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DIVISION

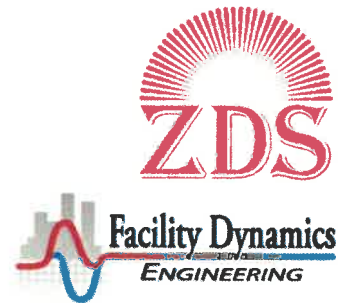
September 3, 2020



WV Department of Administration
Purchasing Division
2019 Washington Street, East
Charleston, WV 25305-0130

Please accept our Expression of Interest to provide Professional Engineering Commissioning Services for the **Buckhannon Readiness Center Phase II Addition**.

ZDS Design/Consulting Services and **Facility Dynamics Engineering (FDE)** have teamed on both design and Commissioning projects for over 25 years and we believe that our experience and knowledge will be an excellent fit for the proposed project. Our team has provided professional mechanical, electrical, plumbing engineering consulting and peer review/commissioning services for facilities across the country. Our decades of experience for the proposed staff give the strength and depth important for the project needs. **FDE** is ranked as the *5th largest MEP/Commissioning firm* in the United States by Consulting-Specifying Engineer and a recognized leader in the industry.



The total number of Design/Commissioning projects exceeds 3,000 when looking at the work of our companies with the project costs ranging from less than \$10 million to over \$1 billion. Our professionals are dedicated to performing quality services while considering our clients' needs, scheduling and budgets. Our Team carries liability insurance coverage in compliance with local and state laws and proof of Insurance can be provided as necessary to fulfill the requirements of this project.

The Team's combined Services encompass many projects and complex systems including High Performance and LEED projects. Some recent Peer Review/Commissioning projects include the \$43 million LEED Silver Certified maintenance hangar/fuel cell facility for the West Virginia Air National Guard at Yeager Airport, a LEED Gold Certified Research facility for Harvard University and a \$45 million addition and renovations to William R. Sharpe, Jr. Hospital for the West Virginia Department of Health and Human Resources, Weston, West Virginia. We also provide those services for many schools, government agencies and Universities.





ZDS is very active in keeping current with all applicable Codes, specifically with **ASHRAE** and energy efficiency standards. **ZDS** team members have held or currently hold officer positions in the West Virginia **ASHRAE** Chapter including Todd Zachwieja, Ted Zachwieja and Chase Thomas serving as President.

FDE has provided services on over two thousand commissioning projects, including projects of \$1 billion and more in construction value. They employ over 60 Engineers/Commissioning specialists and can provide a valuable role in teaming with **ZDS**. **FDE** provided commissioning services for the Marine Corps Base in Kaneohe Bay, Hawaii, covering 669,000 sq. ft.; Strathmore Concert Hall, North Bethesda, Maryland; \$40 million LEED Gold Certified VCU Monroe Park Campus Cary Street Gym in Richmond Virginia; University of Mary Washington Anderson Center located in Fredericksburg, Virginia; and the 180,000 sq. ft. Pauley Pavilion renovation with a 60,000 sq. ft. expansion for the University of California, Los Angeles, California which is expected to receive a LEED Certification. **FDE** is also the prime commissioning agent for the 710,000 sq. ft. National Bio and Agro-Defense Facility in Manhattan, Kansas, this project is ongoing with a budget of \$850 million.

PROJECT GOALS & OBJECTIVES

4.1. Attend pre-design, design, construction and post-construction meetings as pertains to duties outlined in ASHRAE 189.1 Section 10.3.1.2:

✓ *The Commissioning Team's participation will begin early in the planning/design process to oversee completion of the Commissioning activities necessary prior to completion of the Schematic Design. Meetings will be attended, and site visits performed, as required to fulfill the scope of the services during planning, design documents preparation, construction activities and post-construction/occupancy including trend logging and off-season testing.*

4.2. Conduct reviews of the design documents to ensure compliance with Owner's project requirements and the project specifications:

✓ *Our Team's services will provide an independent and objective technical review of the design of the project, or a part thereof, conducted at specified stages of design completion by one or more qualified professionals for the purpose of enhancing the quality of the design and to confirm compliance with the OPR and BOD. Generally, the Owner and design team will develop the Owner's Project Requirements (OPR) as well as the Basis of Design (BOD) during predesign and updates will occur throughout the design process as needed. We will review the OPR and BOD to identify any conflicting requirements between the documents and will provide professional judgment on whether there is adequate detailed information for the project to be undertaken. A peer review may include specific focus areas that are of expressed concern and may also include a constructability review, which is the review of effective and timely integration of construction knowledge into the conceptual planning, design, construction, and field operation of a project to achieve project objectives efficiently and accurately at the most cost-effective levels to reduce or prevent errors, delays, and cost overruns. Constructability reviews will cover installation concerns, proper sequence and scope where construction phasing is described in contract documents and will look at the details in specifying integration between systems.*

4.3. Develop a commissioning plan for testing of equipment, systems and controls as outlined in ASHRAE 189.1 Section 10.3.1.2:

✓ *The Team will develop and implement a Commissioning plan that will contain procedures and forms required for the complete testing and documentation of all equipment, systems and controls included in the scope of services for this project. We have years of experience in preparing Commissioning plans that have been tailored to fit the Owner's requests, as well as Pre-functional Test forms and Functional Performance Test forms that will be included in the project manuals.*

4.4. Verify the installation and performance of the systems to be commissioned, including completion of the construction checklist and verification:

✓ *ZDS and FDE have extensive hands on commissioning experience and operational knowledge of Building infrastructure that will provide the expertise needed for a successful project. Our proven experience in energy efficient renovations will bring options that improve comfort and provide long-term energy efficient solutions. We will verify the installation and performance of the systems to be commissioned through review and completion of the Pre-functional Test forms and the Functional Performance Test forms that will be utilized to complete the "checklist and verification" documents outlined in the commissioning plan. Systems that are seasonally dependent for commissioning will be tested and fully demonstrated post-occupancy as soon as the system(s) can be operated in proper conditions.*

4.5. Verify that a systems manual has been prepared that includes Operations and Maintenance documentation, full warranty information and provides operating staff the information needed to understand and operate the commissioned systems as designed:

✓ *The Commissioning Team's services will include review of the systems' manual to verify that the information needed by the Owner's personnel is clear, concise and complete. Equipment and systems' O&M Manuals and complete warranty information will be required to be included in Project documents submitted to the Owner at completion of the Work. Training of Owner's personnel will be verified through documentation and written acknowledgement from the Owner on all systems' operations.*

4.6. Complete preliminary and final commissioning reports:

✓ *A preliminary Commissioning report will be prepared and submitted for review prior to occupancy of the facility. The final report will be contingent on completion of all post-occupancy Commissioning tasks including, but not limited to, off-season testing. The final Commissioning report and the full systems manual will be provided to the Owner at completion of the Commissioning.*

ZDS Design/Consulting Services/**FDE** Team have registered professionals in all the required disciplines to effectively execute the requirements of the project, including:



◦ **Commissioning Services**

◦ **Construction Administration**

◦ **HVAC/Electrical Engineering**

◦ **Energy Engineering**

Our Team has the years of experience and best expertise to provide the services to fulfill your specific project's needs. Our professional services efforts have been extremely effective in the past by acting in our clients' 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 to the client's staff and successfully incorporating pertinent information about their facility into any proposed solution. Please feel free to contact any of our references about our work. We have an excellent track record and are ready and willing to start on your Project. If there are any questions, please do not hesitate to call.

Sincerely,

A handwritten signature in blue ink that reads 'Todd A. Zachwieja'.

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

FIRM OVERVIEW

Founded in 1994, celebrating 25 years!

