Estep, PE

ZDS Design/Consulting Services

Mark has over 33 years of experience and is responsible for the design of commercial, institutional, and industrial mechanical and electric projects. He works with architects, civil and structural engineers to coordinate design and construction documents. He is responsible for project specifications and submittal review. Mark holds Degrees in Engineering and Architectural Technology which provide more than engineered solutions. He designs solutions that incorporate essential and functional needs, as well as aesthetic, life-safety, and constructability considerations.

Before joining ZDS, Mark was the President and Principal Engineer of another firm where he provided mechanical and electrical engineering design and analysis for commercial construction projects and was responsible for acquiring new projects.

He analyzes systems to determine best value solutions. He evaluates contractor equipment and material submittals as well as conduct on-site review of construction progress and quality.

PERSONAL COMMERCIAL/GOVERNMENTAL PROJECT EXPERIENCE

- General Motors Dealerships; Lewisburg, Charleston & Beckley.
- Toyota Manufacturing Facility; multi-purpose addition containing office spaces, medical treatment area, and weight room.
- Berkeley County EMS; New Facility.
- Buzz Food Processing Facility; New 12,000 sf processing facility includes offices, refrigeration, and abattoir spaces.
- Princeton War Memorial; HVAC Renovations.
- Brickstreet Insurance Headquarters; 86,100 sf renovation.
- Beckley PSD; 3 Water Storage Tanks; Sweeneysburg Water Treatment Plant.
- Shops at Kanawha Plaza; extensive renovation and tenant fit-up project of 195,000 sf shopping center.
- Huntington Museum of Art; HVAC Renovations.
- New Automobile Showrooms; two new showrooms with office and/or repair facilities.
- First Bank of Charleston; New Building.
- Hargis Laundry Facilities; laundry facility renovations.
- Harley Davidson; Store Renovations.
- Shawnee Sports Complex; Six multi-purpose fields and four baseball field complex with amenities.
- Charleston Housing Authority; Lee Terrace Boiler; Jarrett Terrace HVAC; Lee Terrace HVAC; Carroll Terrace Boiler; Little Page Boiler; Washington Manor Boiler; Switzer Center.
- Clay County PSD; Water Storage Tank; Water Treatment Plant.
- Putnam County Courthouse Complex; HVAC Replacement at the Sherriff's Office Building and the Main Courthouse Building.
- Trans Canada; New Control Building.
- Willow I & II and Elk Village Senior Centers; Three new two-story senior apartment buildings in multiple locations.
- Raleigh County Airport; Runway Lighting Upgrade.
- Yeager Airport; Runway & Tarmac Repairs.
- Upshur County Commission; Upshur County Courthouse Addition.
- Huntington Housing Authority; New 50 Unit Apartment Building; Administration Building Renovations.
- Maranatha Fellowship Church; New Annex Building.
- Mount Olive Correctional Facility; Foundation Verification.
- State of West Virginia Bioterrorism Lab; Upgraded existing mechanical and electrical systems to Bioterrorism facility to current federal standards.
- Tyler County Courthouse Additions/ Renovations
- WV Department of Transportation; Kelly
- Creek Bridge; Marmet Bridge.
- WV Water Development Authority; New Facility.
- Dunbar Housing Authority; Dutch Hollow HVAC Replacement.
- WV Hygienic Lab; HVAC & Electrical Upgrades.
- WV Division of Motor Vehicles; Kanawha City.
- Chief Medical Examiners Office Lodox Renovations

PROFESSIONAL REGISTRATIONS

Professional Engineer:

West Virginia 16199
Maryland 34227
Virginia 041199
Kentucky 25140
Ohio 72049

EDUCATION

Bachelor of Science
Mechanical Engineering
WV Institute of Technology

Bachelor of Science
Architectural Engineering Technology
Associates of Science
Mechanical Engineering Technology
Fairmont State College

ENERGY STAR

Jim Watters

ZDS Design/Consulting Services

Jim has over 50 years of experience in design and implementation of lighting, HVAC, plumbing and electrical systems including nine years in the construction industry. He has a comprehensive knowledge of construction documents, contracts, and development of cost estimates, budgets and schedules. Jim's strengths reside in his ability to manage projects and people in an organized and cost-effective manner. Jim has been involved with the design and production of mechanical and electrical drawings including HVAC, plumbing, fire protection, lighting, electrical power, fire alarm and specialized systems. He has worked with and managed engineers in projects for health care, educational and commercial buildings in the states of West Virginia, Florida, Maryland, Pennsylvania, Ohio, Kentucky, Virginia, Georgia, New York, Arizona, Illinois and Massachusetts.

Jim has extensive experience in energy savings' programs for lighting, HVAC, plumbing and electrical systems in hospitals, state and government office buildings, school systems, and manufacturing facilities, as well as managing performance contracts for a large hospital campus in Georgia that included the conception, design and construction administration for the installation of a 1.5 Megawatt emergency generator to provide peak shaving/load shedding to save on the campus utility costs as well as provide emergency power to the facility. He has previously provided design and Construction Administration services for a multitude of labs of varying used for Charleston Area Medical Center (CAMC). Through the years, Jim has researched and implemented into practice International Building Codes, NFPA Codes, National Electrical Codes, Life Safety Codes, IES standards, AIA Guidelines for Design and Construction, and ADA guidelines. His involvement in construction through the years has been mainly from the design side of the industry with a 9 year stint working for a contracting firm at the turn of this century. His experience includes coordinating with Architects, Owners and Agencies including an excellent relationship with the office of State Fire Marshal.

GOVERNMENT/COMMERCIAL PROJECT EXPERIENCE

- Bluefield Area Transit Authority Administration and Maintenance Facility
- Kentucky Judicial Center, Boyd County
- CAMC Various Labs
- Chief Medical Examiners Office Lodox Renovations
- Coal Heritage Highway Authority
- Chase Towers (formally Charleston National Bank)
- Culture Center Fire Alarm/Sprinklers, WV State Capitol Complex
- Department of Transportation Rest Area prototype
- Department of Transportation Welcome Center prototype
- Fenway Park Lightning Protection/ Grounding Study, Boston
- Glenville State College
- Hopemont Hospital, WVDHHR
- Jackie Withrow Hospital, WVDHHR
- Jackson County Libraries Renovations
- Kanawha County Commission Judicial Annex Renovations
- Laidley Towers
- Meadowbrook Rest Areas
- Morgantown Welcome Center
- Pocahontas County 911/EMS Center
- Redmond House, WVDOT
- Rhone-Poulenc New Admin. offices
- Robinson Grand Performing Arts Theatre
- Sacred Heart Pavilion and Daycare Ctr
- St. Patrick's Church
- Shawnee Park Clubhouse
- Stonewall Jackson Marina Renovations
- Tucker County Board Office Boiler Retrofit
- Tucker County Courthouse
- Tyler County Courthouse
- Tyler County 911 Center - ***Net Zero***
- University of Charleston Innovation Ctr
- William R. Sharpe, Jr. Hospital, WVDHHR
- World Trade Center, MD
- WV Air National Guard including Cx $45M Fuel Cell/ Maintenance Hangars at Yeager Airport – ***LEED Silver Certified***
- WV Children's Home, WVDHHR
- WV Department of Military Affairs, Public Safety Maintenance Facility, Eleanor
- WV Department of Transportation Burnsville Rest Area and Domestic Water Pumping Station - ***AIA Merit Award Recipient***
- WV State Capitol Complex Renovations to Buildings 1, 3, 4, 5 & 7
- White Sulphur Springs Welcome Center

PROFESSIONAL AFFILIATIONS

Member of the National Fire Protection Association (NFPA)

Member of the Health Care Section of the NFPA

Past Member of the Illuminating Engineering Society (IES)

Past member of the American Society of Plumbing Engineers (ASPE)

Past member of the Institute of Electrical Engineers (IEE)

OTHER RECOGNITIONS

Energy Star Certified for facilities in the Nation's top 25% of energy efficiency

Vineel Busa, PE, MSME

ZDS Design/Consulting Services

Vineel is a professional Mechanical Engineer with a Masters Degree in Mechanical Engineering and over 7 years experience in HVAC & Refrigeration. Technically sophisticated engineering professional with solid history of effective integration, and deployment of HVAC systems. Significant experience in designing, commissioning and implementing efficient HVAC systems for various commercial, healthcare and educational facilities.

Vineel is knowledgeable on HVAC systems, Heat Transfer, Refrigeration and Thermodynamic specializing in HVAC heating and cooling load calculations, Psychrometric and hydronic analyses and Energy modeling. He has applied that foundation in the MEP industry, manufacturing industry and the commercial industry. Vineel has a comprehensive knowledge of mechanical principles and drafting techniques.

He is experienced hands-on in designing Variable Refrigerant Flow systems, Steam Systems, hydronic systems, Geothermal systems and Building Automation System. He is also proficient in Revit, AutoCAD, IESVE, Navisworks, and Autodesk Recap. Vineel is experienced in utilizing point clouds in the development of Scan to Building Information Modeling (BIM) and performing 3D scanning. Vineel is well-versed in technical specification writings and development of construction drawings. He has hands-on experience in performing Functional Performance Testing in leading Commissioning projects.

PROJECT EXPERIENCE

- New Bluefield Elementary School Commissioning
- Clay County High School Commissioning
- New Clendenin Elementary Commissioning
- North Fork Elementary School HVAC/Roof Renovations, 3D Scanning, Scan-to-BIM and Commissioning
- Pendleton County Middle/High School HVAC/Roof Renovations, 3D Scanning, Scan-to-BIM and Commissioning—***ENERGY STAR***
- New 911 Center high performance "**Net Zero**" facility and Commissioning
- Tyler County Courthouse Additions/Renovations and Commissioning
- Riverside High School HVAC/Lighting Renovations—***ENERGY STAR***
- Roane General Hospital Commissioning
- New Spencer Middle School Commissioning
- Kanawha County Judicial Building Renovations & Commissioning
- New Clendenin Elementary School Commissioning
- Marshall University—Jomie Jazz HVAC Renovations
- Veteran Administration Clarksburg Hospital Mechanical BIM
- Veteran Administration Huntington Hospital Mechanical-Electrical BIM
- WVARNG Brushfork Armory HVAC Renovations
- WV Capitol Complex Campus Heating System Renovations Buildings #1, #3, #4, #5 and #7 over multiple phases
- WV State Capitol Complex Bldgs. #3 Renovations & Bldg. #4 Commissioning
- St. Marys High School Renovations
- Raleigh County Schools: 4 Schools - Renovations & Commissioning
- New Stratton Elementary School Commissioning
- Chief Medical Examiners Lodox CT Scanner Renovations

PROFESSIONAL REGISTRATIONS

Professional Engineer:
West Virginia 25446

EDUCATION

VIT University
Bachelor of Science
in Mechanical Engineering

Southern Illinois University Edwardsville
Master of Science
in Mechanical Engineering

University of Cumberlands
Working on PhD in Project Management

AWARDS AND RECOGNITIONS

Certified by ASHRAE in
HVAC Design Essentials & Applications

1st Place 2023 ASHRAE
Technology Award, Region VII

Energy Star Certified for facilities in the
Nation's top 25% of energy efficiency

Jeffrey Owens, MPH, CSP, SM (NRCM), CBSP, Assoc. AIA

ROLE ON PROJECT
Laboratory Subject Matter Expert/Public Health Specialist

YEARS EXPERIENCE
27 total, 3 with HERA

EDUCATION
Master of Public Health – Health and Safety Management
Tulane University

Bachelor of Science - Microbiology
University of Georgia

REGISTRATIONS / CERTIFICATIONS
Certified Safety Professional

Certified Specialist Microbiologist in Biological Safety

Certified Biological Safety Professional

AFFILIATIONS
AIA

American Biological Safety Association

American Society for Microbiology

American Society of Safety Engineers

PRESENTATIONS/PUBLICATIONS
"International Biosafety Roundtable," ABSA National Conference, 2022

"Redefining the Future of Lab Facilities," Lab Manager Design Summit, 2022

Jeff has more than 20 years of experience in biosafety program assessment, development and implementation and facility operations. His unique background in microbiology and public health includes helping build a comprehensive biological safety program while working at Georgia State University. He also was responsible for managing nearly 100 laboratories including BSL-2, BSL-3 and BSL-4 facilities. Jeff has been involved in several A/BSL-3 facility planning and programming activities across the US, Southeast Asia, North Africa and the Middle East, working for various Ministries of Health and Agriculture to address basic and applied research in public health and emerging infectious diseases. Jeff also is an instructor, teaching scientists and facility planners how to apply science and scientific practices into lab operations and facility design.

Pennsylvania Department of General Services, Joint Laboratory Facility, Harrisburg, PA – 400,000-sf new facility to co-locate four agencies (the departments of Agriculture, Environmental Protection, Public Health and State Police) to allow them to share common facilities and present a unified public image; 2027 (est)

Confidential Foreign Government Client, New Health Sciences Authority Building, Confidential – 828,000-sf consolidation and integration of all Health Sciences Authority functions into a single modern facility to promote recruitment and retainment; 2026 (est)

New York Blood Center, Rye Consolidation Facility, Rye, New York – consolidation of three labs into one new 165,000-sf facility comprised of blood research labs, blood processing labs, hospital services, QC labs, blood testing labs, cord blood processing, and archive freezers; 2024 (est)

New York Blood Center, East II Laboratories, New York, NY – peer review of the laboratories, laboratory support space and vivarium in this replacement headquarters highrise that includes upper level floors leased to life sciences companies; 2022)

Kingdom of Saudi Arabia, Saudi Food and Drug Authority*, Jeddah, KSA – new 350,000-sf housing approximately 200,000-sf of laboratories for food, drug, cosmetic, tobacco, medical devices, pesticides, and animal feed testing; 2024 (est)

U.S. Department of Defense, Defense Threat Reduction Agency*, Multiple Sites Across Ethiopia – PIC and Lead Laboratory Planner for planning, programming and design services for the renovation and expansion of two projects: The 30,000-sf, $12M Armauer Hansen Research Institute, Ministry of Health in Addis Ababa, Ethiopia and the 45,000-sf, $32M National Animal Health and Disease Investigation Center, Ministry of Agriculture in Sebeta, Ethiopia; 2020

Association of Public Health Labs and Namibia Ministry of Health, Central Public Health Laboratory*, Okahandja, NAM – 53,800-sf, $30M testing laboratory to usher in a new age of public health. The facility includes a BSL-3 containment lab for infectious diseases as well as a training center for specialists and first responders. Flexible and open offices and laboratories provide the Ministry of Health and the University of Namibia School of Medicine with a specialized research facility for the future; 2017

Alabama State Health Laboratory, Programming/Basis of Design*, Montgomery, AL – programming/basis of design services for a proposed 60,000-sf, $40M public health laboratory. The basis of design was developed to inform a cost estimate; to support efforts to obtain additional funding for the facility; and as a platform to develop more detailed design documents for construction; 2017

Georgia Southern University, New School of Public Health Building BSL-3 Renovation*, Statesboro, GA – biosafety and biosecurity risk assessment and architectural and engineering design review services for new BSL-3 laboratory; 2011

Sandia National Laboratories, International Biological Threat Reduction (IBTR) Program*, Worldwide – assisted with a variety of architecture and engineering services worldwide under a five-year task order agreement to provide technical assistance and innovative biosafety and biosecurity solutions in some of the most resource poor parts of the world including Ghana, Zambia, South Africa, Kenya, Tanzania, Vietnam, Indonesia, Algeria, Egypt, Jordan, Morocco, Iraq and Afghanistan; multi-year completion dates

** Experience prior to joining HERA*

Carlos Perez-Rubio, AIA, LEED AP, NCARB

Principal

ROLE ON PROJECT

Laboratory Subject Matter Expert

YEARS EXPERIENCE

24 total, 10 with HERA

EDUCATION

M.A., Environment & Energy
Architectural Association School of Architecture

B.S., Architecture
Georgia Institute of Technology

REGISTRATIONS/CERTIFICATIONS

Registered Architect in:
AL (8637)
AK (213474)
CO (ARC.00406181)
CT (ARI.0015832)
GA (RA013675)
HI (AR-20165-0)
ID (AR-987694)
IN (AR12300114)
LA (9925)
MD (19667)
ME (ARC5469)
MO (A-2021013480)
NC (14563)
NJ (21AI02283700)
NY (045064)
OR (ARI-13604)
PA (RA408578)
RI (5518)
WA (23013188)
NCARB

LEED Accredited Professional

AFFILIATIONS

AIA
USGBC
I2SLAtlanta (founding member)

Carlos brings comprehensive experience in developing technology-driven laboratories for government, health, higher education and industry. He has a thorough understanding of the technical issues involved in laboratory environments and their support systems, balanced with the ability to humanize the environment for those that spend most of their day in labs. His strengths are in planning, programming and design of engaged and flexible laboratories. He has excellent skills in organizing and coordinating the collaborative efforts of client groups and design professionals to achieve the project goals in an efficient and successful process.

