

**Expression of Interest
To
West Virginia Army National Guard
For
Williamstown AASF1 Facility**



**HVAC Renovations
Solicitation Number DEFK14023**

5/15/2014

05/15/14 08:35:16AM
West Virginia Purchasing Division



Design/Consulting Services

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I –Executive Summary Letter



ZDS

Design/Consulting Services

MECHANICAL . ELECTRICAL . INDOOR AIR QUALITY . ENERGY . COMMISSIONING

281 Smiley Drive

St. Albans, WV 25177

Phone: 304-755-0075

Fax: 304-755-0076

Email: todd.zachwieja@zdsdesign.com

May 15, 2014

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

RE: Expression of Interest to Provide Professional Services for the Williamstown AASF1 Facility

ZDS Design/Consulting Services is pleased to submit our statement of qualifications for your consideration. We have enclosed one (1) original copy, two (2) convenience copies and a CD-ROM outlining **ZDS'** Team qualifications to provide Professional Engineering Services. Our professionals are dedicated to performing quality services taking into account our clients' needs, scheduling and budgets.

We look forward to having the opportunity to provide professional engineering services to the West Virginia Army National Guard (WVARNG) Division of Engineering and Facilities for renovations to the HVAC systems at the *Williamstown AASF1 Facility (Project)*. We have enjoyed working with many State Agencies and commercial facilities throughout West Virginia and the surrounding areas and have provided professional mechanical and electrical engineering consulting/commissioning services for many facilities across the country.

We believe our company is the right size to provide the level of service necessary and small enough to listen and care about your needs. Nearing our **20th year**, **ZDS** has corporate offices located at 281 Smiley Drive, St. Albans, West Virginia. **ZDS** is very active in keeping current with all applicable Codes and specifically with ASHRAE and energy efficiency standards. Most of the **ZDS** team members hold officer positions in the West Virginia Chapter of ASHRAE. Ted Zachwieja is a Past President and Charter Member, Todd Zachwieja is current President, Jennings Davis is President-Elect, Ted Zachwieja III is Membership Promotion Chair and Board Member and James Lowry is the Chapter Technology Transfer Committee Chair. 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. Refer to **Section II** of this document for a brief description of **ZDS'** Organization and Services.

Firm Qualifications: **ZDS** will provide comprehensive MEP engineering support for the proposed renovations at the *Williamstown AASF1 Facility*. We have been involved with many renovation projects including the WVARNG, State of West Virginia DHHR Hospitals, WVU, Ohio University, Marshall University and the West Virginia Capitol Complex. We understand the *Project* needs and have the personnel and experience to provide the necessary services. Each member of our staff brings unique strengths to the *Project*. Realizing the similarity of mission and the desire to serve West Virginia clients, we will be honored to work with you.

We believe our successful experience in leading similar projects makes us the best qualified to address the proposed HVAC renovations to the *Williamstown AASF1 Facility*. As indicated in the scope for this *Project*, the main goal(s) is to replace the existing HVAC system in a manner that serves the needs of the occupancy type.

Replacement of the existing HVAC system may require upgrades in other infrastructure elements and must be taken into consideration during the design document preparation stage. Phasing of the work as necessary will be addressed in a manner to reduce disruptions for the personnel remaining on site. **ZDS** has designed and

coordinated upgrades for HVAC systems on many projects of all types and sizes and recently has successfully developed phasing plans in occupied buildings. We will coordinate closely with the client's personnel to assure that all needs are addressed and, as necessary, contact suppliers/installers for information and assistance.

ZDS has teamed with several Architectural firms in the area and could utilize their services should the need arise for the development of the *Project*. If any hazardous materials are discovered, we have a very good relationship with an excellent and reputable environmental consultant that could be very helpful on an "as-needed" basis in assessment and resolution in the event that this service is desired.

Personnel Having Authority – Direct answers to RFQ: The project is assigned to ZDS' principal-in-charge of planning/design who will follow the *Project* from inception through design and has full authority to execute a binding contract on behalf of ZDS: **Todd A. Zachwieja, PE, CEM, LEED AP – Principal and CEO of ZDS Design/Consulting Services**, 281 Smiley Drive, Saint Albans, WV 25177 Email: Todd.Zachwieja@ZDSDesign.com, Office Tel. (304) 755-0075, Ext. #307, Mobile (304) 545-4550.

ZDS Design/Consulting Services **does not** have any litigation or arbitration proceedings nor any vendors' complaints filed with the State of West Virginia or any other agencies that involve legal representation by either party relating to the firm's delivery of design services.

Demonstrated Experience: Refer to *Section III* of this document for related project experience for our team that has over five decades of experience in West Virginia giving us a great local understanding of the community. The WVDHHR, Harvard University, Marshall University, various County School systems, Ohio University (Athens & Chillicothe campuses), Concord University, and the West Virginia Capitol Complex all found ZDS to be successful in comparable infrastructure retrofits to their facilities. Please refer to the document describing our Commissioning services for two (2) WVANG projects at the Yeager Airport location in Charleston. This project included a new Replacement Aircraft Maintenance Hangar and Shops plus a new Fuel Cell Hanger and successfully achieved LEED Silver Certification.

All applicable Codes, regulations and ordinances will be reviewed and we will use due diligence to incorporate into the proposed renovations at the *Williamstown AASF1 Facility*. Due to our attention to Code's compliance ZDS has an excellent reputation with the office of the West Virginia State Fire Marshal.

Refer to additional project examples which include the project name, location and description. Some of these provide project square footage and costs, completion date(s), type of service provided and other relevant information.

Project Organization: Refer to *Section IV* of this document for our Professional Qualifications with detailed resumes. We assign the production staff according to the nature of the project and the work force necessary to meet the schedule. A brief listing of key personnel follows:

Todd A. Zachwieja, ZDS Principal-in-charge of Design/Commissioning and Project Management BSME, MSEM, P.E., CEM, LEED AP with over 38 years of experience in M/E design, energy management, IAQ and Commissioning. *Nationally recognized for expertise in IAQ, LEED and Certified Energy Manager. Received "Legend in Energy" by AEE in 2007/2008. Guest Speaker at National System Commissioning Conference. Selected to teach West Virginia's new Energy Code.*

Ted T. Zachwieja, ZDS Founder, M/E/P, Construction Administration and Project Executive with over 55 years of experience. *Ted was one of three engineers selected by the Department of Energy to train those who manage buildings to conserve energy.*

Jennings L. Davis II, P.E., ***ZDS Associate and Project Manager***, BSME, over 23 years of design experience including Construction Administration and Commissioning.

Jim Watters, ***ZDS Associate-in-charge of Production***, over 35 years of HVAC/Electrical/Plumbing design and Construction Administration experience.

James Lowry, P.E., ***ZDS Project Engineer***, BSME, specialist in HVAC, Fire Protection, and plumbing engineering design.

Ted A. Zachwieja III, E.I., ***ZDS Systems Administrator and BIM Manager***, BSME, over 10 years' experience including receiving the 2012 Legend-in-Energy Award, specializing in 3D MEP design and responsible for all IT systems administration.

Todd Zachwieja will be the principal-in-charge of the *Project*. Acting as Project Manager will be Jennings Davis, ***ZDS' Associate***. Jennings has an extensive background in HVAC systems' design and will be in charge of existing systems' assessment, evaluation and concepts for the new HVAC design. Jim Watters, ***ZDS' Associate***, is Production Manager and will assist with staff assignments for development of the Bidding documents. Jim will also be involved in the design process having extensive experience in electrical systems and a thorough knowledge of the construction process. Other members of the staff will be involved as necessary to provide a quality product for the *Williamstown AASF1 Facility*.

We have provided comparable engineering renovations for the eight-story Judicial Annex facility in Charleston and HVAC/electrical renovations for Harris Hall and Smith Hall at Marshall University. Many of our West Virginia County Schools' clients involved extensive MEP renovations and new construction totaling hundreds of millions in construction costs. These include, but are not limited to, Woodrow Wilson High School, Park Middle School, Shady Springs Middle School and Trap Hill Middle School in Raleigh County, Elkins Middle School in Randolph County, Webster County High School and many others. Both the West Virginia Department of Education and School Building Authority have requested our participation in establishing design and construction guidelines for all schools in West Virginia.

Our approach is different than the traditional role; we have actual operational experience and design experience. We have designed the improvements and commissioned the Mechanical/Electrical systems. By commissioning the systems, we fine-tune them to actual conditions and assist the personnel after occupancy to improve comfort, provide training, and minimize operating costs.

References: We pride ourselves on being viewed as an extension to our client's staff and successfully incorporating pertinent information about their facility into any proposed solution. We have extensive renovation experience including phasing construction. Please contact any of the references below for their opinion of how we worked with their staff, our technical strengths and ability to work with contractors to provide our clients with a quality project. ***ZDS*** references that we would encourage you to call, and which relate to this type of Project, include:

1. Mr. Greg Nicholson, Chief Operations Officer for WVDHHR (304) 558-1577, greg.c.nicholson@wv.gov.
2. Mr. Joe McClung, Energy Manager for WVARNG (304) 561-6548, Joseph.McClung@us.army.mil.
3. Mr. Ron Adkins, Construction Manager for WVDHHR (304) 957-0205, ron.adkins@wv.gov.
4. Mr. Mike Pickens, Executive Director of Office of School Facilities (304) 558-2711 mepicken@access.k12.wv.us.
5. Mr. Tony Crislip, Manager, Physical Plant, Marshall University (304) 696-6241.
6. Dr. Mark Manchin, Executive Director School Building Authority (304) 558-2541.

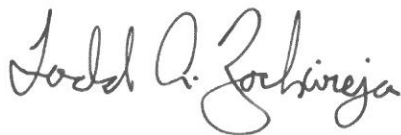
ZDS' Team has an excellent track record of completing projects on time and in budget. The renovation projects at Marshall University were under budget and finished ahead of schedule. Tony Crislip of Marshall University had this to say about the Harris Hall HVAC/Electrical Renovations project: "*Harris Hall Renovations should serve as the pilot for how projects should be done and it's the most comfortable building on campus!*" Our recent renovation projects for the WVDHHR involving ARRA funding were finished within budget and on time while providing long-term value to DHHR through the energy savings the improvements produced. Our many projects involving the School Building Authority and the West Virginia Department of Education have proven we are the best at providing excellent evaluation of your existing facilities to help guide the process to the best end result even if that means phasing the work for the *Project* due to funding limitations. Most of our work has been renovations so we understand what to look for in our evaluation of the existing facility.

We also may provide **3D laser scanning technology** for verification of existing building conditions in 3D within 2 mm accuracy. Information gathered can be uploaded to our Web share for viewing existing conditions electronically with the capability of verifying measurements. This technology minimizes surprises during the construction process.

We can help prioritize improvements and provide advantages and disadvantages of performing the work to help the WVANG make the most informed decisions not just for today but for the life of the building. Our long-term focus has been praised by our clients as invaluable.

