



DESIGN/CONSULTING SERVICES



Expression of Interest to Provide Professional A/E Services WV State University



WEST VIRGINIA
STATE
UNIVERSITY

Cole Complex, Ferrell Hall,
Fleming Hall, Wallace Hall,
and Drain-Jordan Library

Evaluation & Renovations

March 26, 2024

AEOI 0490 WSC2400000004

MECHANICAL / ELECTRICAL / ARCHITECTURE / COMMISSIONING

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SECTION I.

Executive Summary Letter

Project Goals & Objectives





Design/Consulting Services

135 CORPORATE CENTER DR STE 532 / SCOTT DEPOT, WV 25560
(304) 755-0075 / www.ZDSDesign.com

MECHANICAL • ELECTRICAL • INDOOR AIR QUALITY • ENERGY • COMMISSIONING • FORENSIC



March 26, 2024

West Virginia State University
5000 Fairlawn Avenue
Ferrell Hall RM 301
Institute, WV 25112

The **ZDS** Team is proud to submit our Expression of Interest to provide Professional Services for the **WVSU Renovations for Multiple Locations**.

ZDS Design/Consulting Services was founded in 1994 and is in Scott Depot, WV, only minutes from the WVSU campus. The project will be assigned to **ZDS'** principal-in-charge of planning/design, who will follow the project from inception through Construction Administration and has full authority to execute a binding contract on behalf of **ZDS**:



Todd A. Zachwieja, PE, CEM, LEED AP – Principal, CEO
ZDS Design/Consulting Services

135 Corporate Center Drive, Suite 532, Scott Depot, WV 25560
Office: 304-755-0075; Mobile: 304-545-4550
Todd.Zachwieja@ZDSDesign.com; www.ZDSDesign.com



The **ZDS** Team will provide comprehensive Professional Architectural/Engineering Services for the proposed **WVSU Renovations for Multiple Locations**. Our proposed Team of professionals has a history of successful projects, including many for higher education facilities within West Virginia and surrounding states.

ZDS has designed and coordinated upgrades for projects of all sizes, budgets, and schedules. We have successfully managed renovation projects through dialogue and proper planning with the Owners and Contractors for phasing the work successfully and minimizing the impact on the occupants' daily activities. We will communicate closely with the appropriate West Virginia State University representative(s) to ensure that our approach to the Project will address your needs and concerns. Realizing the similarity of our mission and the desire to serve West Virginia clients, we will be honored to work with you.

ZDS has previously teamed with IKM Architecture on many successful projects and will utilize their architectural services as necessary for the **WVSU Renovations for Multiple Locations**. IKM Architecture is an architecture, planning, and interior design firm that has been in continuous practice since 1911, with offices in Pittsburgh and Cleveland. IKM's mission is to provide innovative and informed design solutions that create enduring value in a changing world through leadership in understanding, exploration, and decision-making.



Carol Stevens, PE, F. ASCE, and President of CAS Structural Engineering, Inc., located in Alum Creek, WV, will provide any necessary structural engineering services. Carol has extensive experience working with the State of West Virginia, including many projects within the Capitol Complex and historical facilities. She was the first female engineer appointed to the WV Professional Engineers Board.



Chris Belcher, President of Pinnacle Environmental with offices in Beckley, WV, and Ohio, has teamed with ZDS for over 20 years and will provide environmental assessment for WVSU as deemed necessary. The age of this facility and observations made during a recent walk-through show that careful consideration of renovations should involve a well-executed plan to make the required changes while still adhering to the regulatory requirements for handling hazardous materials.



Facility Dynamics Engineering (FDE) engineers have teamed with **ZDS** since the 1990s and will provide commissioning assistance throughout the project, peer review of developed testing procedures, checklists, and completed documentation. Due to our team's vast knowledge and expertise, we will distribute tasks to the individuals whose strengths are ideally matched to provide the most efficient and effective results coinciding with the tasks' timing. Having access to a solid team offers greater flexibility in having the appropriate staff involved as needed during the commissioning process.



The **ZDS** Team will have the services of an elevator professional consultant available as needed or requested by **WVSU**. An experienced elevator consultant could provide services including, but not limited to, inspection and consulting for elevator maintenance analysis, elevator modernization, and elevator maintenance and modernization procurement.

Project Goals, Objectives & Approach

GOAL/OBJECTIVE 1: *Review existing plans and conditions as well as the operation of the facility and evaluate while communicating effectively with the owner to determine a plan that can be implemented in a manner that will minimize disruption to concurrent operation of the facility and meet all objectives.*

ZDS Team Response: We will provide assessments, compliance reviews, and preliminary studies to support project stakeholders in developing the project scope. Field investigations of the existing HVAC systems, controls, electrical, fire protection systems, and other impacted building elements will be performed and compiled with existing facilities' reports and drawings to assist in making informed decisions. Close coordination with **WVSU** is essential to address immediate needs while planning for long-term upgrades, as necessary.

ZDS has extensive experience in phased approaches to minimize disruptions to the occupants during the construction periods on many renovation projects with budgetary parameters, including projects at the University of Charleston, the WV State Capitol Complex, the Kanawha County Judicial Building, and the William R. Sharpe, Jr. Hospital. Other examples include providing master planning for the WVDHHR hospitals, several of which were historical, Ben Franklin HVAC, Electrical & Roof Renovations, Riverside High School HVAC, Electrical & Roof Renovations, Laidley Towers, Chase Towers, the historical Robinson Grand Performing Arts Center in Clarksburg, Tyler County Courthouse, and Tyler Consolidated School HVAC/Auditorium Renovations.



ZDS also understands the importance of creating conditions for an excellent learning environment and how the acoustics of the HVAC impact the use of the space. We have designed many theater spaces where acoustics, lighting, sound systems, and

HVAC must meet stringent requirements. Some examples include the WV Cultural Center at the WV Capitol Complex, the historical Robinson Grand Performing Arts Center in downtown Clarksburg, and Tyler Consolidated High School's auditorium renovations that were designed to meet today's performing arts standards. Refer to the project experience section for more details.



Our Team can provide a 3D Scan Survey to determine current built conditions and coordinate proposed modifications to the facility. 3D scanning is utilized to capture built conditions with high degrees of accuracy and is faster than traditional methods. We then have our design team review the 3D scan data and all existing documentation available to create the basis for what we know about the facility. Having high-quality information early in the process leads to a synergic design approach; our 3D Scan to BIM process is that proven approach. Our team will incorporate the 3D scan data to develop a 3D Building Information Model (BIM) to coordinate with all the stakeholders throughout the project's life.

Many facilities have asked us for advice on challenging renovation projects due to our professional and forensic engineering background, which provides the skills to effectively communicate with others in a way that will help to identify and resolve the issues with coordination and integration of new systems and equipment with the existing infrastructure.

Our founding members have over six decades of MEP engineering experience in West Virginia, and we have a reputation for solving challenging engineering projects. We have worked on projects in 25 states, from the federal building in Hawaii to the LEED Gold Arboretum facility for Harvard University. Still, West Virginia is our home, with corporate offices minutes from your facility. Our approach differs from the traditional role as we have actual operational and design experience and have provided commissioning services on many Mechanical/Electrical systems. By commissioning the systems, we assist in fine-tuning them to actual conditions and work with the Owner's personnel after occupancy to improve comfort, provide training, and reduce operating costs. We incorporate this experience into our design and include planning for long-term maintenance and operational needs.

Our founders have specialized in energy conservation design in hundreds of millions of dollars in renovations, new construction, and Performance Contracting heavily involving MEP systems, including obtaining grants for many projects and saving facility owners millions annually, with our designs **saving 64% in operating costs**. Some projects include the new "Net Zero" Tyler County 911 Center, where the amount of energy produced exceeds the amount of energy used by the facility, and 45 million dollars in renovations to William R. Sharpe, Jr. Hospital that was phased to allow the hospital to remain in operation throughout the construction process.

Our engineering designs have received the EPA's Energy Star® Certification, where these buildings perform in the top 25 percent of similar facilities nationwide for energy efficiency while meeting stringent ASHRAE standards. We met the facility requirements while providing very energy-efficient HVAC, lighting, and power systems.



GOAL/OBJECTIVE 2: *As a portion of this process outlined in Objective 1, provide all necessary services to design the facilities described in this EOI in a manner that is consistent with West Virginia State University needs, objectives, current law, and current code; while following the plan to design and execute the project within the project budget.*

ZDS RESPONSE: The Team includes IKM for architectural services, Facility Dynamics Engineering for commissioning support, and CAS Structural Engineering, Inc. for structural engineering. Pinnacle Environmental, also part of the Team, can assist in meeting hazardous materials' regulatory requirements if not provided directly by WV SU. Refer to the organizational chart for the personnel on this team.

This Team utilizes Building Information Modeling (BIM) software as the foundation for tracking and managing the design process; design team members are experienced and proficient and believe in the value of BIM. We leverage BIM software to increase communication between all Team members and facilitate a higher level of coordination throughout each deliverable phase of the process. We believe this is the key to delivering an accurate and reliable project to the Owner with fewer errors and conflicts. We utilize cloud-based tools to keep design models linked together so that changes are effectively communicated live as they occur. Our tools and processes help to minimize unknowns, communicate changes in real time, and maintain a highly efficient production schedule.

ZDS' principals are "Legend in Energy" recipients from the Association of Energy Engineers, and we have LEED AP-certified staff as part of our proposed team. We have received awards for our energy-efficient design, with many projects being Energy Star Certified. We have the first "Net Zero" 911 facility in operation in West Virginia, which required an integrated design using geothermal, solar, and many max tech approaches to the project. ZDS has worked with many performance contractors where the results realized, and sometimes exceeded, the project goals.

Our staff has been active in ASHRAE, including serving as President of the WV ASHRAE Chapter where we received the 1st place Technology Award from ASHRAE's Region VII, ASHRAE's Presidential Award of Excellence and Region VII's ASHRAE Community Sustainability Award. The College Planning and Management Magazine featured ZDS and our work at Ohio University for the performance contracting programs that have saved millions of dollars in energy and operating costs. Many ZDS-designed projects also qualify for EPA's, which requires buildings to use over 50% less energy than buildings designed using ASHRAE 90.1 by the 2005 Energy Tax Act. ZDS also received recognition by qualifying for the first ASHRAE bEQ certified building in West Virginia and encompassing ASHRAE Region VII, including 11 states.



Renovations to Riverside High School HVAC, lighting upgrades, and roof replacement **reduced the school energy costs by 64%** and received a 1st place ASHRAE Technology Award for its design and performance to meet indoor air quality and comfort requirements. The construction occurred while the school was still operating. *"It is now comfortable for ALL, made for a better learning environment and significantly better Indoor Air Quality."* Principal, Riverside HS.

The ZDS Team will carefully coordinate facility upgrades, whereas occupied areas will be identified and considered during the project scoping and development of project phases. ZDS has proven experience involving building renovations that required close coordination and, in some cases, phasing of the work to avoid conflict with the daily operations of the facilities. We realize the challenges of maintaining ingress and egress flow for the public and occupants within the buildings. ZDS most recently worked closely with the WV Capitol Complex personnel on the proposed upgrades to the underground steam system vaults

and piping. During the process, we identified and defined the specific criteria for the construction process to help minimize disruption to the Capitol grounds.

We have successfully worked with the WV State Purchasing Division to prepare documents to procure competitive bids from potential contractors and provided Construction Administration services through the completion of the projects. Governmental agencies we have experience with include but are not limited to: WV Higher Education Policy Commission, WV General Services Division, Kanawha County Commission, WV Dept. of Education, WVDHHR, WVDNR, WVANG, WVARNG, WV Public Service Commission, WV DOH, Dept. of Environmental Protection, US Department of Justice, PJKK Federal Building, many city government agencies, and most WV County School systems.

Our Team is recognized for our specialties in leading HVAC systems design, electrical design, sprinkler design, roof replacement, energy conservation/performance contracting, and commissioning services for Educational, Governmental, Commercial, and Healthcare facilities.

ZDS provides all phases necessary for a successful building project. Many of our projects have been existing building renovations that were complicated phased projects and required continuous operation while being constructed. The William R. Sharpe, Jr. Hospital involved comprehensive HVAC, Electrical, and Roof Renovations involving multiple bid packages and phased construction, allowing the hospital to operate while occupied and meeting stringent health-care requirements. The construction period was longer than the traditional period to permit the hospital to stay in operation.



We continue to have an excellent working relationship with the West Virginia State Fire Marshal and other agencies within the State of West Virginia. The State of WV adopted ASHRAE 90.1 Energy Codes, and our team has been an instrumental part of ASHRAE and helped teach the state energy codes while assisting governmental agencies to meet these codes. We also understand renovation projects have unique challenges and can assist in balancing energy efficiency with initial costs and long-term benefits.

GOAL/OBJECTIVE 3: *Provide Construction Contract Administration Services with competent professionals that ensure the project is constructed and functions as designed.*

ZDS RESPONSE: The Team utilizes digital technology for receiving, tracking, managing, and submitting documents during the construction administration. All construction administration documents are received and logged by our personnel and distributed to the Project Manager and applicable team members. The Project Manager, being most familiar with the project, will oversee and participate in all construction administration duties, both office and field. The ZDS Team creates and delivers quality projects by implementing these Quality Control Program strategies, including peer review by multiple design professionals and the principal-in-charge.

The Team has years of experience and the best expertise to provide the services to fulfill your specific project's needs. Our Team's professional services efforts have been highly effective in the past by acting on our client's behalf to help bridge the new technologies and management methods into actual operating practices that have saved our clients substantial funds in construction and operating costs. We pride ourselves on being viewed as an extension of the client's staff and successfully incorporating pertinent information about their facility into any proposed solution. While in the design phase, we work with contractors to check for constructability coordination and anticipated construction costs, which have been very successful for our final estimates to be very close to the bids received. The recent and

current supply disruption challenges are increasing our work to meet desired schedules, and we have been flexible in adjusting to this environment and improving the normal construction periods to give the bidder the confidence to provide better bids. Our 3D Scan-to-BIM can also be available to Bidders, which has been shown to reduce their bids from 5% to 15% due to the reduction of many unknowns common in renovation projects.

Commissioning of the HVAC systems plays a critical role in the construction process and is required by the State adopted ASHRAE 90.1 Energy Codes. Our Team has provided commissioning for over 30 years, and we have hands-on knowledge of optimizing the HVAC system operations while meeting the design intent. This also provides an excellent training opportunity for WVSU maintenance staff to understand how to operate their buildings for peak performance and to maintain comfort.

Fostering Teamwork and Cooperation from Contractors and Designers and Minimizing Adversarial Relationships: 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 helpful documentation of the facility and the commissioning process. We approach our commissioning activities concerning the various parties in the design/construction process and their roles. Our approach strives to solve problems before they occur, working closely with contractors and technicians to identify and address them. While we most commonly work independently (directly for the Owner), we take pride that we are often referred to new clients by contractors whose work we have commissioned in the past. Please ask about our ability to communicate while working together to resolve the challenges that arise during the construction process.

The **ZDS** Team has an excellent track record of completing projects on time and within budget guidelines. We are ready and willing to start on your project immediately and are confident that our specialties will provide you with the best expertise to provide economical solutions for your facilities and we look forward to discussing our qualifications. If there are any questions, please do not hesitate to call.

Sincerely,



Todd A. Zachwieja, P.E., CEM, LEED AP
Principal, Chief Executive Officer

SECTION II.

Company Overview



COMPANY OVERVIEW



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.