Pennsylvania Department of General Services, Joint Laboratory Facility, Harrisburg, PA – 400,000-sf new facility to co-locate four agencies (the departments of Agriculture, Environmental Protection, Public Health and State Police) to allow them to share common facilities and present a unified public image; 2027 (est)

Confidential Foreign Government Client, New Health Sciences Authority Building, Confidential – 828,000-sf consolidation and integration of all Health Sciences Authority functions into a single modern facility to promote recruitment and retainment; 2026 (est)

North Carolina Department of Environmental Quality, Reedy Creek Laboratory Campus Expansion and Renovation, Raleigh, NC – 113,000-sf expansion and renovation over three buildings to include chemistry, air quality and water quality labs, in addition to offices, conference rooms, education/visitors center and warehouse space; 2026 (est)

North Carolina Department of Agriculture & Consumer Services, NC Agriculture Sciences Center, Raleigh, NC – 225,000-sf new laboratory complex to consolidate Veterinary Diagnostic, Food and Drug Protection, Structural Pest Control and Pesticides, Standards and Motor Fuels into a single location; 2021

Centers for Disease Control, Building 28 High Containment Continuity Laboratory, Roybal Campus, Atlanta, GA – new, 160,000-sf multi-story BSL4 research building will hold 80 researchers to increase CDC's capacity to help communities prepare for, detect and respond to public health hazards; once complete it will be the most advanced high containment lab in the country; 2025 (est)

US Geological Survey, Hawaiian Volcano Observatory Facilities, Hilo, HA – replacement of 50,000-sf facility damaged during an eruption will also allow for the colocation of Pacific Island Ecosystems Research Center; project also includes a 12,000-sf field station located within Hawaii Volcanoes National Park; 2024 (est)

USDA Animal and Plant Health Inspection Services (APHIS), Development of Laboratory Guidelines, multiple locations – development of APHIS laboratory standards, concepts and principles to be used in the design, construction and lab systems operations for all APHIS labs; 2022 (est)

National Institutes of Health, Indefinite Delivery Contract, Bethesda, MD – five-year duration; project assignments include laboratory, vivarium, central plant and office renovations from $60,000 – $6,000,000 in construction costs; 2020

Renewable Water Resources, Water Quality Laboratory, Greenville, SC – new 18,000-sf replacement facility will house the water quality testing program and include analytical labs designed to meet BSL2; pursuing LEED Silver; 2018

New York State Department of Health, Life Science Market Analysis, Albany, NY – evaluation of more than 900,000-sf of current facilities as part of an overall analysis to determine partners, location and economic benefit of a new Wadsworth public health laboratory as an anchor tenant to help spur growth of a life sciences industry; 2017

City of Philadelphia, Public Safety Services Campus, Philadelphia, PA – adaptive reuse and addition to existing 350,000-sf public building, including 26,000-sf public health labs and a 79,000-sf medical examiner's office and morgue; anticipated LEED Silver; 2015

Ken brings extensive experience in master planning, programming, planning and design specifically for forensic facilities across the U.S. and internationally. He has deep knowledge of all forensic science disciplines and methodologies/ technologies. He also has a comprehensive understanding of the specialized considerations of these unique facilities such as operational efficiency, security, health & safety, proper ventilation and odor/contamination control, and related accreditation and ISO17025 criteria. Ken is a member of several national committees helping to set guidelines for lab design, is a frequent speaker at forensic science conferences, and is an Editorial Advisory Board member and contributing author for leading industry publications. Ken led the development of the NIST-published "Lean Facility Design Roadmap for Design-Bid-Build Forensic Facilities."

Ken Mohr, ASSOC. AIA

Principal & Forensic Laboratory Subject Matter Expert

YEARS EXPERIENCE
36 total, 26 with CLD

EDUCATION
Bachelor of Science, Advanced Technical Studies in Architecture
Southern Illinois University

AFFILIATIONS
I2SL St Louis Chapter Founding Member

PUBLICATIONS / PRESENTATIONS
"The Forensic Laboratory Handbook Procedures and Practice" Chapter 18

"Forensic Science Laboratories: Handbook for Facility Planning, Design, Construction, and Relocation" – the White Book & Blue Book

"Latent Print Examination and Human Factors: Improving the Practice through a Systems Approach"

"Lean Facility Design Roadmap for Design-Bid-Build Forensic Facilities"

"From Super-Sized to Right-Sized," I2SL Virtual Education Day, Nov 2020

"Designing for a Forensic Crime Lab," Webinar for Lab Manager, October 2019

"Science on Display," College Planning and Management, July 2019

"Ready for Robots: Technology-Infused Design," AIA National Conference, 2019

"Identifying Missing Soldiers: DNA Analysis in Asia," Forensic Magazine, September 2017

Singapore Ministry of Health
New Health Sciences Authority Building
Outram, Singapore

Kuwait Ministry of Public Work
Criminal Evidence Headquarters
Kuwait City, Kuwait

New Mexico Department of Public Safety
Forensic Laboratory & Evidence Storage
Santa Fe, NM

Georgia Bureau of Investigation
Coastal Regional Crime Laboratory
Savannah, GA

King County
Regional AFIS Laboratory Replacement
Renton, WA

Denver Health and Hospital Authority
Denver Office of the Medical Examiner
Relocation
Denver, CO

Harris County
Institute of Forensic Sciences Center
Houston, TX

Virginia Dept. of Forensic Science
Laboratory Expansion + Renovation
Roanoke, VA

Johnson County Sheriff's Office
Criminalistics Laboratory
Olathe, KS

US Army Corps of Engineers - Savannah
FXD Forensic Laboratory
Ft. Gillem, GA

County of Los Angeles
Hertzberg-Davis Forensic Science Center
Los Angeles, CA

Illinois State Police
Police Metro-East Forensic Laboratory
Bellville, IL

County of San Diego
Medical Examiner and Forensic Center
San Diego, CA

Tucson Police Department
Forensic Laboratory
Tucson, AZ

Scottsdale Police Department
Forensic Laboratory & Evidence Warehouse
Scottsdale, AZ

Phoenix Police Department
Forensic Laboratory
Phoenix, AZ

Maricopa County
Forensic Science Center
Phoenix, AZ

California Department of Justice
Northern Region Consolidated DNA Lab Budget Package
Richmond, CA

David R. Simpson, PE, MBA
President / Principal Engineer
40+ Years' Experience

Education:
West Virginia Institute of Technology
B.S. Civil Engineering

West Virginia University
Masters Business Administration

West Virginia State College
Architectural Technology Courses

Professional Memberships:
American Society of Civil Engineers, Structural Engineering Institute, Charter Member, American Concrete Institute, American Institute of Architects – West Virginia Chapter, American Institute of Steel Construction, Inc., American Iron and Steel Institute Member, National Academy of Forensic Engineers

ADS Engineering

MEMBER
Board Certified
NATIONAL ACADEMY OF FORENSIC ENGINEERS ™

102 Leeway Street
Morgantown, WV 26505
304-599-0771
Dave@AlleghenyDesign.com

ADS Allegheny Design Services
Consulting Engineers

Professional Registrations:
Year first registered: 1984
West Virginia, Pennsylvania, Maryland, Virginia, Florida, New York, New Jersey, North Carolina, South Carolina, Georgia, Ohio, Structural Engineering Certification Board and National Council of Examiners for Engineering and Surveying

Professional Experience:
Responsible for strategic management, marketing, quality control, personnel development, business development, project management and design at Allegheny Design Services. Experience includes over 40 years in structural design and project management for industrial, commercial, institutional, and nuclear/chemical facilities utilizing steel, concrete, masonry, and wood. Past accomplishments include design and construction administration of health care facilities, hotels, schools, shopping centers, aircraft hangars, numerous retail facilities, and numerous forensic engineering assignments. Experience has been obtained from the following assignments:

Project Assessment Experience Includes:
The Aquatic Center at Mylan Park – Foundation Stabilization / Leveling
City of Morgantown Pleasant Street Parking Garage Assessment
FSU - Parking Garage Structural Assessment of Joints
FSU Education Building Slab Restoration
WVDOA Building 97 Floor Repair
Gabriel Brothers Store Expansion, Clarksburg, WV
City of Morgantown Structural Foundation Assessment
Israel Williams Trust - Structural Damage Assessment
BDC - 1400 N. Main St. Weirton Structural Assessment
Crest - Structural Assessment 719 Main St., Wheeling, WV
Woodburn School Structural Assessment
BB&T Building Assessment
114 Clay St Structural Assessment
WVNET Structural Assessment
Nazareth Farm Comprehensive Facilities Assessment
Glade Springs Clubhouse Alteration Feasibility Study
FSU McAteer Building Structural Evaluation
FSU Parking Garage Structural Evaluation
Mylan Pharmaceutical Parking Garage Structural Assessment
WVU Puskar Stadium Seismic Damage Assessment
WVU Puskar Stadium Facilities Building Vertical Expansion Study
Mountainview Middle School Structural Foundation Settlement Assessment
Philippi Public Library Structural Assessment
Ramada Inn Morgantown Structural Assessment

Jason D. Robinson, P.E.,
Vice President / Managing Principal
16+ Years' Experience

Education:
West Virginia University
B.S. Civil Engineering

Professional Registrations:
Professional Engineer – West Virginia
Pennsylvania, Maryland, Kentucky, Nebraska,
Mississippi and Alabama

Experience Record:
Allegheny Design Services, LLC
June 2007 to Present

Professional Memberships:
Member of AISC
Associate Member of ASCE

ADS Engineering

102 Leeway Street
Morgantown, WV 26505
304-599-0771
Jason@AlleghenyDesign.com

ADS Allegheny Design Services Consulting Engineers

Professional Registrations:
Year first registered: 2012

Professional Engineer – West Virginia, Pennsylvania, Maryland,
Kentucky, Nebraska, Mississippi and Alabama

Professional Experience:
Responsibilities include structural engineering design, construction documents, quality control and field engineering.

Project Experience Includes:
University Place Parking Garage, Morgantown, WV
University Park Mixed Use Building, Morgantown, WV
Mylan Parking Garage Concrete Repairs, Morgantown, WV
BFS Suncrest, Morgantown, WV
Pikewood Creative Addition and Renovation, Morgantown, WV
GSD Fairmont, Fairmont, WV
Bridgeport Public Safety Substation, Bridgeport, WV
Canaan Valley Institute, Davis, WV
Charles Pointe BFS, Bridgeport, WV
Fairmont AFRC, Fairmont, WV
Gabriel Brothers Renovation, Clarksburg, WV
Genesis Youth Crisis Center, Clarksburg, WV
Goshen Baptist Church, Morgantown, WV
GSA DOE, Morgantown, WV
ICC Parish Center, Clarksburg, WV
Mason Dixon, Bridgeport, WV
GSA , Charleston, WV
Progress Centre 2, Bridgeport, WV
WVU Child Development, Morgantown, WV
White Oaks Progress Center, Bridgeport, WV
Thrasher Office Building, Bridgeport, WV
WVU Greenhouse Building, Morgantown,, WV
Courtyard Marriott– University Towne Center, Morgantown, WV
Morgantown Event Center, Morgantown, WV
Hawthorn Suites by Wyndham, Bridgeport, WV
Hawthorn Suites by Wyndham, Wheeling, WV
Chestnut Ridge Church, Morgantown, WV
WVU Rockefeller Neuroscience Ins. Inn. Cntr, Morgantown, WV
WVU Cancer Center RTU Roof Analysis, Morgantown, WV

Bryan R. Gallion, EIT, Staff Engineer
7+ Years' Experience

Education:
West Virginia University
B.S. Civil Engineering

West Virginia University
M.S. Civil Engineering

Professional Registrations:
West Virginia EIT Certification

Experience Record:
Allegheny Design Services, LLC
May 2016 to Present

Professional Memberships:
American Society of Civil Engineers

102 Leeway Street
Morgantown, WV 26505
304-599-0771
Bryan@AlleghenyDesign.com

Professional Experience:
Graduate Research Assistant, WVU - June 2014 - May 2016
Instrumented an eSpan140 demonstration bridge in Jesup, Iowa with strain gages. Applied an AASHTO HL-93 vehicular live load to the bridge while collecting strain measurements to determine if the design moment capacity was met.

Graduate Teaching Assistant, WVU—August 2014 - May 2016
Steel Design, Structural Analysis II, and Structural Analysis I
Assisted the professor with creating homework's and tests, along with solutions and as well as grading all assignments
Provided out-of-class assistance to students having difficulties with course content.

Undergraduate Student Research Assistant, WVU—Summer 2013
Constructed wooden frame and poured concrete deck for simply supported cold press braked steel tub girder in WVU's structures lab under the supervision of my advisor / professor . Drew AutoCAD layouts of the girder and supports

Project Experience Includes:
The WVUH Residential Treatment Center at Mylan Park, Morgantown, WV
WVU Coliseum Visitor Center, Morgantown, WV
Health Access Addition, Clarksburg, WV
Woodburn School ADA Improvements, Morgantown, WV
Mylan Suburban Lab Renovation, Morgantown, WV
Pressley Ridge, Clarksburg, WV
Tampa Bay Humane Connections, Tampa Bay, Florida
Grand Central Mall Connections, Vienna, WV
Ruby Memorial Roof Screen & Duct Enclosure, Morgantown, WV
St. Mary's Church Addition, Petersburg, WV
Jefferson County Visitor's Center Renovation, Jefferson County, WV
White Hall Public Safety Building, White Hall, WV
Sabraton Popeye's, Morgantown, WV
Morgantown Energy Platforms, Morgantown, WV
Preston Machine Hopper Analysis, Kingwood, WV
Jewel City Church, Shinnston, WV
Spencer USPS, Spenser, WV
Brownsville Marine Rack Analysis, Brownsville, PA
HP Hood Building Addition, Winchester, VA
453 Oakland St Light Gage Design, Morgantown, WV
Woodford Oil Mezzanine, Morgantown, WV
7 Players Club Drive, Charleston, WV
Hampton Inn, Weston, WV
Keyser Block Factory, Keyser, WV

Brady R. Hillegas, EIT, Jr. Structural Engineer 3 + Years' Experience

Education:
West Virginia University
B.S. Civil Engineering

Professional Registrations:
West Virginia EIT Certification

Continuing Education:
SE University multiple structural technical training webinars.
AISC Night School— Fundamentals of Welding and Bolting— Fall 2021
Woodworks— Essential Design & Detailing Aspects of Mid-Rise Wood-Frame Construction—March 18, 2021

102 Leeway Street
Morgantown, WV 26505
304-599-0771
BHillegas@AlleghenyDesign.com

Professional Experience:
Responsibilities include structural engineering design and production of construction documents with Revit.

Experience Record:
Allegheny Design Services, LLC, Jr. Structural Engineer
May 2020 to Present

Project Experience Includes:

- Mountaintop Beverage, Morgantown, WV
- Appalachian Headwaters, Lewisburg, WV
- Blue Sulphur Springs Roof Restoration, Greenbrier County, WV
- 1306 Market Street Phase II, Wheeling, WV
- Ruby Center Addition, Morgantown, WV
- Blackwater Falls Lodge Renovations, Davis, WV
- Dan Cava Buick Addition, Bridgeport, WV
- DEA Flexible Operations Facility Foundation Design, Quantico, VA
- Dominion Mt. Storm Renovations, Mount Storm, WV
- Benedum Airport Hangar Expansion Foundation Design, Bridgeport, WV
- Palatine Park Amphitheater Canopy, Fairmont, WV
- Mountaintop Beverage Connection Design, Morgantown, WV
- CEC Crane Upgrade Design, Maidsville, WV
- Building Conversion for RV Dealership, Mt. Morris, PA
- Ameresco Norfolk Combined Heat and Power Plant Connection Design, Portsmouth, VA
- Chestnut Mountain Ranch Chapel, Morgantown, WV
- Wheeling Health Right Addition, Wheeling, WV
- Stengers Car Wash Renovation, Morgantown, WV
- Mon General Medical Office Building Renovations, Fairmont, WV
- Ramada Inn Redevelopment, Morgantown, WV
- Harvest Care Facility Foundation Design, Bridgeport, WV
- TCS Shop Foundation Design, Anmoore, WV

Jason M. Conrad
Engineering Technician
5+ Years' Experience

Education
Wentworth Institute of Technology - Boston, MA

West Virginia University - Morgantown, WV
Landscape Architecture

Fairmont State University - Fairmont, WV
B.S Architectural Engineering Technology

Experience Record:
Allegheny Design Services, LLC
January 2018 to Present

ADS Engineering

102 Leeway Street
Morgantown, WV 26505
304-599-0771
JConrad@AlleghenyDesign.com

ADS Allegheny Design Services
Consulting Engineers

Professional Experience:
Responsibilities include assisting in structural engineering design, construction documents, field investigations, and administrative duties.