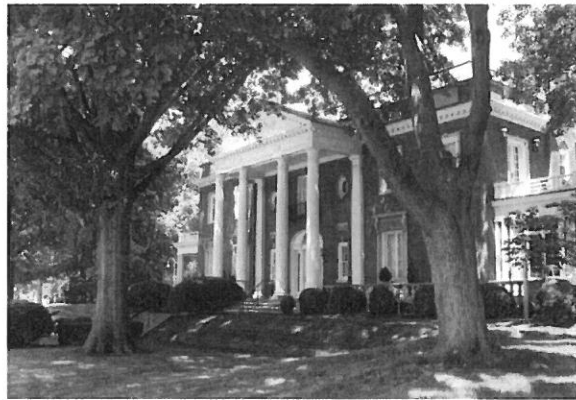
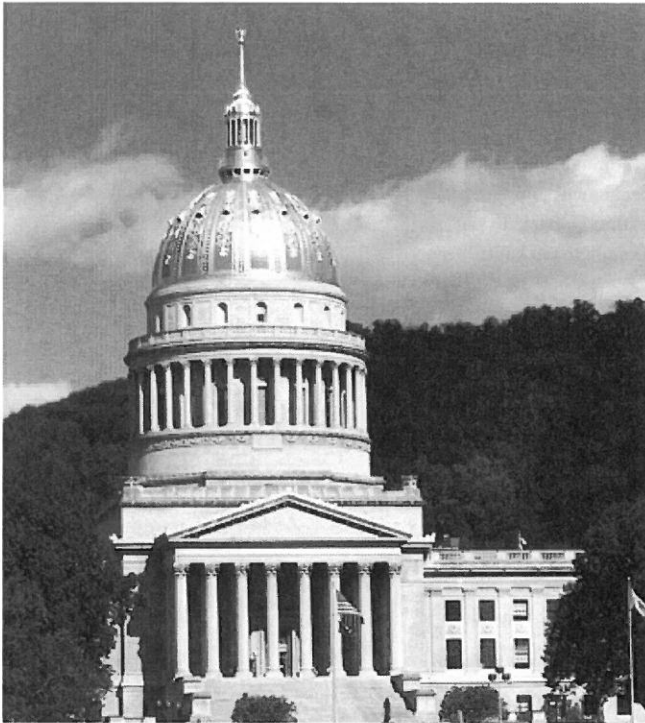
We have staff ready and willing to start on your *Project* when you are ready and believe that our expertise provides *Williamstown AASF1 Facility* the best Engineering services to meet your specific needs. We look forward to meeting with you to discuss our qualifications and how we can be of the most assistance to you. If there are any questions, please do not hesitate to call.

Sincerely,

A handwritten signature in black ink, reading "Todd A. Zachwieja". The signature is fluid and cursive, with the first name "Todd" and last name "Zachwieja" clearly legible.

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

II –Organization/Profile



ABOUT ZDS DESIGN/CONSULTING SERVICES

ZDS offers an effective organizational structure -- one that takes each project from inception through completion, working as an extension of the client every step of the way.

Excellent mechanical and electrical design results from an experienced team, as well as listening to the needs of the client.

ORGANIZATION

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. Today ZDS founders have combined experience exceeding 125 years of technical expertise:

Todd A. Zachwieja, PE, C.E.M., LEED AP, Chief Executive Officer, brings with him over 38 years in the design and consulting business.

Ted T. Zachwieja, Founder, M/E/P Construction Administration Project Executive, has over 55 years experience in the design and consulting business. He was owner of Ted T. Zachwieja & Company from 1962 to 1982.

Daniel H. Kim, Ph.D., Manager of Strategic Planning, brings with him over 25 years in the design and consulting business and is one of the nation's leading experts in organizational management. He is also owner/founder of Pegasus Communications, Inc. from 1991 to present.

Lori L. Zachwieja, C.P.A., Chief Financial Officer, M.F.A., was co-founder of ZECO Consultants and brings over 30 years experience in operating a business.

SERVICES

MECHANICAL
ELECTRICAL
PLUMBING

ENERGY
BIM
COMMISSIONING

INDOOR AIR QUALITY
3D LASER SCANNING
EXPERT WITNESS

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. Our design expertise includes:

MECHANICAL DESIGN

Heating & Ventilation
Air Conditioning
Piping
Environmental Controls
Process Controls
Refrigeration
Plumbing
Medical Gases
Sprinkler-Fire Protection
Master Planning

ELECTRICAL DESIGN

Power Distribution
Interior Lighting
Exterior Lighting
Emergency Power
Communications
Technology
Fire Alarm
Security
Life Safety
Master Planning

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."

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.

Ted T. Zachwieja, Executive

Daniel H. Kim, Ph.D.

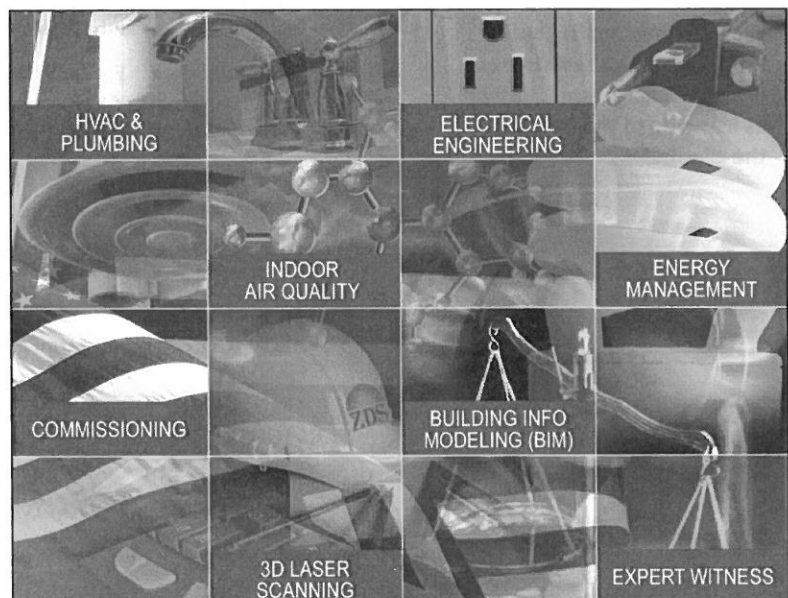
OFFICES

St. Albans, WV

Morgantown, WV

EMPLOYEES

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



INDOOR AIR QUALITY SERVICES

ZDS provides consulting engineering services for the indoor air quality (IAQ) environment. 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.

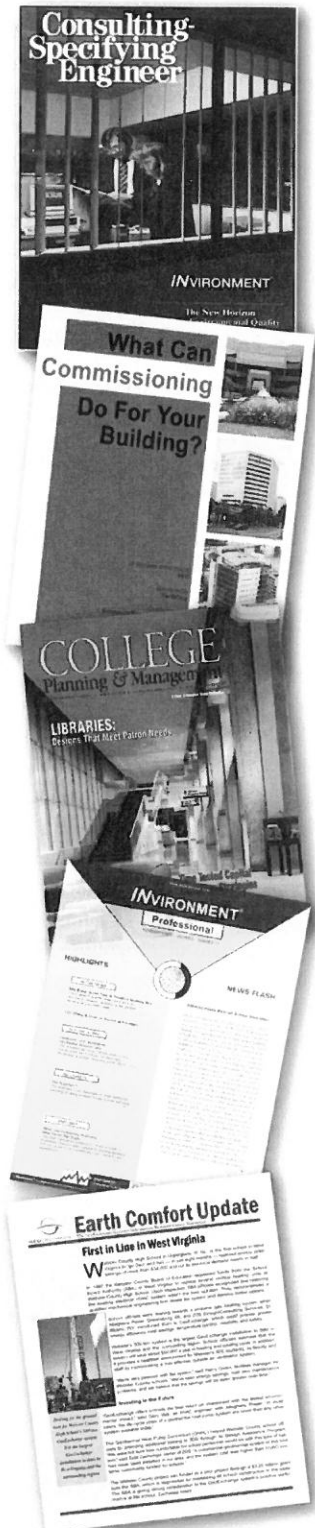
Todd Zachwieja, ZDS Principal, is contributing editor for the following IAQ publications:

- 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*, released in January 1993
- *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*
- Editorial Advisory Board member of *POWER PRESCRIPTIONS™ Indoor Air Quality Publication* by Electric Power Research Institute

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.

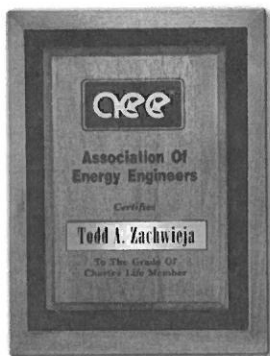


SUMMARY

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
- Evaluating and documenting utility savings

Todd Zachwieja received AEE's LEGENDS IN ENERGY AWARD in 2007 and 2008 for lifetime achievements in energy. 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:

- 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

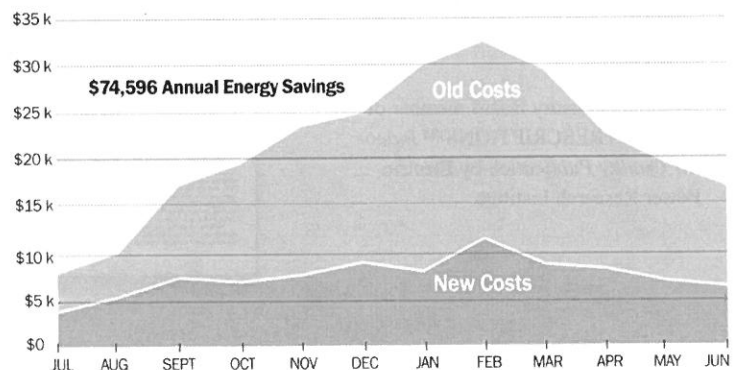
In addition to the energy management projects outlined above, the ZDS team members have extensive experience in identifying and implementing energy efficient operating and maintenance measures. These are typically low cost or no cost measures that include:

- 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



Webster County Schools received Energy Star certification in 2013 as one of nation's top 25% of energy efficient schools.

Chart Below: ZDS designed and implemented the region's first and largest commercial geothermal system saving Webster County High School over \$74,596 in energy savings.



The ZDS team is trained and experienced in advising you of program options to incorporate energy efficiency and operational savings features into the design of your new construction and renovation projects. At ZDS, we view our role as helping you to define your own energy efficiency needs and goals through identifying energy savings options and providing supporting financial information. We then help you fit your energy efficiency needs and goals into a workable budget and schedule, and then design a program to fill those needs.

Sustainable "Green Building" design, including LEED certification, recognizes the importance of commissioning. The design and construction industry have had start-up problems when a facility is occupied and construction deficiencies were not discovered until the contractor's traditional one-year warranty period expired. The mechanical and electrical systems have continued to become more complex with sophisticated control systems and equipment, and a mountainous amount of changing technology. If not properly addressed, building owners could face numerous operational problems from "Sick Building Syndrome," excessive energy costs, and uncomfortable indoor environments. Commissioning is the missing link between design and implementation.

Subsequent to joining ZDS, Todd Zachwieja established commissioning services for one of the nation's largest energy service companies. He is also a LEED Accredited Professional. Many utility companies and building owners now require commissioning for new or renovated facilities in order to maximize the use of their investments in their facilities and to obtain LEED certification. The

commissioning process offers the following benefits:

- Improved comfort, serviceability and owner understanding of systems and design intent
- Added technical support for the owner and being proactive in preventing new problems
- Reduced maintenance and decreased expenses related to operating deficiencies
- Early identification and resolution of system discrepancies while designers and contractors are still under contract and on the job
- Verification of system performance while meeting financial restraints
- Commission new and renovated facilities to minimize or eliminate IAQ issues before they become problems

ZDS and its consultants offer commissioning services for their commercial and institutional clients, including meeting LEED enhanced commissioning requirements. These services include strategic planning and operations assistance for renovation and new construction projects. Commissioning services consist of construction document review, equipment performance testing, documentation of design criteria, value engineering, operational fine tuning, coordination of professional operations training programs and site-specific engineering consultation. Our project team has the unique experience of in-depth design knowledge and hands-on operations knowledge that fills in the gap between traditional design services and the building owner's operational needs.