RELEVANT CLIENTS & EXPERIENCE

- **Bluefield State University**
- **Cabell Huntington Hospital**
- **Charleston Area Medical Center**
- **Concord University**
Campus High-Voltage Upgrades
Nick J. Rahall Technology Center
- **Harvard University - LEED Gold Certified**
Arnold Arboretum
Weld Hill Research & Administration Building
- **Marshall University**
Jomie Jazz, Smith Hall, and Harris Hall Renovations
- **Ohio University - Athens**
Chiller Water Master Plan
Performance Contracting - Campus wide
- **Ohio University - Chillicothe**
Stevenson Library/Bennett Hall ME Renovations
Performance Contracting - Campus wide
- **Saint Mary's Medical Center - Huntington**
- **Southern WV Community & Technical College**
Logan Campus & Williamson Campus
- **United Hospital Center**
- **University of California Davis Veterinary Medicine**
- **University of Charleston**
Innovation Center, Eddie King Gym

- **Veterans Affairs (VA) Hospital Administration**
- **Washington & Lee University**
Master Planning, Campus Cooling Plant
- **West Virginia University**
Campus Master Planning Cooling Clark Hall,
Mountainlair, Stewart Hall, Wise Library &
White Hall Computer Center
- **WVU NASA Facility**
- **WVU Institute of Technology**
Davis Hall, High Rise Dorm,
Engineering Classroom
- **West Virginia Wesleyan College**
Rockefeller Center HVAC Upgrades
Benedum Center Renovations
- **WV Dept of Health & Human Resources**
Hopemont State Hospital Renovations
Jackie Withrow Hospital Renovations
John Manchin Health Care Center
Lakin Health Care Center Retrofit
Mildred Mitchell-Bateman Hospital
Welch Community Hospital Retrofit
William Sharpe Jr. Hospital Retrofit & Addition
- **WV State Capitol Complex**
Cultural Center Renovations
Campus Central Heating Plant
Campus Master Planning
Governors Mansion Renovations

ZDS provides comprehensive design services. We have experience and specialties in indoor air quality, energy management and commissioning, along with traditional mechanical and electrical design experience dating back as far as 1958. We offer a complete package. **ZDS** works with all levels of the client's staff: the building owner, budget supervisor, operating and maintenance staff and others impacted by the project. We recognize that the maintenance and operating staff live with the design long after the project's completion. We listen to and work with those who will continue to operate and maintain the equipment. We find that proper communication benefits the client throughout the design process and beyond.

The **ZDS** design team provides a total system evaluation for cost-effective selection, installation, and ease of maintenance for both new systems and retrofit of in-place systems. Design begins with our client. Our staff meets with our client to review their concerns, budgets and schedules. The **ZDS** design team reviews the entire picture, and ends with "A Total Design."

The **ZDS** staff has the expertise with codes and standards. We have extensive experience in conducting engineering code surveys of existing facilities. Our staff has excellent working relationships with the West Virginia Fire Marshal's Office, West Virginia Department of Education and the West Virginia School Building Authority. In addition to comprehensive Engineering services from an experienced design team, another major consideration in the selection of your engineer and design staff should be their track record.

ZDS' organization has an unbeatable, long running, and well-known track record for meeting our clients' needs, on time and within budget, with outstanding quality. **ZDS** views these characteristics as the foundation of Quality. We look forward to the opportunity to discuss our ideas with you and assist you by providing solutions for your needs with a full range of services from Planning to Commissioning.

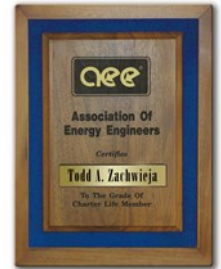
At **ZDS**, our engineering staff integrates energy efficiency into each project design to provide you, our client, with the added value that you expect and deserve. The **ZDS** team approach represents a tremendous amount of experience in designing energy efficient facilities. **ZDS** offers a comprehensive range of energy management services including:

- Providing detailed analysis of facilities
- Recommending sound and proven energy saving solutions
- Implementing energy management improvements
- Determining, quantifying and assisting in securing available Utility and Government grants

The **ZDS** team members take pride in the quality of their projects and have been responsible for designing and implementing numerous energy management programs. These programs are providing significant energy improvements and include optimizing central utility plant equipment, control systems, air handling systems, lighting systems, and other energy consuming equipment.

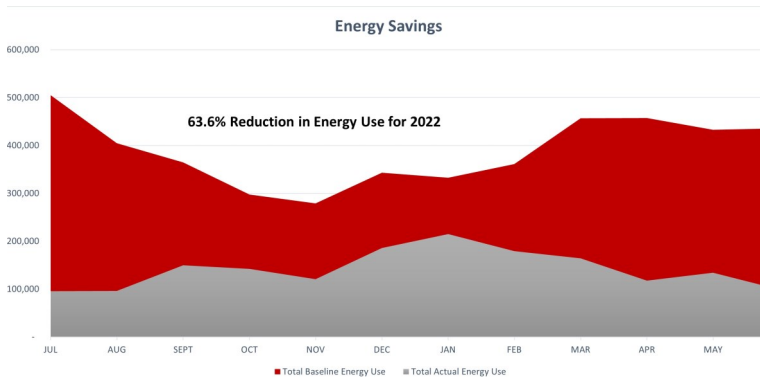
Recent projects include:

- Design of High Performance Buildings
- Interconnecting boilers and chiller plant systems
- Designing Geothermal HVAC systems
- Optimizing HVAC equipment and operating sequences, including upgrades to variable speed operation
- Installing Direct Digital Control (DDC) Energy Management Systems
- Replacing inefficient lighting equipment with energy efficient systems
- Modifying air handling equipment from 100% outside air to return air operation
- Implementing heat recovery units into HVAC equipment
- Improving laundry, kitchen and other process application efficiencies



In addition to the energy management projects outlined above, the **ZDS** team members have extensive experience in identifying and implementing energy efficient operating and maintenance measures. These are typically low cost or no cost measures that include:

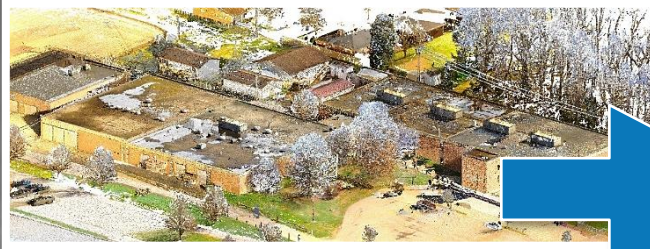
- Inspecting, calibrating temperature controls and adjusting outdoor air dampers
- Commissioning economizer cycle operation
- Testing steam traps and pressure relief equipment operation
- Enabling heating and cooling equipment only when required
- Retro-commissioning DDC control strategies



ABOVE: ZDS designed and implemented a geothermal system for *Riverside High School in Kanawha County* showing a *reduction in energy use of over 63% with an EUI of 30.8 from an EUI of 84.*

3D Scan to BIM Services

BIM Collaboration

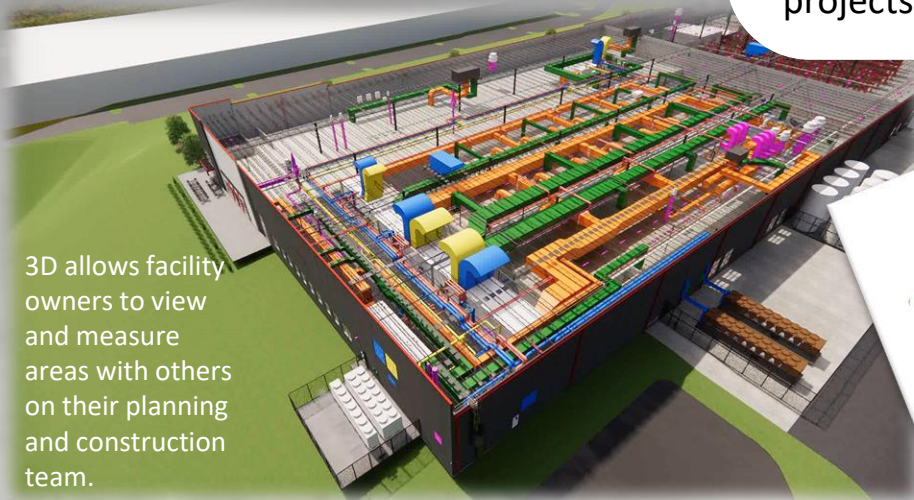


3D Laser
Scanning

Why 3D Laser Scanning is Better

3D laser scans can be beneficial with NEW construction projects by capturing concealed elements during construction before they're concealed. 3D laser scans also provide superior details with data that is more comprehensive.

"With the 3D laser scanning service, ZDS saved me countless hours communicating with all project team members, even those who work or live far away. Also, we now have an accurate record of the existing conditions that we can rely on for future projects." - Retired COO of WV DHHR



3D allows facility owners to view and measure areas with others on their planning and construction team.



Real-time, anytime, anywhere access with co-authoring ability!
Brings **teams** together for the highest level of collaboration.



About IKM Architecture



IKM AT A GLANCE

1911

Year Founded in
Pittsburgh, PA

56

Number
of Employees

250+

Number of Higher
Education Projects
Completed

20+

Number of Higher
Education Clients

Discipline-Specific Services Provided in the Last 5 Years

ARCHITECTURAL SERVICES

Site Analysis
Program Development
Ethnographic Analysis
LEAN Analysis
Human Centered Design Planning
Workshops
Conceptual Design
Schematic Design
Design Development
Bidding or Negotiated Pricing
Construction Documentation & Specification
Sun Studies
Zoning Analysis
LEED® /Sustainability Analysis
3-D Image Development
Animation Studies
Building Information Modeling (BIM)
Computer Aided Design & Drafting (CADD)
Administration of Construction Contract

Construction Site Observation
Food Service Planning
Detailed Cost Development
Post-Occupancy Evaluation
Virtual Reality Design Integration

PLANNING SERVICES

Campus Master Planning
Comprehensive City Planning
Zoning & Annexation Studies
Redevelopment Planning
Strategic Planning
Site Analysis, Evaluation & Selection
Feasibility Studies
Facility Assessments
Transportation System Planning
Participatory Planning & Conflict Resolution
Urban Design

INTERIOR DESIGN

Interior Standards
Conceptual Design

Installation Documents & Specifications
Computer Aided Design & Drafting
Color & Finish Consultation
Artwork & Plant Consultation and Specifications
Bidding & Negotiated Pricing
Administration of Furnishings
Contract & Installation
Furniture Evaluation
Site Observation
Custom Millwork & Furnishings Design
Graphic Design & Signage
Maintenance Specifications/
Seminars
Post Occupancy Evaluation



FIRM BACKGROUND

COMPANY OVERVIEW

COLLABORATION. INNOVATION. PERSISTENCE.

FOUNDERS

Lon Brightbill, PE
Jay Santos, PE

WHEN WE OPENED

1989

WHERE WE ARE

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

Local Presence in 16 states, 40 cities

WHAT WE DO

Building Commissioning
Controls Engineering
Remedial Engineering
Training
Fault Detection Diagnostics

CONTACT

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

www.facilitydynamics.com

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-of-the-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.

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.



Company Overview



Firm Profile

CAS Structural Engineering, Inc. – CAS Structural Engineering, Inc. is a West Virginia Certified Disadvantaged Business Enterprise structural engineering firm located in the Charleston, West Virginia area.

Providing structural engineering design and/or analysis on a variety of projects throughout the state of West Virginia, CAS Structural Engineering has experience in excess of 30 years on the following types of building and parking structures:

- Governmental Facilities (including Institutional and Educational Facilities)
- Industrial Facilities
- Commercial Facilities

Projects range from new design and construction, additions, renovation, adaptive reuse, repairs and historic preservation (including use of The Secretary of the Interior's Standards for Rehabilitation) to evaluation studies/reports and analysis.

CAS Structural Engineering utilizes AutoCAD for drawing production and Enercalc and RISA 2D and 3D engineering software programs for design and analysis. Structural systems designed and analyzed have included reinforced concrete, masonry, precast concrete, structural steel, light gauge steel and timber.

Carol A. Stevens, PE is the firm President and will be the individual responsible for, as well as reviewing, the structural engineering design work on every project. Carol has over 30 years of experience in the building structures field, working both here in West Virginia and in the York, Pennsylvania vicinity. Carol is also certified by the Structural Engineering Certification Board for experience in the field of structural engineering.

CAS Structural Engineering, Inc. maintains a professional liability insurance policy.

PO Box 469 • Alum Creek, WV 25003-0469 **PHONE** 304-756-2564 **FAX** 304-756-2565 **WEB** www.casstruceng.com

PROVIDING STRUCTURAL ENGINEERING SOLUTIONS FOR YESTERDAY, TODAY AND TOMORROW
COMMERCIAL, GOVERNMENTAL AND INDUSTRIAL STRUCTURAL DESIGN, ANALYSIS AND RESTORATION
A WEST VIRGINIA CERTIFIED DBE CONSULTANT • CERTIFIED IN THE PRACTICE OF STRUCTURAL ENGINEERING

WV VA KY OH MD PA



Pinnacle Environmental Consultants, Inc. has been providing multi-disciplined environmental consulting services to a myriad of clients in the private and public sectors since 1994.

Our commitment to success is centered on building quality relationships, conducting our business honestly and setting the highest standards of professional integrity. Our mission is to be recognized as a leader within our fields of discipline by consistently exceeding our client's expectations in the areas of technical excellence, service and cost effectiveness.

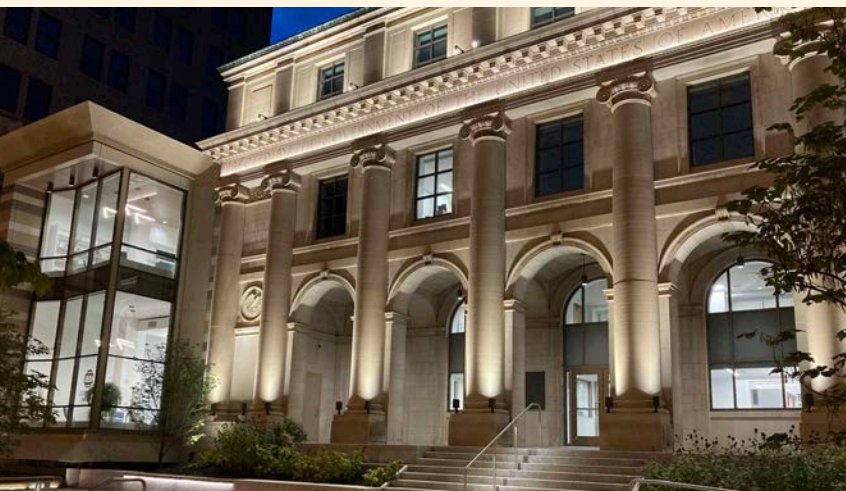
The issues that our clients face are dynamic. Each is driven by regulations that are seemingly in a constant state of change. Through our strong working relationships with regulatory agencies and technical associations, we are able to keep abreast of new technologies and provide new perspectives on protecting our clients' best interests and minimizing their liability.

Pinnacle's seasoned management team consists of environmental professionals who offer a wide range of unique capabilities and experience. The full range of Pinnacle's environmental services are:

- >>> Environmental Audits and Assessments**
- >>> Contaminant Identification**
- >>> Asbestos Management Support Services**
- >>> Analytical Capabilities**
- >>> Indoor Air Quality and Microbial Growth**
- >>> Industrial Hygiene Services**
- >>> Lead Based Paint Management**
- >>> Safety and Training Services**

MISSION STATEMENT

Our mission is to be a leader in the environmental, health, and safety fields by building quality relationships, conducting business honestly, and consistently exceeding our clients expectations in the area of technical excellence, service, and cost effectiveness, while continuing to establish the highest standard of professional integrity.