ZDS Design/Consulting Services is a three-generation family owned MEP/Commissioning Engineering Firm located near Charleston, West Virginia. ZDS provides comprehensive professional services for Master Planning/ Feasibility Studies, HVAC, Plumbing, Electrical, Indoor Environmental Quality, Energy Engineering, Forensic Engineering and Commissioning. ZDS has extensive proven high performance building design experience for commercial, governmental, educational facilities, and healthcare experience in 24 states across the country, the State of West Virginia, local government and Federal agencies. Specializing in renovation projects with proven results of from 30% to over 50% reduction in energy/ operating costs earning Energy Star Certification and EPA qualified on government renovation projects!

- ◆ Mechanical
- ◆ Electrical
- ◆ Plumbing
- ◆ Forensic
- ◆ Energy
- ◆ Commissioning
- ◆ Indoor Environmental Quality (IAQ/IEQ)
- ◆ High Performance Sustainable Buildings

The ZDS team is made up of seasoned professionals who have dedicated their careers to engineering design excellence and quality. A strong foundation in Performance Contracting is incorporated into design and commissioning with an appreciation for the maintenance staff to be able to operate the systems over the life of the facility. We pride ourselves in having the most up to date state of the art technology to provide our clients the very best possible services. We offer comprehensive practical solutions to our clients with proven World Class results.



COMPANY LEGAL NAME

ZDS Limited Liability Company
dba ZDS Design/Consulting Services

OFFICE LOCATION

281 Smiley Dr., St. Albans, WV 25177

FOUNDERS

Todd A. Zachwieja, P.E., C.E.O.

Lori L. Zachwieja, C.P.A., C.F.O.

Daniel H. Kim, Ph.D.



“Family Owned & Operated Engineering Firm
providing Professional Design Services for over 25 years”

FIRM OVERVIEW



ZDS provides forensic engineering services for the Indoor Environmental Quality (IEQ) including "Indoor Air Quality (IAQ). These services include: strategic planning for renovation and new construction projects;

technical research and writing; specialized applications software development; corporate and professional training programs; publications support and fulfillment; and site-specific engineering and scientific consultation. Todd Zachwieja, **ZDS** Principal, is contributing editor for the following publications:

- Technical Review Panel for the publication of the *INvironment™ Handbook of Building Management and Indoor Air Quality*, by Chelsea Group and published for Powers Educational Services
- Technical Review Panel for the quarterly publication of the *INvironment™ Newsletter*, by Chelsea Group for Powers Educational Services
- *Ventilation for a Quality Dining Experience: A Technical Bulletin for Restaurant Owners and Managers*
- *The New Horizon: Indoor Environmental Quality*, published as a supplement to an issue of *Consulting-Specifying Engineer* magazine, a trade magazine distributed to roughly 50,000 engineers
- Editorial Advisory Board member reviewing the articles of the monthly publication *INvironment™ Professional*

ZDS provides Indoor Air Quality (IAQ) services for major corporations, government organizations and property owners to resolve their specific facility problems:

- *Resolve "sick building syndrome"*
- *Identify solutions to building-related illnesses due to extensive biological contamination*
- *Develop solutions for HVAC systems, temperature controls, equipment, operating and maintenance practices for indoor air quality*
- *Commission new and renovated facilities to minimize or eliminate IAQ issues before problems arise*
- *Develop and establish master plans as well as conduct training seminars for IAQ of schools and commercial buildings*

As one of the nation's leaders in Indoor Air Quality (IAQ), **ZDS** provides sophisticated technical expertise that enables our client to be proactive in solving and preventing indoor environmental problems.



FIRM 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 19 states, 50 cities

WHAT WE DO

- Building Commissioning
- Controls Engineering
- Remedial Engineering
- Training
- Fault Detection Diagnostics

CONTACT

Jay Santos, PE
Principal, Co-Founder
410.290.0900
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.

#5 by CONSULTING-SPECIFYING ENGINEER

Facility Dynamics Engineering was recently ranked the #5 MEP Commissioning firm in the United States. Compiled from revenue, performance, and percentage of work committed to the discipline, Facility Dynamics is a leader in the industry with its significant presence in the buildings and facilities landscape.

COURTHOUSES and JUDICIAL CENTERS



- Colonial Heights Courthouse, *Richmond, VA*
- General Services Administration, Fresno Courthouse
Fresno, CA
- General Services Administration, San Diego Federal Courthouse Annex (Schwartz Federal Building)
San Diego, CA
- General Services Administration, Seattle Courthouse
HVAC Improvements
Seattle, WA
- Howard County Courthouse, Columbia, MD
- Kent County Courthouse, *Kent County, DE*
- Los Angeles Federal Courthouse Review
Los Angeles, CA
- Montgomery County Judicial Center Annex,
Gaithersburg, MD
- New Castle County Courthouse, Retro-Cx
Wilmington, DE

OTHER PUBLIC SAFETY AND MUNICIPAL FACILITIES

- Chesterfield County Jail Annex, *Richmond, VA*
- Chesterfield County Police Headquarters Renovation
Richmond, VA
- Clarence E. Lightner Public Safety Center,
Raleigh, NC
- County of Henrico,
Juvenile Detention Center & East Jail & Regional Jail,
Richmond, VA
- DC Government Unified Community Center
Washington, DC
- Delaware New Castle County Detention Center,
Wilmington, DE
- Delaware Public Safety Building E Wing
- Delaware State Police Headquarters Complex,
Dover, DE
- Los Angeles Police Department Headquarters
Los Angeles, CA
- Prince George's County District VII Police Station,
Washington, MD
- Montgomery County Public Safety Training Academy & Public Safety Headquarters,
Gaithersburg, MD
- New Stevenson House Detention Center, *Milford, DE*
- UNC School of the Arts Police Operations Center
Winston-Salem, NC

COMMISSIONING EXPERIENCE



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!” -
WVANG Project Manager



Harvard University
Arnold Arboretum Weld Hill
Research and Administration Building

LEED Gold Certified

- Kanawha County Schools
- General Motors (GM) of North America
- Maryland – Calvert County Indoor Aquatic Center
- Mercer County Schools
- Montgomery County Dept of Correction and Police
- Ohio University – Chillicothe Campus
- Raleigh County Schools
- Santa Ana Federal Building Renovations
- Pendleton County Middle-High School
- Tyler County Consolidated Middle-High School
- University of California, Davis School of Veterinary Medicine Instructional Facility
- Washington & Lee University
- WV Air National Guard
- WV Museum of Culture and Natural History
- WV State Capitol Complex
- West Virginia University Downtown Campus
- CAMC General, Memorial Division, Women & Children’s Hospital
- United Hospital Center

Engineering for State & Local Government Facilities



Governor's Mansion

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

Renovations included HVAC, fire safety, lighting, plumbing, indoor air quality and electrical power engineering.



Building #3



State Capitol



LEED Certified Candidate



Design/Consulting Services

Engineering for State & Local Government Facilities

ZDS engineering project experience includes facilities registered as official Historic Buildings



Jackie Withrow State Hospital



WVDHHR hired ZDS to engineer the upgrades for three historic hospital facilities in three separate locations. ZDS successfully completed the projects while meeting the requirements of the State Historic Preservation Office (SHPO).



Hopemont State Hospital



Mildred Mitchell-Bateman State Hospital

Renovations included HVAC, fire safety, energy efficient lighting, plumbing, indoor air quality and electrical power engineering.