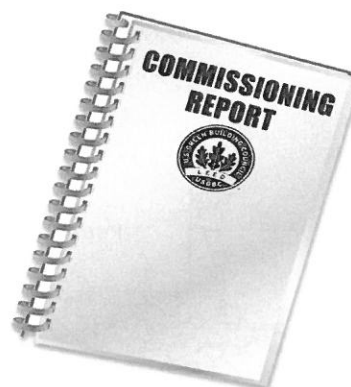
NATIONAL RECOGNITION

The National Conference on Building Commissioning invited Todd Zachwieja, owner of ZDS, to speak. He jointly presented a paper with the Director of Maintenance of Charleston Area Medical Center's Memorial Division. The Tampa, Florida Conference involved experts nationwide.

The principal owners of ZDS and their consultants have extensive experience in building commissioning and have saved their customers hundreds of thousands of dollars in construction costs and operating costs through their efforts.

The design team at ZDS is the best to provide engineering services for your project. Satisfying our client's individual needs and distinct requirements is the foremost concern of ZDS.

The most important member of the design team is the client. We make every effort to involve our clients throughout the entire process, from planning through construction and beyond.



Since 1958, the ZDS design staff has provided millions of dollars of engineering design services on a variety of project types.

ZDS clients can rest assured that the design team will be available, not just for the year or two that we are involved in the initial design and construction, but also for years that follow as questions arise about your facility. A good engineered system and its equipment should last 15 to 40 years. Why not select a design firm with experienced staff committed to their projects with a comparable track record.

**Through the efforts of our staff,
working locations include:**

West Virginia	Massachusetts
Arkansas	Michigan
California	New York
Colorado	North Carolina
Connecticut	Ohio
Florida	Pennsylvania
Georgia	South Carolina
Hawaii	Tennessee
Illinois	Texas
Indiana	Virginia
Kentucky	Washington, DC
Maryland	Wisconsin



The ZDS design team will provide comprehensive services utilizing experienced staff through planning, cost estimating, engineering, coordination of bidding, regular site visitation during construction and specifications for equipment. You, our client, will greatly benefit from a single point of responsibility for every need your project may have.

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.

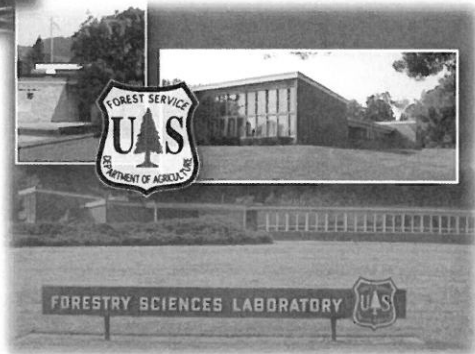
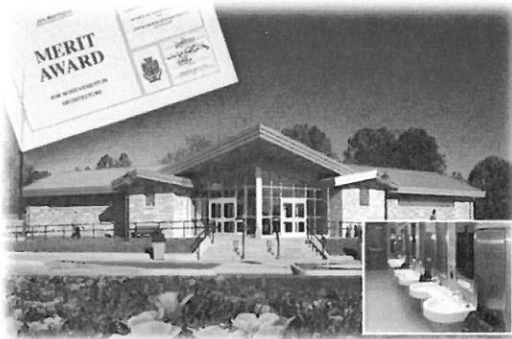
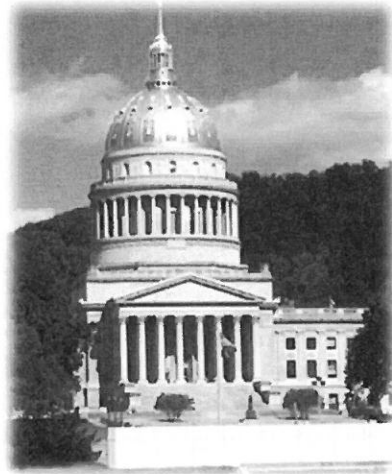
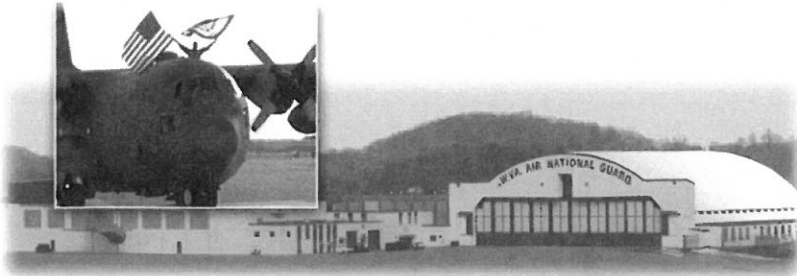
ZDS views these characteristics as the foundation of Quality. We look forward to the opportunity to discuss our ideas with you and assist you by providing solutions for your needs with a full range of services from Planning to Commissioning.

CLIENTS

Charleston Area Medical Center
 Charleston National Bank/Chase
 Concord University Nick J. Rahall II Technology Center
 District 2 Headquarters' Building HVAC Renovations, Huntington, WV
 General Motors North America Operations
 Harvard University Arboretum
 IMC Data Center, WV
 Kanawha County Commission Courthouse and Judicial Annex Renovations/Additions
 Laidley Towers, Charleston, WV
 Marshall University
 Harris Hall HVAC Renovations
 Smith Hall Renovations
 Meadowbrook & Burnsville Rest Areas
 Mercer County Courthouse
 Pocahontas Community Center
 St. Patrick Church Renovations, WV
 Tucker County Courthouse
 Veterans Administration
 Webster County Development Authority
 Webster County Schools
 White Sulphur Springs Welcome Center
 WV Air National Guard
 WV Army National Guard
 WV Dept. of Education
 WV Division of Energy
 WV Dept. of Transportation
 WV Division of Health & Human Resources – State-Wide
 WV Division of Culture and History Renovations
 WV Division of Protective Services
 WV General Services Administration – Capitol Complex HVAC Renovations
 WV Higher Education Policy Commission
 WV Parkways Authority HVAC Renovations
 West Virginia University

III – Project Experience

ZDS Commercial/Government Project Experience

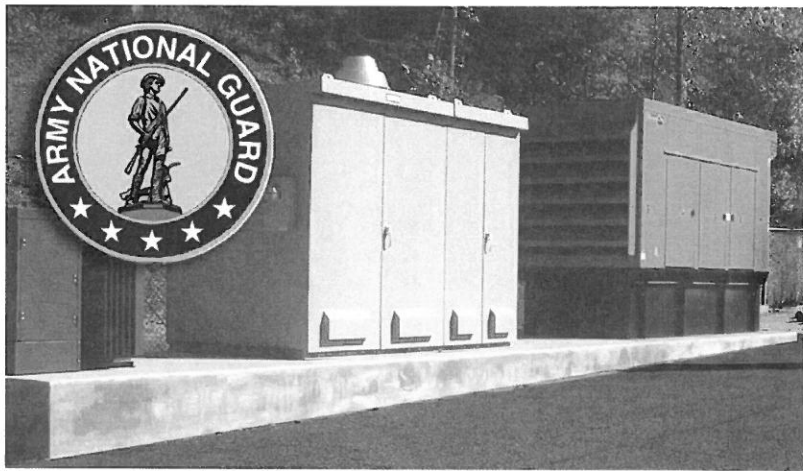


DESIGN/CONSULTING ENGINEERING SERVICES
MECHANICAL • ELECTRICAL • IAQ • ENERGY • COMMISSIONING

ZDS Design/Consulting Services

Client: *West Virginia Army National Guard*

Client Contact: Joe McClung, Energy Manager
West Virginia Army National Guard
1740 Coonskin Drive, Charleston, WV 25311
(304) 561-6548



Emergency Generator Stations

Project Description

ZDS Design/Consulting Services and its principals Ted and Todd Zachwieja were involved in many mechanical/electrical/plumbing design projects for the West Virginia Army National Guard and the West Virginia Air National Guard. Two recent 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, West Virginia. This project was completed ahead of schedule and within budget.

Previous West Virginia National Guard experience of ZDS personnel includes numerous HVAC and electrical renovations to facilities at Camp Dawson and Charleston including the Maintenance Engineering Building, Squadron Operations Building, AVGAS Facility, Air Guard Headquarters, Air Craft Hangar Heating & Ventilation, Paint Spray Booth HVAC, Barracks HVAC/Electrical/ Security Renovations, Mess Hall MEP Renovations and many more.

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

ZDS Design/Consulting Services

Client: *New Fuel Cell & Maintenance Hangars Commissioning*

Client Contact: Captain Harry Netzer
West Virginia Air National Guard
130th Civil Engineering Squadron
1679 Coonskin Drive, Charleston, WV 25311
(304) 341-6649



Project Description

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. The first phase of the program initiated in early 2008 and continued until 2011. 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 performed a stellar job, going above and beyond what was expected.
We would recommend them again!”*

Mr. Tom Warner, RA, LEED AP, LEED Coordinator for SAIC for both phases of the project

*“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.*

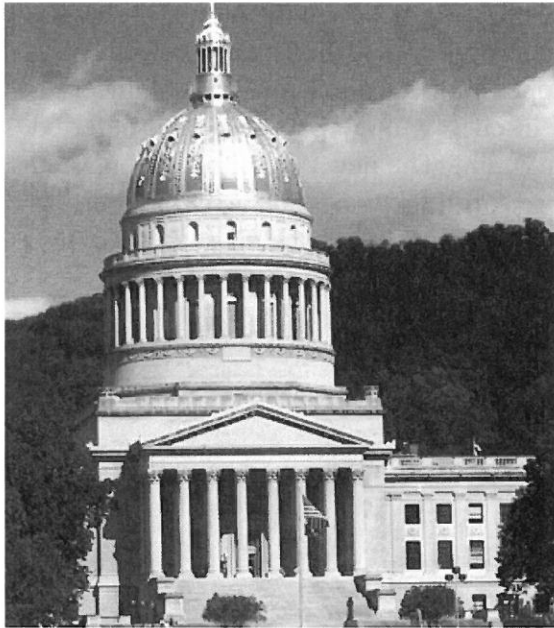
*We would recommend them again!”
Captain Harry Netzer, WVANG Project Manager*

Construction Costs: \$43,000,000 for both Phase I and II

Project Size: 128,715 ft²

ZDS Design/Consulting Services

Project Name: ***State of WV Capitol Complex Performance Contracting
Located in Charleston, WV***



Client Contact:

Mr. Russ Labarbra
Johnson Controls, Inc.
4132 First Avenue
Nitro, WV 25143
(304) 759-2709

Services:

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. ZDS was a consultant, working under the direction of Johnson Controls, Inc.

Project Description

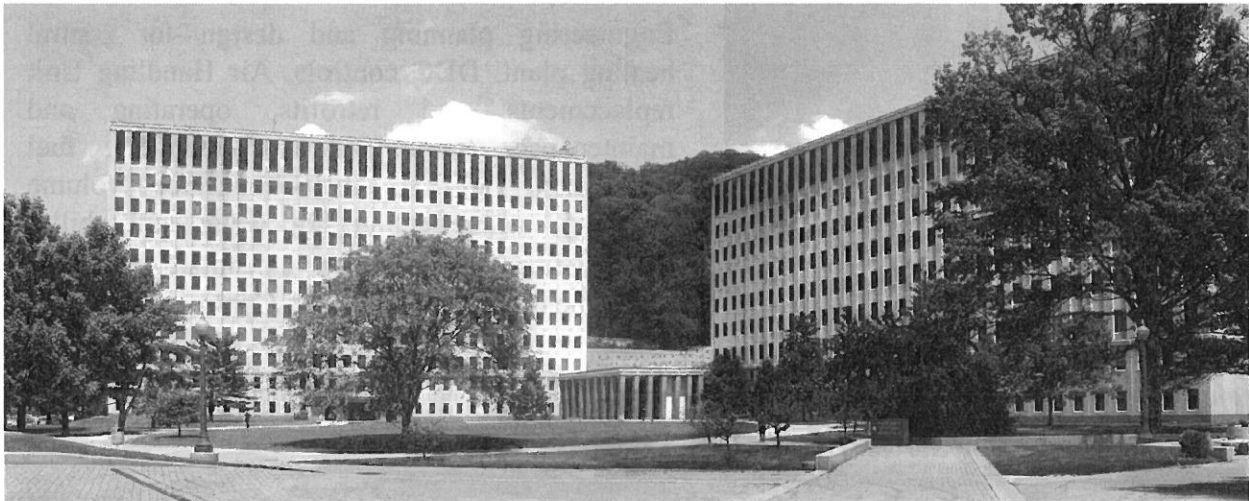
ZDS Design/Consulting Services and Johnson Controls, Inc.