Continuing Education:
SE University Technical Training
Autodesk - Revit Courses

Project Experience Includes:

- 461 High St Apartments & Retail, Morgantown, WV
- AOPi Sorority House Renovations, Morgantown, WV
- Aurora Flight Science Addition, Bridgeport, WV
- Boparc Ice Arena Renovations, Morgantown, WV
- BSA Yamagata Lodge, Glen Burnie, WV
- BSA Campus Bunkhouse, Glen Burnie, WV
- Center Branch Church, Clarksburg, WV
- Davis & Elkins Myles Center Of The Arts, Elkins, WV
- Eastpointe Plaza Retail Building Bridgeport, WV
- High Tech Foundation Parking Garage, Fairmont, WV
- Jefferson County CVB Addition, Harpers Ferry, WV
- Joe Romeo Pre-Owned Office, Fairmont, WV
- KCI Building Renovation, Clarksburg WV
- Medbrook Office Alterations, Clarksburg, WV
- Mountaineer Station Pedestrian Bridge Enclosure, Morgantown, WV
- Mylan Parking Garage, Morgantown, WV
- Ohio Valley Bank, Wheeling, WV
- Pleasant Street Parking Garage, Morgantown, WV
- Riverside Commons Deck Design, Fairmont, WV
- Shogun Restaurant, Clarksburg, WV
- Standard Mill Lofts, Clarksburg, WV
- Steak n' Shake, Morgantown, WV
- Waterfront Morgantown Events Center, Morgantown, WV
- Westridge Corporate Park, Morgantown, WV
- WVU Medicine Pedestrian Bridge, Morgantown WV
- WVU Medicine Neuroscience Addition, Morgantown, WV

TRIAD ENGINEERING, INC.

L. LEE MCCOY, JR., PE

CIVIL ENGINEERING SERVICES MANAGER/SENIOR ENGINEER

EDUCATION
West Virginia Institute of Technology, WV
BS, Civil Engineering, 1996

PROFESSIONAL EXPERIENCE
27 Years

REGISTRATIONS & LICENSES
Professional Engineer, WV, KY & OH

PROFESSIONAL AFFILIATIONS
American Society of Civil Engineers
Society of American Military Engineers
Association of State Flood Plain Managers

SKILLS
- Civil Engineering
- Transportation Engineering
- Site Development
- Planning and Surveying

HIGHLIGHTS OF EXPERIENCE

Mr. McCoy is Triad's Civil Engineering Services Manager for the Scott Depot office. Mr. McCoy has over 27 years of leadership, design construction and project management experience. He is responsible for the technical and management aspects of civil design projects within the office. Mr. McCoy has designed and managed projects in numerous disciplines including civil, structural and transportation engineering, site development, planning and surveying. These projects have included power substations, industrial laydown yards, water and wastewater, streets/highways, retail/commercial site preparation, airports, retaining walls/foundations, as well as recreational facilities. Duties included field surveying, drawings and specification preparation, design, design drafting, permitting, construction inspection, quality control testing, shop drawing review, project management, contract administration and report preparation.

RELEVANT PROJECT EXPERIENCE

COMMERCIAL DEVELOPMENT

Amazon Call Center, Huntington, WV
As Project Manager and Lead Designer, Mr. McCoy prepared construction documents for the construction of a 70,000 square foot call center with 9 acres of parking in Huntington, WV. This facility houses over 800 customer service employees. This project includes grading, drainage, detention, roadway expansion, parking lot design, utility design including water and sanitary sewer, water quality design as well as many other aspects.

Atomic Distribution Parking Lot Expansion, Huntington, WV
The Atomic Distribution Company purchased two adjacent residential properties west of their existing facility with the intention of expanding the truck parking area. The project included survey, design drawings, stormwater management and associated permitting. As Project Engineer, Mr. McCoy oversaw the project including grading and drainage design, stormwater detention facilities, site layout and temporary erosion and sediment control, and permitting.

Bimbo Bakeries Parking Lot, Huntington, WV
Mr. McCoy was the Project Engineer for this project that provided survey and civil design services for expansion of the Bimbo Bakeries parking lot in Huntington, West Virginia. Triad provided topographical survey, design drawings, stormwater management and associated permitting. The design included grading and drainage design, stormwater detention facilities, site layout and temporary erosion and sediment control.

Commerce Park, Huntington, WV
As Project Manager and Lead Engineer, Mr. McCoy is responsible for the project design and construction administrative services for a large use development located in Huntington, WV. This development consists of affordable housing apartments, flex space warehousing and office space. This project includes grading, drainage, stormwater management, permitting, parking lot design, as well as many other aspects.

TRIAD ENGINEERING, INC.

JAMES "BO" CRINITI, PE

SENIOR ENGINEER

EDUCATION

West Virgina University, WV
BA (1995), Chemistry

West Virginia Institute of Technology, BS (2008), Civil Engineering

PROFESSIONAL EXPERIENCE

15 Years

REGISTRATIONS & LICENSES

Professional Engineer, WV

SKILLS

- Civil Engineering
- Hydrologic and Hydraulic Analysis and Design
- Erosion and Sediment Control Plans
- Stormwater Management
- Permitting

HIGHLIGHTS OF EXPERIENCE

Mr. Criniti is a Senior Engineer and is responsible for civil and surveying projects. He has participated in the design and management of numerous projects. These projects have included retail/commercial site preparation, airports, parking lots, buildings, retaining walls, foundations, sanitary structures, as well as boundary and topographic and photogrammetric surveys. Duties have included hydrologic and hydraulic analysis and design, erosion and sediment control plans, storm water management, field surveying, preparation of construction and as-built drawings, project specifications and preparation of various permit applications. Mr. Criniti also performs construction management, construction inspection, quality control testing, shop drawing review, project management, contract administration, and report preparation. He performs engineering calculations, studies, plans, reports and data analysis. Mr. Criniti assists in the coordinating of construction projects including conducting pre-bid, pre-construction and progress meetings, schedule review and pay request review and approval. He also assists in conducting interim and final inspections of construction projects to determine compliance with applicable laws, regulations, and specifications.

RELEVANT PROJECT EXPERIENCE

Atomic Distribution Parking Lot Expansion, Huntington, WV

The Atomic Distribution Company purchased two adjacent residential properties west of their existing facility with the intention of expanding the truck parking area. The project included survey, design drawings, stormwater management and associated permitting. As Senoir Engineer, Mr. Criniti assisted with the drainage design, temporary erosion and sediment control, and permitting.

BB&T Facility, Beckley, WV

As a Staff Engineer, Mr. Criniti has been involved in and is responsible for the drainage design and permitting for this branch bank facility. In this capacity he has to coordinate with the project architect, local municipalities, the WVDOH and the project developer. Work on this project included, utility routing, storm drainage design, storm water management design and preparation of WVDOH encroachment permit applications, health department permit application and NPDES permit application for handling surface water during construction. Mr. Criniti is also responsible for performing construction admin on this project consisting of site inspections, pay application review and approval and construction schedule monitoring.

Belle West Reynolds Avenue Sewer and Storm Sewer Improvements, Belle, WV

The Town of Belle experiences excessive inflow/infiltration during wet weather events in the West Reynolds area of Town. Mr. Criniti, as Senior Engineer worked with the team to prepare plans, specifications, bid/contract documents, and for construction management. Triad also providing surveying, permitting, funding assistance and construction observation services.

Bimbo Bakeries Parking Lot, Huntington, WV

As the Senor Engineering, Mr. Criniti was on the civil design team for the expansion of the Bimbo Bakeries parking lot in Huntington, West Virginia. Triad provided topographical survey, design drawings, stormwater management and associated permitting. The design included grading and drainage design, stormwater detention facilities, site layout and temporary erosion and sediment control.

TRIAD ENGINEERING, INC.

JOSEPH YOUNG, RLA

SENIOR LANDSCAPE ARCHITECT

EDUCATION

West Virginia University, WV
BSLA (1989), Landscape Architecture

PROFESSIONAL EXPERIENCE

33 Years

REGISTRATIONS & LICENSES

- Registered Professional Landscape Architect, WV, KY & OH

PROFESSIONAL AFFILIATIONS

West Virginia Recreation and Park Association (WVRPA)
American Society of Landscape Architects (ASLA)

SKILLS

- Site Inventory and Analysis
- Program Production
- Conceptual Design
- Master Planning

HIGHLIGHTS OF EXPERIENCE

Mr. Young is a Senior Landscape Architect for the Southwestern Region of Triad Engineering, Inc. In this capacity, he provides clients with a variety of landscape architectural services including site inventory and analysis, program production, conceptual design, design development, high quality graphic presentations, project management, construction document preparation and construction administration. In this capacity, Mr. Young brings years of experience on a diverse range of projects covering all aspects of landscape architectural design and planning in both the public and private sector. Mr. Young's experience includes park and streetscape design, resort and campus master planning, subdivision layout, landscape and hardscape design, landscape design, grading and earthwork calculations, construction detailing, specifications, and estimating. Mr. Young also performs Project Management on related projects and has been involved in planning projects for national and international military bases, pocket parks, 5,000-acre reserves, large downtown streetscapes, subdivision layout and design, and campus master plans for many colleges and universities.

RELEVANT PROJECT EXPERIENCE (THIS IS ONLY A SAMPLE OF MR. YOUNG'S PROFESSIONAL EXPERIENCE – ADDITIONAL EXPERIENCE AVAILABLE UPON REQUEST)

Healthcare/Medical

Aspen Dental, Beckley, WV
This project consisted of developing an office for Aspen Dental and associated site improvements in Beckley, West Virginia. Mr. Young worked to develop a full landscape plan for the proposed site identifying the plant materials and location. Mr. Young also worked with a project team to provide civil design services that included site layout design, grading and drainage design, pavement design, utility design, erosion and sediment control design, and permitting.

Boone County Memorial Hospital, Madison, WV
This project consisted of the civil design for the new Boone County Memorial Hospital. Mr. Young worked with a project team to analyze the project scope, to develop and prepare a construction package, and perform construction administration and monitoring during site construction. This project involved plans for layout, pavement, site grading and drainage, a full landscape plan with a plant schedule, site construction and planting details.

Cabell Huntington Hospital – Parking Garage, Gift Shop, Huntington, WV
This project consisted of providing construction documents for the new Cabell Huntington Hospital Give Shop addition. Mr. Young worked on a project team to create a construction package that included layout plans and grading plans as well as drawings for the proposed site plan, dimension and layout plan, site grading, and site construction details. Services provided for this project also included surveying and storm water permitting.

Charleston Area Medical Center Gastroenterology Addition, Charleston, WV
This project consisted of the expansion of the CAMC gastroenterology facility in Charleston, West Virginia by adding a 4500-square foot addition to the existing building and expanding the parking lot. The project included surveying, geotechnical, and civil design and construction services. As the Senior Landscape Architect, Mr. Young was on the team that provided boundary retracement survey, a topographic location survey, geotechnical

TRIAD ENGINEERING, INC.

LLOYD KIRK, PS, CFS

SURVEY MANAGER

EDUCATION

West Virginia Institute of Technology, WV

AS , Mining Engineering Technology, 1987

PROFESSIONAL EXPERIENCE

22 Years

REGISTRATIONS & LICENSES

- Licensed Professional Surveyor – WV# 2247 & NC # L-3941
- FEMA Certified Flood Plain Surveyor – NC #139
- OSHA 10

SKILLS

- Construction Layout
- Boundary Subdivision
- Right of Way Plans
- Photogrammetric Control
- Mine Surveying
- Topographic Location

PROFESSIONAL AFFILIATIONS

- WV Society of Professional Surveyors
- NC Society of Professional Surveyors
- National Society of Professional Surveyors

HIGHLIGHTS OF EXPERIENCE

Mr. Kirk is the Survey Manager for the Scott Depot office of TRIAD. In this capacity, he is responsible for the supervision of the survey crews, overseeing the field work through drafting to the finished product delivered to the client, meeting with clients, and performing field work on large and complex projects. Mr. Kirk is experienced in construction layout, boundary and roadwork surveying, photogrammetric and topographic surveying. He has supervised and/or performed survey work on various types of work including surface mine surveying for coal mine facilities, site surveys and construction layout for landfill facilities, site surveys and right of way plans for WVDOH and NCDOT highway projects, and site surveys and construction layout for site development projects. Mr. Kirk has been involved in survey projects in several states including West Virginia, Kentucky, Ohio, Virginia, South Carolina and North Carolina.

In his capacity, he is responsible for schedules, project budgets, and the overall coordination of all survey projects. He works with all levels of engineering staff, the overall project team, and the project owner to produce a quality work product which satisfies all project requirements.

RELEVANT PROJECT EXPERIENCE

5th Street Bridge Rehabilitation, Cabell County, WV

Mr. Kirk was the project manager and lead surveyor for this project. The project consisted of an existing conditions survey of the entire bridge including substructure and approaches.

Belle Wastewater Treatment Plant Replacement, Belle WV

This project consists of the replacement of the wastewater treatment plant with a steel-tank package treatment plant; a new headworks structure with an automatic bar screen and grit unit; conversion of the existing concrete aeration tanks to equalization basins and emergency storage; purchase & installation of an emergency generator; construction of a new garage/blower building; and rehabilitation of the main pump station at the wastewater treatment plant. As the project manager and lead surveyor, Mr. Kirk provided professional surveying and mapping services in support of design and engineering efforts related to the project.

Belle West Reynolds Avenue Sewer and Storm Sewer Improvements, Belle, WV

The Town of Belle experiences excessive inflow/infiltration during wet weather events in the West Reynolds area of Town. As the project manager and lead surveyor, Mr. Kirk provided professional surveying and mapping services in support of design and engineering efforts related to the project.

Bluestone Park Fishing Pier Construction Staking and Layout, Bluefield, WV

This project consisted of the construction of the Bluestone Park Fishing Pier for the US Army Corp of Engineers project. Mr. Krik was the lead surveyor and project manager for this project, providing drilled-pier foundation layout, and anchor bolt positioning. Triad staked the centerline of the proposed foundations to facilitate drilling operations. In addition, Triad provided positioning and alignment of the proposed anchor bolts by client-provided template placement in coordination with the concrete pour.

TRIAD ENGINEERING, INC.

David W. Hooper, PE

Principal Engineer

Education

State University of New York at Buffalo

BS, Civil Engineering

Professional Experience

35 Years

Registrations and Licenses

- Professional Engineer
  - Pennsylvania #PE04544E
  - West Virginia #013515
  - Maryland #22G91
  - Ohio #PE61912
  - New York #75021

Affiliations

- ASCE

Skills Highlights

- Project Management
- Geotechnical Evaluations
- Energy Sector
- Slope Stability
- Soils Classification
- Construction Materials Engineering & Testing

Highlights of Experience

Mr. David Hooper brings more than 30 years of geotechnical engineering and project management experience to Triad Engineering, Inc., where he leads engineering projects operations in North Central West Virginia and Western Pennsylvania along with Energy projects for all of Triad's Regional operations. Mr. Hooper's specialties include geotechnical engineering assessments and design for transportation, public works, energy, and other public and private projects, project and client management, and personnel leadership to ensure contractual, schedule and budgetary requirements are maintained. Mr. Hooper is responsible for geotechnical engineering assessments and design for transportation projects. In addition, he's supports multiple regions for project scheduling, staff mentoring, quality assurance, management of projects and staff personnel to ensure contractual, schedule and budgetary requirements. His recent experience includes geotechnical engineering and construction observation and material testing projects for operations in Pennsylvania, West Virginia and Eastern Ohio. He has experience with PennDOT, Pennsylvania Turnpike Commission and various local government agencies and counties.