Design/Consulting Services

Engineering for State & Local Government Facilities



ZDS worked with the West Virginia Air National Guard on the Commissioning for their new Replacement Aircraft Maintenance Hangar and Shops plus a new Fuel Cell Hangar. This facility included a larger maintenance hangar, miscellaneous maintenance shops, central boiler plant and chiller plant. The project successfully achieved LEED Silver Certification with commissioning being an integral part of that certification.

"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

130th Airlift Wing at Yeager Airport,
Phase I and Phase II
Aircraft Maintenance Fuel Systems
Hangars and Shops
Awarded LEED Silver Certification

Construction Costs: \$43,000,000
Project Size: 128,715 ft²



Design/Consulting Services

WV Army National Guard Headquarters & Annex Building

ZDS Design/Consulting Services and its principals Ted and Todd Zachwieja were involved in many mechanical, electrical, and plumbing design projects for the WV Army and Air National Guard. ZDS projects with the Army National Guard include providing electrical Design/Build engineering and project management for emergency power for the Army Headquarters Building and Annex Building in Charleston, WV. This project was completed ahead of schedule and within budget to provide emergency power needs for the Coonskin Army National Guard campus as part of their overall homeland security strategy. ZDS also evaluated and designed HVAC renovations to restore four indoor firing ranges to meet current compliance with Army Standards.



Total MEP Cost: Over \$4,000,000

Contact: Lt. Co. Todd Justice, Deputy Director of Joint Operations: anthony.t.justice.mil@mail.mil



WV Army National Guard Dunbar Armory



ZDS provided comprehensive MEP engineering support for HVAC/partial lighting renovations at the Dunbar Armory. Our professional services included preparation of the Construction Bid Documents, issued in one package, and continued through bidding, negotiation and construction administration of the Contract.

Renovations resulted in a **61% reduction** in energy for lighting and **41% reduction** in energy for HVAC renovations over ASHRAE 90.1-2007 standards qualifying the project for EPart.



Total Project Cost: \$1,000,000 (completed under budget)
Contact: SGM Kenny Goodson: kenneth.c.goodson.mil@mail.mil



Design/Consulting Services

William R. Sharpe, Jr. Hospital
Weston, WV



Size: 219,754 ft² plus 33,000 ft² Addition

Date Complete: 2017

219,754 ft² Renovation plus 33,000 ft² New Construction

Prime for Engineering Master Planning, HVAC Renovations, Lighting Upgrades, Emergency Generator, Fire Protection, Electrical Renovations, Roof Replacement, Commissioning, 3D Scanning.

Consultant for all MEP engineering through IKM, Inc. for the addition.



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

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



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

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

Health Care Project Experience

Project Cost: \$17,000,000, **Size:** 117,500 ft², **Date Complete:** 2017

Study/Evaluation, HVAC Renovations, Lighting Upgrades, Fire Protection, Electrical Renovations, 3D Scanning

Client Reference: Gary Boyd, Director of Facilities; (304) 357-4871

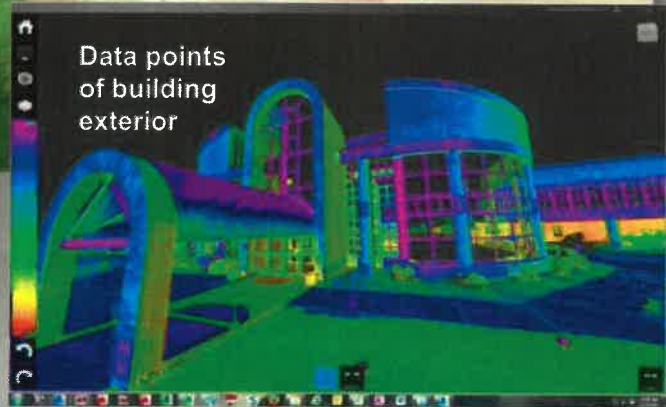
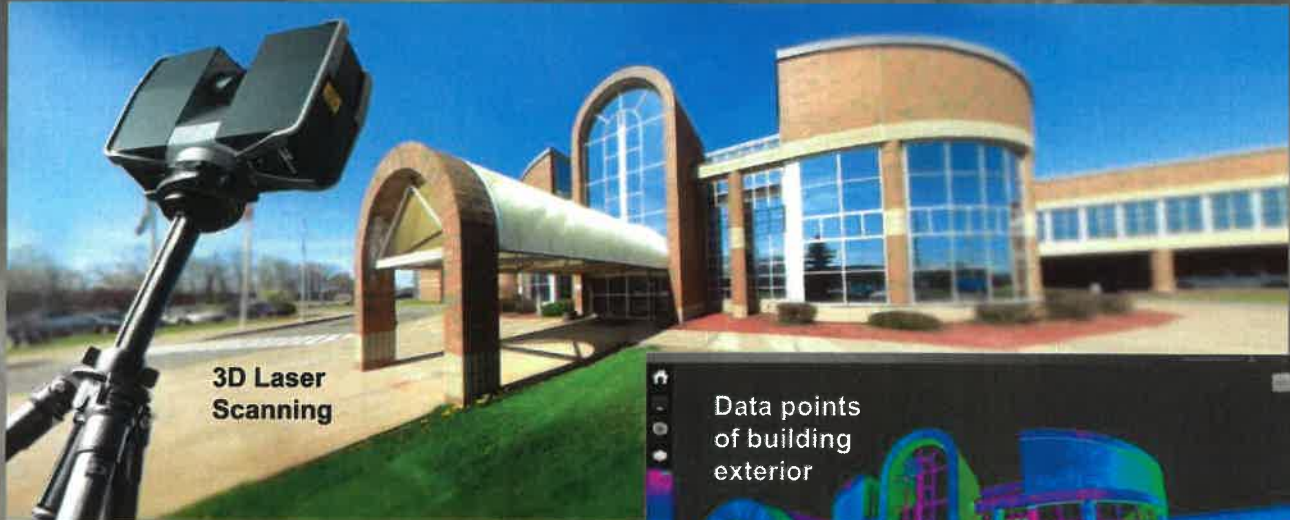
The facility consists of classrooms, offices, flexible meeting areas and a large two-story Innovation Center space. Mechanical and Electrical work includes new chiller and boiler plants with pumps and accessories, HVAC air handling units, DDC Controls, new domestic and fire protection water services, new gas service, domestic water heating equipment, extensive plumbing fixtures/showers/lockers, new electrical service from the campus 12.5 kv distribution loop, switchgear, distribution and branch panel boards, and new state-of-the-art energy efficient LED lighting systems.

Renovations resulted in over a 50% reduction in energy over ASHRAE 90.1-2007 standards.



BIM - 3D Digital Imaging

Our 3D Laser Scanning Services helped William R. Sharpe, Jr. Hospital document existing conditions and integrate their 50-bed addition.



Why 3D Laser Scanning is better:

3D laser scans reveal significant differences between existing conditions and the original drawings.

3D laser scans also provide superior details by capturing data that is more comprehensive and precise than conventional methods.

“With the 3D laser scanning service, ZDS saved us countless hours communicating to all project team members, even to those who work or live far away.