The State of West Virginia was aware that their facilities at the Capitol Complex were aging and in need of significant infrastructure upgrades, but were having difficulty appropriating the necessary funding to make such improvements. Many of the existing boilers and other primary heating equipment were past their expected service life and in disrepair. The State of West Virginia passed a new bill in 2003 that permits Performance Contracting to be used as an avenue for implementing infrastructure upgrades in State facilities provided the upgrades self-fund within a 15 year time period. The State elected to solicit proposals from various Energy Service Companies (ESCO) with the intention of crafting a major improvement project that would reduce operating costs to the State as well as pay for itself over the 15 year period.

After an extensive review and selection process, the Team of Johnson Controls, Inc. and ZDS Design/Consulting Services was selected. The scope of the project included various energy conservation measures to the Capitol Building as well as Buildings #3, 4, 5, 6, 7, 8, 9, 11, 13, 15, 16 and 17. The center piece of the program involved engineering the central heating plant and distribution system for the Capitol Building, as well as Buildings #3, 4, 5, 6, 7, 8 (Governor's Mansion) and provisions for #10 (Holly Grove) plus additional future capacity.

PROJECT EXPERIENCE

A central heating plant anchored the Facility Improvement Measures. It yielded the elimination of 14 failing boilers with provisions for future expansion of up to 600,000 square-feet of office space. A centralized heating plant offers greater efficiency in overall system operation, centralized control and maintenance of primary heating equipment, with the added benefit of supplemental capacity in the event of a boiler failure. The first phase of the program began in May 2005, with the evaluation of the existing heating plants, HVAC equipment, and their sub-systems to quantify deficiencies and identify potential opportunities to improve comfort, IAQ, extension of equipment life and an overall reduction in operating costs. Preliminary engineering studies reflected that millions of dollars could be saved in energy, operating costs and deferred capital costs by implementing this multi-million dollar program. The new central plant consisted of four 25,000 MBH high pressure steam boilers and retrofitting two 5,500 MBH boilers to heating hot water plus the distribution system to serve nine (9) buildings on campus.



Some typical improvements included either the replacement or retrofit of major air handling units, re-establishing proper control strategies, reducing outdoor air intake quantities when allowable, installing new building automation equipment, general HVAC equipment repairs and replacement, documentation of existing and post-construction conditions, and establishing a consistent overall operating strategy. Individual HVAC systems were enhanced to meet applicable codes and standards. Exhaustive hours were spent with the State in assisting them with the identification and prioritization of facility improvement measures. The time spent also identified potential construction issues with an emphasis on critical phasing requirements.

Over the years, **ZDS** has been involved in evaluation and/or design, including construction activities, for 2,137,400 square-feet involving fifteen (15) buildings at the State Capitol campus.

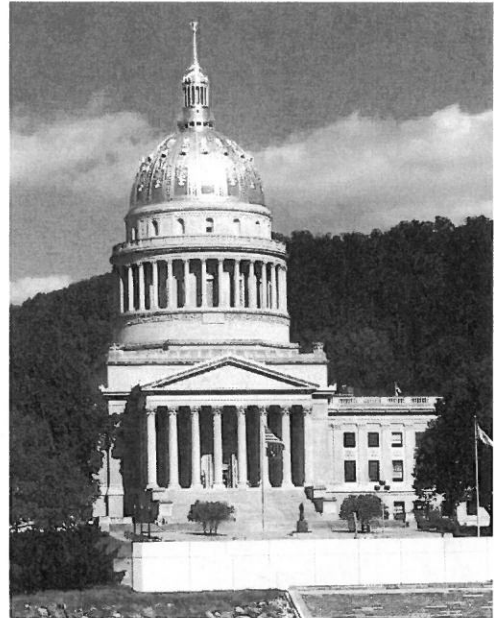
<i>Contracting Costs:</i>	\$10,108,802
<i>Initial Year Savings:</i>	\$1,079,296
<i>Size:</i>	1,929,155 ft²
<i>Completion:</i>	2008 for Construction

ZDS Design/Consulting Services

State of WV Capitol Complex - Division of Protective Services, Charleston, WV

Client Mr. Matt Brown, Security Systems Manager
Contact: WV Division of Protective Services
(304) 558-9911
WV Capitol Complex
Charleston, WV 25305

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.



Main Capitol Building #1



Building #3

Project Description:

ZDS is in a 10 year contract to provide a preliminary procurement plan for the design, construction and installation of an integrated intercom, emergency notification, and fire alarm system. The engineering master planning and design services are for all State facilities on the Capitol Complex.

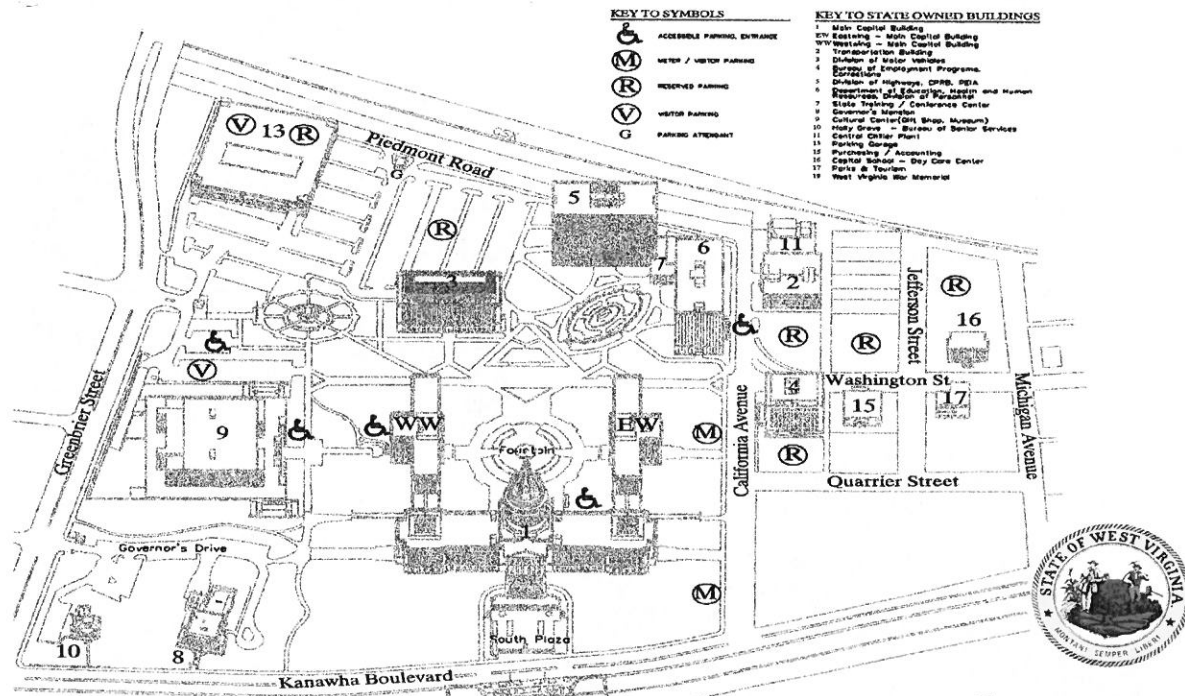


Building #4

The work includes master planning for an overall site mass notification and public information system and specific upgrades to Buildings on campus. ZDS assists the agency in meeting the long-term plans on expanding the functionality of the Command Control to be a statewide technology hub and future dispatch center. The program includes preparing construction drawings and specifications for bidding renovations to the existing fire alarm,

intercom/communications, security, sprinklers, HVAC controls, emergency power, and related systems impacting security and communication life safety systems.

ZDS assists the Division of Protective Services in providing information for interdepartmental coordination within State agencies with the goal of achieving a cost-effective integrated system. The program assists the State in incorporating the planning and design into other capitol infrastructure projects for consistency with the overall master plan.



ZDS also provided the West Virginia Capitol Complex with master planning and design for the campus district heating system through a Performance Contracting program with construction completed in 2007. We also provided HVAC engineering planning and design services for the West Virginia Division of Culture and History, protecting the State's artifacts while conserving energy without sacrificing comfort or indoor air quality.

The West Virginia Division of Protective Services program's work is projected to expand as the State realizes the value of integrating systems across interdepartmental boundaries which helps them operate their facilities more efficiently and effectively. The DPS is responsible for 2,137,400 square-feet involving over 15 buildings and the campus grounds covering over 54 acres.

Projected Program Costs:

\$15,000,000

Size:

WV Capitol Complex Grounds & Facilities

Completion:

2016

ZDS Design/Consulting Services

Project Name: *The Museum of Culture and History - HVAC Renovations*

Client: *State of West Virginia, Charleston, WV*

Client Contact: Mr. Mark Lynch, Director of
Facility Operations
(304) 558-0220
The Culture Center - Bldg 9
WV Capitol Complex
Charleston, WV 25305

Services: Engineering Master Planning, Indoor Air Quality evaluation, energy analysis, Mechanical/Electrical/Fire Protection design, bidding and construction administration services for retrofitting the 228,500 ft² museum and protecting the artifacts.



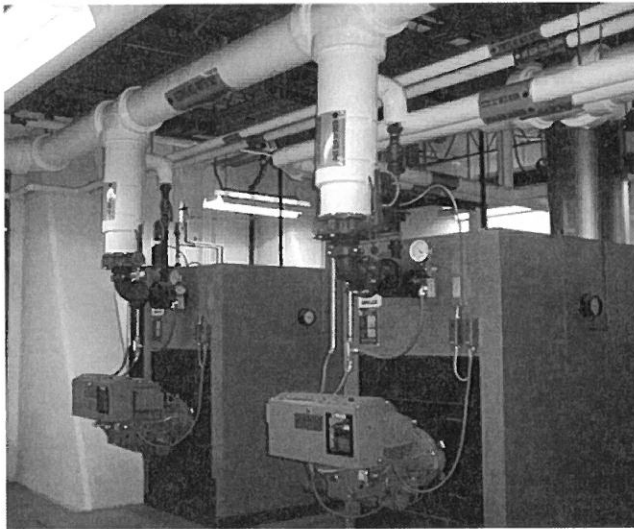
Museum of Culture and History

Project Description

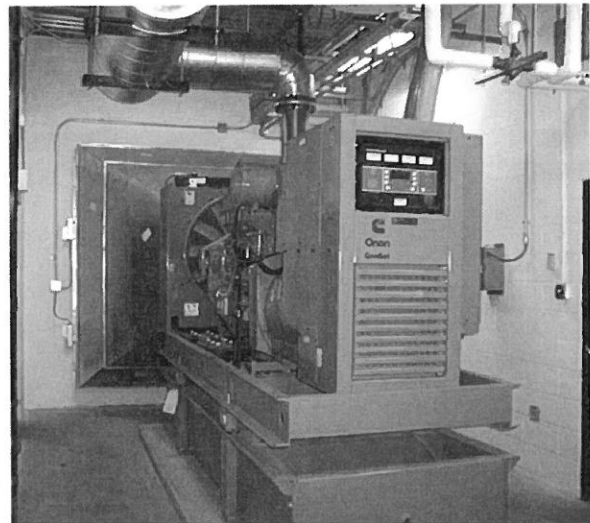
ZDS principals and personnel have been involved in numerous design and recommissioning projects for the West Virginia State Capitol Complex while at ZDS and through other employment over their careers. These projects required the engineering planning, design, supervision, preparation of construction documents, specifications, construction administration, and commissioning of HVAC systems, sprinkler systems, plumbing systems, electrical power, lighting, fire alarm, security, technology and communications. ZDS completed the design for the West Virginia Division of Culture and History, correcting their long-term HVAC and Indoor Air Quality problems in 2001, and were contracted again in 2008 for providing fire alarm and fire protection upgrades which were completed in 2010.