SECTION III.

Description of Project Experience

Additional Project Experience
Brochures



Engineering for Universities

University of Charleston



Concord University



Harvard University



University of California Davis



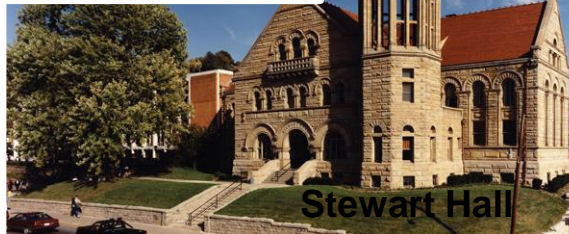
WV University



Marshall University



West Virginia University



ZDS designed a system allowing **West Virginia University** to optimize its operation of the campus chilled water system. ZDS personnel has also been involved in various projects for over 20 + years!



Engineering for Universities



Shoemaker Center



Bennett Hall

ZDS initiated a performance contracting project saving **Ohio University** over \$2,500,000 annually in energy costs.



The **Washington & Lee University** District Cooling project was fast tracked. ZDS designed and served as the construction manager for over 14 separate bid packages to complete the project under budget and on time.



University of Charleston

The Russell and Martha Wehrle Innovation Center



ZDS evaluated the University of Charleston's existing Eddie King Gym and adjacent Gorman Hall Mechanical and Electrical systems' infrastructure while using 3D scanning to capture "built conditions". The evaluation findings and recommendations were presented to UC prior to beginning the design phase of the proposed Project for decisions on phasing the project since the needs exceeded available funds. The Project consisted of major renovations to the Gym to meet NCAA competition requirements, interconnection/reconnection of MEP systems impacting the Gorman Hall facility, and a 30,000 SF addition to the front of the facility that is known as the Russell and Martha Wehrle Innovation Center. The facility consists of classrooms, offices, flexible meeting areas, and a large two-story Innovation Center space. Mechanical work included new chiller and boiler plants with pumps, accessories, and distribution piping as well as air handling units, DDC Controls, new domestic and fire protection water services, new gas service, domestic water heating equipment, extensive plumbing fixtures/showers/lockers. Electrical work included new electrical service from the campus 12.5 kv distribution loop, switchgear, distribution, and branch panel boards, and new energy-efficient LED lighting systems.

**Construction
Cost:**
\$17,000,000

***Gary Boyd, Director of Facilities
University of Charleston (304) 357-4871***



Robinson Grand Performing Arts Center

Clarksburg, WV

Renovations & Additions Area: 45,000 ft² **Construction Cost:** \$17,000,000

EPAct Qualified renovations resulted in over a 50% reduction in energy over ASHRAE 90.1-2007 standards and an EUI below the national medium.

The design includes Dedicated Outside Air Systems with energy recovery, coupled with VRF for optimal zoning to fit within very limited space supplemented with high performance condensing gas fired boilers and Variable Water Volume pumping. HVAC systems include comprehensive DDC controls with demand control ventilation, high performance fan wall system for redundancy/acoustic performance on VAV custom units serving stage/performance hall. LED lighting throughout provides uncompromised lighting quality. Energy efficient design recognized the envelope upgrades limitation due to the historical preservation grants while significantly reducing operating costs.



The historic Robinson Grand Theater was originally built in 1913 and eventually closed to the public in the year 2000. When the City of Clarksburg purchased the building in 2014, extensive renovations were needed to re-open the theater and **ZDS** was hired for planning and evaluation. This includes all **NEW** HVAC/Electrical/Plumbing/FP upgrades for the 45,000 ft² building. 3D-Scan-to-BIM of the existing facility was invaluable to develop the comprehensive existing conditions. Now called the **Robinson Grand Performing Arts Center**, this beautiful award winning historic theater has been brought completely back to life! Resurrection through adaptive reuse brings out the best the City of Clarksburg has to offer through the Robinson Grand Performing Arts Center.

Kanawha County Commission Judicial Building & Courthouse



“No one else could identify the MEP problems even though many had tried. Yet, ZDS provided an excellent evaluation while working well with our Judges and staff for a very successful project. We use them for all our challenging work.”

- Kanawha County Commissioner



ZDS has worked with the Kanawha County Commission on various projects since 1998. The most recent involved 3D Scanning, design/commissioning for HVAC & Roof Replacement incorporating air cleaning technology into new energy efficient HVAC system, renovations to the 3rd floor and upgrades to the building smoke control system. All major HVAC equipment and the roof replacement work were completed in 2023 on time and in budget.

Other past work includes engineering planning, design, bidding and construction administration services for the renovation of the 95,400 ft² Judicial Building and a 23,000 ft² addition using the ground floor of the parking garage connected to the Judicial Building. The facility includes circuit courtrooms, jury deliberation, attorney conferencing, witnessing, court clerical staff, public research, adult probation, prosecuting, maintenance, voter registration, court administration, and all public areas. The addition included a new entrance, security checkpoint, and lobby to accommodate a building expansion for Juvenile Probation and Family Court.

ZDS assisted in identifying a phased approach to addressing and defining Indoor Environmental Quality (IEQ) issues and modifications for the Kanawha County Courthouse.

Total Judicial Bldg. Project Costs: \$13,807,000

ZDS Team Project Cost: \$6,737,000

Annex Project Size: 118,400 ft² latest project completed 2023



Tyler County Commission

New 911 Center Middlebourne, WV



Project Cost: \$4,090,000.00

Size: 4,260 ft²

Date Complete: 2021

HVAC, Plumbing, Fire Protection, Lighting, Electrical and LV Systems

Client Reference:

WYK Associates, James Swiger, President; (304) 624-6326, james@wykassociates.com



Tyler County 911 Center



ZDS provided professional MEP engineering services for the preparation of construction documents on the new Tyler County 911 Center. Stringent Codes and standards for 911 facilities were researched and implemented into the MEP systems for the new facility. We designed a high performance geothermal well field that will serve the HVAC systems' equipment as well as a solar power panel array with equipment and components that is intended to provide all necessary electric power to the building. The electricity generated by the PV panels will exceed the needs of the facility and with the installation of an interconnecting system coordinated with the local utility the excess power will feed back into the utility grid for the County's use at the local Courthouse. The installation of the geothermal system coupled with the solar power generated will result in a significant overall reduction in energy costs to the Owner. The facility also has a propane-fired emergency generator to provide 100% backup for electrical needs in the event of a utility failure and an Uninterruptible Power Supply (UPS) system sized for all critical loads in the Operations Center. State-of-the-art systems incorporated in our design included fire alarm, security, door access and vehicle entry gate openers. The building has a complete fire protection wet-pipe sprinkler system with the exception of clean agent dry suppression systems for the Server room and the Operations Center where sensitive electronic/data equipment is located.

State of West Virginia Capitol Complex

Charleston, WV

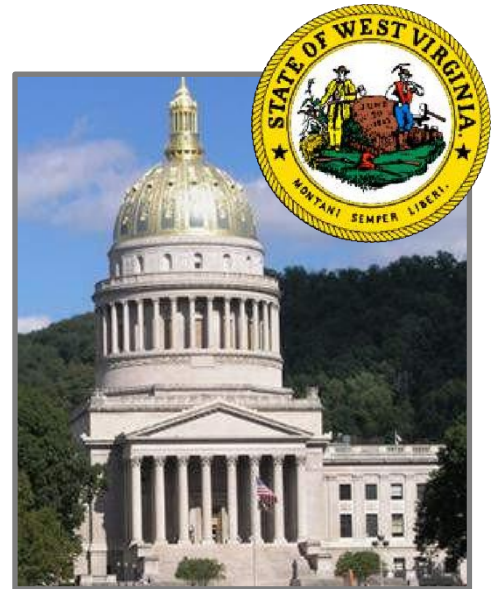
Project Cost: \$26,500,000

Size: 1,900,000 ft² covering 9 buildings

Client Reference:

Patrick O'Neil, GSD for recent work

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



Peer Review, Commissioning, HVAC Renovations, Fire Protection, Electrical Renovations, Consultant for Performance Contracting

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 ft² of facilities including the Capitol Building, Buildings #3, #4, #5, #6, #7, Holley Grove, Governor's Mansion and the Culture Center and subsequent renovations to the steam systems. Recent work includes Bldg. #3 Hydronic Boiler Upgrades and Bldg. #4 Peer Review and Commissioning.



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



Kanawha County Schools

Riverside High School HVAC/Lighting Renovations



Riverside High School, built in 1997, the academic wing's HVAC system consisted of four large Dual Duct custom Rooftop units and gas-fired packaged DX rooftop units to serve the other areas of the school. The Dual Duct HVAC equipment was unique to the County and the only school to have this HVAC system type, challenging the maintenance department. The school went through a Performance Contracting Program around 2011 when original pneumatic controls were retrofitted along with other upgrades; however, the utility usage for this school was still nearly twice the national average.

ZDS' goal for the design of HVAC, roof replacement, and lighting renovations was to reduce the overall energy usage by 50% while improving comfort and Indoor Air Quality. Many HVAC systems were analyzed and energy modeled, resulting in selecting a closed-loop geothermal HVAC system using indoor high-efficient heat pumps, eliminating the Dual Duct units, and replacing them with VAV Dedicated Outside Air Units (DOAS). Air cleaning technology was incorporated into the HVAC systems. The existing ductwork from the dual duct system was able to be reused and then VAV boxes were added with Demand Control Ventilation. Other HVAC systems included both water source heat pumps and packaged VAV Rooftop Units. The project included replacing and retrofitting the existing lighting systems with high-efficiency LED sources. The locker areas in the school were converted from heating/ventilation only to full HVAC. The project also included roof replacement concurrent with other renovations.

ZDS provided the design and assisted with the bidding and Construction Administration process. Work was designed/phased so construction could occur while the school was in use. In addition to energy savings, the systems are reducing long-term operating and maintenance costs.

High Performance Design using ASHRAE Advance Energy Design Guides saved **64% less energy for HVAC/Lighting systems** from the base years' usage and

Incorporates Air Cleaning Technology in HVAC System.

EUI reduction from 84 to 30.6 and Energy Star Certified!

Construction Costs: \$17,400,000 completed in 2023

School Size: 189,318 square feet

Contact: Chuck Smith, Director/Support Services: (304) 348-6148





Kanawha County Schools

Ben Franklin Career Center

HVAC/Roof Renovations



The **ZDS** team conducted an extensive study and performed a 3D Scan-to-BIM of the facility to develop comprehensive existing conditions and assist KCS with procuring SBA funds. The work was done in two (2) phases for the replacement of the aging HVAC equipment, ductwork, and piping and included electrical upgrades to accommodate the new equipment, new lighting throughout, roof replacement, and new exterior overhead doors for the shops. **ZDS** provided Design, Bidding, Construction Administration, and **Commissioning services**. Work was designed and phased so construction could occur while the school was in use.



ZDS included Faculty/Staff specific current HVAC, Electrical needs and Future IT Expansions in the Design. Included was specialized custom energy-efficient HVAC to meet the challenging comfort and Indoor Air Quality needs for the Welding, Machine, Wood, Sheetmetal, HVAC, Diesel and Heavy Equipment Shops and school. EAct qualified energy efficient design provided excellent long-term operating savings.

Project Costs: \$9,651,722 with SBA Funding \$6,992,759
School Size: 78,050 square feet
Contact: Chuck Smith, Executive Director: (304) 348-6148
Charles Wilson, AIA, (Retired): (304) 533-6149

The project qualified for EAct for energy efficient HVAC design while using over 27.3% less energy for HVAC and over 60% less energy for Lighting than schools designed using ASHRAE 90.1-2007.



Piedmont Elementary School

HVAC Renovations

ZDS performed MEP design, 3D Scan-to-BIM, bidding and CA services for the replacement of an existing custom multizone unit, associated DDC controls and refurbished other HVAC units that had failed and were in need of constant maintenance/repairs. The work included necessary electrical modifications to serve the new rooftop unit. Project was completed within the budget allocated by the County.

The project qualified for EAct for energy efficient design while using over 27% less energy for HVAC than schools designed using ASHRAE 90.1-2007.

Project Costs: \$352,090, Project under budget!
School Size: 31,500 square feet
Contact: Chuck Smith, Executive Director: (304) 348-6148
Charles Wilson, AIA, (Retired): (304) 533-6149



Tyler County Schools

Tyler Consolidated Middle/High School

HVAC Upgrades, Auditorium Additions/Renovations



The project qualified for EPart for energy efficient design, using over 35% less energy than schools designed using ASHRAE 90.1-2007.

ZDS provided professional engineering design, bidding, construction administration, and commissioning services for HVAC upgrades at the Tyler Consolidated Middle/High School to meet Indoor Air Quality and today's energy codes. The initial step in the project was to provide engineering investigations of existing conditions where **ZDS** performed 3D Scan-to-BIM for reliable and accurate 3D capture of "built" conditions to use in design, bidding, and construction. The demolition and new work to be included in **Phase I** of the project included two (2) new highly efficient chillers piped so they could be used even during winter months, three (3) new high-efficient condensing boilers, variable water volume hydronic pump system, VAV Air-Handling Units, VAV Blower Coil Units, Fan Coil Units, Energy Recovery Ventilators, DDC control upgrades, select new hydronic piping and ductwork for the equipment, exhaust fans, electric work associated with serving the new HVAC system equipment and new electrical panel-boards. **Phase II** work includes DOAS units for classrooms, air cleaning technology, and lighting upgrades to LED. Also, it includes renovations to the auditorium to performance hall standards, providing a highly efficient programmable lighting system and high-performance audio sound system, which is a showcase for the community and the best auditorium for a WV school.

Estimated Phase I Project Costs: \$4,796,903, SBA funding \$3,698,578

Estimated Phase II Project Costs: \$11,515,000

Date Completed: Phase I was completed in 2019; Phase II completion in 2024

School Size: 188,156 square feet

Contact: Ms. Amanda Kimble, Dir. Child Nutrition, Facilities & Support Services
(304) 758-2145 ext. 111, akimble@k12.wv.us



COMMISSIONING



The Prince Jonah Kūhiō Kalanianaʻole (PJKK)
Federal Building and
United States Courthouse
Honolulu, Hawaii



130th Airlift Wing at Yeager Airport, Phase I
and Phase II: Aircraft Maintenance Fuel
Systems Hangars and Shops

Awarded a **LEED Silver Certification** for
each of the two phases

“ZDS’s commissioning services were invaluable in helping us understand our facility and ensure the systems were installed as intended and optimized for long-term operating benefits. We would recommend them again!” - **Captain Harry Netzer, WVANG Project Manager**



Harvard University
Arnold Arboretum Weld Hill
Research and Administration Building

LEED Gold Certified

- ✓ CAMC General Division, Memorial Division & Women & Children's Hospital
- ✓ General Motors (GM) of North America
- ✓ Maryland – Calvert County Indoor Aquatic Center
- ✓ Montgomery County Departments of Correction and Police
- ✓ Roane General Hospital, WV
- ✓ Ohio University – Chillicothe Campus, Stevenson Library and Bennett Hall
- ✓ Santa Ana Federal Building Renovations
- ✓ University of California, Davis School of Veterinary Medicine Instructional Facility
- ✓ Washington & Lee University
- ✓ William R. Sharpe Jr. Hospital
- ✓ WV Museum of Culture and Natural History
- ✓ WV State Capitol Complex
- ✓ WVU—Downtown Campus
- ✓ United Hospital Center



AHN Forbes Hospital Elevator Tower & Emergency Department Renovation

Monroeville, PA

COMPLETION DATE: 2015

PROJECT SIZE: 30,000 square feet

DELIVERY METHOD: Design-Bid-Build

COST: \$16 Million

PROJECT SCOPE:

This project included a new 14,800 SF, twenty-bed ICU; renovation of an existing 7,000 SF, thirteen-bed ICU; and an eight-story, two-car elevator tower addition, which includes 8,000 SF of addition and 5,000 SF of renovated interior space.