Relevant Project Experience

American Electric Power, Mountaineer Power Station (Flu-Gas Desulfurization Expansion), New Haven, WV

As Project Manager, Mr. Hooper conducted geotechnical exploration and provided the report for the construction of various additions associated with FGD expansion. In addition to buildings and other ancillary structures, Mr. Hooper's recommendations were provided for the support of the stack. Alternative analysis considered several deep foundation options and over excavation and replacement of the footprint. River borings were drilled for barge moorings.

Banes Hall Addition, Linsly School, Wheeling, WV

Responsible for overseeing construction monitoring and material testing services for the construction of a new structure. Services included subgrade verification, soil, concrete, masonry and steel testing. Prepared Special Inspector letters for the project architect.

Canvas Apartments Retaining Wall Repair, Morgantown, WV

Project Manager for repair of a failing 170-foot section of geogrid reinforced slope system. The system had a wire mesh face and retaining a rock backfill. Geogrid reinforcement is used with this system. In addition to performing a geotechnical exploration, three options including a soldier pile wall, reconstruction with a similar system and soil nailing were developed included estimates of costs. Responsibilities also included identifying design build contractors for the soldier pile wall, interviewing contractors, reviewing wall designs and overseeing construction inspection and testing.

Carlisle Hospital, Carlisle, PA

As Geotechnical Project Manager, Mr. Hooper was responsible for the geotechnical design and construction quality control for the construction of a five-story hospital facility on drilled shaft foundations. He provided additional recommendations for drilled shaft installation to accommodate highly variable karst conditions encountered during construction.

Corridor H, Kerens to Parson, Cheat River Bridge, Tucker County, WV

Mr. Hooper served as Principal Engineer for cut slope and abutment fill design for a Design Build Pursuit. Provided review of proposed design for adherence to the DOH standards. In addition, provided stability analysis for fill slope design.

TRIAD ENGINEERING, INC.

JOHN HAYNES, PE

GEOTECHNICAL & DRILLING SERVICES MANAGER
SENIOR ENGINEER

EDUCATION
West Virginia Institute of Technology
BS, Mechanical Engineering
BS, Civil Engineering

PROFESSIONAL EXPERIENCE
32 Years

CERTIFICATIONS
- Certified Monitoring Well Installer (WV #00225)

REGISTRATIONS & LICENSES
- Professional Engineer, West Virginia #016859
- Professional Engineer, Maryland #50585
- Professional Engineer, Ohio, #89127

SKILLS
- Managing Multiple Drill Crews
- Organizing drills, crews, and supplies for drilling projects
- Design of Subsurface Explorations
- Approval of Design Drawings
- Proposals
- Drilling Inspection
- Geotechnical Analysis & Reporting
- Geotechnical Engineering and

HIGHLIGHTS OF EXPERIENCE

Mr. Haynes serves as the Senior Drilling Manager for Triad's drilling operations when he manages all drilling and sampling activities conducted by the firm's regional offices. Mr. Haynes previously served as a Project Geotechnical Engineer. Mr. Haynes' duties include design and implementation of the subsurface investigations, assignment of laboratory testing, approval of design drawings, development of technical specifications, and preparation of drilling and geotechnical engineering cost proposals and reports.

RELEVANT PROJECT EXPERIENCE

Cenalli Impoundment, Barbour County, WV
The project consists of the construction of an impoundment with an approximate total volume of 10.2 million gallons, located in Barbour County, WV. We understand that the impoundment will be used as a centralized pit for the storage of water used in development of natural gas wells. Mr. Haynes provided drilling supervision and oversight during the subsurface investigation portion of the project. The subsurface investigation consisted of drilling 4 test borings to depths ranging from 30 to 40 ft. beneath the existing ground surface. Standard Penetration Testing and rock coring was performed at each location.

Morris Impoundment, Doddridge County, WV
The project consists of the construction of an impoundment for the construction of a secondary containment system for a centralized water storage tank in Doddridge County, WV to be used in development of natural gas wells. Mr. Haynes provided drilling supervision and oversight during the subsurface investigation portion of the project. The subsurface investigation consisted of drilling 7 test borings to depths ranging from 16.5 to 45 ft. beneath the existing ground surface. Standard Penetration Testing was performed at each location and rock coring was performed at select borings.

Statewide Geotechnical Drilling IDIQ, Various Locations, WV
This project consists of an as-needed, on-call 1 to 2 year contract for providing geotechnical drilling to the West Virginia Division of Highways. Triad has maintained this contract since 1998 and Mr. Haynes has managed the contract since 2012. Recent projects have included water borings (off shore drilling) for the I-64 Nitro, St. Albans, Bridge and borings for several bridge replacements in various locations in Berkeley and Hampshire Counties, WV.

Corridor H Drilling-Kerens to Parsons, Section 2, Tucker County, WV
The project consists of the geotechnical drilling for a 3.69 mile section of a 4 lane Expressway which extends from Interstate 79 near Weston, WV east to the Virginia state line near Wardensville, WV. Mr. Haynes was the project manager for this project which consisted of 166 Borings for a total drilling footage of 10,616 feet. This project was extremely difficult due to the extremely steep terrain and strict environmental requirements.

Corridor H Drilling-Kerens to Parsons, Section 1B, Randolph, Tucker County, WV
The project consists of the geotechnical drilling for a 5.62 mile section of a 4 lane Expressway which extends from Interstate 79 near Weston, WV east to the Virginia state line near Wardensville, WV. Mr. Haynes was the project manager for this project which consisted of 272 Borings for a total drilling footage of 15,757 feet. This project was extremely difficult due to the extremely steep terrain and strict environmental requirements.

RESUMES

Lon Brightbill, PE

PRINCIPAL

EDUCATION

Pennsylvania State University
Bachelor of Science
Architectural Engineering

REGISTRATIONS

Professional Engineer, NC
MD, DC, PA, DE, NJ, NY

NCEES, 24295
NFPA, 429598

YEARS with FDE

32 Years

Lon works from Columbia, Maryland.

Lon Brightbill is considered a leading authority in the field of critical performance facilities, in particular the commissioning and performance of Bio-Safety Level 3 and 4 (BSL-3/4) laboratories and vivariums (ABSL3&4), data centers, clean rooms, and central utility plants.

As Principal, Lon oversees the engineering activities and identifies commissioning, retro-commissioning, and energy-conservation strategies based on his in-depth knowledge of the commissioning process and building optimization.

Lon has over 38 years of experience in commissioning, controls design, master planning, HVAC system optimization and remedial engineering. He leads numerous commissioning projects, manages the implementation of PACRAT™(fault detection & diagnostic software) and provides technical support, and oversees contract administration and project quality control/quality assurance.
Lon has worked at multiple highly secure laboratories for federal agencies during his career. His portfolio extends from Cx standards development, Cx specification development, design review, development of the Cx database and protocols, functional testing, cost estimating and scheduling.

Lon was a voting member and author of the testing controls and HVAC sections of ANSI/ASSE std Z9.14 “Testing and Performance Verification Methodologies for Ventilation Systems for BSL3 and Animal BSL3 Facilities.”

RELEVANT EXPERIENCE

National Bio and Agro-DefenseFacility
710,000 SF; BSL4, BSL3-Ag, BSL3 (EE), Cx Lead
Manhattan, KS

Integrated Research Facility
140,000 SF; (A)BSL4, Cx Lead
Fort Detrick, MD

National Bio-Defense Analysis and Countermeasures Center (NBACC)
160,000 SF; (A)BSL4, BSL3, Cx Lead
Fort Detrick, MD

Rich Goldman

SENIOR ENGINEER

EDUCATION

Baltimore Polytechnic Institute
Essex Community College

Rich Goldman is a Senior Mechanical Commissioning Agent with 36 years of experience in Engineering and Controls Engineering. His career spans and includes 28 years as a certified AABC TAB technician.

Rich works with facility commissioning teams performing commissioning and retro-commissioning, facility assessment and remedial engineering, controls evaluation and new facility design review. He has provided commissioning and retro-commissioning services for a variety of facilities including, hospitals, medical research, laboratories, clean rooms, office complexes, college/ universities and LEED certified facilities.

RELEVANT EXPERIENCE

National Bio Agro-Defense Facility
Facility Dynamics Engineering was brought on to the McCarthy / Mortensen team to provide commissioning services to the project due to FDE's extensive and storied history of the successful commissioning of Bio-Safety Labs in the United States. With the Central Utility Plant completed in 2015 and construction ongoing, the Facility Dynamics team is working with all stakeholders on the commissioning startup plan and preparation of commissioning documents.
Manhattan, KS

USAMRIID Replacement Facility
The BSL-4 and BSL-3 spaces employ many technical enhancements allowing researchers to work together safely and effectively to respond quickly to critical emerging biological threats, including the world's deadliest pathogens.The scope of the Cx process includes the containment envelope, mechanical and electrical systems in the facility; safety equipment (such as biological safety cabinets, autoclaves, etc), and decontamination systems, as well as including all the biological safety aspects of the facility.
Fort Detrick, MD

Confidential Client, Multiple Locations
Rich has worked at many data centers for a large internet search provider where FDE's scope of services include mechanical, electrical, automation, fire protection, and security systems. This client builds data centers in 30 MW and larger buildings/power planes.
Various Locations

Key Personnel Certifications

West Virginia Board of Architects Public Registry

11/09/2023 01:55 PM

ROGER HARTUNG

Name:	HARTUNG ROGER
Credential ID:	3965
Expiration Status:	Not Expired
Renewal Date:	2023-06-02
Expiration date:	2024-06-30

West Virginia State Board of Registration for Professional Engineers

Search: Details

Name:	SAMUEL T. BUTZER
WV Professional Engineer:	**PE License Number:** 020417
	PE License Status: Active
	PE Issue Date: 09/17/2013
	PE Expiration Date: 12/31/2024
Continuing Education Claim:	**Qualifying Hours from Last Renewal or Reinstatement:** 38.00
	Carryover Hours for Next Renewal: 8.00
	Last Renewal or Reinstatement Date*: 12/16/2022
WV Engineer Intern:	**EI Certification Number:**
	EI Issue Date:
Primary Address of Record:	5802 RESEARCH PARK BLVD MADISON, WI 53719
Primary Employer of Record:	AFFILIATED ENGINEERS, INC. 5802 RESEARCH PARK BLVD MADISON, WI 53719
	* This date reflects the most recent license renewal (or reinstatement) date for this licensee. Continuing education hours earned prior to this date may **not** be used for future renewals.

This data was retrieved on 11/13/2023.

ZDS Design/Consulting:

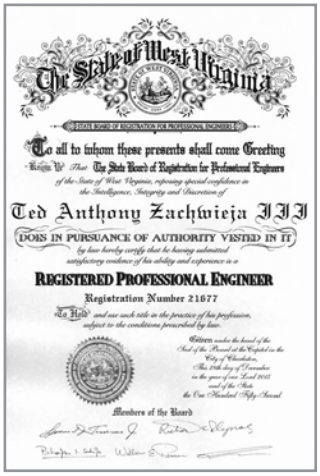

The State of West Virginia

To all to whom these presents shall come, Greeting

Ted A. Zachwieja

REGISTERED PROFESSIONAL ENGINEER

Registration Number 10127

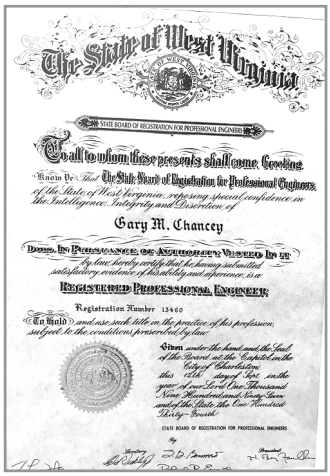

The State of West Virginia

To all to whom these presents shall come Greeting

Ted Anthony Zachwieja III

REGISTERED PROFESSIONAL ENGINEER

Registration Number 21677

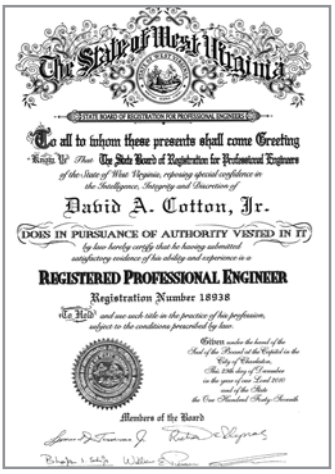

The State of West Virginia

To all to whom these presents shall come, Greeting

Gary M. Chancey

REGISTERED PROFESSIONAL ENGINEER

Registration Number 13460


The State of West Virginia

To all to whom these presents shall come Greeting

David A. Cotton, Jr.

REGISTERED PROFESSIONAL ENGINEER

Registration Number 18938


The State of West Virginia

To all to whom these presents shall come, Greeting

Mark W. Estep

REGISTERED PROFESSIONAL ENGINEER

Registration Number 16198


The State of West Virginia

To all to whom these presents shall come, Greeting

Paul S. O'Dell

REGISTERED PROFESSIONAL ENGINEER

Registration Number 13231


The State of West Virginia

To all to whom these presents shall come Greeting

Vineel Busa

REGISTERED PROFESSIONAL ENGINEER

Registration Number 25446


LEED AP BD+C

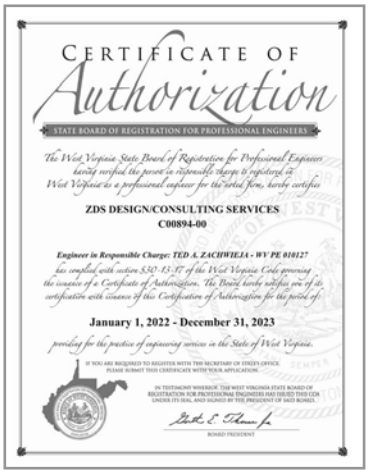
David Cotton

LEED AP Building Design + Construction


GREEN BUILDING CERTIFICATION INSTITUTE

Gary M. Chancey

LEED® ACCREDITED PROFESSIONAL


CERTIFICATE OF

Authorization

STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS

ZDS DESIGN/CONSULTING SERVICES

C00894-00

January 1, 2022 - December 31, 2023


State of West Virginia

Certificate

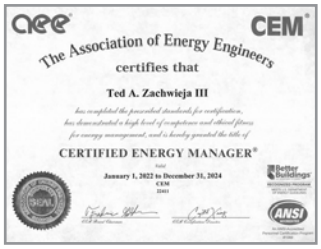
I, Natalie E. Tennant, Secretary of State of the State of West Virginia, hereby certify that

ZDS LIMITED LIABILITY COMPANY

CERTIFICATE OF EXISTENCE

Validation ID:3WY5G PD29E

December 03, 2015


The Association of Energy Engineers

certifies that

Ted A. Zachwieja III

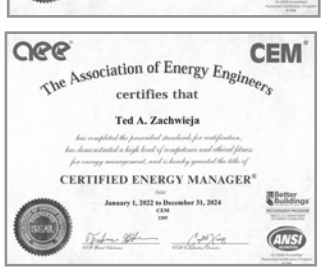
CERTIFIED ENERGY MANAGER®

January 1, 2022 to December 31, 2024


NFPA

National Fire Protection Association

JAMES WATTERS

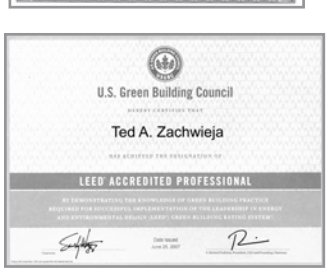

The Association of Energy Engineers

certifies that

Ted A. Zachwieja

CERTIFIED ENERGY MANAGER®

January 1, 2022 to December 31, 2024


U.S. Green Building Council

Ted A. Zachwieja

LEED ACCREDITED PROFESSIONAL

Board of Certified Safety Professionals

upon the recommendation of the Board of Certified Safety Professionals,
by virtue of the authority vested in it, has conferred on

Jeffrey D Owens

the credential of

Certified Safety Professional

and has granted the title as evidence of meeting the qualifications and passing
the required examination so long as this credential is not suspended or revoked
and is renewed annually and meets all recertification requirements.

Board Secretary

February 22, 2003

Date Issued

CSP-17512

Credential Number

The digital badge is the official documentation of the certificate.

Allegheny Design Services:

West Virginia State Board of Registration
for Professional Engineers

DAVID R. SIMPSON
WV PE #010150

This is to certify that the above named PROFESSIONAL ENGINEER has met the requirements of the law, is duly registered and is entitled to practice engineering in the State of West Virginia.

EXPIRES December 31, 2024

West Virginia State Board of Registration
for Professional Engineers

JASON D. ROBINSON
WV PE #019755

This is to certify that the above named PROFESSIONAL ENGINEER has met the requirements of the law, is duly registered and is entitled to practice engineering in the State of West Virginia.