Lack of humidity control damaged many of the State's priceless artifacts. Books and other State collections were deteriorating rapidly due to lack of proper control of temperature, humidity, and

filtration. The occupants had also experienced allergic reactions and discomfort from the long-term high humidity conditions. ZDS identified and designed the solutions. Conserving energy without sacrificing comfort or indoor air quality was a major consideration. The design included converting an all electric resistance heating system to natural gas, comprehensive DDC controls for central monitoring and control, converting AHUs from constant air volume to variable air volume while meeting stringent ASHRAE Indoor Air Quality requirements, providing variable water volume pumping and interfacing with the facility into the new District campus chilled water system to reduce long-term operating costs. The design also included providing a new boiler plant with redundant heating and piping distribution system and an emergency generator to help protect the State's priceless collections.



New Boiler Plant



New Emergency Generator

The mechanical and electrical renovations for the State of West Virginia Library Commission stacks and office spaces were also part of a \$4.5 million dollar HVAC and Electrical Renovations project for the Division of Culture and History. The retrofits saved energy and improved indoor air quality and comfort within the building. *The Culture Center renovations are estimated to save nearly \$153,000 annually over the costs of operating the old system.*

ZDS Design/Consulting Services was the Prime for both the HVAC/Electrical Renovations project and the Fire Alarm/Fire Protection renovations. The Fire Alarm/Fire Protection renovations project was completed well **under budget** while the work was effectively phased with the building remaining occupied throughout the renovations.

<i>Total Culture Center Project Cost:</i>	\$6,000,000
<i>Size:</i>	228,500 FT²
<i>Completion:</i>	2001 for HVAC, 2010 for FA/Sprinklers
<i>Estimated Energy Savings:</i>	Reduced HVAC Operating Costs up to 50%

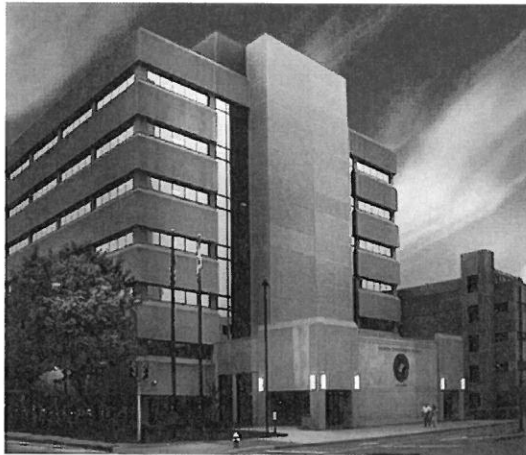
ZDS Design/Consulting Services

Project Name: *Kanawha County Judicial Annex and Courthouse*

Client/Location: *Kanawha County Commission, Charleston, WV*

Client Contact: Ms. Jerie Whitehead, Director
P.O. Box 3627
Charleston, WV 25336
(304) 357-0115

Services: Engineering planning, design, bidding and construction administration services' comprehensive HVAC retrofits, DDC Controls, smoke control system, sprinklers and plumbing retrofits.



Project Description

The Kanawha County Judicial Annex was originally constructed in 1982 directly across from the Courthouse in Charleston, West Virginia. Over the years, the needs changed and the building's infrastructure deteriorated and was in need of upgrades.

In 1998, the Kanawha County Commission initially contracted **ZDS** to evaluate the existing mechanical and electrical systems in the Judicial Annex. **ZDS** prepared an extensive report covering multiple approaches to HVAC, the advantages and disadvantages for each, and the potential costs. During the review process, the primary chiller failed, causing an emergency due to the extreme summer heat. **ZDS** successfully fulfilled the design and project management of a replacement chiller within *days*, allowing the building to re-open and re-operate promptly.

The Kanawha County Commission then hired **ZDS** to provide engineering services for the renovation of the 93,000 ft² Annex and a 23,000 ft² addition using the ground floor of the parking garage connected to the Annex. The Annex 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.

PROJECT EXPERIENCE

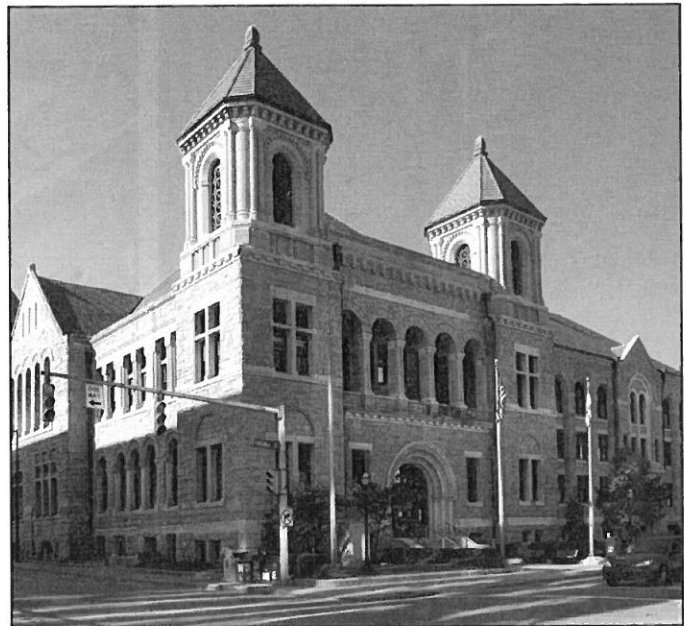
The engineering for the addition included a new entrance, security checkpoint, and lobby to accommodate a building expansion for Juvenile Probation and a newly established Family Court.

The Engineering Design: ZDS designed a VAV air handling system with reheat HVAC system to address health, safety and IAQ issues.

- Increased air rates of outdoor ventilation
- More rigorous air filtration
- Strict humidity control
- DDC monitoring/control for HVAC
- Carbon dioxide demand control ventilation
- Outside air measuring and monitoring
- Equipment performance and energy efficiency

ZDS also improved the security, support services and infrastructure of the facility, including:

- Complete voice and data wiring systems
- Electrical wiring for LAN
- New power distribution
- New lighting systems that complement the computer environment
- Central security control room that is staffed twenty-four hours a day
- Security vestibule with screening stations
- Closed circuit monitoring and card-access admission systems
- Secured private judges' suites connected to a private elevator
- Safe prisoner transfer from sally port to the courtrooms
- Emergency call system within courtrooms, chambers and other public-interface points



ZDS was also hired to evaluate long-term IAQ issues within the original courthouse that had plagued the occupants for years. The evaluation identified the sources for the problems while identifying a phased approach to address them as funding became available.

Total Project Costs:	\$10,270,000
Mechanical Project Cost:	\$3,200,000
Project Size:	Renovations 93,000 ft² plus 23,000 ft² addition
Completion Date:	Completion 2008

ZDS Design/Consulting Services

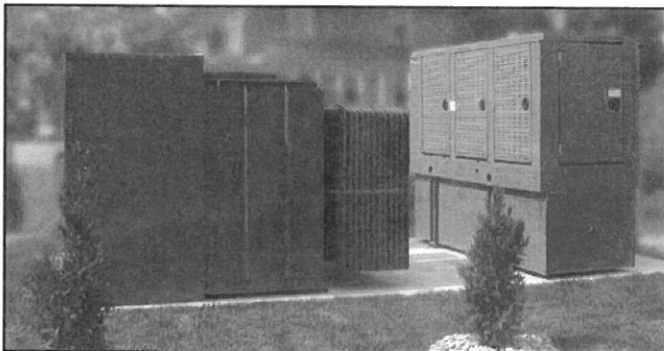
Project Name: *Mercer County Courthouse Annex*

Client/Location: *Mercer County Commission, Princeton, WV*

Services: Engineering planning, design, bidding and construction administration services, HVAC, Electrical, Plumbing, and Fire Protection while working through a local Architect.



Project Description: The Mercer County Courthouse Annex, located across the street from the Mercer County Courthouse, was completed in 2006. The two-story building houses many rooms and offices, including those for the Magistrate courtrooms, jury deliberation, attorney conferencing, video conferencing, witnessing, public research, public visitors, court clerks, prosecutors, probation personnel, and administrative staff.



The existing courthouse (adjacent to the new Annex) also needed more electrical power. ZDS evaluated the power potential of the existing courthouse and provided recommendations. ZDS then incorporated those upgrades into the overall system while also providing emergency power to cover the needs for both the old and the new facilities.

Approximate Project Cost:

\$6,000,000

Project Size:

32,000 ft²

Completion Date:

Completion 2006

Engineering for Commercial Facilities

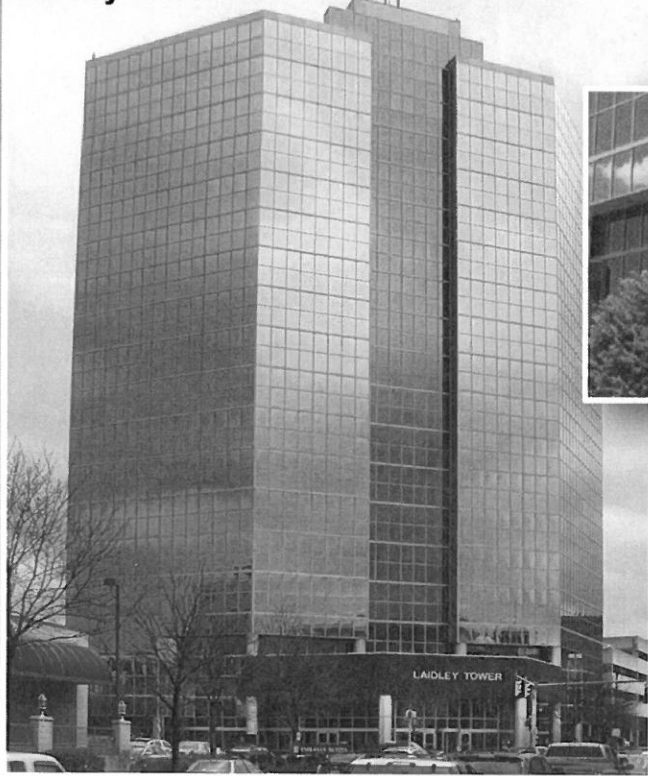
ZDS project experience includes a wide variety of commercial buildings — office, retail, judicial, banking, dining, technical and other facility types.

Bank One/Chase

Chase Tower (formerly Bank One) contains 271,000 ft² of professional office space and is a Charleston skyline focal point. ZDS replaced the core central HVAC system for the entire building.