Forbes Hospital had no code-compliant hospital elevators and the elevators that they did have shared patient and visitor traffic. The new elevator tower has two hospital-size elevators that are for patient transport only, and serve the emergency department, the surgery department, two intensive care units, the obstetrics unit, and two medical/surgical units. The new elevators do not operate without the use of a staff card access system, and are located within the hospital so as to discourage the public from trying to use them. The elevators open directly in, or adjacent to, each of the departments they serve.



St. Francis University Resinski Black Box Theater

Loretta, PA

COMPLETION DATE: 2017

PROJECT SIZE: 7,000 square feet

DELIVERY METHOD:

COST: \$3 Million

PROJECT SCOPE:

To develop new resources for student programs and provide diverse on-campus activities, St. Francis University retained IKM to undertake a study to redevelop an existing 7,000-square-foot grounds/receiving building into a 150-seat state-of-the-art black box performance venue.

St. Francis previously converted a former boiler house into a gallery, intimate performance space, and an adjacent grounds garage space into painting studios. This project aims to create a common identity for the entire precinct by linking all three venues with an exterior arts plaza that combines outdoor lounge areas, sculpture, and performance. An outdoor stage provides space for bands and performances. Translucent polycarbonate screening designed to conceal mechanical equipment on the building's roof doubles as a projection surface and converts the entire plaza into an outdoor movie venue.

A new lobby space supports pre- and post-performance activities during events but is also designed as a gallery space to display student works. Students can use the space during the day as a study lounge. A "beverage bar" doubles as a space to support small banquets or as a conferencing space for student groups.



Pittsburgh Ballet Theatre Existing Building Roofing, Window, and Door Renovations

Pittsburgh, PA

COMPLETION DATE: 2020

PROJECT SIZE: 26,600 square feet

DELIVERY METHOD: CM

COST: \$1.1M

PROJECT SCOPE:

The project included both new construction and renovation to the existing building. The focus of the new construction was a 14,000 SF, two and a half-story building to house the expanded program of educational and professional practice studios for the Pittsburgh Ballet Theatre.

The existing building, which houses administrative offices and five rehearsal spaces, was where the company's 30 full-time dancers rehearse and where the PBT instructs 1,000 students annually as part of its children's, student, pre-professional, and adult open divisions.

IKM renovated the existing building to provide a weather-tight envelope that allows the ballet to focus on production of their performances. Construction was split into two phases to account for the cold Pittsburgh winter. The roof was replaced in the warmer months of autumn, and the mechanical upgrades and window and door replacements occurred the following spring.



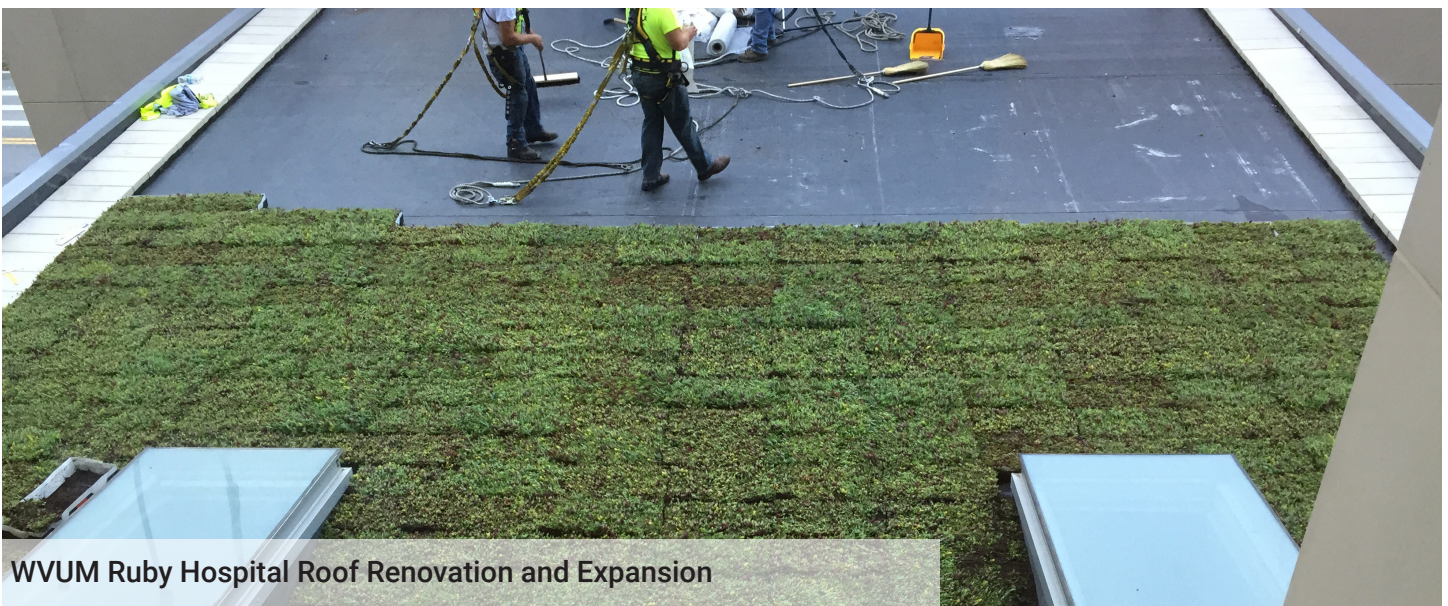
IKM Architecture Roof Replacement Projects



- » Pittsburgh Public Schools - Clayton School Roof Replacement
- » UPMC McKeesport Roof System Replacement
- » UPMC McKeesport Shaw Roofing Project Levels 1&2
- » UPMC WPIC Roof Replacement
- » UPMC Passavant Roof Replacement
- » Baum Blvd / UPMC Shadyside Roof Addition
- » AGH - Roof Top Design Options
- » Conemaugh - D&T Building Roof Replacement
- » WVUM Ruby Hospital NICU Rooftop Renovation and Expansion
- » West Penn Hospital - 9E Partial Fire Proofing Replacement
- » Westinghouse Electric Company 301/302 Roof Replacement
- » Butler Area School District High School Roof
- » Butler Area School District Center Township & Northwest Roof Replacement
- » Midwestern Intermediate Unit IV Roof Replacement and HVAC Renovations
- » UPMC NHPSV Roofing System Replacement
- » UPMC Presby & Montefiore Roof
- » AVH Roof Replacement



UPMC McKeesport Roofing System Replacement



WVUM Ruby Hospital Roof Renovation and Expansion

PROJECT EXPERIENCE



University of Delaware, Adademy Street Dining and Residence Hall and the South Academy Street Residence Hall

Newark, DE

PROJECT DETAILS

SIZE

ASDR: 85K SF, Residential Tower; 234 Students
44K SF Dining Hall with 1,150 people capacity

SASRH: 122K SF, Residential; 531 Students

DATE

ASDR, 2018
SASR, 2016

UNIVERSITY OF DELAWARE SPECIFICS

2009-2022

Over 25 projects

PROJECT REFERENCE

Marci Hutton
302.218.0880
M_Hutton@facilities.udel.edu

The University met the needs of growing demands on the campus for updated and interesting spaces to share experiences, meals and residence with the newly renovated Academy Street projects.

Facility Dynamics completed commissioning of the ASDR project in 2016 and the SASRH project in 2018. The commissioning scope for these projects included the design and construction phase for the mechanical, electrical, and plumbing systems and the scope was compliant with the LEED fundamental and enhanced Cx for new building design and construction.

The ASDR project is a residence hall and a dining facility consisting of an residential tower housing 234 students and dining hall. The building is served by a Campus Steam and Chilled which is generated by the central utility plants on campus, Chilled water is connected via a decoupler bridge and provides variable flow to the air handlers and terminal units. High pressure steam is reduced within the building and used in steam converters to serve a variable flow hot water distribution system.

Two main VAV air handling units provide conditioning to the kitchen support and dining areas, supplemented by terminal reheat coils and perimeter radiation. A large, variable volume, make-up air unit serves as hood make-up for 25 kitchen hoods located throughout the dining area. The hood controls were Halton Marvel which integrated into the BAS controls for the MUA unit. The residence halls are provided ventilation air through three dedicated outside air systems. The room conditioning is provided by 4-pipe fan coil units.

The SASRH project is a residential housing facility with 267 rooms and suites housing 531 students. Similar to the AHDR facility, the facility utilizes Campus chilled water and steam for the conditioning of the building. Three 100% outside air DOAS units provide ventilation to the building and the student apartments are conditioned with 4-pipe, vertical fan coils.



Cornell University, West Campus Residence Initiative and Blach Hall

Ithaca, NY

PROJECT DETAILS

SIZE

615,000 SF

DATE

WCRI, 2006-2010

LEED

LEED

CORNELL UNIVERSITY SPECIFICS

2003-2022

Over 40 projects

PROJECT REFERENCE

West Campus Residence Initiative

Arthur Fives

607-327-0057

cad67@cornell.edu

Balch Hall

Chris Davenport

607-255-6620

amf20@cornell.edu

Facing a significant housing conundrum with lack of space, hierarchy facets and aesthetic appeal, the University embarked on an initiative that would bring students housing that extended beyond their freshman year and extend the ability to learn beyond the classroom.

Facility Dynamics has commissioned over forty projects at Cornell University including student housing, classrooms, laboratories, collections storage, community and recreation centers, etc. Currently, FDE is in the construction phase of the Balch Hall project, which is a renovation of a 1929 vintage, student housing building which accommodates 469 students. The project replaces the electrical, mechanical, and plumbing infrastructure while rehabilitating and preserving the original building façade. The project is targeted for LEED certification under Version 4, BDC. FDE is under contract to commission the MEP system upgrades include a new electrical distribution system, new plumbing service, and a new HVAC system including energy recovery ventilation systems which provide ventilation air into the commons areas and student rooms, the student rooms are conditioned with 4-pipe fan coil units with the HW and CHW services extended from the Campus distribution systems.

Between 2006 and 2010, FDE commissioned West Campus Residential Initiative (WCRI) which was comprehensive plan to replaced Gothic Halls with new modern integrated living environment. The WCRI included four phases of building groups, each group included two residential towers and a shared commons area with offices, meeting spaces, and a kitchen/dining hall. Each phase housed between 250 and 350 students. The buildings were provided steam and chilled water from a central campus distribution system. The building CHW system is a variable flow system which is decoupled from Campus via plate HXs. The high pressure steam is reduced and via steam converters provide hot water in a variable flow arrangement for reheat and preheat loads.

The Commons areas are conditioned with VAV air handlers serving reheat terminals. The dining AHU and kitchen make-up air units work together to provide make-up for the kitchen hood requirements. The kitchen hoods are controlled via a Melink hood control system. Constant volume AHUs provide ventilation to the residence rooms and bathrooms. Conditioning for the residence rooms are heating only radiant panels.

PROJECT EXPERIENCE



University of Virginia, Multiple Projects Charlottesville, VA

PROJECT DETAILS

SIZE

Varies, 65 Projects

DATE

2002- Present

LEED

LEED

HOUSING PROJECTS

McCormick Road Houses

Lambeth Apartments

Graduate Student Dormitories,
Brandon Avenue

Gooch Dillard Upperclass
Housing

Hereford College DOAS
Retrofit

Alderman Dormitories and
Dining

PROJECT REFERENCE

Kit Meyer
University of Virginia
Senior Project Manager
434.531.7094
ksm2g@eservices.virginia.edu

Facility Dynamics Engineering commissioned its first project with the University of Virginia (UVA) in 2002 with the Albert and Shirley Small Special Collections Library. Since then FDE has done commissioning work for the Health System, Academic, Energy and Utilities. This includes in and outpatient health care, research laboratories including BSL-2 and BSL-3 spaces, classrooms, dormitories, campus steam, chilled water and medium temperature hot water utility plants.

The Gooch-Dillard Residence Halls were originally constructed in 1984 and currently house 658 first-year residents and resident advisors in 626 single and 16 double sleeping rooms. The renovation will allow for the replacement of building systems that are past their useful life. Renovations will include the installation and enhancement of fire detection and suppression life safety systems; repair to the building's exterior envelope; and replacement of bathroom fixtures and finishes. The project also provides conversion of the single sleeping rooms to doubles by removing a wall and joining the two rooms together.

The McCormick Road Houses renovation was a multi-phase project beginning May 23, 2016 and finished in May 2020. The project consisted of six, 4-story residence hall buildings, including four at approximately 60,000 square feet, two at 30,000 square feet, and a 9-10 acre site with sidewalks, ramps and stairs connecting the buildings. The renovation of the 1950's residence halls included the replacement of mechanical, plumbing, and electrical systems and the renovation of The Castle dining facility.

The renovations took place in four phases with each building renovation phase took 14 months. Phase One of the building renovations consisted of Kent, Dabney, and Bonnycastle Houses, and The Castle dining facility. Phase Two consisted of the renovation of Emmet, Page, Humphreys, and Echols Houses. The final phase of renovations included Hancock, Metcalf, and Lefevre Houses and was completed by the summer of 2020.

PROJECT EXPERIENCE

University of Mary Washington, Willard Hall

Fredericksburg, VA

PROJECT DETAILS

SIZE

47,215 SF

DATE

2019

COST

\$19M

PROJECT REFERENCE

Gary Hobson

540.654.1292

ghobson@umw.edu

Built in 1910, Willard Hall originally housed the all-female student population at the University as well as the campus dining room. This project reverses a 1979 renovation which compromised the historic circulation, layout, and fabric of the building. This renovation sought to open the corridors to their original width, as well as opening the first floor of the building to provide an open living and learning common space for the residential community as well as the campus, achieving their ultimate goal of flexibility.

The building houses 160 residents as well as resident advisers and a faculty in residence apartment. The common spaces have been programmed to include a community kitchen, media room, open and flexible gathering space, floor commons and gathering nooks, as well as small seminar rooms for both academic and housing use.

Systems in FDE's commissioning scope include:

- HVAC- DOAS providing fresh air, 4-pipe FCUs in spaces, water cooled chiller, steam converter heating hot water
- Lighting Controls: Occupancy, Vacancy, Daylighting



COMMISSIONING EXPERIENCE

Radford University, Reed and Curie Halls

Radford, VA

PROJECT DETAILS

SIZE

78,000 SF

COST

\$15M

DATE

2019

PROJECT REFERENCE

Guy Rhodes
540-831-7756
grhodes2@radford.edu

The renovation to the storied Radford University Reed and Curie Halls were officially celebrated with a special ribbon cutting ceremony in the building's stunning campus-side atrium.