EXPIRES December 31, 2024

West Virginia State Board of Registration
for Professional Engineers

DANIEL T LESLIE
WV PE # 26170

This is to certify that the above named PROFESSIONAL ENGINEER has met the requirements of the law, is duly registered and is entitled to practice engineering in the State of West Virginia.

EXPIRES December 31, 2024

Triad Engineering:

TRIAD ENGINEERING, INC.

Search: Details

Name:	LARRY L. MCCOY, JR
WV Professional Engineer:	**PE License Number:** 014731
	PE License Status: Active
	PE Issue Date: 02/20/2001
	PE Expiration Date: 12/31/2024
Continuing Education Claim:	**Qualifying Hours from Last Renewal or Reinstatement:** 35.00
	Carryover Hours for Next Renewal: 5.00
	Last Renewal or Reinstatement Date*: 12/28/2022
WV Engineer Intern:	**EI Certification Number:** 6845
	EI Issue Date: 06/24/1996
Primary Address of Record:	10541 TEAYS VALLEY ROAD SCOTT DEPOT, WV 25560
Primary Employer of Record:	TRIAD ENGINEERING INC 10541 TEAYS VALLEY ROAD SCOTT DEPOT, WV 25560
	* This date reflects the most recent license renewal (or reinstatement) date for this licensee. Continuing education hours earned prior to this date may **not** be used for future renewals.

This data was retrieved on 8/21/2023.

West Virginia State Board of Registration for Professional Engineers

Search: Results

For additional detail, click on the Individual or Company Name

Name	Address	City	State	Zip	License #	Status	Expiration
CRINITI, JAMES RALPH, JR	707 JEFFERSON STREET	SOUTH CHARLESTON	WV	25309	022418	Active	12/31/2024

Page 1 of 1

West Virginia State Board of Registration for Professional Engineers
300 Capitol Street - Suite 910, Charleston, West Virginia 25301
(304) 558-3554 | info@wvpebd.gov

A Century of Service! 1921 - 2021

WEST VIRGINIA STATE BOARD OF LANDSCAPE ARCHITECTS

certifies that

Joseph H. Young

Is entitled to practice Landscape Architecture in the State of West Virginia for the period of July 11, 2023 thru June 30th, 2024.

2024

In testimony whereof this certificate has been issued by the authority of this board

West Virginia License # 283

This authorization expires on and must be renewed by or before June 30th, 2024.

Jason Testman, Board President
WV Board of Landscape Architects

2024 WEST VIRGINIA PROFESSIONAL SURVEYOR 2024

The West Virginia Board of Professional Surveyors certifies that the individual listed below is a PROFESSIONAL SURVEYOR who has qualified for a license under Chapter 30, Article 13A, Code of West Virginia, and has met the requirements for license renewal for the period ending June 30, 2024

LLOYD A. KIRK
P.S. #2247

Board Members
Sefton Stewart, PS, Chairman
Tom Rayburn,PS,Secretary
Gary Facemyer, PE, PS
Lantz Rankin, PS
Douglas McElwee, Esq.

Issued 07/01/2023

Expires 06/30/2024

Executive Director
Amber Shawver Legg

Search: Details

Name:	DAVID W. HOOPER
WV Professional Engineer:	**PE License Number:** 013515
	PE License Status: Active
	PE Issue Date: 10/09/1997
	PE Expi**ration Date:** 12/31/2024
Continuing Education Claim:	**Qualifying Hours from Last Renewal or Reinstatement:** 49.50
	Carryover Hours for Next Renewal: 15.00
	Last Renewal or Reinstatement Date*: 12/19/2022
WV Engineer Intern:	**EI Certification Number:**
	EI Issue Date: 07/01/1994
Primary Address of Record:	152 EDGEMEADE DRIVE MONROEVILLE, PA 15146
Primary Employer of Record:	TRIAD ENGINEERING, INC 1097 CHAPLIN ROAD MORGANTOWN, WV 26501
	* This date reflects the most recent license renewal (or reinstatement) date for this licensee. Continuing education hours earned prior to this date may not be used for future renewals.

This data was retrieved on 10/30/2023.

Search: Details

Name:	JOHN J. HAYNES
WV Professional Engineer:	**PE License Number:** 016856
	PE License Status: Active
	PE Issue Date: 06/16/2006
	PE Expiration Date: 12/31/2024
Continuing Education Claim:	**Qualifying Hours from Last Renewal or Reinstatement:** 36.00
	Carryover Hours for Next Renewal: 6.00
	Last Renewal or Reinstatement Date*: 12/29/2022
WV Engineer Intern:	**EI Certification Number:** 8508
	EI Issue Date: 01/11/2006
Primary Address of Record:	770 SUPPER CLUB ROAD LETART, WV 25253
Primary Employer of Record:	TRIAD ENGINEERING INC 10541 TEAYS VALLEY ROAD SCOTT DEPOT, WV 25560
	* This date reflects the most recent license renewal (or reinstatement) date for this licensee. Continuing education hours earned prior to this date may **not** be used for future renewals.

This data was retrieved on 8/21/2023.

Experience and Past Performance

WVU Medicine Anatomic Pathology & Molecular Diagnostics Laboratory

Morgantown, WV | Fit-out | Completed February 2016 | 15,000 SF | $4.7 Million

The Molecular Diagnostics Laboratory assists healthcare providers in diagnosing and treating patients for the hospital and surrounding region. Specialized patient testing is performed in this laboratory including flow cytometry, cytogenetics, and mass spectrometry functions. Adjacent to the molecular lab is a **full-service autopsy suite and morgue** with 24-hour access, and quarantine and emergency response capabilities. This project **relocated these facilities from an existing location** at the hospital to a newly acquired off-site building location, requiring a complete gutting of the building to accommodate these functions. Workflow diagrams were analyzed and responded to, assuring efficiencies in adjacencies of critical pathways. Flow of specimen, doctor, clinician, courier, and more were considered to reduce travel distances and provide a lean design. Finishes matching the needs of each area were specified including stainless steel casework, resinous flooring, sealed light fixtures, etc. as conditions warranted. The facility maximizes use of daylighting and bounced daylight to ensure maximum natural daylight exposure.

Project Manager
Scott Bierer
Former Director of Facilities
304-598-4125
bierers@wvumedicine.org

Allegheny County Clack Campus Public Health Laboratory

Pittsburgh, PA | New Construction | Completed 2008 | 10,000 SF | $3.6 Million

IKM was commissioned to design a new $3.6 million facility located in Lawrenceville, PA. The new facility consists of 10,000 square feet of **analytical labs, Level 3 biosafety containment labs**, and administrative and conferencing areas. The Allegheny County Clack Laboratory serves as a backup to the existing State Health Laboratory in Chester County. It is a certified Bio-Safety Level 3 (BSL-3) lab equipped to conduct secure testing of biohazardous materials. The Allegheny County laboratory provides surge capacity to the State Health Lab and is capable of safe and secure testing of samples. The creation of a BSL-3 laboratory in Allegheny County provides geographical balance by assuring high-level laboratory capacity in both Southwest and Southeast Pennsylvania.The two labs are linked electronically, and the Clack laboratory benefits the Allegheny County Health Department, which was in need of a new lab to upgrade routine testing for infectious disease. The current laboratory routinely tests for sexually transmitted diseases, food-borne illnesses, meningitis, rabies, and other public health conditions.

Project Manager
Sam Taylor
Allegheny County Architect, Retired
sjtaylor922@gmail.com

AHN Allegheny General Hospital Center for Surgical Arts

Pittsburgh, PA | Renovation | Completed August 2015 | 7,400 SF | $2.1 Million

This 7,400 square foot teaching lab was designed for Allegheny General Hospital. The lab is for teaching neurosurgery, both brain and spine, and other procedures including orthopedic, cardiothoracic, pain treatment, and interventional radiology. Audio/visual equipment allows what is being demonstrated at a central station within the teaching lab to be viewed on a screen at each workstation. The technology also accommodates live streaming from several operating rooms into the Teaching Lab. The elevator lobby and the corridor leading to the lab underwent finish upgrades and other improvements so that these areas express to those entering that they are coming to an educational experience. Neurological slides are also used as art throughout the space. Other spaces in the project include a **cold room that can accommodate 21 cadavers**, a cold room for same number of heads stored in formalin, an autoclave room, lounge, offices, storage, and women and men's locker rooms. This project also required the addition of a new air handling unit and separate ventilation system.

Project Manager
John Kalberer
Project Manager
412-330-4164
jkalber1@wpahs.org

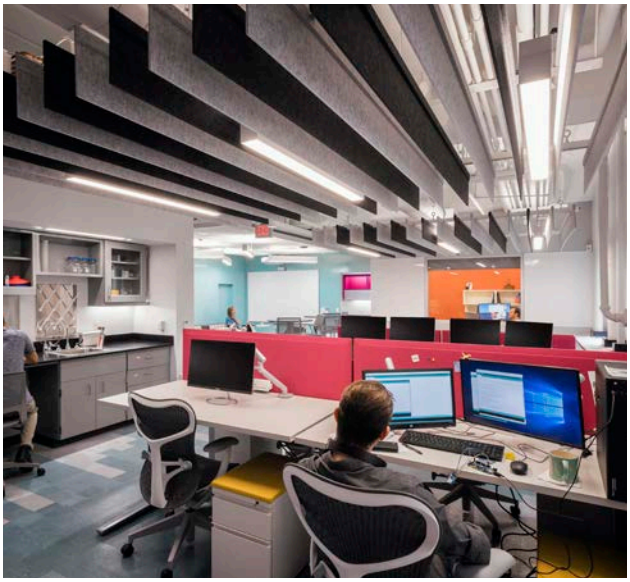
Carnegie Mellon University Mellon Institute Laboratories

Pittsburgh, PA | Renovation | Completed August 2018 | 6,800 SF | $2.3 Million

NOONAN PYROPHORIC LABORATORY: The lab is designed to provide different controlled environments for the creation of new polymeric compounds for the Department of Defense. All areas are designed for maximum laboratory safety with a **hazardous exhaust system** added to provide safety in emergency situations.

GUO BIOCHEMISTRY LABORATORY: This project included both the conversion of library stack space into an **instrumentation and biochemistry lab** as well as a renovation of the existing biochemistry labs, offices, conference room, and kitchen.

YTTRI BIOLOGICAL SCIENCES LABORATORY: Four existing separate labs were renovated into a highly **computational lab and research space**. The program included student work areas, three labs with **holding rooms for mice**, and an office. Team collaborative space was prioritized, with reconfigurable furniture and fully cleanable finishes in the labs.



Project Manager
Max Dorosa
Senior Project Manager
412-268-8936
maxd@andrew.cmu.edu

Calgon Carbon Innovation Center

Pittsburgh, PA | Fit-out | Completed October 2015 | 15,500 SF | $4.1 Million

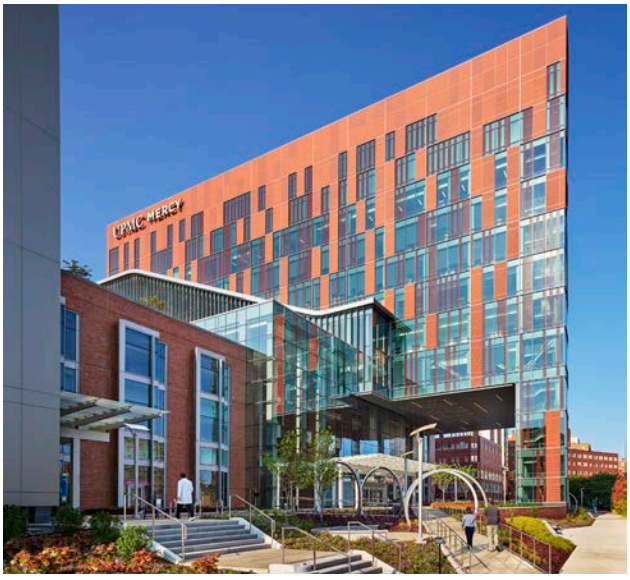
These laboratories facilitate innovations in the purification, separation, and concentration of liquids, gases, and other media. A leader in the activated carbon industry and with ultraviolet light disinfection and oxidation expertise, Calgon Carbon's labs have originated cutting-edge purification systems for drinking water, wastewater, odor control, pollution abatement, and a variety of industrial and commercial manufacturing processes. This project provided the interior architecture to house the facilities where Calgon conducts **research and development**. The design accommodates the public viewing of most lab spaces, portraying a high-tech look while also providing **clean/dirty separation, industrial equipment sound isolation, pressurization** of spaces to control dust migration, localized dust capture system, and the accommodation of **thermal processes**, among other things. The open lab layout and internal window system provide an environment that doesn't compartmentalize the researchers beyond what is required due to specific lab function, while still creating great spaces to work within.

Project Manager
Michael Dahm
Manager of Project Engineering
412-327-9976
mdahm@calgoncarbon-us.com

UPMC Mercy Pavilion

Pittsburgh, PA | New Construction | Completed December 2022 | 410,000 SF | $450 Million

IKM partnered with HOK to design the first vision facility of its kind in the Pittsburgh region designated specifically for patients with limited mobility and vision impairment. The 410,000 square foot UPMC Mercy Pavilion is comprised of a four-story clinical base which houses all patient-focused activities including retail, clinics, testing, surgery, and a rehabilitation gym. The remaining five-story tower is dedicated to **research, clinical trials, and a vivarium**. A large exterior collaborative stair is designed to link all of the research floors together to help foster connection among staff. The roof of the clinical base is divided into two distinct sections of green roof. One section caters to patient rehabilitation, offering a variety of materials and obstacles to walk on, and the other section focuses on hospitality for the conference center in the adjacent building. The interior design of the facility is designed specifically for patients of low or no vision. Special attention for all finish selections was given to contrast, texture, and sound absorption to ensure patients with limited mobility or sight are able to navigate the building with ease and confidence.



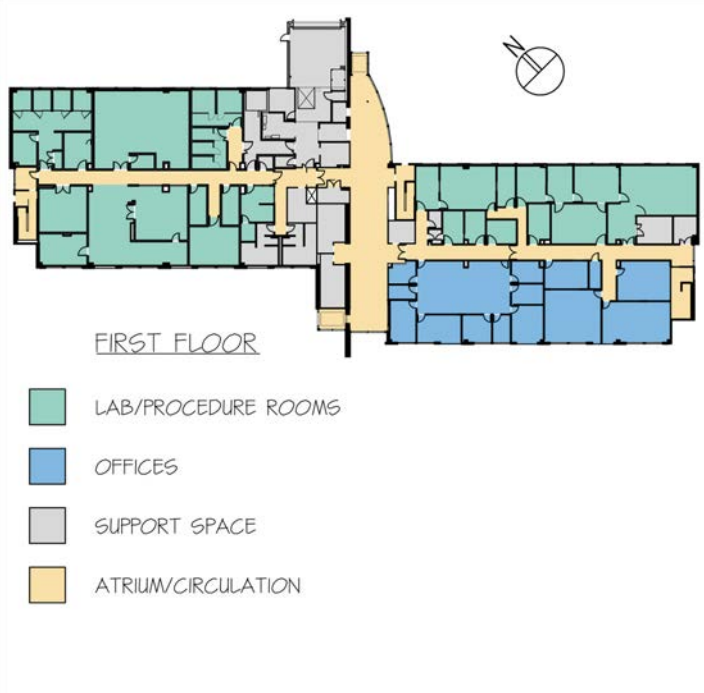
Project Manager
Mike Chiappetta
Project Director, Corporate Construction
412-864-4013
chiappettamj@upmc.edu

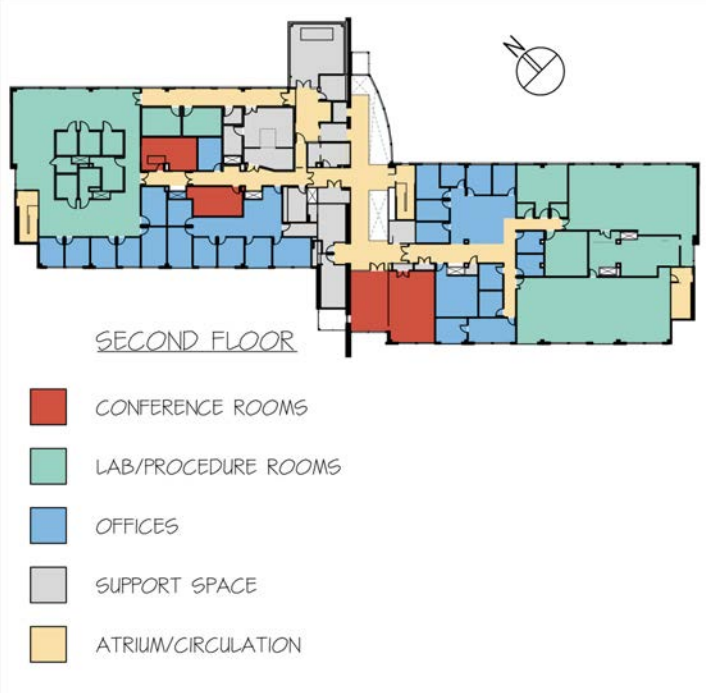
WVU Medicine Rockefeller Neuroscience Institute

Morgantown, WV | Addition | Completed May 2019 | 60,000 SF | $25 Million

Rockefeller Neuroscience Institute spans boundaries between research and direct patient care. It is designed to facilitate **interdisciplinary research, learning, and treatment** for a variety of critical neurological conditions including Alzheimer's Disease, depression, and addiction. The first floor houses a **sleep research lab, a small-animal vivarium**, and a new **Low-Intensity Focused Ultrasound** (LIFU) to be used in both human and animal research applications. The second floor holds administrative offices, wet labs, a display lab for public functions, and spaces to accommodate data analytics and machine learning. The third floor includes a human-performance innovation center, float tanks, transcranial magnetic stimulation, light therapy, and other investigative modalities. Also on this floor are research offices for neuromodulation and a multidisciplinary collaborative habitat. Additionally, the facility houses a new **High-Intensity Focused Ultrasound** (HIFU), an FDA-approved non-invasive modality which combines HIFU with MRI for the treatment of brain tumors. Spaces in the facility are organized to foster collaboration between the worlds of research and patient care.