Laidley Tower



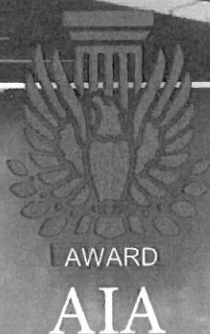
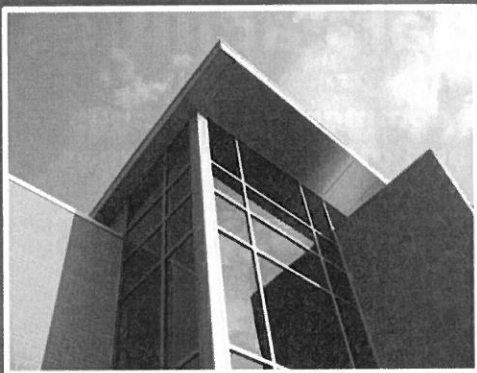
Laidley Tower is one of the State's tallest buildings rising 18 stories high.

ZDS provided the Master Engineering Planning for the whole structure.

ZDS upgraded the core Mechanical/Electrical and Plumbing systems as well as customized tenant build-out renovations.



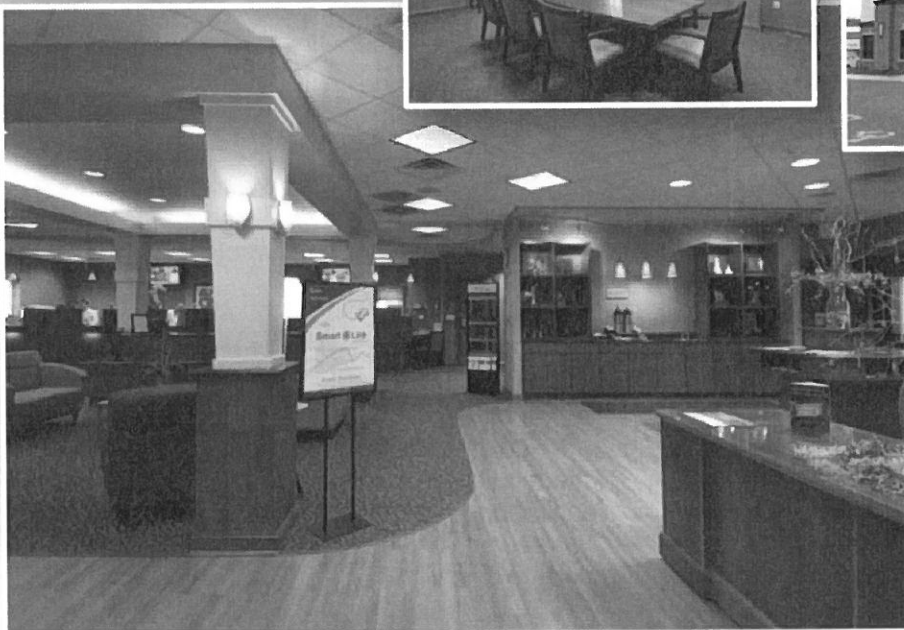
Design/Consulting Services



West Union Bank

An AIA Awarded project, ZDS provided HVAC, plumbing and electrical engineering which included rigorous bank security standards and systems.

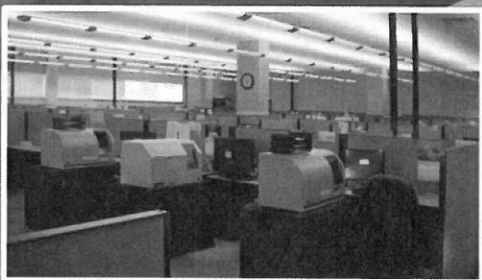
Clear Mountain Bank (formerly called Sabraton)



ZDS provided comprehensive HVAC, plumbing and electrical engineering which included stringent bank security systems.



Design/Consulting Services

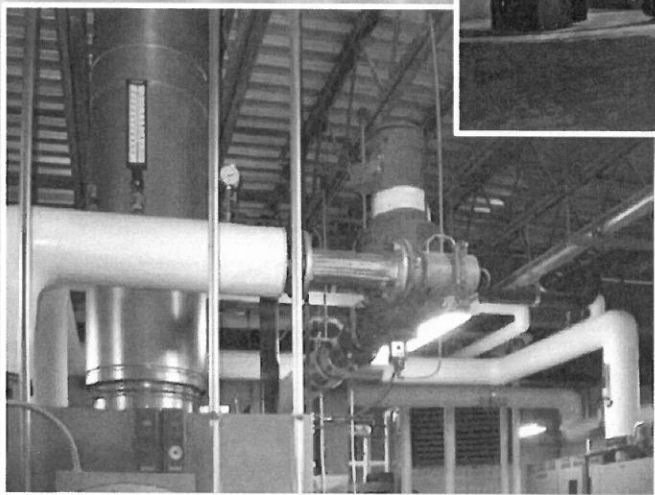


IMC Data Operations Center

An AIA Awarded facility with sustainable features including geothermal energy.

Concord University Nick J. Rahall Technology Center

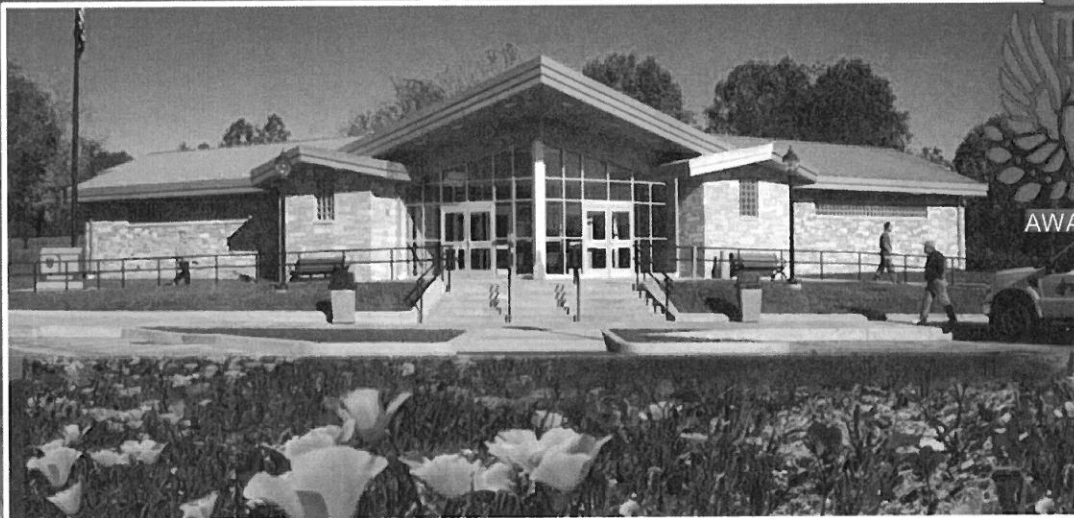
An intensive evaluation showed the benefits of constructing a new 50,000 ft² facility attached to an existing structure.



The \$375,000 electrical upgrades included a Campus Medium Voltage Loop which also provided an uninterruptible power supply needed for the new technology center where all of the University's internet and intranet systems resided.



Design/Consulting Services



AIA West Virginia
Chapter of the American Institute of Architects

MERIT AWARD

FOR ACHIEVEMENT IN
ARCHITECTURE

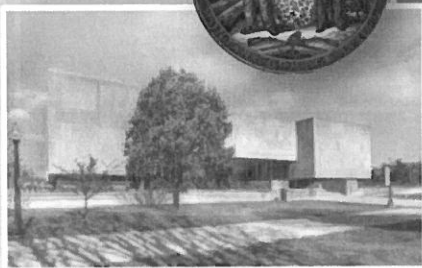
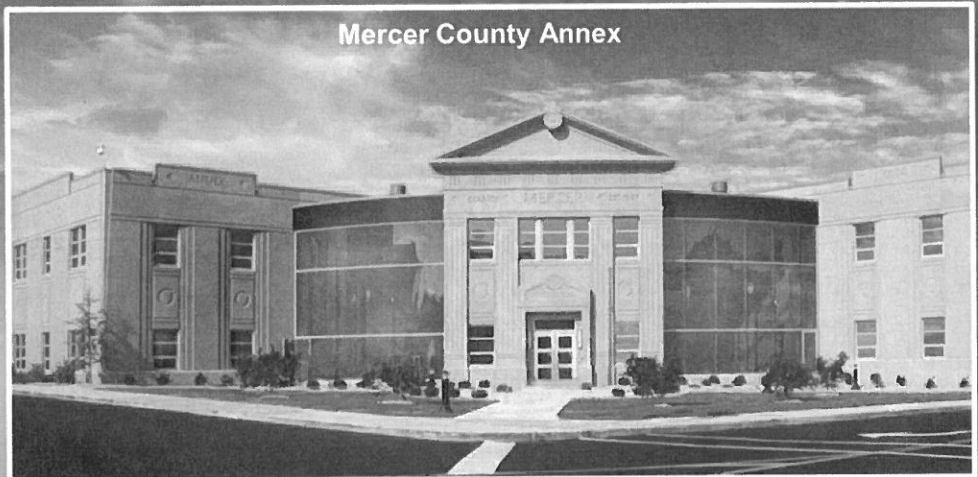
ZDS engineered the prototype for all of the Welcome Centers and Rest Areas throughout West Virginia.

West Virginia Welcome Center and Rest Area in Burnsville

ZDS provided engineering planning, design, bidding and construction admin services for M/E, Plumbing and Fire Protection.

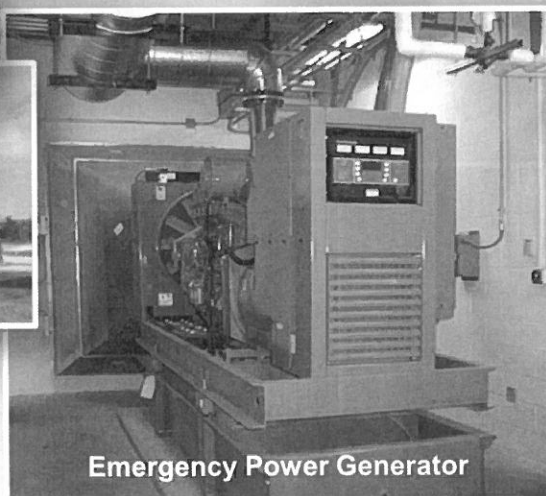
ZDS also evaluated the existing courthouse's potential power needs and incorporated those in the new Judicial Annex's electrical systems while providing emergency power.

Mercer County Annex



West Virginia Division of Culture and History

A 228,500 ft² Facility



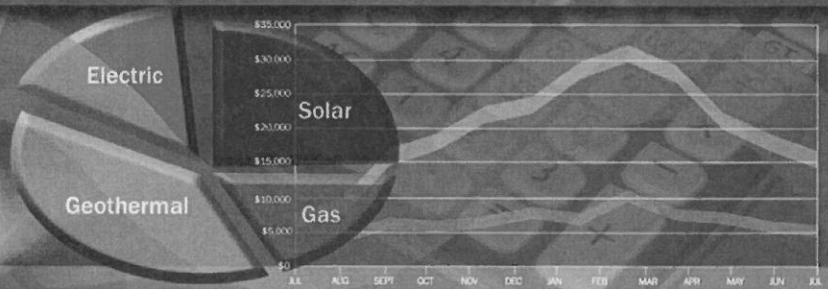
Emergency Power Generator

Renovations save the Museum nearly \$153,000 in annual energy costs while preserving the State's priceless collection with proper HVAC, humidification, lighting, electrical and power generator systems.