The renovation and addition of Reed and Curie Halls consist of a complete interior renovation of the existing 1930s and 1970s science buildings on campus that will provide academic teaching and research space for student research and engagement, classrooms, offices, labs, collaborative space, and a full systems replacement. This facility will provide several of the university's science departments, including geospatial science, biology, chemistry, geology physics, and a Cyber Training Security Training and Education Lab (CTEL) for simulation of cyber threats.

Systems in FDE's commissioning scope include:

- HVAC- connection to local campus chiller plant, heating hot water system utilizing campus steam, VAV air handling, VAV and FCU and zone control, lab exhaust systems
- Plumbing: domestic hot water system, domestic water booster set, sump pumps
- Electrical: emergency generator, transfer switches, lighting controls



COMMISSIONING EXPERIENCE



Art Museums of Colonial Williamsburg Expansion

Williamsburg, VA

PROJECT DETAILS

SIZE

100,000 SF

COST

\$35M

DATE

2019

PROJECT REFERENCE

Scott Conrad

757.220.7092

sconrad@cwf.org

This project renovated approximately 35,000 SF of the existing decorative and folk-art museum and constructed a new 65,000 SF addition. The new and renovated spaces included: new entrance concourse and special event spaces, renovated and new exhibit galleries, new food service kitchen and dining facilities, new retail gift shop, new exhibit design studio, new conservation and curatorial shops and new green room to support the existing theatre.

FDE's scope of work initially only included the mechanical HVAC equipment and systems. The Owner engaged us after substantial completion to help resolve several electrical power issues that were identified.

The existing HVAC Chilled Water, Steam and Hot Water plant was replaced, and the new plant serves the entire facility. The CHW plant consists of two 370-ton centrifugal water-cooled chillers, one 100-ton heat recovery screw compressor chiller, one three-cell cooling tower and associated pumps and DDC controls.

The steam/heating hot water plant includes two 150hp steam boilers, condensate surge tank and deaerator, steam/HW heat exchangers and associated pumps and DDC and OEM controls.

Two 20,000cfm Air Handlers and a 6,000cfm Energy Recovery Ventilator and associated VAV terminals serve the new museum addition. One 6,000cfm Air Handler serves the conservation areas. Steam humidifiers are installed in all the air handling units to maintain space relative humidity.

Auxiliary equipment includes exhaust fans, ductless heat pump units, sump pumps, steam condensate pumps, expansion tanks, air and water measuring stations/meters, fan coil units, cabinet and unit heaters and a cabinet shop sawdust collector. Food service systems include the kitchen hood and make up air unit with OEM controls and their integration to the BAS.

The BAS is Johnson Controls Metasys which controls all the HVAC equipment. We tested devices (point to point), sequences of operation, graphics and reviewed historical trend data.

PROJECT EXPERIENCE



RESIDENCE HALLS

- Cornell University, West Housing Initiative
- Dumbarton Oaks Fellows House
- Harvard University, Graduate Student Housing
- Longwood University, Curry Frazer Residence Halls Renovation
- Longwood University, New Residence Hall
- Old Dominion University, Whitehurst Hall (ongoing at this time)
- Pennsylvania State University, Harrisburg Student Housing and Eastview Terrace Housing
- Radford University, Madison and Jefferson Dormitory Renovations
- Radford University, Moffett Hall Dorm Renovation
- Radford University, Washington Hall Dorm Renovation
- Salisbury University, Seagull Square Housing
- University of Delaware, Gilbert East Campus Dormitories
- University of Delaware, South Academy Street Residence
- University of Georgia, New Residence Hall
- University of Lynchburg, New Residence Hall
- University of Mary Washington, Residence Hall Renovations
- University of Pittsburgh, New Freshman Housing
- University of Virginia, Alderman Road Residence Hall (multiple projects)
- University of Virginia, Brandon Avenue Housing
- University of Virginia, Gooch 381, Residence Hall
- University of Virginia, Gooch Dillard Residence Halls
- University of Virginia, Gooch Dormitory Renovation Phase II
- Virginia Commonwealth University, Scott House Renovation
- Virginia Commonwealth University, West Grace Housing North
- Virginia Commonwealth University, West Grace Street Housing
- Virginia Commonwealth University, West Grace-West Broad Street Housing
- Wake Forest University, Freshman Dormitory

ROBINSON GRAND THEATRE RESTORATION

Clarksburg, West Virginia



This early 1900's structure was devastated by fire and partially re-built in 1939. The front portion of the building was salvaged, and the rear of the auditorium and stagehouse were re-constructed. This structure is listed on the National Register of Historic

Additional framing and reinforcing of the existing structure was installed below the ballroom on the second floor to comply with current building codes.



The design included a large two-story addition to the side to provide dressing rooms for performers on the 1st floor and conference space on the 2nd floor. Additional structural modifications and additions were included for accessibility and egress.



SHARPE HOSPITAL HVAC RENOVATIONS

Weston, West Virginia



The project included design of framing for piping enclosures, fuel tank foundations, generator foundations, cooling tower foundations and steel structure support, and other miscellaneous support designs and analyses for complete redesign of HVAC systems in existing facility.



SECTION IV.

Proposed Team Staffing Plan

Team Certifications
Team Resumes



Team Staffing Plan



ZDS Management Team

Ted Zachwieja III, PE, CEM
CTO/BIM Manager
MEP Engineer-of-Record

Todd Zachwieja, PE, CEM, LEED AP
Principal-in-Charge

Joel Bernard AIA, LEED AP, NCARB
Principal, CFO



Fred Watts AIA, NCARB, LEED AP
QA/QC Specialist, Roof Replacement Senior Architect



Jason Shymoniak RA, NCARB
Project Architect



David Cotton, PE, LEED APBD+C
ZDS MEP Engineer



Mark Estep, PE
ZDS MEP Engineer



Jim Watters, Associate
ZDS MEP Design/CA



Paul O'Dell, PE
ZDS MEP Engineer
Commissioning Engineer



Vineel Busa, MSME, PE, ZDS MEP Engineer
Commissioning Engineer

David Rush, PE
Commissioning Engineer



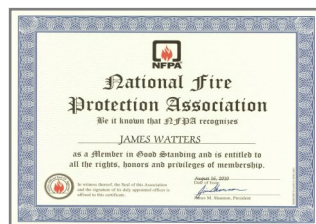
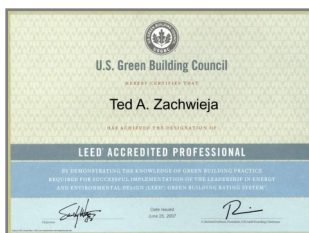
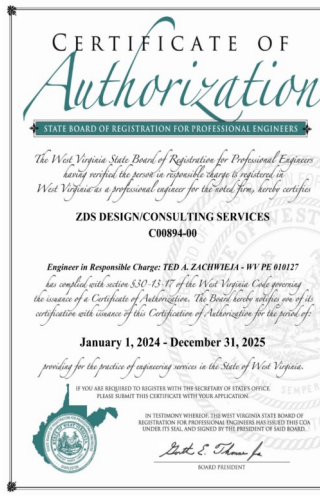
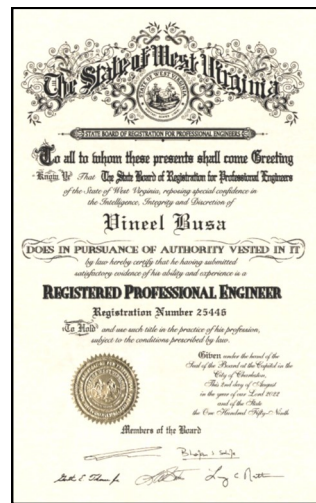
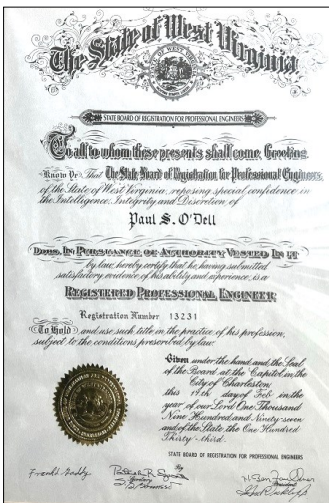
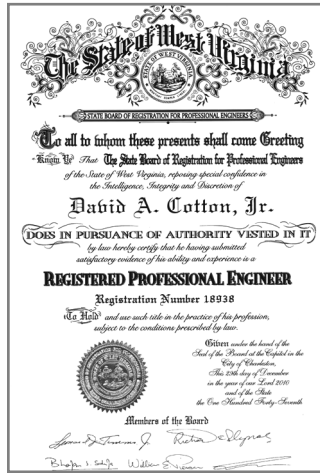
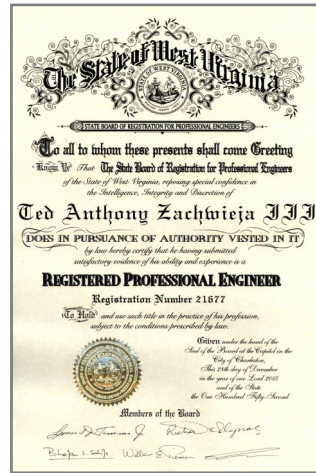
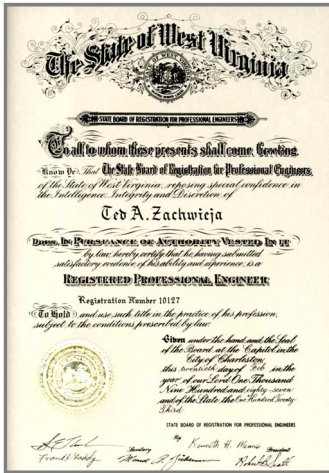
Mike Furst, PE, LEED AP
Senior Mechanical Engineer

Carol Stevens, PE
President/Structural Engineer



Christopher Belcher,
President

Certifications



Todd Zachwieja, PE, CEM, LEED AP



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, solar 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, secondary schools and the State of WV Capitol Complex. .

Todd Zachwieja has coordinated comprehensive energy conservation programs resulting in annual energy savings of millions of dollars. 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 has retro-commissioned MEP systems for millions of square-feet for facilities located in 10 states. He has been involved with many colleges, universities, commercial, healthcare 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.

He provided ASHRAE 90.1 training to code officials, design professionals, and many state agencies assisting the State of WV adoption of the ASHRAE standards as part of the energy codes.

RELEVANT EXPERIENCE - Todd was recognized for his work with Ohio University in development of multiple performance contracting programs that save \$2.5 million annually in energy and operating costs. His experience also involves hundreds of K-12 schools both public and private in West Virginia and other states. He has been involved with historical facilities and hundreds of higher education and school facilities including:

- Bluefield State College
- Concord University, Nick J. Rahall Technology Center, Campus Electric Loop upgrades
- Fairmont State University
- Harvard University - **LEED Gold Certified**
- Marshall University, Harris Hall Renovations, Smith Hall Renovations, Jomie Jazz Retrofit
- Ohio University Athens Campus, Campus wide including housing
- Ohio University Chillicothe Campus, Campus wide
- Riverside High School - **Energy Star Certified**
- St. Marys High School - **EPAct Qualified**
- Southern WV Community & Technical College
- Tyler County 911 Center - **Net Zero**
- University of California, Davis - Veterinary Medicine
- University of Charleston, Innovation Center, Eddie King Gym/Gorman Hall Renovations
- Washington & Lee University, Lexington VA, Renovations
- WV Higher Education Department - DOW Tech Center Engineering, Master Planning
- WV State Capitol Complex - Campus-Wide
- West Virginia University - Institute of Technology
- West Virginia State University
- West Virginia University - Downtown Campus renovations, District Cooling
- West Virginia Wesleyan College - Benedum Student Center, Rockefeller Center



PROFESSIONAL REGISTRATIONS

Professional Engineer:

Florida ☐

Georgia ☐

Kentucky ☐

Maryland ☐

North Carolina ☐

Ohio ☐

Pennsylvania ☐

South Carolina ☐

Virginia 0402 ☐

West Virginia ☐

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



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



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.**

Todd Zachwieja, PE, CEM, LEED AP

PROFESSIONAL AND COMMUNITY AFFILIATIONS

Past President 2013-14, current Governor - WV ASHRAE Chapter, Served as ASHRAE's Energy and Technical Affairs Chairman for six years. Recognized by ASHRAE Region VII in 2014 with the David Levine Award of Excellence, Presidential Award of Excellence,

Recognized by the International Who's Who of Professionals

Recognized nationally as West Virginia's Business Man of the Year

Recognized by AEE nationally in 2007 as a Legend in Energy

Recognized by AEE nationally in 2008 as a Charter Legend in Energy

Charter Life Member of the Association of Energy Engineers

Professional Affiliate Member of the American Institute of Architecture

Associate Member West Virginia Society for Healthcare Engineering

Member of the International Code Council

Member of the National Society of Professional Engineers



OTHER RECOGNITIONS

Selected by WVU and the WV Division of Energy to train Code officials and the design community on ASHRAE 90.1 State Energy Code

Presented at regional and national conferences including the annual National System Commissioning Conference

Contributing editor and served on the Editorial Review Panel for *"The Handbook of Building Management and Indoor Air Quality"*

Contributing editor *"Ventilation for a Quality Dining Experience"*

Contributing editor and served on the Editorial Review Panel for *INvironment Professional, Power Prescriptions* and other publications and articles featuring Indoor Air Quality (IAQ) and MEP engineering systems

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

1st Place 2014 ASHRAE Technology Award, Region VII

LEED Silver Certified WVANG Fuel Cell/Maintenance Hangar, Charleston, WV

LEED Gold Certified Harvard Arboretum, Boston, MA

First ASHRAE bEQ certified building in West Virginia, 2015

1st Place 2023 ASHRAE Technology Award, Region VII



Ted Zachwieja III, PE, CEM

Ted, a third generation engineer and Principal in the firm, has over 20 years of experience in building construction design industry that includes award winning designs including the first Net Zero 911 Center in WV and technology awards for design innovation in multiple facilities. Innovation in lighting design/controls, technology, engineering design, communication methods and management of the design process are the areas of his expertise. As a pioneer and a believer in technological processes, Ted has championed Integrated Design Practices and Commissioning that has become the fabric of ZDS's day-to-day operations.

Ted develops ZDS's 3D Scanning and BIM 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 is the Engineer-of-Record for design projects. As Engineer of Record he is responsible for all aspects of the project and takes a hands-on approach to the overall management, design and construction of the project. He works well with all stakeholders involved throughout the entire project lifecycle.

As Chief Technical Officer Ted develops and deploys a strategy of forward thinking and strategic development for ZDS' Integrated Design Processes, research and development into new technologies for improving quality of services for our clients.

Ted's project experience includes design and commissioning for electrical, lighting, security, IT, A/V, heating, ventilating, air conditioning, plumbing, fire protection, and acoustical 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. He has significant experience in designing, commissioning and implementing efficient lighting and HVAC systems for various commercial, healthcare and educational facilities.

Ted maintains an active membership into the ASHRAE professional society and also has a lifetime membership in 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. He served on the Electronic Communications Standing Committee with ASHRAE. He has designed renovations to existing K-12 schools which received **Energy Star Certifications** placing them in the **nation's top 25% of energy efficiency** schools.



PROFESSIONAL REGISTRATIONS

Professional Engineer:

Florida

West Virginia

Certified Energy Manager (C.E.M.)