Also, we now have an accurate record of the existing conditions that DHHR can easily access now and into the future.”

former Chief Operations Officer



Web Share:

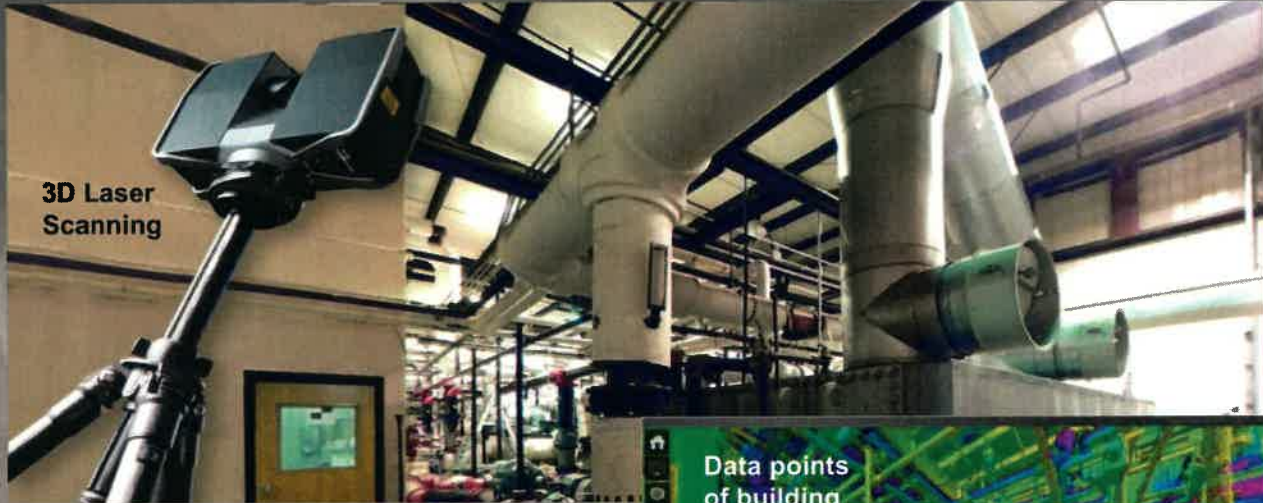
3D laser Scanning allows facility owners to view and measure areas with others on their planning and construction team.



BIM - 3D Digital Imaging

“The 3D laser imaging improves quality, saves time and money while providing a valuable resource now and into the future.”

DHHR



3D Laser Scanning



Data points of building interior

“The 3D laser scans safely document hard-to-reach interior areas — this greatly reduces our risk for liability.

Also, the excellent details of the laser scans convert to accurate construction drawings, both architectural and engineering.”

DHHR Director of Construction & Project Management



3D Engineering Drawing:
Sample of 3D mechanical drawing converted from 3D laser scan data points.

Web Share: Helps construction team members integrate existing conditions into BIM models.



Marine Corps Base Hawai'i, Retro-Commissioning

Kaneohe Bay, HI

PROJECT DETAILS

SIZE

2.1M SF

DATE

Ongoing

The key element of the overall project was to perform a comprehensive, whole-building evaluation/investment-grade audit of all mechanical, electrical, and water systems, equipment, and components for each building in order to identify and quantify deficiencies and energy/water conservation measures (ECM) needed to correct each deficiency.

The ECMs included changes in operational procedures, maintenance procedures, repairs/replacements, and alterations for improvements, and were categorized as No-Cost/Low-Cost/RCx measures and Capital Cost projects. The recently completed phase I project covered 38 buildings, encompassing over 669,000 square feet, phase II covered 17 buildings with over 649,000 sf and phase III consists of 22 buildings and 830,000 sf.

Each phase covered a broad spectrum of building types including recreation facilities, living quarters, training facilities, office spaces, communications facilities, hangers, dining facilities, and retail stores. As part of the RCx scope of work, all identified No-cost/Low-cost RCx measures were to be implemented, and FDE worked closely with the MCBH maintenance staff, including the Air Conditioning shop (AC Shop) and Maintenance Control (MCD), to facilitate implementation of the identified RCx measures.

As part of the RCx process, FDE completed the following:

- Review of existing building operations, controls, and sequences;
- Executed functional tests to verify system operation;
- Identified system operational improvements and installation requirements for low-cost/no-cost/RCx measures and Capital Cost projects;
- Working with in-house maintenance staff to rectify operational issues and implement low-cost/no-cost/RCx measures.

FDE retro-commissioned all HVAC and control systems including: air handling units, boilers, chillers, pumps, packaged HVAC systems, heat recovery desuperheaters, fan coil units, VAV terminal units, domestic water systems, heat pumps, solar water heating systems, miscellaneous exhaust fans and the BAS.

COMMISSIONING EXPERIENCE



USAMRIID Replacement Facility

Fort Detrick, MD

PROJECT DETAILS

SIZE

950,000 SF

DATE

Ongoing

COST

\$500 M

PROJECT REFERENCE

Doug Wrenn
douglas.s.wrenn@usace.army.
mil

PROJECT SPECIFICS

- ACOE Project
- Replacement Facility
- BSL 3/4 Laboratory
- LEED Silver

The largest, most complex bio-containment facility ever designed, this replacement building significantly decompresses and increases USAMRIID's biomedical laboratory and vivarium research capabilities.

The facility will reinforce USAMRIID's role as the cornerstone national research program within the National Interagency Biodefense Campus and facilitate USAMRIID's mission: to conduct basic and applied medical research resulting in vaccines, therapeutics, and diagnostic tools to protect military service members and the American public. When the research facility is certified, it will contain the largest block of state-of-the-art biosafety level (BSL) 3 and 4 laboratory suites in the U.S. Department of Defense. The biosafety laboratory spaces employ many technical enhancements, allowing researchers to work together safely and effectively to respond quickly to critical emerging biological threats, including the world's deadliest pathogens such as Ebola, for which there is no vaccine.

The BSL-4 and BSL-3e spaces employ many technical enhancements allowing researchers to work together safely and effectively to respond quickly to critical emerging biological threats, including the world's deadliest pathogens.

The scope of the Cx process includes the containment envelope, mechanical and electrical systems in the facility; safety equipment (such as biological safety cabinets, autoclaves, etc), and decontamination systems, as well as including all the biological safety aspects of the facility.

The project is designed to meet LEED Silver.



COMMISSIONING EXPERIENCE

National Institutes of Standards, Various Projects Gaithersburg, MD

PROJECT DETAILS

SIZE

536,507 SF

DATE

Ongoing

COST

\$322M

PROJECT SPECIFICS

- Building 245, Replacement
- Desing-Build
- Critical Safety Protocols
- Complex Phasing
- Multiple Oversight Agencies
- 579 acre Federal Research Campus

Facility Dynamics Engineering has a solid relationship with the National Institute of Standards (NIST) since working on two of its prominent projects over the last 11 years.

Building 245 serves as NIST's Radiation Physics Buildings and is one of the oldest buildings on the NIST campus. Much of this building and the researchers who occupy it contribute to the country's health care, national security and nuclear energy production. Many of the devices that monitor potential radiation exposure can be followed back to Building 245 and on a more global scale, Building 245 has touched many of us through the calibrations and standards that are developed for x-rays, CT scans and radiation therapy.

After a storied 54 years, it was determined that the facility was in dire need of replacement to improve space constraints and have improved access to environmental controls. The replacement project was completed in 2019 adding 38 laboratory modules, 85,000 SF and most of all, improved accuracy and with the improvements made for temperature controls, humidity and air filtration levels for precision measurements.

The Advanced Measurement Laboratory (AML) was designed and constructed to be the world's best measurement laboratory with the ability to measure in increments smaller than the radius of an atom. Built in 2004, Facility Dynamics re-commissioned the facility starting in 2009-2011. Our team of commissioning agents and engineers reviewed and developed testing protocols, performed testing and completed the final testing and post-implementation of commissioning. Commissioning a facility like the AML offered its own challenges as virtually any and all environmental interferences are eliminated in the facility to ensure that any and all changes in temperature and humidity do not affect the development of measurement standards.