Design/Consulting Services

Energy Management Engineering

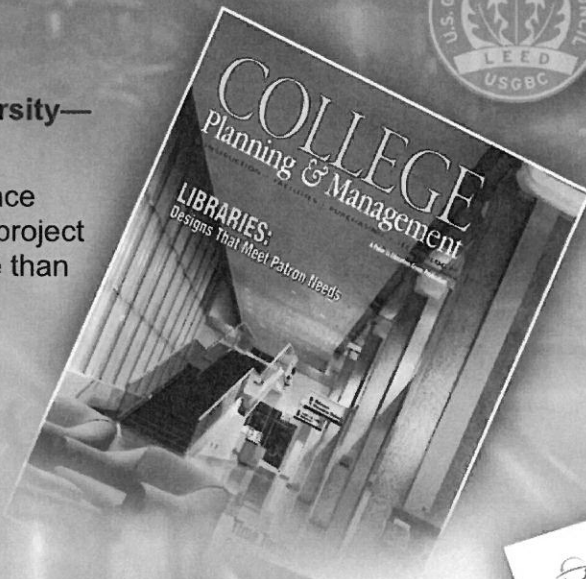


NATIONALLY RECOGNIZED FOR ENGINEERING EXCELLENCE



Ohio University—Athens

A performance contracting project saving more than \$2,500,000 annually in energy costs.



ZDS offers these and other energy management services:

- Compliance with LEED
- Utility Monitoring & Forecasting
- Energy Audits
- Performance Contracting Management
- Utility Savings Verification
- Utility and Government Funding
- Staff Training

West Virginia Center for Culture and History

ZDS initiated the HVAC renovations and reduced HVAC operating costs up to 50%.



ZDS designed a geothermal system saving Webster County High School \$75,000 in annual energy costs.



Design/Consulting Services

Building 5

Building 6

Building 7

Building 3

Building 4

Below: East Wing

West Wing

Museum of Culture & History



LEED
Certified Candidate

West Virginia Capitol Complex

An integration of nine buildings involving over 1.9 million square feet of building space.

The initial year savings of \$1,079,296 paid for the \$10,108,102 investment cost over time.

Project savings include a new central heating plant serving nine buildings that replaced the older, inefficient boilers and heating systems.

The Governor's Mansion



Design/Consulting Services



OHIO UNIVERSITY

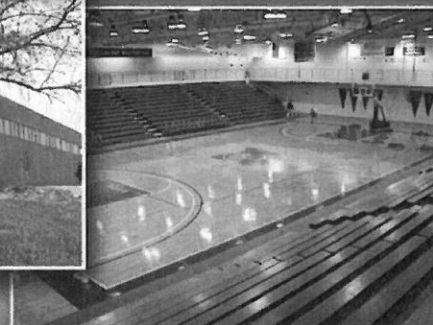
Ohio University Chillicothe Campus realizes an annual energy savings from \$200,000 to \$300,000 through ZDS master planning, HVAC/Electrical/Plumbing design, and the established comprehensive Performance Contracting program.



Bennett Hall



Stevenson Center Library



Shoemaker Center and Gymnasium



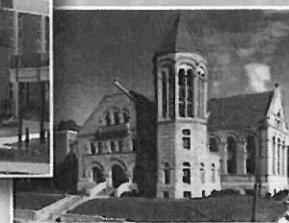
West Virginia University

ZDS established the central plan and renovations for the downtown campus chilled water loop system.

Renovations result in **\$300,000 to \$400,000 of annual savings** in energy and energy-related costs.



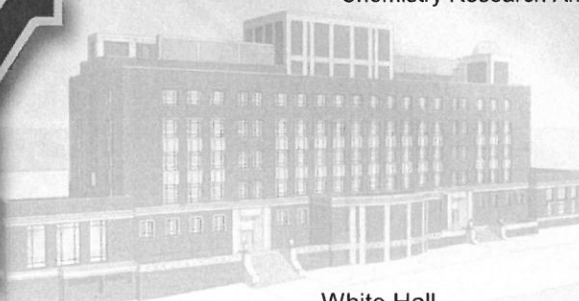
Chemistry Research Annex



Stewart Hall



WVU Mountainlair



White Hall

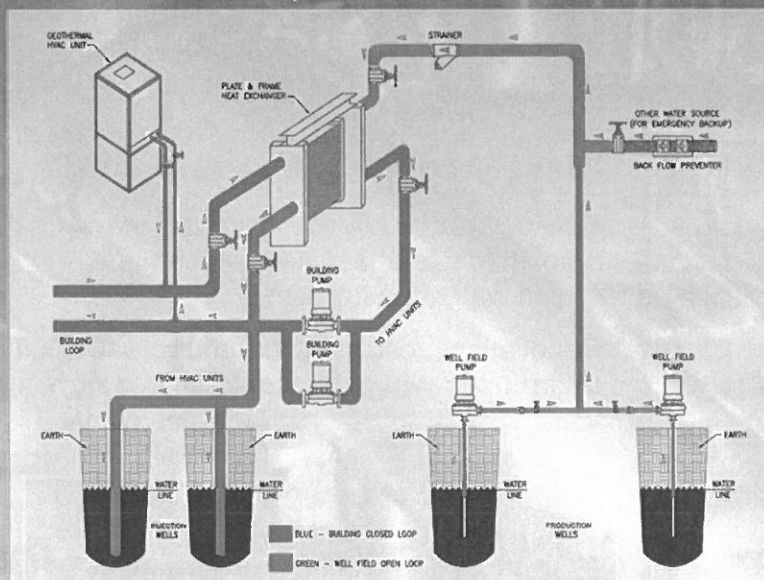


ZDS
Design/Consulting Services

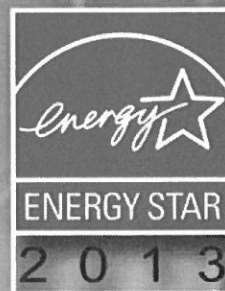
ZDS Geothermal Energy Engineering Savings



**"We're very pleased with the system.
We've seen energy savings and have had zero maintenance problems."**
Webster County Schools



ZDS designed an open-loop geothermal system making Webster Springs Elementary one of the most energy efficient schools in the nation.



Glade Elementary/Middle School



Webster Springs Elementary

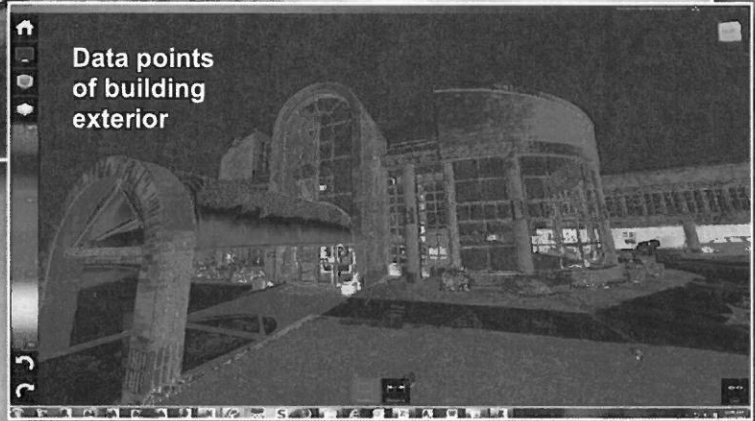
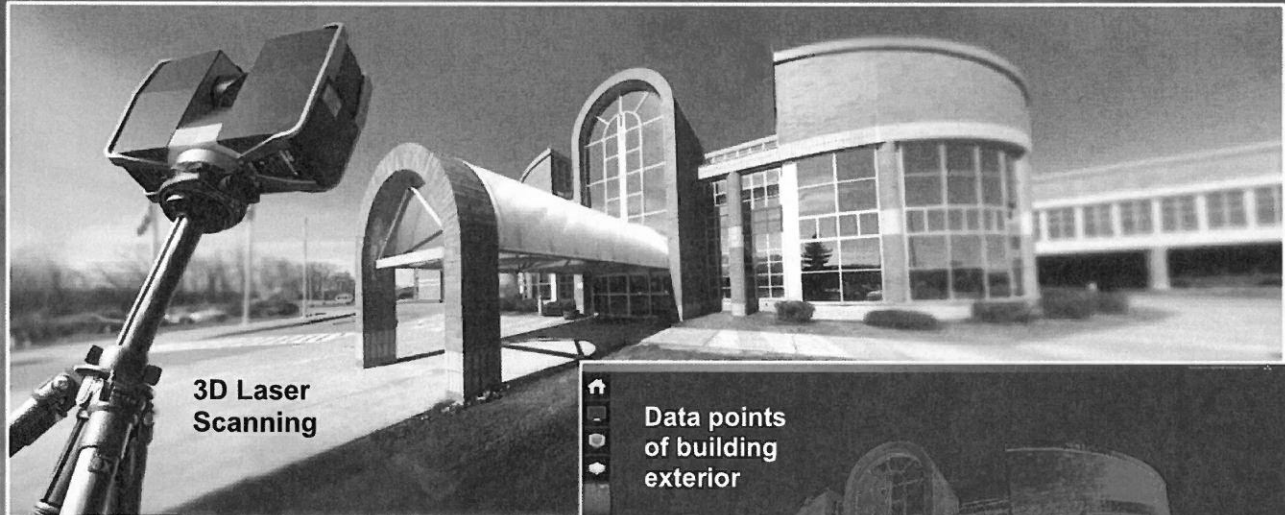


One of the first K-8 schools awarded a 2013 Energy Star Certification.

Design/Consulting Services

3D Digital Imaging for Facilities

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



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."

Greg Nicholson, DHHR Chief Operations Officer

Web Share:

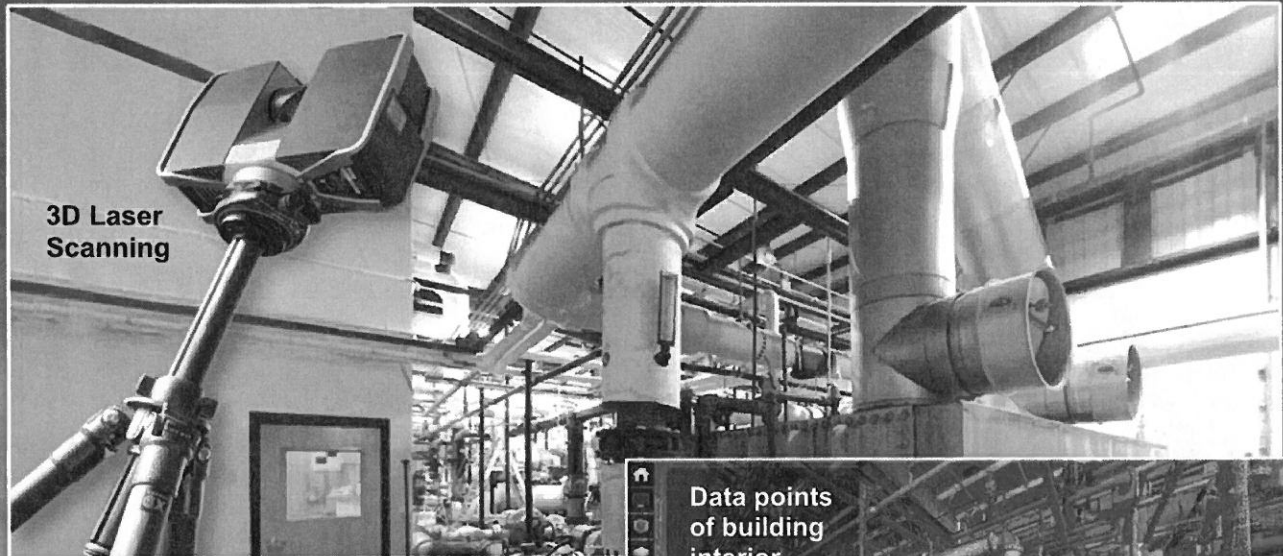
3D laser Scanning allows facility owners to view and measure areas with others on their planning and construction team.