National Certificate

No. 22411



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

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

1st Place 2023 ASHRAE
Technology Award, Region VII
Energy Star Certified for facilities in the
Nation's top 25% of energy efficiency



RELEVANT PROJECT EXPERIENCE

- University of Charleston - Virtual Dissection Lab, Innovation Center, Gorman Hall/Eddie King Gym Renovations including Sports Facility designed for televising NCAA sporting events, site utility upgrades for campus natural gas, medium voltage and water service upgrades.
- Marshall University, Jomie Jazz, Harris Hall, Smith Hall Renovations
- WV Higher Education Policy Commission S. Charleston Tech Center Master Planning
- Ben Franklin Career Center Renovations - **EPAct Qualified**
- Bluefield Elementary, High School & Vocational - **EPAct Qualified**
- Glade Middle School - **Energy Star Certified**
- Kanawha County Judicial Building Renovations - **EPAct Qualified**
- Kanawha County Schools - County-Wide includes Master Planning, Renovations
- New Iaeger Elementary Schools - **Energy Star Certified**
- Office of Chief Medical Examiners Renovations and Commissioning
- Pendleton Co Middle/High School, North Fork Elem Renovations - **EPAct Qualified**
- Princeton Middle and High School HVAC Renovations - **Energy Star Certified**
- Raleigh County Schools - County-Wide
- WVDHHR Master Planning, renovations, **Lighting Upgrades** for seven healthcare facilities
- Mercer County Technical Education Center
- Riverside High School HVAC/Lighting Renovations - **Energy Star Certified**
- Tyler County 911 Center with solar - **Net Zero**
- Tyler County Courthouse Additions, Renovations and Commissioning
- Tyler Consolidated Middle/High School HVAC Renovations - **EPAct Qualified**
- WV State Capital Complex Master Planning & Campus-wide renovations
- West Virginia University Renovations
- WV DHHR Healthcare Facilities master planning, additions/renovations, lighting renovations - **EPAct Qualified**

Professional Affiliations

Member of ASHRAE WV Chapter
Prior Membership Promotions Chair WV
ASHRAE Chapter
Prior Chapter Secretary WV ASHRAE
Chapter
Lifetime member of the Association of
Energy Engineers
Associate Member WV Society for
Healthcare Engineering



CEM[®]

OTHER RECOGNITIONS

Presented and co-authored at regional and national conferences

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

1st Place 2014 ASHRAE Technology Award, Region VII

First ASHRAE bEQ certified building in West Virginia, 2015

1st Place 2023 ASHRAE Technology Award, Region VII

ASHRAE Blue Ribbon Award of Excellence

2012 Legend in Energy by the Association of Energy Engineers

2015 ASHRAE Leadership University Recipient



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 uses 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.

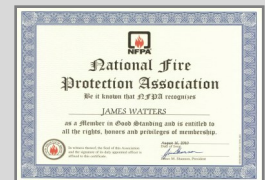
RELEVANT EXPERIENCE

- Ashland Community & Technical College
- Concord University
- University of Charleston
- Glenville State University
- Kentucky Judicial Center, Boyd County
- Fenway Park Lightning Protection/Grounding, Boston
- Southern WV Community & Technical College
- Mercer County Technical Education Center
- Marshall University, Smith Hall, Harris Hall, Student Housing, Parking Building
- West Virginia University, Wise Library, Campus Chiller Interconnect
- West Virginia State University
- Cabell Huntington Hospital
- Charleston Area Medical Center, all four divisions
- Kings Daughters Medical Center, Ashland
- Thomas Memorial Hospital, S. Charleston
- St. Mary's Medical Center, Huntington
- United Hospital Center
- VA Hospital, Huntington renovations
- Jackie Withrow Hospital renovations, Beckley
- Hopemont State Hospital, Terra Alta
- John Manchin, Sr. Health Care Center, Fairmont: renovations to lighting systems.
- Lakin State Hospital, West Columbia, lighting renovations.
- Mildred Mitchell-Bateman Hospital, Huntington renovations.
- Robinson Grand Performing Arts Theatre
- Tyler County Courthouse Renovations
- Welch Community Hospital, Welch renovations
- William R. Sharpe, Jr. Hospital, Weston, fifty bed forensic addition and renovations to entire existing hospital. **EPAct**
- WV Air National Guard Fuel Cell/Maintenance Hangars at Yeager Airport – **LEED Silver Certified**
- WV State Capitol Complex Renovations to Buildings 1, 3, 4, 5 & 7 Master Planning & Renovations



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



Paul has 30 plus 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.

PROJECT EXPERIENCE

- Marshall University
- West Virginia University
East Bay Chiller Plant
West Bay Computer Center
- West Virginia Wesleyan College
Benedum Student Center
- Ohio University
- Ohio University Chillicothe
Bennett Hall
Library
- Concord University
- Bluefield State College
- Southern Community College
Williamson Campus HVAC Renovations
- Webster County High School HVAC
(geothermal) Renovations
- Webster Springs Elem HVAC (open loop
geothermal) Retrofit
- Kanawha County Judicial Bldg.
HVAC Renovations - **EPAct Qualified**
- William R. Sharpe Jr. Hospital HVAC/
Electrical Renovations
- Riverside High School HVAC/Lighting
Renovations - **Energy Star Certified**
- John Adams High School Cooling
Tower Replacement
- Herbert Hoover High Cooling
Tower Replacement
- Tyler County 911 Center - **NET ZERO**
- Winfield High HVAC Renovations
- WVDOT District 2 Headquarters
Chiller Renovations
- WV Cultural Center
HVAC Renovations
- WV Capitol Complex
Master Planning Central Heating Plant
Bldg. #3 Hydronic Renovations
Bldg. #1 #3 #4 #5 #7
Over Multiple Phases
Bldg. 11 Central Cooling
Plant Renovations
- Raleigh County Schools New Schools
and Renovations County-Wide
- General Motors North American
Operations HVAC Retro-
Commissioning for Toledo
Transmissions, Lordstown Assembly,
Janesville Assembly, Pontiac East
Assembly, Bowling Green Assembly,
Arlington Assembly Plants



PROFESSIONAL REGISTRATIONS

Professional Engineer:
West Virginia

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



Mark has over 33 years of experience and is responsible for the design of commercial, institutional, and industrial mechanical and electrical 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.

PROJECT EXPERIENCE

- Fayette County Schools; Auditorium Renovations.
- Putnam County Schools, Surveillance Camera Phase I & II; Upgrade/replacement of surveillance cameras in ten schools throughout the county.
- Hurricane High School Addition; New two-story classroom addition.
- Wood County Technical Center; Administration and classroom addition to the existing facility.
- Braxton County High School Electrical Service Entrance Upgrade; Replaced an existing main switch with a new main switch and conductors.
- Southern WV Community College Fire Alarm Upgrade; Provided upgrade fire alarm design for Williamson and Logan Campuses.
- Teays Valley Christian School; Classroom Addition.
- Marshall University Graduate College.
- University of Charleston East Hall & Parking Garage Facility; Electrical and mechanical design services. Incorporated a parking garage within the residence hall.
- Charleston Catholic School Gymnasium Renovation; The former Players' Club Tennis Facility was renovated to provide a performance court and two practice courts.
- Greenbrier County Schools; New gymnasium.
- Mercer County Schools; New gymnasium.
- St. Marys High School.
- WVU Parkersburg Campus; HVAC Renovations.
- Chief Medical Examiner's Office Lodox Renovations.
- WV DHHR Mildred Mitchell Bateman Electrical Renovations.
- Tyler Consolidated MS/HS Auditorium/HVAC Renovations.



PROFESSIONAL REGISTRATIONS

Professional Engineer:

West Virginia ☐
Maryland ☐
Virginia ☐
Kentucky ☐
Ohio ☐

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



David is a professional Mechanical Engineer with over 18 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.

PROJECT EXPERIENCE

- Tyler County Courthouse Additions/Renovations
- Tyler County 911 Center - **Net Zero**
- New Clendenin Elem Commissioning
- Mabscott Elem Renovations/Cx
- Independence Middle HVAC/Roof Renovations and Commission
- Harrison County 911/EMS Center
- Shady Spring Middle School HVAC Renovations & Cx
- Maxwell Hill Elementary School HVAC Renovations & Cx
- Braxton County 911/EMS Center
- Saint Marys K-8 School Renovations
- Tyler Consolidated MSHS Commissioning
- Dominion Office Building - **LEED Gold**
- Mon General Hospital Echo Renovations
- Mon Health LTAC for Acuity
- United Hospital Center POB 4th Floor Renovations
- Clarksburg Comprehensive Care Clinic Renovations
- Jerry Dove Medical Office Building
- Medbrook Building HVAC Replacement
- Pocahontas County 911/EMS Center
- Mylan Pharmaceuticals
- Beckley Police Station
- Doddridge County Athletic Complex
- Boy Scouts of America, Rex W. Tillerson Leadership Center
- White Hall Public Safety Building
- Webster County 911/EMS Center
- Beitzel/Pillar Innovations Office Building
- Percival Hall Absorption Chiller and Cooling Tower Replacement
- Tyler Consolidated MS/HS Renovations and Commissioning
- Thrasher Engineering Office Building, Bridgeport
- Upshur County 911/EMS Center
- WVU Creative Arts Center Rehearsal Hall
- WVU Towers Dining Hall Renovations
- WVU Athletic Performance Center
- HP Hood Addition/Renovations, Winchester, VA
- Dominion Office Building, Delmont, PA
- University of Pittsburgh Softball Practice Facility
- Westmoreland Community and Technical College, Indiana, PA
- WVU Alumni Center
- WVU Biomedical Research Facility
- WVU Milan Puskar Locker Room Renovations
- NOAA GOES-R Supercomputing Center, Fairmont, WV
- WV Capitol Complex Bldg. #3 & #4 Renovations and Commissioning
- Renaissance Academy Morgantown, WV
- City of Bridgeport WWTO
- VA Medical Center; Audiology Task Lab Clarksburg, WV



PROFESSIONAL REGISTRATIONS

Professional Engineer:

West Virginia

Maryland

Virginia

Ohio

Pennsylvania

LEED AP BD+C Professional Accreditation

NCEES Record Certificate

EDUCATION

Bachelor of Science

Mechanical Engineering

WV Institute of Technology

MEMBERSHIPS

WV ASHRAE, Past President

National Fire Protection Association

WV Society of Healthcare Engineers

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 systems, principles and applications.

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

- WV Chief Medical Examiners Lodox CT Scanner Renovations, Commissioning
- 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
- Roane General Hospital Commissioning
- Veteran Administration Clarksburg Hospital Mechanical BIM
- Veteran Administration Huntington Hospital Mechanical-Electrical BIM
- Kanawha County Judicial Building Renovations/Commissioning - **EPAct Qualified**
- Marshall University—Jomie Jazz HVAC Renovations
- New Bluefield Elementary School Commissioning
- Clay County High School Commissioning - **EPAct Qualified**
- New Clendenin Elementary Commissioning
- North Fork Elementary School HVAC/Roof Renovations, 3D Scanning, Scan-to-BIM and Commissioning - **EPAct Qualified**
- Pendleton County Middle/High School HVAC/Roof Renovations, 3D Scanning, Scan-to-BIM and Commissioning - **EPAct Qualified**
- 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**
- New Spencer Middle School Commissioning
- New Clendenin Elementary School Commissioning
- WVARNG Brushfork Armory HVAC Renovations - **EPAct Qualified**
- St. Marys High School Renovations
- Raleigh County Schools: 4 Schools - Renovations & Commissioning
- New Stratton Elementary School Commissioning
- Pocahontas County 911/EMS Center



PROFESSIONAL REGISTRATIONS

Professional Engineer:
West Virginia

EDUCATION

VIT University
Bachelor of Science
in Mechanical Engineering

Southern Illinois University Edwardsville
Master of Science
in Mechanical Engineering

University of Cumberland
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





Joel Bernard AIA, LEED AP, NCARB

Principal, CFO

Mr. Bernard began his professional career in 1984. He is currently a principal architect in the firm. He has worked on a broad range of project types, including renovations and new construction for universities, and roof replacements and renovations for civic, workplace, and k-12. In addition to being an active member of the Pittsburgh Chapter of the American Institute of Architects, Mr. Bernard also holds National Council of Architectural Registration Boards (NCARB) certification and is a LEED Accredited Professional.

EDUCATION

Boston Architectural Center
Bachelor of Architecture

Williams College
Bachelor of Arts

EXPERIENCE

40 years

PROFESSIONAL REGISTRATIONS

- Architecture: PA
- LEED Accredited Professional
- National Council of Architectural Registration Boards (NCARB)

MEMBERSHIPS

- American Institute of Architects
- Chair Board of Appeals, Pittsburgh Department of Permits, Licensing, and Inspections
- Facilities Committee and Board Member, Carnegie Libraries of Pittsburgh
- Design Review Committee, Riverlife Pittsburgh
- Buildings and Grounds Committee, The Frick Pittsburgh



Pittsburgh Ballet Theatre, Byham Center for Dance - Existing Building Roofing, Window, and Door Renovations | Pittsburgh, PA

Project Completion: 2020

Role: Principal in Charge

IKM renovated the existing 26,600 SF building to provide a weather-tight envelope that allows the ballet to focus on production of their performances. Construction was split into two phases to account for the cold Pittsburgh winter. The roof was replaced in the warmer months of autumn, and the mechanical upgrades and window and door replacements occurred the following spring.

Duquesne University - First Floor Administration Renovations | Pittsburgh, PA

Project Completion: 2023

Role: Principal in Charge

Phase II of the Duquesne Admissions project is an extension of Phase 1, which IKM also completed, that adds spaces for group discussion, private discussion and one on one interactions. Masonry bearing walls were removed and replaced with a glass entry to create a strong visual connection within the department making a perfect space for pre and post event gatherings. The spaces are designed to make it easy for the staff and student volunteers to organize and convey information about the university.

Westinghouse Electric Company 301/302 Roof Replacement | Pittsburgh, PA

Project Completion: 2012

Role: Principal in Charge

Programming and design services for 27,000 square feet of a series of relocated laboratories associated with reactor life cycle testing of components. Labs included Chemistry, Furnace Creep, Electron Optics, Testing and Balance, Autoclave, and a full-service machine shop. Critical to the project scope was full window replacement and thermal/vapor building envelope for stabilization of critical lab environments.

Butler Area School District High School Roof Butler, PA

Project Completion: 2023

Role: Principal in Charge

New construction for a classroom addition and renovation to the existing building consisting of roughly 34,000 SF.

Butler Area School District Center Township & Northwest Roof Replacement | Butler, PA

Project Completion: 2023

Role: Principal in Charge

IKM performed on-call A/E Services which included a roof replacement study.

Pittsburgh Public Schools - Clayton School Roof Replacement | Pittsburgh, PA

Project Completion: 2005

Role: Principal in Charge

IKM performed a study for Pittsburgh Public Schools for a roof replacement of the Clayton School.



Fred Watts AIA, NCARB, LEED AP

QA/QC Specialist

Mr. Watts brings extensive experience with distinguished firms in the Pittsburgh Region to his practice. With over 55 years in the Industry, he has a vast knowledge of multiple disciplines including higher education, K-12 education, public facilities, and historic preservation.

EDUCATION

Carnegie Mellon University
Bachelor of Architecture

EXPERIENCE

56 years

PROFESSIONAL REGISTRATIONS

- Architecture: PA
- LEED Accredited Professional
- National Council of Architectural Registration Boards (NCARB)

MEMBERSHIPS

- American Institute of Architects (AIA)



Butler Area School District High School Roof Butler, PA

Project Completion: 2023

Role: QA/QC Specialist

New construction for a classroom addition and renovation to the existing building consisting of roughly 34,000 SF.