Project Manager
Kenny Rockwell
Manager of Planning, Design, Construction
304-598-4125
kenneth.rockwell1@wvumedicine.org





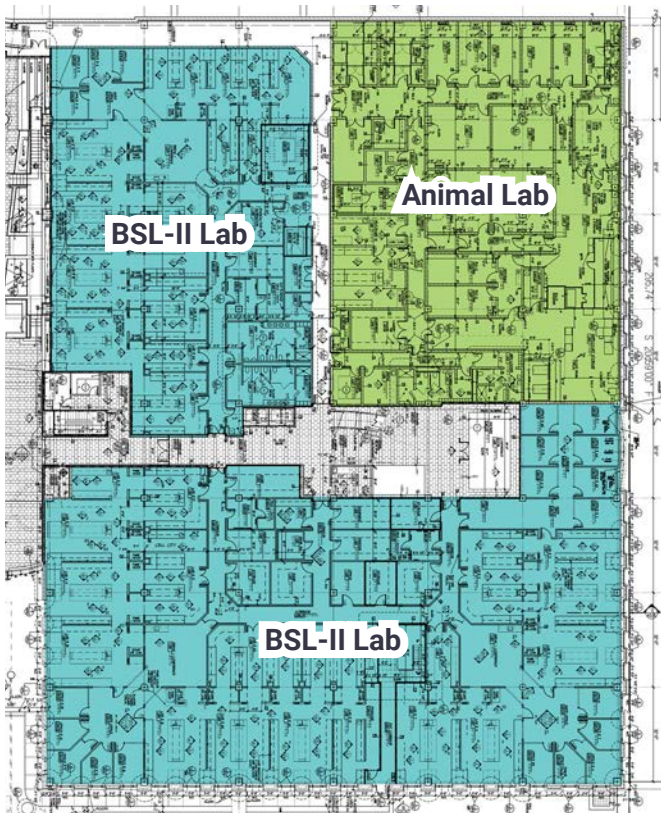
University of Pittsburgh McGowan Institute for Regenerative Medicine

Pittsburgh, PA | New Construction | Completed August 2002 | 45,200 SF | $11.6 Million

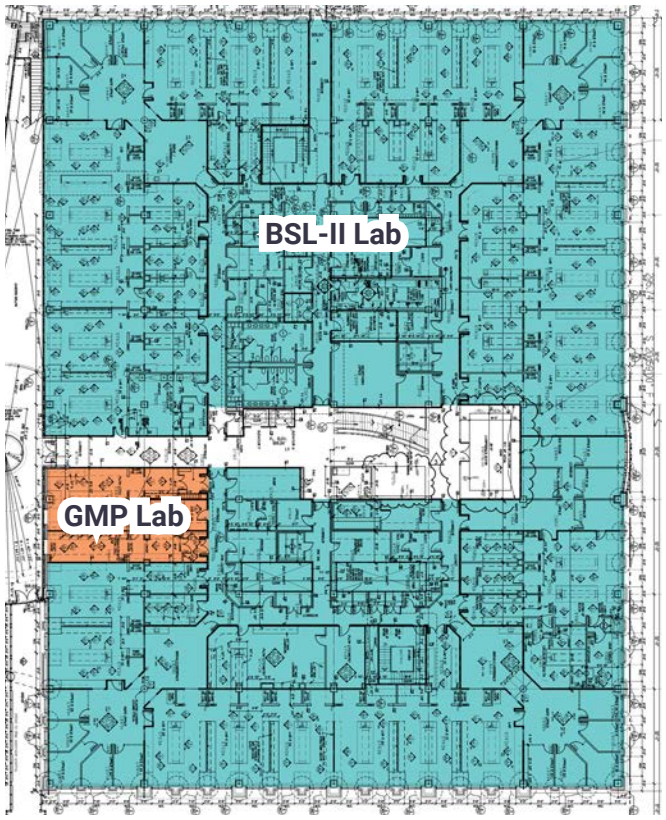
At the McGowan Institute for Regenerative Medicine, the primary research focus is on the development of technology to address tissue and organ insufficiency. The University of Pittsburgh School of Medicine and UPMC Health System established the McGowan Institute to realize the vast potential of tissue engineering and other techniques. The facility is a two-story, **standalone laboratory and office building** located on a brownfield that was once occupied by a steel mill. The new building is home to 110 scientists, researchers, and other staff who are developing artificial hearts and lungs, blood substitutes, and new ways of assisting patients on waiting lists for vital organs. The program includes **animal holding, surgery rooms, research labs, two MRI rooms**, a shop, graduate student spaces, and offices. This project was designed and built in two distinct phases. The first shell phase did not have any specific sustainability goals, however, IKM designed it to high thermal and durability standards. The second phase involved the planning and design for the fitout project, which was "green" from the beginning with plans to register the project with LEED and set a Gold rating as the target.

Project Manager
John Fedele
Project Manager
412-624-4148
jfedele@pitt.edu

GROUND FLOOR



FIRST FLOOR

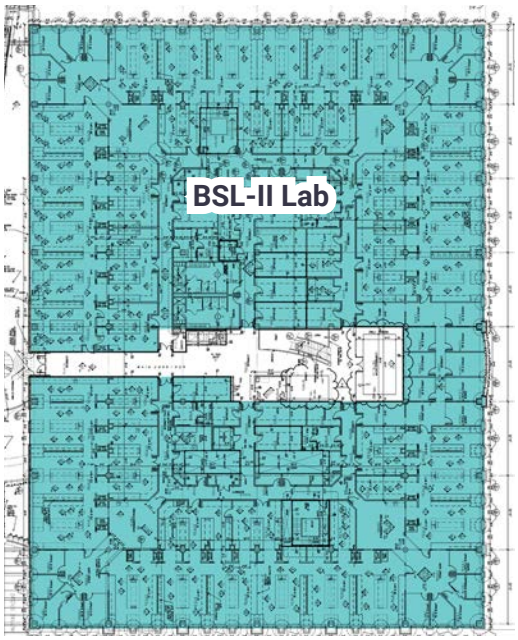


UPMC Hillman Cancer Center Research Pavilion

Pittsburgh, PA | New Construction | Completed March 2002 | 355,000 SF | $98 Million

Hillman Cancer Center is UPMC's flagship cancer treatment and research facility. By integrating patient care activities and research endeavors into one location, the facility maximizes opportunities to translate promising research findings in the laboratory into effective new cancer therapies. The Research Pavilion encompasses three levels. It accommodates 450 laboratory personnel including research faculty, associates, and lab technicians. Approximately 154,000 SF of **biomedical research laboratories** are provided for cancer research in the areas of molecular biology, new drug discovery, gene therapy, cancer vaccines, translational research in breast, prostate and lung cancer, and cancer genetics. The research labs contain **Class 10,000 clean rooms** and meet **Good Manufacturing Practice standards** approved by the Federal Drug Administration. Researchers studying similar areas are located together in research suites. Each suite includes a common area to provide opportunities to share ideas and scientific resources. The research pavilion has been designed to provide convenient ways to reconfigure laboratories to accommodate new investigators. As the focus of cancer research changes and as technological advances allow new avenues of investigation, the **ability to modify laboratory space** has enabled the Hillman Cancer Center to stay on the cutting edge of research with a minimum of cost and/or delay.

SECOND FLOOR



Project Manager
Ron Wertz
Project Manager
412-338-3466
rwwertz@hillmanfo.com

PROJECT MANAGER

Rebecca Moritz
608-890-3468
rebecca.moritz@wisc.edu

TYPE OF PROJECT

Research Labs

State of Wisconsin

Department of Agriculture, Trade & Consumer Protection & Wisconsin State Lab of Hygiene Co-located State Laboratory

Madison, WI

The project consists of the design and construction of a new 82,000 square foot laboratory facility, serving the Wisconsin State Laboratory of Hygiene (WSLH) and the Department of Agricultural Trade and Consumer Protection (DATCP) Bureaus of Laboratory Services (BLS) and Plant Industries Laboratory (PIB). The agricultural and public health laboratory functions as a safe, modern, "state of the art" laboratory to facilitate the WSLH's mission of maintaining Wisconsin's public and environmental health and DATCP's mission of assuring the safety and quality of food, fair business practices for the buyer and seller, efficient use of agricultural resources in a quality environmental, consumer protection, health animals and plants.

AEI provided MEP and controls engineering, technology design, lighting design, energy modeling, and construction field services for the two-story building, which includes a partial basement and a mechanical penthouse, and is connected at the basement and first floor levels to an existing building on the site.

Space programming includes a BSL-3 suite and cleanroom suite at Class 100,000 (ISO Class 8), Class 10,000 (ISO Class 7), and Class 1,000 (ISO Class 6). The majority of the suite is ISO Class 7.

DATCP functions located at the site include:

» Bureau of Laboratory Services (BLS) - Food & Dairy (Mandated Dairy & Meat Inspection Testing; Food Microbiology)
» BLS – Technical Services (sample processing & quality assurance)
» BLS Environmental Agricultural Chemicals (Groundwater Analysis; Pesticide Analysis; Feed & Fertilizer testing)
» Bureau of Plant Industry (PIB) – Environmental Agricultural Chemicals (Plant Industry & Biofuels testing labs)

WSLH functions at the site include:

» Laboratory Improvement Division
» Toxicology Laboratory
» Ultra-Trace Metals Laboratory
» Division of Public Health Information & Surveillance – Information Technology Section

While the client chose not to pursue LEED, energy savings design measures included:

» Lighting controls include use of dual technology occupancy sensors and ambient light sensors where appropriate
» Emergency lighting utilizes emergency power control device to allow fixtures to be switched off when not in use but automatically illuminate, regardless of switch position, upon the occurrence of a life safety event
On-site generator to supply emergency and optional standby loads
» Electrical metering at major distribution panels
» Pure water pumps were specified with VFD's and high efficiency gas water heaters
» Low flow plumbing fixtures

PROJECT MANAGER

Thomas Winkel
Design Manager
410-962-4395
Thomas.C.Winkel@
usace.army.mil

TYPE OF PROJECT

Federal Client
Research Lab

US Army Corps of Engineers

Public Health Command

Aberdeen Proving Grounds, MD

The Public Health Command Lab Replacement project is located on 20 acres at Aberdeen Proving Ground. The project includes construction of a 279,574-square-foot consolidated medical research laboratory consisting of wet labs, field labs, a vivarium under Good Laboratory Practices, offices, warehouses and a central utility plant. The facility includes anechoic chambers, an insectary chamber and laser labs. The new facility will help Public Health Command respond to emerging environmental threats and health challenges for forces worldwide.

The project consists of a multi-story new facility to house all of the field laboratories, wet laboratories, BSL-2 laboratories, ABSL-2 animal facility, test/evaluation areas, administrative space, building support spaces and a standalone central utility plant (CUP). Supporting facilities include utilities, storm drainage, parking and site improvements. The existing medical facilities will be both returned to the installation for reuse or demolished with other than MILCON funds.

The electrical portion of the project consists of a design for a closed transition from emergency to normal sources. This transition includes momentary (100 milliseconds) synchronization between the two, 2MW, 13.2 KV, emergency generator sets and the utility. A building waste treatment system study was performed for this project and will collect 100% of the sanitary and lab waste, treating and reusing the water for nonpotable uses.

Challenges on the project include: aggressive sustainability goals (40% energy reduction), respecting existing wetlands onsite and the Chesapeake Bay critical area, planning for future administration space (PHAC) and future expansion.

Autodesk Revit software is being used for BIM coordination. The project is being designed to LEED Silver.

State of West Virginia Capitol Complex Charleston, WV

Project Cost: $26,500,000

Size: 1,900,000 ft^2 covering 9 buildings

Date Complete: 2019 for latest project

HVAC Renovations, Fire Protection,
Electrical Renovations, Consultant for Performance Contracting

Client Reference:
Patrick O'Neil, Project Manager; Patrick.S.ONeill@wv.gov

Builder Reference: Constellation Energy; Chuck Moeller (previously with Johnson Controls; (724) 584-3331

Numerous design and renovation projects for the WV State Capitol Complex including engineering planning, design, supervision, preparation of construction documents, specifications, construction administration, and commissioning of HVAC systems, sprinkler systems, plumbing systems, electrical power, lighting, fire alarm, security, technology and communications for many facilities on the WV Capitol Complex: **WV Division of Protective Services:** Engineering master planning & design for specific life safety issues involving homeland security, fire alarm, sprinklers, emergency power, CCTV, intercom, mass notification and "giant voice" system for all State facilities on the Capitol Complex under a 10-year open-end contract. **WV Division of Culture and History Library** renovations addressing long-term HVAC and IAQ problems including fire alarm and fire protection upgrades completed in 2011. Renovations conserved energy without sacrificing comfort or indoor air quality. **District Heating System:** As a consultant to Johnson Controls under a Performance Contracting program to provide master planning and design for the district heating system for the **WV Capitol Complex**. The project included the Master Planning, IAQ evaluation, energy analysis, code analysis and Mechanical design involving more than 1,900,000 ft^2 of facilities including the Capitol Building, Building's #3, #4, #5, #6, #7, Holley Grove, Governor's Mansion and the Culture Center.

Master planning & design for central heating plant, DDC controls, Air Handling Unit replacements and retrofits, operating and maintenance, training, heat recovery, fuel conversion, VFD's, variable water volume pumping, steam/heating hot water & chiller optimization.

The Capitol Complex renovations are estimated to save nearly $2,000,000 annually over the costs of operating the old systems.