COMMISSIONING EXPERIENCE



National Bio and Agro-Defense Facility (NBAF)

Manhattan, KS

PROJECT DETAILS

SIZE

710,000 SF

DATE

Ongoing to 2020

COST

\$850M

PROJECT SPECIFICS

- Replacement Facility (replaces the 1950's Plum Island Disease Center in New York)
- Prime Cx Agent
- Design Bid Build
- Architect: NBAF Design Partnership Perkins + Will

As with any biocontainment laboratory, there was a vision to ensure safety, modern research, and longevity of the space with this brand-new facility.

Kansas State University has long led the nation with its animal health research, biosciences and food research and with the planning and construction of the National Biodefense and Agro-Defense facility, KSU will only further its mission of remaining a leader in this field. The facility meets the rigorous demands and guidelines of the Department of Homeland Security and the US Department of Agriculture program requirements. Mock-ups and benchmarking tours were critical to ensure that this facility would meet or exceed all modern biocontainment design principles and standards.

The Department of Homeland Security and the US Department of Agriculture has already named nearly 10 diseases that will be studied at the NBAF due to the high levels of pathogen and disease risk assessments.

Facility Dynamics Engineering was brought on to the McCarthy Mortensen team to provide commissioning services to the project due to the firm's extensive and storied history of the successful commissioning of Bio-Safety Labs in the United States.

With the Central Utility Plant completed in 2015 and construction ongoing, the Facility Dynamics team has led multiple meetings to discuss project management, scheduling, controls, review of shop drawings and submittal reviews. Currently, the FDE team is working with all stakeholders on the commissioning startup plan and preparation of commissioning documents.



PROJECT EXPERIENCE



Montgomery County Judicial Center Annex *Rockville, MD*

PROJECT DETAILS

SIZE

518,000 SF

DATE

2009-2018

CONSTRUCTION COST

\$140.63M

PROJECT REFERENCE

Mr. Randy Hawkins
240.777.6099

PROJECT SPECIFICS

- Prime Cx Authority
- New Construction
- Phasing
- Security
- 6-Story Building
- Mechanical Penthouse
- County Judicial Center
- Public Use Spaces
- 14 New Courtrooms
- LEED Gold

PROJECT TEAM

Dave Stabler, PE

Facility Dynamics has built a trusted relationship with Montgomery County for 17 years spanning nearly 25 projects including the Public Safety Headquarters, the Regional Recreation and Aquatic Center, the Multi-Agency Service Park Extension, and the Equipment Maintenance Operations Center.

FDE is providing commissioning services to the 191,000 SF Annex addition and renovation of the existing 327,000 SF Judicial Center for Montgomery County (MD) government. The expansion will include 10 new courtrooms and administrative spaces. It will also house additional expansion space and Juvenile and Family divisions. It includes a green roof with plants and trees to absorb rainfall, solar panels, stormwater management system, and energy efficient mechanical systems.

FDE's scope for commissioning services covers all HVAC and HVAC controls systems including: central air handling unit systems with energy recovery, hydronic heating systems, VAV terminal units with hot water reheat, fan coil units, exhaust systems, humidifiers, new chillers and chilled water system. Other systems include: security systems, lighting controls, emergency power, fire alarm, generators, building automation system and plumbing systems which include: water heaters, domestic water booster systems and plumbing pumps.



Organization Chart / Proposed Team

State of WV Purchasing Division
Commissioning Services for Buckhannon Readiness Center



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



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

Jim Watters
ZDS MEP Design
Cost Estimating/CA



Chase Thomas, PE
ZDS MEP Engineer
Commissioning/Controls



Jay Santos, PE
FDE Principal
MEP Engineer

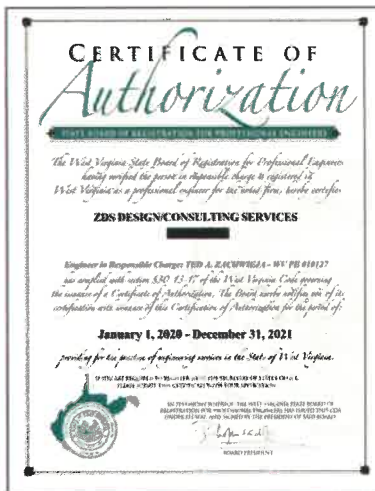
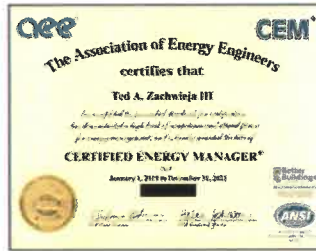
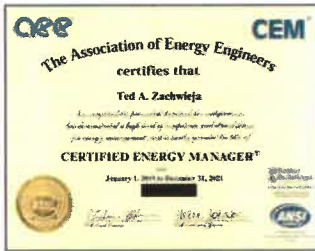
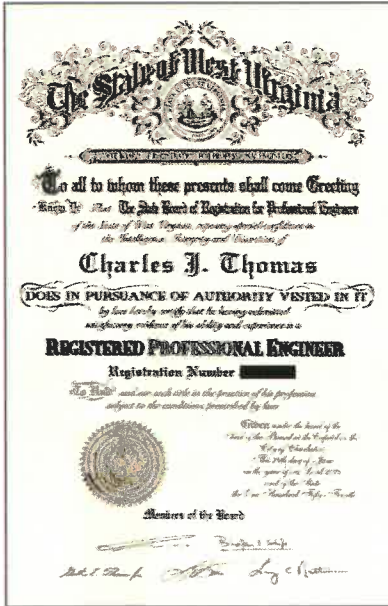


Tim Scruby, PE
FDE MEP Engineer



David Rush, PE
FDE MEP Engineer

Team Certifications



Todd Zachwieja, PE, CEM, LEED AP



Todd has over 40 years of experience involving the analysis, design, construction management and specifications for mechanical engineering, heating, ventilating, air conditioning, plumbing, fire protection, electrical and lighting, as well as indoor environmental quality analysis, building system commissioning and forensic engineering for educational, governmental, military, commercial, industrial and health care clients. He is also recognized as a campus master planner for utility infrastructure providing master planning at many Universities, hospitals and the State of WV Capitol Complex.

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

Todd selected and designed the pilot project for one of the largest geothermal heat pump applications in the Eastern US including designing custom geothermal rooftop AHU's. He has retro-commissioned HVAC systems for millions of square-feet for facilities located in 10 states. He has been involved with many commercial structures including high-rise commercial building renovations. Todd designed renovations to many existing schools which received **Energy Star Certifications** placing them in the nation's top 25% of energy efficiency schools. *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 EPA's Act which requires buildings use over 50% less energy than buildings designed using ASHRAE 90.1.



PROFESSIONAL REGISTRATIONS

Professional Engineer:

Florida

Georgia

Kentucky

Maryland

North Carolina

Ohio

Pennsylvania

South Carolina

Virginia

West Virginia

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



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



LEED Accredited Professional,
National Certification through
USGBC No.

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.