UPMC NHPSV Roofing System Replacement Pittsburgh, PA

Project Completion: 2022

Role: QA/QC Specialist

Renovation to the existing building which included a roof replacement.

UPMC WPIC Roof Replacement | Pittsburgh, PA

Project Completion: 2020

Role: QA/QC Specialist

Roof replacement including window washing davits.

Carlow University Curran Level 2 Renovations Pittsburgh, PA

Project Completion: 2020

Role: QA/QC Specialist

Renovations to the space including finishes, plumbing, electrical, and AV coordination.

Carnegie Mellon University Wean Lobby Renovations | Pittsburgh, PA

Project Completion: 2018

Role: QA/QC Specialist

A lobby renovation project that transformed a secluded and imposing entry into a fresh and vibrant student portal used heavily by students to connect to other buildings.

Duquesne University - First Floor Administration Renovations | Pittsburgh, PA

Project Completion: 2023

Role: QA/QC Specialist

Phase II of the Duquesne Admissions project is an extension of Phase 1, which IKM also completed, that adds spaces for group discussion, private discussion and one on one interactions. Masonry bearing walls were removed and replaced with a glass entry to create a strong visual connection within the department making a perfect space for pre and post event gatherings. The spaces are designed to make it easy for the staff and student volunteers to organize and convey information about the university.

Pittsburgh Ballet Theatre, Byham Center for Dance - Existing Building Roofing, Window, and Door Renovations | Pittsburgh, PA

Project Completion: 2020

Role: QA/QC Specialist

IKM renovated the existing 26,600 SF building to provide a weather-tight envelope that allows the ballet to focus on production of their performances. Construction was split into two phases to account for the cold Pittsburgh winter. The roof was replaced in the warmer months of autumn, and the mechanical upgrades and window and door replacements occurred the following spring.



Jason Shymoniak RA, NCARB

Project Architect

Mr. Shymoniak is a Project Architect with 17 years of experience working on a variety of projects from initial planning and design through completion of construction. He has experience working with various clients including higher education. In addition, he collaborates effectively with engineering consultants to execute a successful project.

EDUCATION

Kent State University
Master of Architecture
Bachelor of Science

EXPERIENCE

17 years

PROFESSIONAL REGISTRATIONS

- Architecture: PA
- National Council of Architectural Registration Boards (NCARB)



UPMC NHPSV Roofing System Replacement Pittsburgh, PA

Project Completion: 2022

Role: Project Architect / Project Manager

Renovation to the existing building which included a roof replacement.

UPMC WPIC Roof Replacement | Pittsburgh, PA

Project Completion: 2020

Role: Project Architect

Roof replacement including window washing davits.

Carlow University Curran Level 2 Renovations Pittsburgh, PA

Project Completion: 2020

Role: Project Architect

Renovations to the space including finishes, plumbing, electrical, and AV coordination.

Duquesne University - First Floor Administration Renovations | Pittsburgh, PA

Project Completion: 2023

Role: Project Architect

Phase II of the Duquesne Admissions project is an extension of Phase 1, which IKM also completed, that adds spaces for group discussion, private discussion and one on one interactions. Masonry bearing walls were removed and replaced with a glass entry to create a strong visual connection within the department making a perfect space for pre and post event gatherings. The spaces are designed to make it easy for the staff and student volunteers to organize and convey information about the university.

Avonworth School District Middle School & High School Renovations | Pittsburgh, PA

Project Completion: Ongoing

Role: Project Architect

A 26,500 SF addition and 12,500 SF renovation to the existing building. A twenty-classroom addition to the combined campus of the middle school and high school allows 6th graders previously housed in the elementary facility to join 7th and 8th grade students.

RESUMES



David Rush PE

MECHANICAL ENGINEER

EDUCATION

University of Maryland, College Park
Masters of Science
Systems Engineering

University of Maryland, College Park
Bachelor of Science
Computer Science

Lehigh University
Bachelor of Science
Mechanical Engineering

REGISTRATIONS

Professional Engineer, MD

Since 2005, David Rush has served as a Project Manager / Senior Mechanical Engineer with the Facility Dynamics Engineering team on multiple projects throughout the Baltimore/Washington corridor. His focus has been on educational institutions extending from K-12, higher education facilities including science buildings, cancer research, and laboratories.

He brings his 27 years of experience in Facilities Management/Engineering and Controls Engineering to every project along with a dedicated attention to detail and fiscal project approach. As a former steward of public monies in his role as a Senior Mechanical Engineer for the UMCP Department of Facilities Management, he values where dollars are spent on projects and understands the importance of doing every task with purpose and intent.

David has performed Analysis and Remedial Engineering of building HVAC and control systems for clients to determine if the systems are operating properly and complying with industry standards & local/national codes. He also assists colleagues with drawings, shop drawing review, field surveys and field testing as needed.

RELEVANT EXPERIENCE

Mountain Valley Elementary School, Green Valley, WV

David, with ZDS Design, has led the Cx specification development and the Final Cx Plan for this Mercer County School.

Tyler Consolidated Middle/ High School, Sistersville, WV

David, with ZDS Design, has started the commissioning process for this Tyler County school with the development of CACEA, the Controls and Commissioning Engineering Application that FDE utilizes to execute Cx projects.

Ben Franklin Career and Technical Center, Dunbar, WV

With ZDS Design, David completed functional performance testing and finalized design PFCs for this adult educational center for high school students and adults.

Anne Arundel County Public Schools, Annapolis, MD

David has led the commissioning of 12 different replacement K-12 schools in the County including Lothian Elementary School and Annapolis High School.

Baltimore County Public Schools, Baltimore, MD

David has led the commissioning of seven different replacement K-12 schools in the County including Victory Villa Elementary School, Lutherville Elementary School and Lansdowne Elementary School.



Mike Furst, PE, LEED AP

SENIOR MECHANICAL ENGINEER



EDUCATION

University of Maryland,
College Park
Bachelor of Science
Mechanical Engineering

Johns Hopkins University
Master of Science
Environmental Sciences and Policy

REGISTRATIONS

Professional Engineer, MD

LEED Accredited Professional

With over 17 years of experience in the HVAC/Building Automation industry, Mike has provided mechanical commissioning services at a variety of facilities, including: detention facilities, laboratories, office buildings, educational institutions and hospitals.

Mike has AUTOCAD experience developing design and construction documentation with an emphasis in automatic temperature controls. His commissioning responsibilities have included, but are not limited to the following; design review commentary, submittal review commentary, specification development, functional testing of mechanical and plumbing systems and granting approval for final completion status.

He also has extensive experience working on LEED projects.

RELEVANT EXPERIENCE

West Virginia University

Facility Dynamics Engineering has been a part of the West Virginia University projects since 2005, with over 20 projects. Mike Furst has directly commissioned the Puskar Center Renovation, the Hodges Hall, the College of Business and Economics, the Art Museum, and the Agricultural Science Building.

Morgantown, WV

Princeton University

Mike provided commissioning services for the Lewis Center for the Arts, a three building complex that honors the role that the arts has on the campus. Mike commissioned from the design phase, through to the construction, acceptance and occupancy phases.

Princeton, NJ

Swarthmore College

Mike served as the Project Manager for the commissioning of the Biology, Engineering and Psychology Building (Singer Hall). The 158,000 SF building served as an anchor for the north side of the campus and was recently completed in 2020.

Washington, DC

American University

Mike served as the Project Manager for multiple projects including the East Campus Re-Commissioning, Spring Valley Building Renovation, the Washington College of Law.

Washington, DC



Carol A. Stevens, PE, F.ASCE

Structural Engineer



EDUCATION

West Virginia University, BSCE, 1984
Chi Epsilon National Civil Engineering Honorary
The Pennsylvania State University, ME Eng Sci, 1989

PROFESSIONAL REGISTRATION

P.E.	1990	Pennsylvania
P.E.	1991	West Virginia
P.E.	1994	Maryland
P.E.	2008	Ohio
P.E.	2010	Kentucky
P.E.	2013	Virginia

BACKGROUND SUMMARY

2001 – Present	President, Structural Engineer CAS Structural Engineering, Inc.
1999 – 2001	Structural Engineer Clingenpeel/McBrayer & Assoc, Inc.
1996 – 1999	Transportation Department Manager Structural Engineer Chapman Technical Group, Inc.
1995 – 1996	Structural Engineer Alpha Associates, Inc.
1988 – 1995	Structural Department Manager Structural Engineer NuTec Design Associates, Inc.
1982 – 1988	Engineer AAI Corporation, Inc.

PROFESSIONAL ASSOCIATIONS

American Society of Civil Engineers
National Society of Professional Engineers
American Concrete Institute
American Institute of Steel Construction
West Virginia University Department of Civil and
Environmental Engineering Advisory Committee
West Virginia University Institute of Technology
Department of Civil Engineering Advisory Committee

EXPERIENCE

West Virginia, WVU Woodburn Hall: Structural repairs to clock tower of 1870's building on Downtown Campus at WVU. Clock tower was moved from Martin Hall in 1910. Building is on the National Register of Historic Places.

West Virginia, WVU Martin Hall: Structural repairs to wooden octagonal cupola of 1870 building, the first building constructed at Woodburn Circle at WVU. Building is on the National Register of Historic Places.

West Virginia, Marshall University Morrow Library: Performed evaluation of existing structural floor system and developed options to upgrade system.

West Virginia, West Virginia State University Phase II Housing: Designed foundations and roof framing for new university housing unit.

West Virginia, Sharpe Hospital HVAC Renovations: Designed framing for piping enclosures, tank and generator foundations, cooling tower foundations, steel structure support and other miscellaneous support designs and analyses for complete redesign of HVAC systems in existing facility.

West Virginia, Robinson Grand Theatre Restoration: Completed analysis and design for complete restorations of historic theatre. Project also included design of large two-story addition for dressing rooms and conference space. Another two-story addition included a stair tower and electrical rooms. Both additions were supported on deep foundations and grade beams with structural slabs. Building is on the National Register of Historic Places.

West Virginia, Logan Middle: Structural analysis for HVAC upgrades.

West Virginia, Western Greenbrier Middle School: Structural analysis for HVAC upgrades.

West Virginia, Logan High School: Structural analysis for HVAC upgrades.

West Virginia, Smoot Elementary School: Structural analysis for HVAC upgrades.

West Virginia, Chamberlain Elementary School: Structural analysis for HVAC upgrades.

West Virginia, Hamlin PK-8 School: Structural analysis for HVAC upgrades.

West Virginia, Mabscott Elementary School: Structural analysis for HVAC upgrades.

West Virginia, Maxwell Hill Elementary School: Structural analysis for HVAC upgrades.

West Virginia, Shady Spring Middle School: Structural analysis for HVAC upgrades.

West Virginia, Independence Middle School: Structural analysis for HVAC upgrades.

West Virginia, Geary Elementary School: Structural design for modifications for new safe school entry.

West Virginia, Duval PK-8 School: Evaluation of structural elements of school for repairs or replacement.

West Virginia, Elkins High School: Structural evaluation report.

West Virginia, Chapmanville Primary School: Structural analysis for HVAC upgrades.

West Virginia, Mountain View Elementary HVAC: Structural analysis for HVAC upgrades.

West Virginia, Mabscott Elementary School: Structural analysis for HVAC upgrades.

West Virginia, Maxwell Hill Elementary School: Structural analysis for HVAC upgrades.

West Virginia, Independence Middle School: Structural analysis for HVAC upgrades.

West Virginia, George Washington High School: Structural design of additions including 3-story classroom addition, new commons area and auxiliary gymnasium.

West Virginia, Sissonville High School: Structural design of auxiliary gymnasium for Kanawha County Schools.

West Virginia, Herbert Hoover High School: Structural design of new gymnasium for Kanawha County Schools.

West Virginia, Nitro High School: Structural design of new gymnasium for Kanawha County Schools.

West Virginia, South Charleston High School: Structural design of new gymnasium for Kanawha County Schools.

West Virginia, Logan Elementary School: Repairs to roof structure from wind damage.

West Virginia, Spencer Middle School: Structural design of new middle school.

West Virginia, Pendleton County MS/HS: Structural analysis for HVAC upgrades.

West Virginia, Chapmanville Middle School: Structural analysis for HVAC upgrades.



christopher a. belcher

PRESIDENT

Mr. Belcher's primary responsibility is ensuring that the operations of Pinnacle Environmental Consultants, Inc. are accomplished in a professional and efficient manner. As president of Pinnacle, Mr. Belcher provides guidance and leadership to Pinnacle's technical staff. His input is required when evaluating new technologies, or other significant changes to Pinnacle's current operating methods. Mr. Belcher has thirty-six years of project design and project management experience in the environmental consulting industry.

Other day to day responsibilities include building inspection procedures, asbestos abatement monitoring protocols, preparing job proposals, new account development, strategic planning, client base analysis, sales administration, presenting seminars, and technical editing of reports and related documentation.

Mr. Belcher has been involved with the inspection, design and monitoring for removal of large-scale asbestos abatement projects, mold remediation projects, lead-based paint abatement, PCB remediation and mercury decontamination. Mr. Belcher's expertise is identifying the scope of work, relating the scope of work to bidders and managing the project for large or complex projects.

Mr. Belcher has developed and continually monitors administrative systems which allow for the efficient management and tracking of project related data, from inception of the contract through completion of project reports and billings. In addition, Mr. Belcher often provides innovative and unique input towards solutions to situations pertaining to personnel, market evaluations, and project planning.

RELEVANT PROJECT EXPERIENCE

University of Charleston – Innovation Center renovation project

Comprehensive pre-renovation asbestos inspection, project specifications and contractor bidding, coordination of work between asbestos abatement and general contractor, project oversight and management.

Kanawha County Public Library – Major renovation project

Comprehensive pre-renovation asbestos inspection, project specifications and contractor bidding, coordination of work with KCPL, owner's representative and general contractor, project oversight and management.

EDUCATION

Bachelor of Science,
University of Charleston, 1987

CERTIFICATIONS

Building Inspection Procedures
& Management Planner,
University of Cincinnati
(AHES Certification, Ohio
Department of Health)

Contractor/Supervisor,
Asbestos Abatement Practices,
University of Cincinnati

Asbestos Abatement
Project Designer, University
of Cincinnati (Project
Designer Certification, Ohio
Department of Health)

NIOSH 582 Method, Sampling
and Evaluating Airborne
Asbestos Dust, National
Institute for Occupational
Safety and Health





michael d. strine

VICE PRESIDENT

Mr. Strine's Primary responsibility is insuring that Pinnacle Environmental Consultants, Inc. operations are accomplished in a professional and efficient manner. As Vice President of Pinnacle, Mr. Strine provides guidance and leadership to Pinnacle's technical staff for the successful completion of specific project requirements. His input is required when determining personnel assignments based on the requirement of a particular project.

Mr. Strine is responsible for evaluating building inspection procedures and asbestos abatement monitoring protocols, preparing job proposals, new account development, and assisting the President with strategic planning. Responsible for the management of Pinnacle's administrative support personnel.

Mr. Strine has extensive experience managing projects involving asbestos, lead and PCB-related issues a wide variety of industrial, commercial and privately owned facilities for thirty-six years. Projects have included work in schools, public buildings, and high rise structures, both occupied and vacant. Development and implementation asbestos inspections of numerous multi-facility sites, including inspection and sampling strategies designed to provide the most cost effective and efficient evaluation of the sites. Conducted OSHA required training programs for compliance lead and asbestos construction standards.