William R. Sharpe, Jr. Hospital

Weston, WV

Size: 219,754 ft^2 plus 33,000 ft^2 Addition

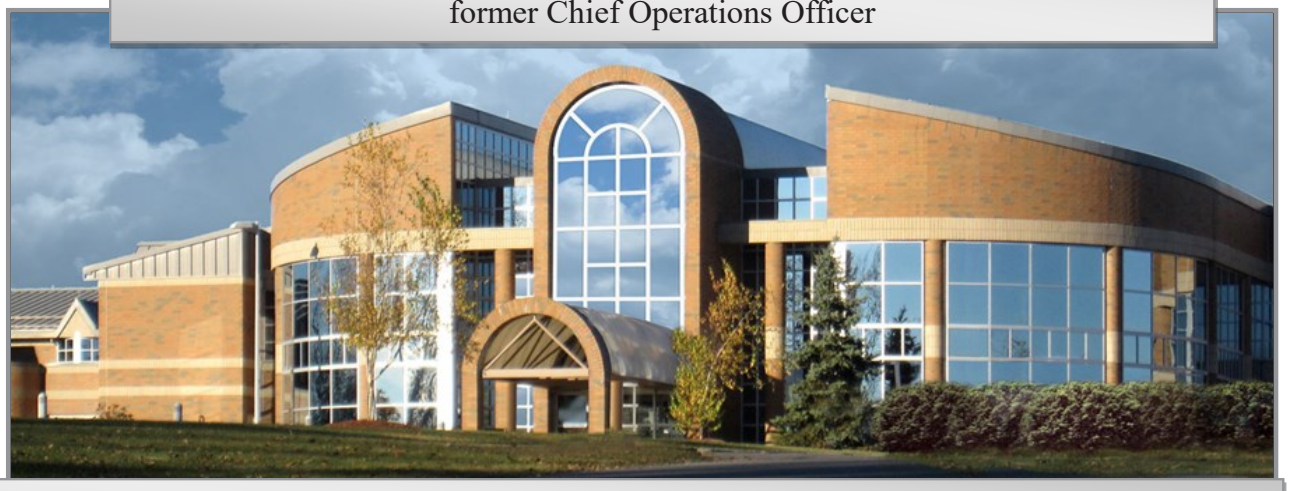
Date Complete: 2017

219,754 ft^2 Renovation plus 33,000 ft^2 New Construction

Prime for Engineering Master Planning, HVAC Renovations, Lighting Upgrades, Emergency Generator, Fire Protection, Electrical Renovations, Roof Replacement, Commissioning, 3D Scanning. Consultant for all MEP engineering through IKM, Inc. for the addition.

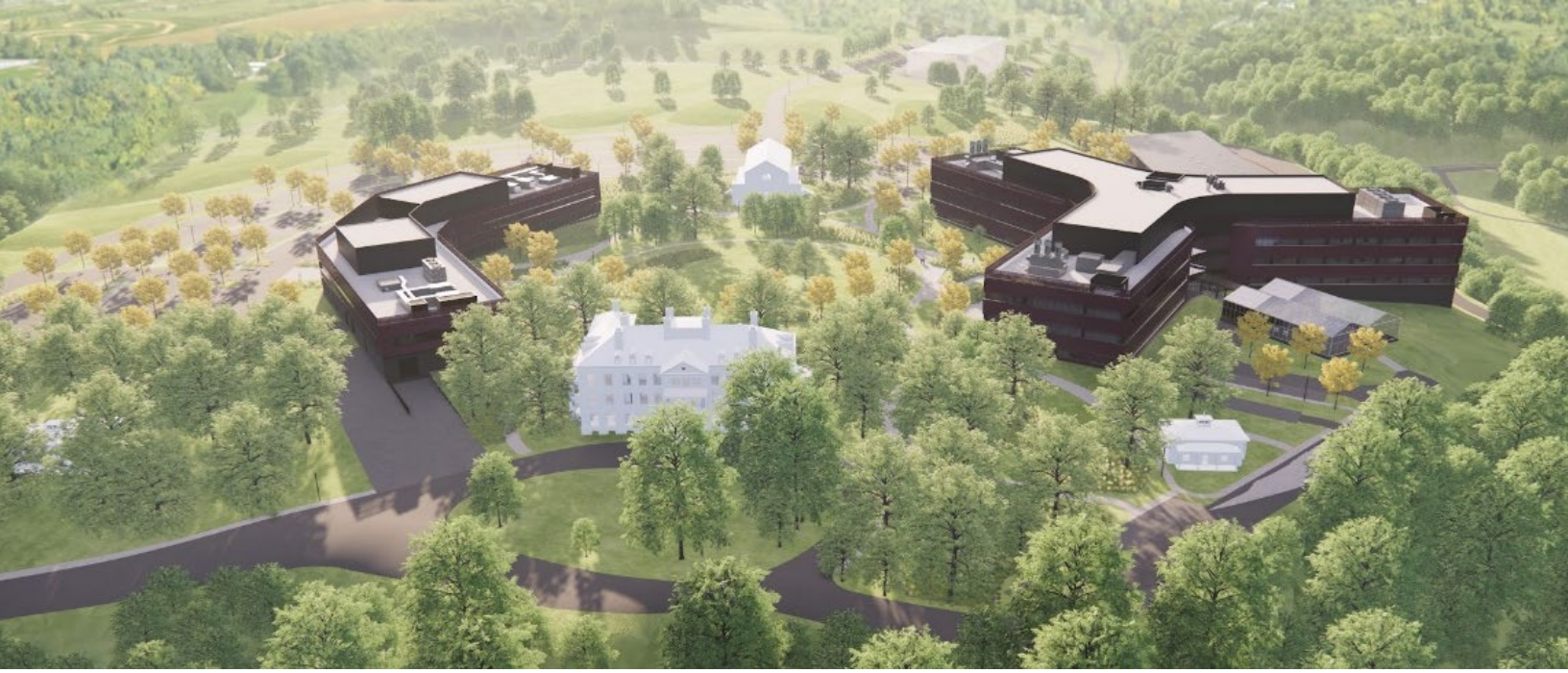
MEP Engineering design and Commissioning services for both the HVAC/lighting/roof Renovation project retrofitting Hospital and the patient wing addition. Comprehensive MEP engineering and commissioning services for a central domestic hot water services, central boiler/chiller plant and 1.8 MW bi-fuel emergency generator system. Central heating plant with three 10.5 Million BTU heating hot water boilers with low NOx burners to meet DEP emission requirements. VWV Pumping for heating, cooling and domestic hot water. Integrated DDC controls for central monitoring, troubleshooting and control including demand control ventilation and outside air measuring/monitoring. The HVAC system is also an integral part of the smoke control system. Lighting systems upgraded to LED and controlled to minimize energy. IAQ enhancements were incorporated into the high performance HVAC systems. Careful phasing, and the need to disrupt only small portions of the Hospital at a time, resulted in an extended construction period.

"The ZDS staff are great planners and designers! They help us make the best decisions for the long term. We would recommend them to anyone!"
former Chief Operations Officer



Renovations resulted in a 48% reduction in lighting and 28.8% reduction in energy for HVAC renovations over ASHRAE 90.1-2001 standards qualifying the project for EPAct.

Construction Costs:	Phase I HVAC Cost	$ 1,403,000	Completed in 2011
	ARRA Funded Lighting Upgrade Costs	$ 618,700	Completed in 2011
	Comprehensive Renovation Cost	$30,000,000	Completed in 2017
	Addition Project Cost	$13,500,000	Completed in 2014



Pennsylvania Joint Laboratory Facility (JLF)
Department of General Services (DGS)

Harrisburg, Pennslyvania

To better serve the people of the Commonwealth of Pennsylvania, the State is building a new joint laboratory facility and campus combining five critical state departments, requiring flexible and adaptable labs. Designed to meet the needs of ever-changing world challenges, the project is foundational in elevating the Commonwealth's public health and safety infrastructure. It is being designed in an effective and efficient way, allowing the agencies to meet those needs.

The five state departments include:

- **Department of Agriculture** encourages, protects and promotes agriculture and related industries throughout the commonwealth while providing consumer protection through inspection services that impact the health and financial security of Pennsylvania's citizens. Labs include Plant Pathogen, Food Safety/ Security, Botany, Seed, and Entomology.
- **Department of Environmental Protection's** mission is to protect Pennsylvania's air, land and water from pollution and to provide for the health and safety through a cleaner environment. Labs include the Bureau of Laboratories (Organic, Radiation Measurement, Biological Services, and Inorganic Services), Radiation Protection, Clean Water, safe drinking water, Air Quality.
- **Department of Health** supports disease prevention and control through the provision of investigatory, diagnostic, and confirmatory or specialized testing for conditions and diseases of public health concern. Laboratories consist of three divisions: the Division of Chemistry and Toxicology, the Division of Clinical Microbiology, and the Division of Laboratory Improvement.
- **Department of Conservation and Natural Resources** provides information on the state's ecological and geologic resources. Its labs include Botany, Forest Health, Entomology and zoology
- **Pennsylvania State Police** serves the criminal justice community by providing the highest quality scientific, technical, and investigative support to law enforcement agencies. Labs include testing for: drugs, trace, toxicology, firearms and toolmarks, NIBIN, AFIS, latent prints, footwear and tire, and questioned documents.

COST
$350 million (est.)

SIZE
375,000 gross square feet

DURATION
Dec. 2022 – Feb. 2028

SERVICES
As consultant to SOM, HERA is providing laboratory programming, planning and design, Construction Administration as well as laboratory equipment survey and planning.

CLIENT REFERENCE
Jim Tomasello, PE, RA
Project Manager, for DGS
JTomaello@pa.gov
(717) 346-5957

High Containment Continuity Laboratory
Centers for Disease Control and Prevention

Atlanta, Georgia

Once completed, the new High Containment Continuity Laboratory (HCCL) building will be one of just three facilities in the world designed to facilitate diagnostic research on highly contagious and deadly viruses, and the first of its kind to accommodate both human and animal diagnostics meeting both BMBL and ARS high containment criteria.

The design will maximize flexibility by providing BSL4 suites with both lab and vivarium spaces included, similar BSL3E suites and additional flexible suites that can operate at either BSL3E or BSL4 as needed. The facility will feature a myriad of safety features to keep the researchers and staff in the building safe:

» High-efficiency particulate air (HEPA) filtered supply and exhaust air
» Air pressure resistant doors
» Pressure cascade zoning
» Effluent collection and treatment
» Pressure decay tested coatings and penetrations
» High purity breathing air
» Chemical decontamination showers for research staff

The building will be connected to the existing Roybal campus utility systems with below grade utility tunnels and a two-level bridge connection.

This initiative increases the CDC's research capacity to sustain its diagnostic mission and support its public health mission by helping communities prepare for, detect and respond to public health consequences of all hazards. The HCCL will accommodate approximately 80 laboratory researchers.

CONSTRUCTION COST
$480 million

SIZE
175,000 square feet

DURATION
Feb 2019 – 2025 (est)

SERVICES
As laboratory consultant to Flad/Page Design Partnership, HERA is providing comprehensive functional and operational planning and programming.

CLIENT REFERENCE
Melissa Brykailo Pearce
HCL Manager
(404) 639-1119
gge6@cdc.gov

Reedy Creek Laboratory Campus Expansion and Renovation
North Carolina Department of Environmental Quality

Raleigh, North Carolina

This expansion and renovation will optimize workflow and modernize the laboratories to allow for increased testing within the Chemistry, Air Quality and Water Quality/Bio-Chem divisions.

A 50,000-sf, two story expansion will create a new main entrance and connect two existing buildings, completing an interior courtyard. Three existing buildings, which house most of the laboratory space, will receive full interior renovations. Lab types in the renovated space include Nutrients & Wet Chemistry, Algae, Volatiles, Extractions, PFAs and Biochemistry. Approximately 10,800-sf of lab space for the Metals, Microbiology and Air Quality departments will be housed in the new building.

Interior and exterior educational displays are key to the campus design, which will reflect the mission of the DEQ and serve as a teaching tool for students and visitors. The lobby will showcase a laboratory simulation area for the public to learn testing procedures and the importance of the department to the state.

The laboratories provide a wide range of services and tests that play a critical role in protecting the health, safety and welfare of the citizens of North Carolina.

Other programmatic spaces include offices, conferences rooms, education/visitors center and a warehouse.

CONSTRUCTION COST

$55 million (est)

SIZE

113,000 gross square feet

DURATION

Mar 2022 – Feb 2026 (est)

SERVICES

As laboratory consultant to HH Architecture, HERA is providing laboratory programming, planning and design.

CLIENT REFERENCE

Eric Turon, FMA, CHFM, CFM
Facilities Engineering Manager
(919) 707-8527
eric.turon@ncdenr.gov

Steve Troxler Agricultural Sciences Center
North Carolina Dept. of Agriculture & Consumer Services

Raleigh, North Carolina

This new laboratory and office building houses the Veterinary, Food and Drug Protection, Structural Pest Control and Pesticides, Motor Fuels and Standards laboratories. The laboratories and programs provide a wide range of services and tests that play a critical role in protecting the health, safety and welfare of the citizens of North Carolina.

The 80,000-gsf of laboratory spaces span a wide range of uses, including veterinary diagnostics, necropsy suites, virology/serology, bacteriology, pathology, microbiology, whole genome sequencing, histology, metrology, motor fuel combustion research, high bay space, ABSL2 and flex ABSL3 capabilities and more.

The Food and Drug Protection section include labs to store, grind, test, separate, weigh, extract and analyze various samples of seeds, food, feed, fertilizer and grain moisture.

The new facility consolidates six lab buildings that are an average of 40 years old. The new facility houses about 200 people and accommodates modern and future equipment, optimizes workflows and prepares for program growth and future program needs.

The building maximizes overall efficiency and expand capacity for each laboratory by co-locating separate divisions with similar requirements close to one another.

The new structure is oriented based on best practices for energy efficiency, infrastructure requirements, grading, prominence, circulation and adjacency requirements.

"HERA is an excellent lab planner. They took four very different labs and put them into one building. Many issues had to be dealt with, such as cross contamination between labs, safety, adequate spacing, etc. They were great to work with and provided us with a layout that met our requirements."

— Ron Willett, Agricultural Sciences, Center Complex Manager

CONSTRUCTION COST

$94 million

SIZE

225,000 gross square feet

DURATION

Nov 2016 – May 2021

SERVICES

As laboratory consultant to HH Architecture, HERA provided lab programming, planning, design review and equipment planning.

AWARDS

Top Public Project, Triangle Business Journal Space Awards, 2022

Sir Walter Raleigh Award for Community Appearance, 2022

CLIENT REFERENCE

G. Kent Yelverton, PE
State Fair Division Director
Formerly Property & Const Div. Director
(919) 807-4366
Kent.Yelverton@ncagr.gov

Additions and Renovations
New Mexico State University and New Mexico Department of Agriculture

Las Cruces, NM

A modernization of the Spanish Renaissance Revival building that houses departments regulating agricultural standards for the New Mexico Department of Agriculture (NMDA). The laboratories provide services and tests to help protect the health, safety and welfare of the citizens of New Mexico.

Previously, the labs did not meet current and projected space or infrastructure needs and were not efficient. The new facilities house chemistry, metrology, seed and petroleum.

- The chemistry lab checks animal feed, pet food, commercial fertilizers and pesticides to ensure quality products. Office space was repurposed into updated labs, with the design team retaining as many of the walls as possible.
- The metrology laboratory verifies weights of consumer items such as fuel. Unique to this lab is a bridge crane system to bring oversized and heavy objects into the building to be weighed. Provers, which are large vessels of water used to weigh liquids, have exacting temperature, humidity and vibration requirements.
- The seed laboratory confirms seed qualities and quantities.
- The petroleum standards lab inspects commercial petroleum measuring devices. It also ensures product quality for gasoline, diesel, kerosene, brake fluid, antifreeze and lubricating oil. Unique to this lab are two test engines, which have exacting cooling and ventilation requirements. The design team mitigated effects of the engine heat and noise to adjacent labs.
- Future services include cannabis and antibiotics/antimicrobial resistance testing.

The labs are designed to adapt with scientific, equipment and regulatory changes for years to come. The building, located on the New Mexico State University grounds, creates a “campus within a campus” while allowing the NMDA to have a unique visible identify. A strategic phasing plan allowed for continued operations throughout construction with minimal disruptions.

CONSTRUCTION COST
$9.5 million

SIZE
17,778 gross square feet

DURATION
Oct 2019 – Apr 2023

SERVICES
As laboratory consultant to Dekker Perich Sabatini, HERA is providing programming, laboratory planning and design, equipment planning.

CLIENT REFERENCE
Tim Darden
Division Director
(575) 646-1551
ddlabs@nmda.mnsu.edu

Public Health Laboratory
City of Philadelphia Department of Public Health

Philadelphia, Pennsylvania

HERA evaluated two possible sites for the City of Philadelphia's Public Health Laboratory in two different parts of the city, developed a program, right sized the laboratory space and determined that approximately 14,800 square feet will be required for the public health labs.

HERA provided building assessments; multiple concept option development and evaluation; and programming and design for a lean, flexible new laboratory space to support investigations of disease outbreaks or threats to public health. Once a site was selected, HERA developed a schematic design layout and supported the city through the lease negotiation process.

The lab design addresses security and containment issues, lean specimen flow, materials and waste management and operational efficiencies, all while exploiting the available exterior openings and sources of natural light into the space.