GOVERNMENT/HISTORIC/COMMERCIAL PROJECT EXPERIENCE

- Bank One
- Bayer Material Science
- Calvert County Aquatic Center, MD
- Charleston Area Medical Center
- Cass Scenic Railroad Clubhouse, WVDNR
- Coal Heritage Discovery Center
- Culture Center, HVAC & Fire Protection, WV State Capitol Complex
- General Motors Corp. Re-commissioning
- Hopemont Hospital, WVDHHR
- Jackie Withrow Hospital, WVDHHR
- Jackson County Courthouse Annex
- Kanawha County Commission: 120,000 sf Judicial Annex additions/renovations
- Kanawha County Courthouse
- Kanawha County Metro 911
- Kanawha County Public Library
- Kanawha County Schools
- Kohl's
- Laidley Towers
- Marshall University
- Mercer County Courthouse Annex
- Olin Corporation
- Phillip Morris USA
- Public Service Commission of WV
- Redmond House, WVDOT
- Rhone-Poulenc
- Robinson Grand Performing Arts Theatre
- Santa Anna Federal Building, CA
- St. Patrick's Church
- Tyler County Courthouse
- Tyler County Schools
- Toyota Motor Manufacturer, WV Inc.
- Union Carbide/DOW
- United Center
- University of Charleston Innovation Ctr
- William R. Sharpe, Jr. Hospital, WVDHHR
- Word Trade Center, MD
- WV Air National Guard including Cx \$45M Fuel Cell/ Maintenance Hangars at Yeager Airport – **LEED Silver Certified**
- WV Army National Guard
- WV Capitol Complex Central Heating Plant
- WV Children's Home, WVDHHR
- WV Department of Transportation/DOH
- WV Division of Protective Services
- WV Higher Education Authority
- WV General Services Division
- WV State Capitol Complex renovations
- WVU Stewart Hall & Wise Library
- Yeager Airport



PROFESSIONAL AND COMMUNITY AFFILIATIONS

Member of Investigative Engineers Association (I-ENG-A) and founder of I-ENG-A of the Tri-State Region

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

Ted Zachwieja III, PE, CEM



Ted has over 16 years of experience in building construction design industry. His strategic thinking and development of technical resources at ZDS has helped streamline design processes and improve quality of work office wide. Ted is an innovative problem solver in engineering design, communication methods and management of BIM models between stakeholders during a design project. As a pioneer and a believer in technological processes Ted has championed Integrated Design Practices that has become the fabric of ZDS's day to day operations.

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

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

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

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

GOVERNMENT/HISTORIC/COMMERCIAL PROJECT EXPERIENCE

- WV Air National Guard Maintenance Hangar and Fuel Cell Hangar, Charleston, WV – **LEED Silver Certified**
- Adams Morgan Historic Hotel, DC
- Bayer Material Science
- Catholic Church of Ascension, Parish Hall Renovations
- Coal Heritage Discovery Center
- Culture Center, WV State Capitol Complex
- Highland Museum, KY
- Hopemont Hospital, WVDHHR
- Jackie Withrow Hospital, WVDHHR
- Kanawha County Judicial Annex HVAC Renovations
- Laidley Towers
- Meadowbrook Rest Areas
- I-70 Welcome Center
- CASCI Building, Charleston WV
- Morgantown Welcome Center
- Pocahontas County Community Center
- Redmond House, WVDOT
- Robinson Grand Performing Arts Theatre
- Servia Rest Areas
- St. Patrick's Church, Weston WV
- Stonewall Jackson Marina
- Tyler County Courthouse
- University of Charleston Innovation Center Additions/Renovations
- William R. Sharpe, Jr. Hospital Additions/Renovations, WVDHHR
- World Trade Center, Renovations, MD
- WV Children's Home, WVDHHR
- WV Parkways Authority, Toll Booth Plazas
- WV State Capital Complex Central Heating Plant
- WVU Wise Library
- White Sulfur Springs Rest Area
- Numerous K-12 School Renovations



PROFESSIONAL REGISTRATIONS

Professional Engineer:

Florida ■■■■

West Virginia ■■■■

Certified Energy Manager (C.E.M.)

National Certificate

No. ■■■■

CEM[®]

EDUCATION

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

AWARDS AND RECOGNITIONS

Awarded 2012 Legend in Energy by the Association of Energy Engineers

Awarded acceptance into ASHRAE's 2015 Leadership University

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



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



Member & Co-Founder
I-ENG-A of the
Tri-State Region

Jim Watters



Jim has over 40 years' 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 facility's campus totaling \$10,000,000 in construction costs on various projects, including the conception, design and construction administration for the installation of a 1.5 Megawatt emergency generator. The propane-fired generator and associated switchgear in conjunction with 60,000 gallons of propane fuel storage served to provide peak shaving/load shedding to save on the campus utility costs as well as emergency power functions. 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.



PROFESSIONAL AFFILIATIONS

Member of Investigative Engineers Association (I-ENG-A) of the Tri-State Region



Member of the National Fire Protection Association (NFPA)



Member of the Health Care Section of the NFPA

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



GOVERNMENT/HISTORIC/COMMERCIAL PROJECT EXPERIENCE

- Bluefield Area Transit Authority Administration and Maintenance Facility
- Kentucky Judicial Center, Boyd County
- Coal Heritage Highway Authority
- Chase Towers (formally Charleston National Bank)
- Culture Center Fire Alarm/Sprinklers, WV State Capitol Complex
- Department of Transportation Rest Area prototype
- Department of Transportation Welcome Center prototype
- Fenway Park Lightning Protection/ Grounding Study, Boston
- Glenville State College
- Hopemont Hospital, WVDHHR
- I-70 Welcome Center
- Jackie Withrow Hospital, WVDHHR
- Jackson County Libraries Renovations
- Kanawha County Commission Judicial Annex Renovations
- Laidley Towers
- Meadowbrook Rest Areas
- Morgantown Welcome Center
- Redmond House, WVDOT
- Rhone-Poulenc New Admin. offices
- Robinson Grand Performing Arts Theatre
- Sacred Heart Pavilion and Daycare Ctr
- St. Patrick's Church
- Shawnee Park Clubhouse
- Stonewall Jackson Marina Renovations
- Tucker County Board Office Boiler Retrofit
- Tucker County Courthouse
- Tyler County Courthouse
- University of Charleston Innovation Ctr
- William R. Sharpe, Jr. Hospital, WVDHHR
- World Trade Center, MD
- WV Air National Guard including Cx \$45M Fuel Cell/ Maintenance Hangars at Yeager Airport – **LEED Silver Certified**
- WV Children's Home, WVDHHR
- WV Department of Military Affairs, Public Safety Maintenance Facility, Eleanor
- WV Department of Transportation Burnsville Rest Area and Domestic Water Pumping Station—**AIA Merit Award Recipient**
- WV State Capitol Complex Renovations to Buildings 1, 3, 4, 5 & 7
- White Sulphur Springs Welcome Center

Chase Thomas, PE



ZDS 25th
Anniversary
**Design/
Consulting
Services**

Chase has over 10 years of experience providing design, Construction Administration and Commissioning services in mechanical, plumbing, fire protection and various electrical systems. His experience encompasses a broad range of Projects including, but not limited to, Commercial, Government, Healthcare, Educational and Industrial facilities. These Projects over the years have ranged extensively from small to large in terms of both physical sizes and construction budgets. He also has construction experience adding a practical hands on knowledge to both design and commissioning.

Chase's specializes in the design/commissioning and layout of HVAC systems, fire protection/sprinkler systems, lighting and other electrical systems. He has an excellent understanding of the design and implementation of piping systems encompassing all domestic water, sanitary waste/vent, storm water and natural gas combined with a knowledge in steam/water heating systems, boilers, pumps, recirculating systems, Thermostatic Mixing Valves, etc. He consistently stays current with applicable Codes and national, as well as local, standards and regulations.

He has a good awareness of all aspects of the design process and how the various disciplines need to be coordinated to avoid conflicts during construction. Chase has maintained growth as technology has changed throughout the years in the field of engineering design and drafting standards beginning with varying degrees of CAD drafting and proficient in BIM/REVIT and energy modeling.

Chase is the President for the WV ASHRAE professional society . 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 has also continued his education with relevant courses associated with the field of engineering, and has been active in leadership training provided through ASHRAE and other highly reputable coaching services.