Mr. Strine has significant experience with presentations of information related to environmental concerns to owners, property managers, and media representatives. Experienced in managing a crisis scenario, which involved presentations of information to large audiences charged with high levels of anxiety regarding the safety and health of their children.

EDUCATION

Associates Degree of Science,
Community College of the Air
Force, 1986

CERTIFICATIONS

Building Inspection Procedures
& Management Planner,
University of Cincinnati
(AHES Certification, Ohio
Department of Health)

Contractor/Supervisor,
Asbestos Abatement Practices,
University of Cincinnati
(AHAS Certification, Ohio
Department of Health)

RELEVANT PROJECT EXPERIENCE

University of Charleston – Innovation Center renovation project

Comprehensive pre-renovation asbestos inspection, project specifications and contractor bidding, coordination of work between asbestos abatement and general contractor, project oversight and management.

Kanawha County Public Library – Major renovation project

Comprehensive pre-renovation asbestos inspection, project specifications and contractor bidding, coordination of work with KCPL, owner's representative and general contractor, project oversight and management.





stephen I. brenner

PROJECT MANAGER

Mr. Brenner has thirty-three years of experience as a Geologist/Field Project Manager with training and experience in Environmental Site Assessments, Hydrogeological Investigations and contamination Exposure Assessments. His field experience includes UST removal and closures, drilling oversight and well installation; soil, groundwater, wastewater and air emissions sampling; and subsurface remediation pilot testing. His project management experience includes Phase I and II Environmental Site Assessments, Contamination Assessments and Corrective Action Plans. Mr. Brenner also has experience in remediation system design and installation; analytical data review, air emission assessments; exposure assessments and compliance permitting issues.

Mr. Brenner has performed Phase I and Phase II pre-acquisition site assessments on industrial facilities, commercial complexes, undeveloped property, fill sites, and residential properties. The Phase I assessments have involved on-site inspections, photo-documentation, aerial photo inspection, Sanborn map reviews, historical data collection, soils surveys, geologic map review and regulatory database searches according to ASTM Standard E-1527. The Phase II assessments have involved the collection of soil, groundwater, sludge, and waste samples.

Mr. Brenner has performed complex asbestos inspections at large industrial, commercial and professional sports stadiums. The industrial sites range from power plants to vacant manufacturing plant buildings and the commercial experience is high-rise towers, former manufacturing buildings being converted to housing and schools. In addition, Mr. Brenner has provided on-site project management during large-scale asbestos abatement projects that involved contractor compliance with the project specifications and regulatory requirements, asbestos and lead exposure assessments and final visual inspections and final clearance air sampling.

EDUCATION

B.S. Geology, The College of William and Mary in Virginia, 1985

CERTIFICATIONS

OSHA HAZWOPER certified

Building Inspection Procedures & Management Planner, University of Cincinnati (AHES Certification, Ohio Department of Health)

Contractor/Supervisor, Asbestos Abatement Practices, The Inservice Training Network (AHAS Certification, Ohio Department of Health)

RELEVANT PROJECT EXPERIENCE

University of Charleston – Innovation Center renovation project

Comprehensive pre-renovation asbestos inspection, project specifications and contractor bidding, coordination of work between asbestos abatement and general contractor, project oversight and management.

Kanawha County Public Library – Major renovation project

Comprehensive pre-renovation asbestos inspection, project specifications and contractor bidding, coordination of work with KCPL, owner's representative and general contractor, project oversight and management.



SECTION V.

References

Client Testimonial Letters



ZDS Design/Consulting Services

Gary Boyd, Director of Facility Services, University of Charleston & WVU, (304) 357-4871, garyboyd@ucwv.edu; worked on projects at both WVU and University of Charleston involving MEP systems since 1990's.

Scot Casdorph, PE, Arch. & Engineering Manager, WV General Services Division (304) 957-7145, Scot.R.Casdorph@wv.gov.

Ron Adkins, Director of Construction, WVDHHR, (304) 957-0205 or (304) 634-9379. Former Construction Manager for WVANG and current Construction Mgr. for many projects with WVDHHR.

Bill Elswick, MBA, CEO, former Dir. Of Facilities Planning and Mgt, WVU-Tech, Ohio University, Washington & Lee University, CAMC, (304) 542-8877



IKM Architecture

Rob Dobish, Executive Director Facility Manager, Duquesne University, (412) 396-4781, dobish@duq.edu.

Ron Leibow, Director, Capital Project Management, University of Pittsburgh, (412) 383-1284, rel11@pitt.edu.

David H. Williams, Director of Physical Plant, St. Francis University, (814) 472-3107, dwilliams@francis.edu.

CAS Structural Engineers

Tim Lee, Building Engineer, WV General Services Division, (304) 552-5536, Timothy.M.Lee@wv.gov

Andy Wiseman, President, Wiseman Construction Inc., (304) 352-5536, awiseman@wisemancorp.com

CR Neighborgall, President, Neighborgall Construction, (304) 525-7795, crn4@neighborgall.com

Facility Dynamic Engineers

Rob Dobish, Executive Director Facility Manager, Duquesne University, (412) 396-4781, dobish@duq.edu.

Andy Wiseman, President, Wiseman Construction Inc., (304) 352-5536, awiseman@wisemancorp.com

CR Neighborgall, President, Neighborgall Construction, (304) 525-7795, crn4@neighborgall.com

Pinnacle Environmental Services

Gary Boyd, Director of Facility Services, University of Charleston & WVU, (304) 357-4871, garyboyd@ucwv.edu

Scott Whitewer, QHSE Manager, APG Polytech, LLC, (304) 576-4077

Jan-Arthur Utrecht, MS, Director of Environmental Engineer, University of Cincinnati, (513) 556-4968, Arthur.Utrecht@uc.edu



Gary Boyd MA CEFP

2300 MacCorkle Ave. SE | 304 357-4871 | garyboyd@ucwv.edu

March 12, 2024

To Whom it May Concern

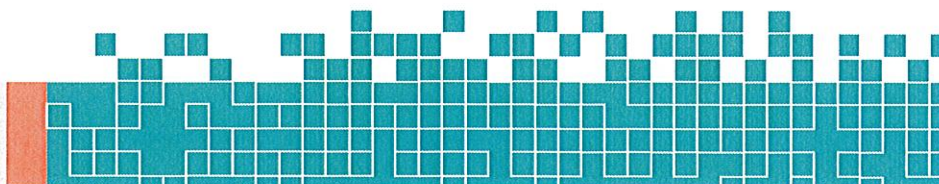
I have worked with the ZDS design team on multiple projects which include a chilled water interconnect loop, the UC Innovation Center, the UC athletic arena, and most recently, the UC Virtual Dissection Lab.

The Dissection lab project was a fast-tracked project that had many innovative components that had to be perfectly aligned to ensure the lighting was correct, the cooling for the computers mounted in the ceiling was sufficient, and headsets were accessible and properly positioned to name a few. I was extremely impressed with the speed and efficiency that ZDS provided to design and complete this project over the Summer and have this innovative space ready for our students for the 2022 Fall semester. The cooling, lighting, equipment placement and aesthetics have performed flawlessly, ZDS designed a high-quality show piece for UC in record time.

ZDS also took on the task of developing the MEP for the new athletic arena and addition of the Innovation Center and new athletic offices. This project included 3D imaging of the space prior to construction. The project also included LED lighting, a chiller and chilled water distribution with a roof mounted cooling tower and roof mounted AHUs. The Wehrle Innovation Center and Athletic Arena have served UC extremely well over the past 6 years, the arena has become the choice location for the UC graduation ceremony since completion. The plumbing, electrical, and HVAC systems have performed extremely well due to the quality of the design and specifications that ZDS provided. I highly recommend ZDS for their impressive attention to detail, skilled design team, and commitment to their projects.

Gary Boyd – University of Charleston Director of Facilities

A handwritten signature in dark ink, reading 'Gary Boyd'.





Michael Pickens

172 Oak Street

Dunbar, WV 25064

(304) 400-9993

RE: ZDS Design/Consulting Services

I have had the privilege to work with ZDS Design/Consulting Services' principals and many of their staff since working at the School Building Authority in the 1990's in my roles at the School Building Authority to my current role as Executive Director of the Office of School Facilities at the West Virginia Department of Education.

When an emergency issue arose, they would immediately make themselves available to help. ZDS's principal, Todd Zachwieja, did not hesitate to board a helicopter during a weekend to help assess the damage to the State's school facilities when damaging floods occurred. Helicopters were the only way to reach many of the facilities because the roads had been washed away or were impassible. Anytime a challenging issue has arisen that no one knew how to resolve, ZDS has stepped up to solve the challenges. Their extensive engineering knowledge of energy efficient systems, HVAC, controls, lighting, power and plumbing systems has always been at the leading edge in the industry, providing innovative solutions that also minimize energy and operating costs. I have always considered their approach in engineering design and commissioning for buildings to be the best and would highly recommend them to anyone.

Their ability to work with the State Fire Marshal and other agencies – while guiding everyone to a practical design approach – always provided each project with the best value. They are much more than excellent design engineers; they also understand the importance of operating and maintaining equipment and have hands-on knowledge to troubleshoot and also commission to ensure our projects were a great success. Their combined engineering design and commission skills prove to be invaluable.

ZDS Design/Consulting Services was also selected to help the WV Department of Education and the School Building Authority in writing new codes and standards to raise the bar for the entire State. They were chosen because their projects were a success while we were having challenges with others. Todd Zachwieja was also asked to teach school facility staff members, and his reference books continue to be used today. I would always think of ZDS first whenever a challenge would occur, knowing I would get the best results possible.

I trust ZDS's staff in their technical expertise and their approach in solving challenging engineering issues and believe that anyone who uses them will be as satisfied as I have been. They are worth it!

Sincerely,

A handwritten signature in blue ink that reads "m pickens". The signature is stylized and cursive.

Michael E. Pickens



ELSWICK & ASSOCIATES, LLC

To Whom It May Concern:

I am distinctly honored to provide this letter of recommendation for ZDS Design/Consulting Services to your organization. I have known ZDS's principals and many of their staff since working with Ted and Todd Zachwieja at West Virginia Institute of Technology located in Montgomery, WV, from the 1970's, while I was the Physical Plant Director there. That relationship continues through today. Their knowledge of energy efficient systems related to Heating, Ventilating, and Air-Conditioning (HVAC), Building Automation Systems (BAS), lighting, power distribution, and plumbing systems has always been at the cutting edge of the industry. They have routinely provided innovative solutions to complex design challenges while minimizing energy and operating costs and enhancing maintenance efficiency. I have always considered their approach to engineering design and commissioning systems first for higher education, hospitals and schools to be superior and I would recommend them to anyone.

Throughout my career I have continued my working relationship with Ted and Todd Zachwieja and Jim Watters while I was Director of Facilities Management at Charleston Area Medical Center (CAMC), General Division, located in Charleston, WV. During that time, they provided mechanical, electrical, and plumbing (MEP), engineering, and construction administration services for all areas of CAMC's facilities. Their knowledge of health care code and practical design approach always provided the uniqueness required for the scope of the work. They understood the importance of operating and maintaining equipment and used their hands-on knowledge to ensure all our projects were on schedule and within budget. As a matter of fact, Todd led the first energy services performance contract in West Virginia. Through Todd's leadership, CAMC saved in excess of \$800,000.00 annually in energy costs and those savings were used for mechanical, electrical, and infrastructure upgrades at all three CAMC divisions. Ted, Todd, and Jim also assisted in many other projects at all CAMC divisions, including commissioning the work implemented as part of the energy savings program. Their combined engineering design and commissioning skills proved to be invaluable.

I also worked with ZDS Design/Consulting Services while I was Director of Facilities, Planning and Management at Washington & Lee University in the 1990's. They designed, acted as the construction project manager and commissioned the campus chilled water plant and distribution system to address the needs of the growing campus while fast tracking the project from start to finish in just nine months. I would always think of ZDS first whenever I was faced with a challenge, knowing that I would get the best technical expertise available.

513 Havana Dr.
Charleston, WV 25311
304.542.8877

Likewise, ZDS helped establish one of the first performance contracting programs in the State of Ohio's higher education system for Ohio University, saving the Athens campus millions annually while the savings were used for the mechanical, electrical and building automation improvements to generate the savings.

I have the utmost confidence in the technical expertise, the collaborative approach and ethical standards of ZDS Design/Consulting Services. Furthermore, these individuals are truly honorable professionals. In this regard, if you have questions or need additional information, please don't hesitate to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read "Bill Elswick", is positioned above the printed name.

Bill Elswick, MBA, CEO

SECTION VI.

Attachments

State of WV Agency
Expression of Interest
Signature Certification





State of West Virginia
Agency Expression of Interest
Architect/Engr

Proc Folder: 1386887			Reason for Modification:
Doc Description: A&E Services-WVSU HVAC Renovation Projects			
Proc Type: Agency Contract - Fixed Amt			
Date Issued	Solicitation Closes	Solicitation No	Version
2024-02-29	2024-03-26 14:30	AEOI 0490 WSC2400000004	1

BID RECEIVING LOCATION

WEST VIRGINIA STATE UNIVERSITY
5000 FAIRLAWN AVENUE
FERRELL HALL RM 301
INSTITUTE WV 25112

VENDOR

Vendor Customer Code:000000208495

Vendor Name : ZDS Limited Liability Company, dba ZDS Design/Consulting Services

Address : 135 Corporate Center Drive, Suite 532

Street :

City : Scott Depot

State : WV **Country :** USA **Zip :** 25560

Principal Contact : Ted (Todd) A. Zachwieja

Vendor Contact Phone: (304) 755-0075 **Extension:** 1001

FOR INFORMATION CONTACT THE BUYER

Jerry D Rush
304-766-3009
jerry.rush@wvstateu.edu

Vendor Signature X  **FEIN#** 550735995 **DATE** 3/26/2024

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

INVOICE TO	SHIP TO
WEST VIRGINIA STATE UNIVERSITY PO BOX 368 FERRELL HALL RM 301 INSTITUTE WV 25112-0368 US	WEST VIRGINIA STATE UNIVERSITY INVENTORY CONTROL PHYSICAL FACILITIES BUILDING INSTITUTE WV 25112 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	Civil engineering				

Comm Code	Manufacturer	Specification	Model #
81101500			

Extended Description:
 Expression of Interest Request

West Virginia State University is soliciting proposals for architectural/engineering design services and construction/contract administration for multiple HVAC renovation projects to be completed at West Virginia State University, Institute, WV per the attached specifications and terms and conditions.

SIGNATURE/CERTIFICATION

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.

Ted (Todd) A. Zachwieja, CEO, Principal

(Name, Title)

(Printed Name and Title)

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

(Address)

(304) 755-0075, (304) 755-0076

(Phone Number) / (Fax Number)

todd.zachwieja@zdsdesign.com

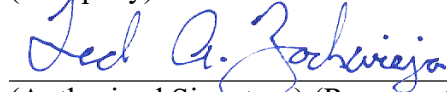
(email address)

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

By signing below, I further certify that I understand the Commission/Institution is requiring the vendor to follow the provisions of WV State Code 5A-3-62 which automatically voids certain contract clauses that violate State law.

ZDS Limited Liability Company, dba ZDS Design/Consulting Services

(Company)



(Authorized Signature) (Representative Name, Title)

Ted (Todd) A. Zachwieja, Principal, CEO

(Printed Name and Title of Authorized Representative)

3/26/2024

(Date)

(304) 755-0075, (304) 755-0076

(Phone Number) (Fax Number)