The new facility includes four BSL2 and BSL3 labs and provides analysis for a wide range of public health needs:

- Clinical chemistry and clinical hematology, including identifying constituents found in blood, urine and other body fluids
- Immunology, including diagnostic and screening tests for syphilis, TPPA and rubella
- Microbiology to determine infection or disease, including for tuberculosis, influenza, norovirus and foodborne illnesses
- Rabies testing for potentially infected animals
- Containment labs and triage for emergency response situations

In addition, HERA is acting as the city's representative by reviewing the building owner's proposed A/E team credentials, project schedule, plan layouts and construction manager credentials and selection.

CONSTRUCTION COST

N/A

SIZE

17,600 gross square feet

DURATION

Apr 2018 – Dec 2021

SERVICES

HERA provided site and building assessments, programming, schematic design and is acting as advocate for owner.

CLIENT REFERENCE

Sami Jarrah, MPH
Former Chief Operating Officer and Deputy Health Commissioner for City of Philly
(347) 350-2909
Sjarrah@health.nyc.org

Confidential Foreign Government
New Health Sciences Building

Confidential

The project will consolidate and integrate the Government's health sciences functions into a single new facility to create a modern environment that captures efficiencies and promotes recruiting and retaining the best staff.

The client protects and advances national health and safety through specialized agencies: Center for Drug Evaluation, Institute of Science and Forensic Medicine, National Pharmaceutical Administration, and Product Regulation. In addition, the client is responsible for testing and storage of the nation's blood supply for both daily and national emergency preparedness.

Bringing together these functions started with a rigorous program validation and Lean Six Sigma process that ultimately reduced the building size by 130,000 square feet. The new building will comprise 28% laboratories requiring a high level of security for:

- Illicit Drugs
- DNA Biology
- Analytical Toxicology
- Trace Evidence
- Firearms and Toolmarks
- Questioned Documents
- Crime Scene Investigation
- Medical Examiner autopsy, morgue and support
- Food Safety
- Pharmaceutical and Health Products Testing
- Chemical Metrology
- Shared lab support

The building is being designed to meet the country's sustainable certification and includes enough elevated green space to offset the building's footprint..

CONSTRUCTION COST
$255.8 million (est.)

SIZE
828,821 gross square feet

DURATION
Jul 2017 – 2026 (est)

SERVICES
Program validation, laboratory and MEP planning and design and equipment planning through construction

Denver Health and Hospital Authority
Denver Office of the Medical Examiner Relocation

Denver, Colorado

With the need for expansion, Denver's Office of the Medical Examiner was relocated from 14,000 sf of space to a city-owned warehouse repurposed into a state-of-the-art forensic pathology and death investigation facility. Spanning 29,000 sf, the new facility features enhanced technologies to ensure high-quality medical examination and investigation services for the City and County of Denver well into the future.

The facility was carefully designed with workflow processes, safety, security and ergonomics at the forefront of the criteria and boasts sophisticated equipment and technological amenities. Features such as adjustable-height autopsy stations, bariatric lifts, automatic/touchless entry doors, odor control and directional air flow systems and daylighting maintain workflow efficiency and mitigate workplace fatigue.

Other design features include automated warning systems on temperature controls for freezers and coolers; an enhanced isolation autopsy suite for severe decomposition cases; and secure storage spaces for biological specimens, evidence and personal property on back-up MEP systems to mitigate risk. Spaces for grieving families and break rooms, locker rooms and a fitness room for employees complete the facility's design.

On average, the Denver's Medical Examiner Office completes more than 1,100 postmortem examinations and issues 5,000 death reports annually.

CONSTRUCTION COST

$14 million

SIZE

29,000 gross square feet

DURATION

Oct 2015 – May 2017

SERVICES

As consultant to Page Architects, CLD performed program validation, morgue and MEP planning, design and review through CA and lab equipment planning

ARCHITECT

Page Architects

AWARDS

ENR Mountain States Region 2018 Best Projects, Government/Public Building Category Winner

CLIENT REFERENCE

Dr. James Caruso, MD
Chief Medical Examiner
(720) 337-7600
james.caruso@denvergov.org

Georgia Bureau of Investigation Coastal Regional Crime Laboratory

Savannah, Georgia

This new state-of-the-art forensic center replaces the oldest lab facility in the GBI regional system and will serve 24 counties in southeast Georgia. The facility design proactively addresses the growing demand for forensic services in the southeastern region of the state and comprises forensic labs and lab support, medical examiner space and support, evidence control and storage, and office and shared space.

Through a collaborative approach, CLD applied Lean Six Sigma principals to create efficient and organized workflows capable of meeting changes in forensic science capabilities and criminal justice expectations over the next three decades. Forensic services include DNA/forensic biology, firearms (including test and firing range), drug chemistry, toxicology, and pathology/autopsy along with associates support and evidence control.

The project is designed with energy efficient and sustainable construction features with a goal of earning the highest level in the Georgia Peach Green Building Rating System.

CONSTRUCTION COST

$34.5 million

SIZE

62,000 gross square feet

DURATION

Dec 2015 – Jul 2019

SERVICES

Programming; laboratory design and equipment planning through CA; MEP design through DD and CD peer review

ARCHITECT

JMA Architecture

CLIENT REFERENCE

Jacob Harmon
Assistant Deputy Director of Property Management
(404) 270-8304
Jacob.harmon@gbi.ga.gov

Harris County Institute of Forensic Sciences
New Advanced Forensic Center Phase 1

Houston, Texas

The HCIFS offers two distinct forensic services for the community: the Medical Examiner and the Crime Laboratory. The comprehensive planning process for the new Advanced Forensic Center, which houses both services, began in 2007 and involved experts from business, medical, laboratory, and scientific fields. The resulting design culminates in an integrated use of space flowing seamlessly between clinical, laboratory, administrative, public, and teaching/training areas.

The master plan for the Forensic Center includes two phases:

» Phase 1 – a nine-story, 210,000-square-foot tower. The nine-story tower houses approximately 150,000 square feet of laboratory, morgue, administrative, public, and teaching/training spaces with 60,000 square feet of unfinished shell space available for expansion.

» Phase 2 – a four-story building for future expansion to accommodate the growing needs of the county, as well as the agencies and families served by the Institute.

Forensic science disciplines include: morgue, medical investigations, pathology, anthropology, histology, forensic imaging, drug chemistry, trace evidence, firearms, toxicology, quality management, evidence management, administration, records, business office, shared space, and facility management. CLD also worked with Dr. Kahn on the County's Regional Forensic Genetics Laboratory, a 15,000-sf fast-track renovation of a Nabisco Products Factory completed in 2012 and which will move from their current location in 2027.

The Forensic Center is targeting LEED certification and features energy-efficient HVAC and ventilation systems.

CONSTRUCTION COST
$61 million

SIZE
210,000 gross square feet

DURATION
Dec 2012 – Nov 2016

SERVICES
Needs assessment, programming, laboratory and MEP planning and design and equipment planning

ARCHITECT
Page

CLIENT REFERENCE
Harris County Institute of Forensic Sciences
Roger Kahn, PhD, Lab Director (retired)
m.roger.kahn@gmail.com
(614) 403-6666

Johnson County Sheriff's Office Criminalistics Laboratory

Olathe, Kansas

The new crime lab houses distinct forensic science labs—biology/DNA, firearms/toolmarks, latent prints, controlled substance, trace analysis, digital/multimedia, and crime scene investigation. Additional space allows for expansion of computer forensics and instrumentation. Other amenities include: wireless capability, expanded crime scene processing and evidence handling areas, separate section evidence storage areas, and a large multipurpose training room.

Crime Scene Investigation provides 24/7 operations in the building without compromising security for the remainder of the laboratory. The unit can process up to three vehicles simultaneously in high bays that accommodate lifting large vehicles.

The building is the first forensic lab in the country to reach LEED 2.0 Platinum certification. Energy efficient and sustainable design features include: ground source heat pumps, energy recovery system, photovoltaic (solar) panels, state-of-the-art fume hood technology, sustainably forested materials for casework, daylighting controls, and LED technology (including specialized LED evidence exam lighting).

The laboratory, located adjacent to the County Communications Center forming a secure campus, serves all law enforcement agencies in Johnson County as well as state and federal agencies and is ISO/IEC17025 accredited.

CONSTRUCTION COST
$22.8 million

SIZE
62,500 gross square feet

DURATION
Jul 2009 – Nov 2012

CLD SERVICES
Program validation, laboratory planning and design and full MEP engineering services through CA and lab equipment planning

ARCHITECT
PGAV

CLIENT REFERENCE
Chad Foster
Architect and Project Management Specialist
(913) 481-6371
chad.c.foster@gmail.com

Ross Capps, Lab Director
(913) 826-3209,
ross.capps@jocogov.org

New Mexico Department of Public Safety Forensic Laboratory and Evidence Storage

Santa Fe, New Mexico

Previously located in an outdated facility that exceeded capacity, New Mexico's Department of Public Safety (DPS) forensic and evidence storage functions were spread throughout the department's campus headquarters posing risk to managing and maintaining chain of custody procedures. The new facility, scheduled to open in fall 2023, increases the facility's capacity for current and future needs and boasts functional, flexible and efficient spaces for DPS's 50+ forensic investigative personnel.

The facility houses modern, future-proofed laboratories for chemistry, biology/DNA, latent print, firearms/toolmarks and instrumentation. Additional spaces include a 50-callibar shooting range and water tank; evidence processing and control; high-density evidence storage and a sally port and exam bay equipped with a ceiling mounted pantograph system. Amenities include open administration spaces and offices, a large conference/training room; and indoor/outdoor collaboration areas (kitchen and patios) and a two-story lobby with a clerestory window.

Staff well-being was vital in the planning of the new facility. The facility incorporates human-centered design elements such as natural light throughout; views of Santa Fe's surrounding mountain range; flexible and collaborative workstations and access to nature with multiple outdoor options for eating, relaxation, and walking/biking.

With the onset of the COVID pandemic, the design team overcame collaboration obstacles to keep the state-funded project moving forward. The team's ability to adapt and to convert to virtual work settings was a pivotal factor in the project's success. Working collaboratively in remote settings not only maintained the project's momentum but kept delays to a minimum and allowed the State to select a contractor before cost escalations, supply chain disruptions and materials shortages occurred.

CONSTRUCTION COST

$29 million

SIZE

44,000 gross square feet

DURATION

Jan 2019 – Fall 2023 (est)

SERVICES

Needs assessment; programming; lab planning and design through CA; MEP engineering through SD; lab equipment planning

ARCHITECT

Dekker Perich Sabatini

CLIENT REFERENCE

Katharina Babcock
Lab Director
(505) 827-9339
katharina.babcock@state.nm.us

IKM References:

West Virginia University Medicine

Contact: Kenny Rockwell
Phone: 304-598-4125
Email: kenny.rockwell1@wvumedicine.org

Carnegie Mellon University

Contact: Max Dorosa
Phone: 412-268-8936
Email: maxd@andrew.cmu.edu

Calgon Carbon

Contact: Michael Dahm
Phone: 412-327-9976
Email: mdahm@calgoncarbon-us.com

Consultant References:

Affiliated Engineers, Inc.

State of Wisconsin
Rebecca Moritz, Project Manager
608-890-3468
rebecca.moritz@wisc.edu

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410-962-4395
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US Department of Homeland Security
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HERA Laboratory Planners

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Centers for Disease Control & Prevention
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gge6@cdc.gov

North Carolina Department of Environmental Quality
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919-707-8527
eric.turon@ncdenr.gov

Triad Engineering, Inc.

King's Daughters Health System
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606-408-4000
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TSHD Architects
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mholsinger@tshdarchitects.com

ZDS Design/Consulting Services

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304-352-5514
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Roane General Hospital
Dale Freeman, Director of Facilities
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University of Charleston & WVU
Gary Boyd, Director of Facility Services
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Allegheny Design Services

West Virginia University Foundation
Mark Cottrill, VP Infrastructure & Advancement
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mcottrill@wvuf.org

DCI / Shires, Inc.
Kurt Schmidt
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kurtschmidt@dcishires.com

March-Westin Company, Inc.
Jamie Ridgeway, President
304-554-3821
jamie@marchwestin.com

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.

(Printed Name and Title) Roger Hartung, Principal in Charge

(Address) 11 Stanwix Street, Suite 2200, Pittsburgh, PA 15222

(Phone Number) / (Fax Number) 412-281-1337

(email address) rhartung@ikminc.com

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through *wv*OASIS, I certify that: I have reviewed this Solicitation/Contract 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/Contract 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 this bid or offer was made without prior understanding, agreement, or connection with any entity submitting a bid or offer for the same material, supplies, equipment or services; that this bid or offer is in all respects fair and without collusion or fraud; that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; 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.

By signing below, I further certify that I understand this Contract is subject to the provisions of West Virginia Code § 5A-3-62, which automatically voids certain contract clauses that violate State law; and that pursuant to W. Va. Code 5A-3-63, the entity entering into this contract is prohibited from engaging in a boycott against Israel.

IKM Architecture
(Company)

(Signature of Authorized Representative)

Roger Hartung, Principal in Charge November 14, 2023
(Printed Name and Title of Authorized Representative) (Date)

412-281-1337
(Phone Number) (Fax Number)

rhartung@ikminc.com
(Email Address)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: GSD2400000002

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

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

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

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

IKM Architecture
Company

Authorized Signature

November 14, 2023
Date

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

Revised 11/1/2022

Commercial General Liability Insurance:

IKMIN-1 OP ID: KB

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 04/25/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Davies & Davies Insurance, Inc 1519 Mt Nebo Road Sewickley, PA 15143 412-741-1820	CONTACT NAME: Jeff Davies PHONE (A/C, No, Ext): 412-741-1820 FAX (A/C, No): 412-741-1821 E-MAIL ADDRESS:
INSURED IKM Incorporated Architects/Design Professional 11 Stanwix St, Ste 2200 Pittsburgh, PA 15222	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A : Erie Insurance — 26271 INSURER B : INSURER C : INSURER D : INSURER E : INSURER F :

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE / X OCCUR X Contractual GEN'L AGGREGATE LIMIT APPLIES PER: POLICY / PRO-JECT / X LOC OTHER:	Y		Q97-1283572	05/01/2023	05/01/2024	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 1,000,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000
A	AUTOMOBILE LIABILITY ANY AUTO OWNED AUTOS ONLY / SCHEDULED AUTOS X HIRED AUTOS ONLY / X NON-OWNED AUTOS ONLY			Q97-1283572	05/01/2023	05/01/2024	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
A	X UMBRELLA LIAB / X OCCUR EXCESS LIAB / CLAIMS-MADE DED X RETENTION $ 0			Q29-0172243	05/01/2023	05/01/2024	EACH OCCURRENCE AGGREGATE	$ 5,000,000 $ 5,000,000
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y / N If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		Q89-5101624	05/01/2023	05/01/2024	X PER STATUTE / OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 500,000 $ 500,000 $ 500,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Professional Liability Insurance:

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 05/02/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Willis Towers Watson Certificate Center
Willis Towers Watson Midwest, Inc. c/o 26 Century Blvd P.O. Box 305191 Nashville, TN 372305191 USA	PHONE (A/C, No, Ext): 1-877-945-7378 FAX (A/C, No): 1-888-467-2378 E-MAIL ADDRESS: certificates@willis.com
	INSURER(S) AFFORDING COVERAGE — NAIC #
	INSURER A : Arch Insurance Company — 11150
INSURED IKM, Incorporated Attn: Joel Bernard 11 Stanwix Street, Suite 2200 Pittsburgh, PA 15222	INSURER B :
	INSURER C :
	INSURER D :
	INSURER E :
	INSURER F :

COVERAGES **CERTIFICATE NUMBER:** W28876918 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	$
	☐ CLAIMS-MADE ☐ OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
							MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$
	☐ POLICY ☐ PRO-JECT ☐ LOC						PRODUCTS - COMP/OP AGG	$
	☐ OTHER:							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	☐ ANY AUTO						BODILY INJURY (Per person)	$
	☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
	UMBRELLA LIAB ☐ OCCUR						EACH OCCURRENCE	$
	EXCESS LIAB ☐ CLAIMS-MADE						AGGREGATE	$
	☐ DED ☐ RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N						☐ PER STATUTE ☐ OTH-ER	
	ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☐ (Mandatory in NH)	N / A					E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$
A	Professional Liability			PAAEP0156500	05/01/2023	05/01/2024	Per Claim	$5,000,000
							Aggregate	$5,000,000
							Deductible Per Claim	$50,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

IKM Project #14-109.

CERTIFICATE HOLDER

Chartiers Valley School District
Attn: Nicholas D. Morelli
2030 Swallowhill Rd.
Pittsburgh, PA 15220

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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Architecture

Pittsburgh | Cleveland | Columbus | Tampa

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