PROFESSIONAL REGISTRATIONS

Professional Engineer:
West Virginia

EDUCATION

West Virginia University
Bachelor of Science
in Mechanical Engineering

PROJECT EXPERIENCE

- Ashland Community & Technical College HVAC Controls
- Ben Franklin Career Center HVAC Renovations and Commissioning; Kanawha County Schools
- NEW Bluefield Primary School Commissioning; Mercer Co. Schools
- Bluestone Dam Gate Controllers Electrical Renovations
- Bluestone & Dunbar Armory HVAC Renovations
- Bonsak Elementary (VA) HVAC Controls Renovations
- Cabell Huntington Hospital Surgery Center HVAC Controls Renovations
- CAMC Memorial Hospital Patient Rooms HVAC Renovations
- NEW Mountain Valley Elementary Commissioning; Mercer County Schools
- St. Mary's Hospital Patient Rooms
- HVAC Renovations
- North Central Regional Jail Renovations
- North Fork Elementary Renovations and Commissioning
- Pendleton County Middle/High School Renovations and Commissioning
- Tucker County High School HVAC Renovations
- Tyler County Courthouse
- Tyler Consolidate Middle/High School HVAC Renovations and Commissioning
- Urlings General Store Renovations
- West Edge Factory Renovations
- Weston Hampton Inn HVAC Retrofit
- WV Capitol Complex Central Heating Plant Renovations
- World Trade Center Renovations, MD

AWARDS AND RECOGNITIONS

Member of Boy Scouts of America
(Eagle Scout)
General Contractor License Holder

PROFESSIONAL AFFILIATIONS

President of WV ASHRAE



Member I-ENG-A
of the Tri-State Region



RESUMES

Jay Santos, PE

PRINCIPAL

EDUCATION

University of Florida
Master of Science
Bachelor of Science
Mechanical | Engineering

REGISTRATIONS

Professional Engineer, MD, OH



Jay has more than 36 years experience in controls design, controls master planning, commissioning and training. A recognized expert with a preeminent record of conceiving and implementing innovative, energy and cost-efficient designs in the fields of DDC Controls, Building Controls Master Planning, and Building Automaton Systems (BAS), Jay is also a renowned lecturer, educator, and author.

Jay's specialties include originating and developing detailed Building Control Master Planning utilizing standardized approaches to sequences, documentation, and specifications; originating controls designs utilizing his expertise in controls analysis, trouble-shooting, and energy concerns; quantifying existing building control systems and offering recommendations detailing cost, energy savings, and operational impact; developing BAS User Guides covering interoperability concerns, architecture, hardware and software issues, and assisting owners and engineers in designing and selecting systems to best meet their BAS needs.

As Principal, Jay oversees review processes and identifies commissioning, retro-commissioning, and energy-conservation strategies based on his in-depth knowledge of the commissioning process and building optimization, supervises numerous commissioning projects, manages the implementation of PACRAT™ (fault detection & diagnostic software) and provides technical support, and oversees contract administration and project quality control/quality assurance. Jay teaches commissioning and DDC controls classes and conducts on-site training programs, provides technical training and consulting, and presents speeches and papers on commissioning, controls, and HVAC diagnostics.

RELEVANT EXPERIENCE

Anne Arundel County Public Schools, Annapolis, MD

Principal for 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

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

Howard County Public Schools, Columbia, MD

Anne Arundel Schools, Annapolis, MD

Principal for the commissioning of four different replacement K-12 schools in the County including Glenwood Middle School, Deep Run Elementary School and Mount Hebron High School.

RESUMES

Tim Scruby, PE

MECHANICAL ENGINEER



EDUCATION

Virginia Polytechnic Institute and State University
Bachelor of Science
Mechanical Engineering

REGISTRATIONS

Professional Engineer, VA

LEED Accredited Professional

Tim Scruby is a Project Manager and Senior Controls Engineer with over 36 years of experience. Tim has an exceptional ability to analyze complex situations and develop innovative and successful solutions. As a Senior Engineer, Tim is responsible for planning, conducting, and overseeing numerous commissioning and re-commissioning projects including LEED-certified buildings, hospitals, museums, laboratory buildings, data and research centers. Tim has extensive knowledge in museum commissioning and archival storage requiring reduced humidity.

Additionally, Tim evaluates chilled water systems and assesses load analysis, then develops and implements cost-effective chilled water system designs; originates and implements remedial HVAC designs; executes controls commissioning; conceives, develops, and implements mechanical system master planning; conducts energy analysis and economic feasibility studies and offers recommendations; performs HVAC replacement studies; authors DDC articles for the Iowa Energy Center website; instructor of Advanced HVAC Commissioning courses; provides technical assistance and expertise.

RELEVANT EXPERIENCE

Albemarle County Public Schools, Crozet, VA

Tim retro-commissioned the Western Albemarle High School Environmental Studies Academy (ESA) providing reporting on induction terminal unit review for the school's new structure for its desired and needed natural sciences program.

Brownsville Elementary School, Crozet, VA

Tim provided commissioning services to the 32,000SF addition and renovations project that increased the existing school's capacity by nearly 200 students and gave students and teachers 10 new classrooms, a new gym and a much needed cafeteria expansion. Brownsville Elementary School was the first LEED Certified school in Albemarle County with a reduction of 37% less energy than other schools its size.

Confidential Client, Multiple Locations

Tim has provided a variety of commissioning services for data centers nationally and internationally including all commissioning phases

University of Virginia Foundation, Charlottesville, VA

Tim led the commissioning efforts with the University of Virginia Foundation for the Battle Building at UVA Children's Hospital.

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

Mercer County Schools, Green Valley, WV

David, with ZDS Design, has led the Cx specification development and the Final Cx Plan for Bluefield Elementary School and Mountain Valley Elementary 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.



ZDS has worked on hundreds of projects in West Virginia including many with Governmental agencies. We encourage you to call the references listed below:

1. **Greg Nicholson**, Retired Chief Operations Officer, WV DHHR: (304) 552-010; many projects with WVDHHR as well as William R. Sharpe Jr. Hospital additions, renovations and commissioning.
2. **Ron Adkins**, Construction Manager, WV Air National Guard & WVDHHR: (304) 957-0205, or (304) 634-9379; former Project Manager for WVANG and current Construction Mgr. for many projects with WV DHHR as well as William R. Sharpe Jr. Hospital additions, renovations and commissioning.
3. **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.
4. **Chuck Smith**, Executive Director of Facilities Operation, Kanawha County Schools & Kanawha County Commission: (304) 348-6148, dcsmith@mail.kana.k12.wv.us; for projects with Kanawha County Schools as well as previous projects with the Kanawha County Commission.
5. **Amanda Kimble**, Director of Facilities, Tyler County Schools: (304) 758-2145, akimble@k12.wv.us; for renovations to Tyler Consolidated Middle/High School.



1. **Richard Morse**, Capitol Projects Manager, The County of Henrico Virginia: (804) 501-7227, mor33@co.henrico.va; Building Commissioning Services, Controls Engineering, Engineering Consulting.
2. **Jim Taylor**, Virginia Department of Behavioral Health & Developmental Services: (804) 840-71558; jim.taylor@dbhds.virginia.gov; Building Commissioning Services, and other Engineering Services.

Tyler County Schools

P.O. Box 25
Middlebourne, WV 26149
(304) 758-2145
Fax (304) 758-4566

A. Shane Highley, Superintendent

Linda Hoover, President
Katrina Byers, Vice-President
Dave Roberts, Member
Larry Thomas, Member
P.J. Wells, Member

February 4, 2020

To Whom It May Concern:

This letter is to recognize the outstanding performance of ZDS Design/Consulting Services regarding their team and services rendered to Tyler County Schools. ZDS worked with Tyler County Schools on the Tyler Consolidated Middle/High School HVAC Equipment Replacement Project.

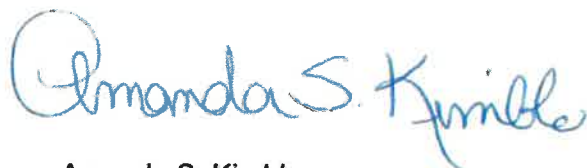
ZDS Design/Consulting Services are to be commended for their patience, diligence, and HVAC engineering expertise with our recent project. The project was complicated with funding and scheduling issues, and ZDS was able to overcome these hurdles and deliver a construction project that had very little issues. Their knowledge of the building systems and project construction administration were key.

From initial project planning, design development, bidding, construction administration, and closeout, ZDS was beside Tyler County Schools to provide any necessary support needed to make this project successful. Their professional team worked closely with our staff to ensure the design accommodated all of the needs for our students and staff.

It has been a pleasure working with the staff at ZDS. I wholeheartedly recommend ZDS Design/Consulting Services for projects similar to the scope of this one.

Please feel free to contact me if you may have any questions or comments.

Sincerely,



Amanda S. Kimble
Director of Support Services and Facilities
Email - akimble@k12.wv.us Office - # 304-758-2145



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 black ink, appearing to read "Bill Elswick", written in a cursive style.

Bill Elswick, MBA, CEO

Boyd, Gary MA, CFP

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

To Whom It May Concern

With well earned respect I would like to recommend ZDS as a high quality MEP design firm.

I have had multiple opportunities to work on highly technical projects with Todd Zachwieja and his team of skilled engineers. The first project that I had the opportunity to work with ZDS was a WVU project that connected several older chillers to develop a chilled water loop on the downtown campus. The project included piping through congested areas, load calculations, differential pressure and pump control, and load balancing. This project was designed to become a phased approach to a central chiller plant which is now in operation. The project was efficiently managed and the performance exceeded expectations. As the system changed and older chillers were removed from the loop, Todd always responded to questions and concerns to insure a positive outcome for the overall objective.

At present I am working with ZDS on a University of Charleston project constructing a new Innovation Center and Athletic Complex. ZDS has accommodated many twist and changes to this project. We are on track to open the new facility in December of this year. I have found Todd and his team to be highly responsive and professional.

Sincerely,



Boyd, Gary MA, CFP
Director of Facilities
University of Charleston

**National Institutes of Health**

Division of Technical Resources
Building 13, Room 201, MSC 5759
Bethesda, Maryland 20892
Phone: (301) 402-5140

Public Health Service**Office of Research Facilities**

To: E. Lon Brightbill,
Facility Dynamic Engineering (FDE)
6770 Alexander Bell Drive
Columbia, Maryland 21046

Through: Director, ORF/DTR

A handwritten signature in black ink, appearing to be "A. J. [unclear]", written over a horizontal line.

From: Acting Branch Chief, DTR/Technical Support Branch

Subject: Letter of Recommendation and Past Performance

It is my pleasure to provide your company with a letter of recommendation based on your present and past performances for commissioning of all types of facilities ranging from Biosafety Levels (BSL-2, 3 and 4), Mechanical/Electrical Upgrades, Penthouse Additions and hospital and healthcare facilities renovations, alterations and facility replacement projects.

I can further state, I have been involved with working directly with your firm for all of these types of projects for over 15 years now and I've been extremely satisfied with the level of expertise and performance your firm has always provided to the NIH.

To speak to specifics regarding high containment facilities at the BSL-3/4 levels, due to the security sensitive nature of the information, I can only say your leadership in the development of the commissioning planning activities from design thru final acceptances; your development and use of the facility website portals and the performance of your entire team and interaction with the safety, maintenance and operations staff along with the researchers in these facilities were and continues to be, paramount to be able to provide world-class research facilities, in which the health and safety of our world depends.

Please feel free to share the information with others and if they would like to contact me directly for more information, my contact information is provided above.

A handwritten signature in black ink, reading "Paul D. Hawver", written over a horizontal line.
Paul D. Hawver



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

State of West Virginia
 Centralized Expression of Interest
 26 — Medical

Proc Folder: 770845

Doc Description: EOI- Buckhannon Phase II Addition-Commissioning Services

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No		Version
2020-08-17	2020-09-03 13:30:00	CEOI	0603 ADJ2100000006	1

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

VENDOR
 Vendor Name, Address and Telephone Number:
 ZDS Design/Consulting Services
 281 Smiley Drive
 St. Albans, WV 25177
 (304) 755-0075

FOR INFORMATION CONTACT THE BUYER
 Tara Lyle
 (304) 558-2544
 tara.l.yle@wv.gov

Signature X *Todd Q. Zebineja* FEIN # 550735995 DATE 09/03/2020

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

ADDITIONAL INFORMATION:

The West Virginia Purchasing Division, for the agency, the West Virginia Army National Guard, Construction and Facilities Management Office, is soliciting Expressions of Interest from qualified firms to provide professional engineering commissioning services related to the construction of an Addition to the Buckhannon Readiness Center, located in, Buckhannon, WV, per the attached documentation.

INVOICE TO		SHIP TO	
DIVISION ENGINEERING & FACILITIES ADJUTANT GENERALS OFFICE 1707 COONSKIN DR		BUILDING TRADES SPECIALIST BUCKHANNON READINESS CTR 929 BRUSHY FORK RD	
CHARLESTON	WV25311	BUCKHANNON	WV 26201-2497
US		US	

Line	Comm Ln Desc	Qty	Unit Issue
1	EOI- Buckhannon Phase II Addition-Commissioning Services		

Comm Code	Manufacturer	Specification	Model #
81101508			

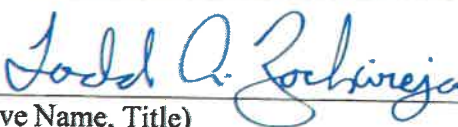
Extended Description :

EOI- Buckhannon Phase II Addition- Commissioning Services per the attached documentation.

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.

ZDS Design/Consulting Services
(Name, Title)
Todd A. Zachwieja, Principal/CEO
(Printed Name and Title)
281 Smiley Drive, St. Albans, WV 25177
(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 wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

ZDS Design/Consulting Services
(Company)

(Authorized Signature) (Representative Name, Title)

Todd A. Zachwieja, Principal/CEO
(Printed Name and Title of Authorized Representative)

09/03/2020
(Date)

(304)755-0075 / (304)755-0076
(Phone Number) (Fax Number)

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

CONSTRUCTION CONTRACTS: Under W. Va. Code § 5-22-1(i), the contracting public entity shall not award a construction contract to any bidder that is known to be in default on any monetary obligation owed to the state or a political subdivision of the state, including, but not limited to, obligations related to payroll taxes, property taxes, sales and use taxes, fire service fees, or other fines or fees.

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

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

DEFINITIONS:

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

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

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

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

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: ZDS Design/Consulting Services

Authorized Signature: *Jodd Q. Zebireja* Date: 09/03/2020

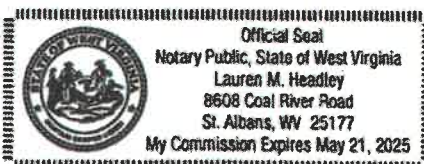
State of West Virginia

County of Kanawha, to-wit:

Taken, subscribed, and sworn to before me this 3rd day of September, 2020.

My Commission expires May 21, 2025.

AFFIX SEAL HERE



NOTARY PUBLIC

Lauren M. Headley

Purchasing Affidavit (Revised 01/19/2018)