Design/Consulting Services

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

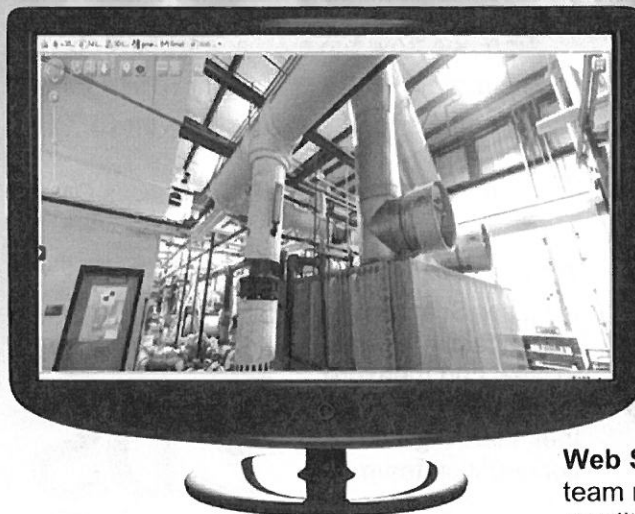
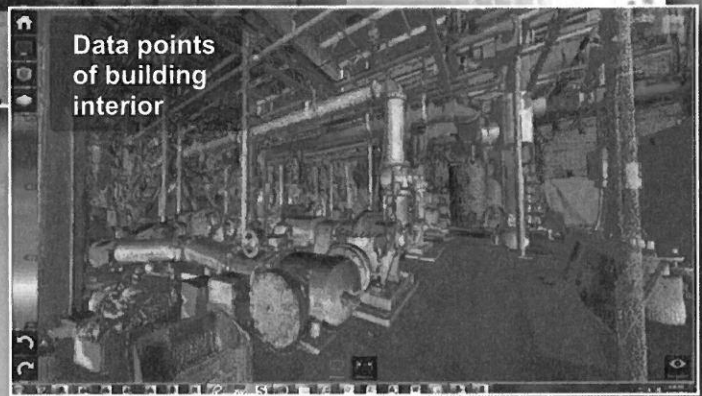
DHHR



"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."

Ron Adkins, 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.



Design/Consulting Services

IV – Resumes

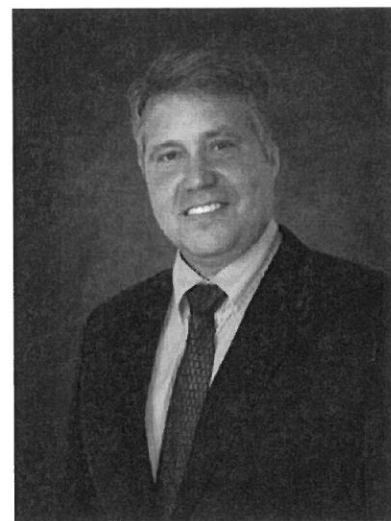
Todd has more than 38 years of experience in design, construction management, and specifications for the functional aspects of buildings. His specialties include mechanical engineering, HVAC master planning, conceptual design, energy conservation programs, commissioning and Indoor Environmental Quality (IEQ). In his IEQ engineering, Todd addresses the acoustics, lighting, Indoor Air Quality (IAQ) and comfortable HVAC, all with an aim towards energy-efficiency. His experience includes a wide variety of building types, including educational, commercial, governmental, industrial and health care facilities.

Prior to launching ZDS, Todd Zachwieja coordinated multi-million dollar projects in comprehensive energy conservation programs that resulted in annual energy savings of millions of dollars per year. He also managed a profitable regional office for one of the country's largest energy service companies covering the southeastern region of the United States. His expertise in analysis led towards the development of computer programs in energy analysis and monitoring of building systems. Recognized for these abilities, Todd has been invited to present technical papers at both regional and national conferences, such as National System Commissioning Conference.

Todd received national recognition for his work with Ohio University in the development of multiple performance contracting programs that save millions annually in energy and operating costs. Also, the State of West Virginia hired his services for the Capitol Complex renovations, an integration of nine buildings that realized over one million dollars of annual savings that ultimately paid for the initial \$10 million invested in the upgrades.

Todd also designed one of the largest geothermal heat pump applications in the mid-Atlantic region, and retro-commissioned HVAC systems and mechanical engineering at many General Motors' facilities in North America. Some of Todd's project experience includes the development and design of a pilot geothermal heat pump HVAC with variable speed pumping system that reduced electric bills by more than 40% while meeting IAQ requirements. This achievement was recognized by the Environmental Protection Agency with a 2013 Energy Star Award, placing the facilities in the top 25% of energy efficient buildings in the United States.

His leadership in facility engineering and systems analysis encouraged West Virginia University and the Division of Energy to select Todd as a trainer of the Code officials and the design community on the new ASHRAE 90.1 State Energy Code in 2013. Todd has served as a contributing editor and peer review panel member for industry publications such as *The Handbook of Building Management and Indoor Air Quality*, *Ventilation for a Quality Dining Experience*, *INvironment Professional*, *Power Prescriptions* and others addressing Indoor Environmental Quality (IEQ), MEP and energy engineering systems. Today, Todd continues to lead the industry and his professional peers as President of the ASHRAE West Virginia Chapter.



EDUCATION

B.S. in Mechanical Engineering from
West Virginia Institute of Technology

M.S. in Engineering Management from
the University of West Virginia
College of Graduate Studies

Registered Professional Engineer in
GA, KY, NC, OH, PA, SC, VA, WV

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



LEED® Accredited
Professional, National
Certification through
USGBC No. #10083891

Recognized nationally in 2007 as a
"Legend in Energy"

Recognized nationally in 2008 as a
"Charter Legend in Energy"

Charter Life Member
of the Association of
Energy Engineers



Served as ASHRAE's Energy and
Technical Affairs Chairman for six
years, currently **President-WV**
ASHRAE

Designed Energy Star
Certified Facilities



ENERGY STAR
2013

Ted has over 55 years of experience in mechanical, electrical systems design and construction administration including commissioning. His specialties include the design and development of mechanical and electrical systems, master planning and budgeting for mechanical and electrical systems, and management of complex design and construction projects. Also recognized as a Codes and Standards Specialist, Ted's work involves a broad spectrum of facility types, including commercial, educational, health care, industrial and governmental.

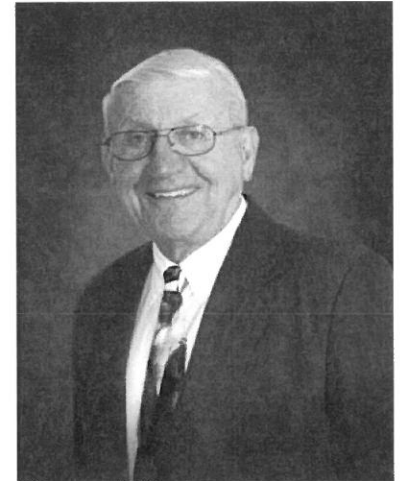
Ted has been involved in all aspects of mechanical and electrical design and construction since 1958, including machine design, structural design and design of heating, ventilating, air conditioning, plumbing, fire protection, energy conservation and electrical systems. Ted's experience includes work for clients in both the private and governmental sectors including U.S. Steel, Dow Chemical, Ohio University, Charleston Area Medical Center (CAMC), and the West Virginia Capitol Complex.

Ted was involved with the mechanical, electrical and fire protection renovations for the State of West Virginia Division of Culture and History as part of a total \$6 million upgrade program. Also, as a conservatory, the museum contents required precise levels of humidity, light and temperature control. Ted achieved this while also conserving energy. Ted's design regarding Chase Towers in Charleston included conducting a comprehensive energy audit, design of a Building Automation Energy Management System, HVAC renovations, design of flat plate heat exchanger system for the perimeter fan coil units and design of the boiler replacement.

Prior to forming ZDS, Ted was regional manager for a hospital design firm and responsible for designing, construction management and project management for over \$200 million in hospital and health care facilities. The facilities were located over the eastern United States. Ted's most recent health care experience includes lighting projects and various studies for seven hospitals for the West Virginia Department of Health and Human Resources (WVDHHR).

The renovations and additions to William R. Sharpe, Jr. Hospital involved \$35 million and careful phasing of the work to allow the hospital to remain in operation during construction while meeting Infection Control Risk Assessment requirements and Office of Health Facility Licensure & Certification requirements. ARRA funds were used to increase energy efficiency at all seven hospitals. His Master Planning provided the Agency with a roadmap on how to move forward with major needs and limited resources.

Ted's industry leadership includes the co-founding of ASHRAE West Virginia Chapter. Also, Ted was selected as one of three engineers to train and teach a course designed by the United States Department of Energy on the topics of energy conservation and energy efficient design.



EDUCATION

Bachelor of Science in Mechanical Engineering, West Virginia Institute of Technology, 1958

PROFESSIONAL AND COMMUNITY AFFILIATIONS

Construction Specifications Institute
(Charter Member)

Life Time Member
American Society of
Mechanical Engineers



West
Virginia
Chapter
ASHRAE



Past President and Charter Member

Association of Energy Engineers

Associate Member
West Virginia Society for
Healthcare Engineering



Professional
Affiliate Member
of AIA

WV Association of Physical Plant
Administrators

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



Jim has nearly 40 years of experience in design and implementation of 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. His experience includes projects on a wide variety of building types, including educational, commercial, governmental, industrial and health care facilities.

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 development of mechanical and electrical drawings and specifications including HVAC, plumbing, fire protection, lighting, electrical power and specialized systems. He has worked with and managed engineers on facility projects in the states of West Virginia, Ohio, Kentucky, Virginia, Georgia, New York, Arizona, Illinois and Massachusetts.

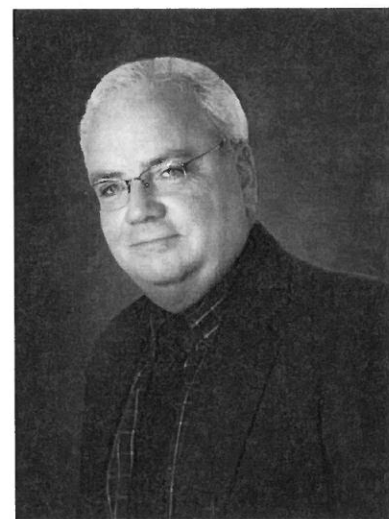
Jim has extensive experience in energy conservation programs for HVAC, plumbing and electrical systems in hospitals, state and government office buildings, school systems, and manufacturing facilities, as well as managing performance contracts for the state of Georgia totaling \$10 million in construction costs on various projects. Those projects included the conception, design and construction administration for the installation of a 1.5 Megawatt emergency generator at the Central State Hospital facility in Milledgeville, Georgia. 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 facility utility costs as well as provide emergency power functions.

Fenway Park in Boston, Massachusetts, home of the Boston Red Sox, had some concerns about the electrical grounding system at the ballpark. Jim performed a study utilizing conditions found during on-site investigations and prepared a report that identified many existing problems with the electrical distribution systems. The report outlined recommendations for an upgraded electrical grounding system as well as a new lightning protection system. The recommendations in this report were implemented by the Owners of the Boston Red Sox and Fenway Park.

Recently Jim worked on new emergency power generation and distribution systems at W.R. Sharpe, Jr. Hospital. The project is comprised of three (3) 600 kw bi-fuel generators, seven (7) new Automatic Transfer Switches, new distribution switchboards and a 15,000 gallon diesel fuel storage tank.

Jim's experience covers a broad spectrum of project types from singular structures to multi-facility complexes spreading over geographical distances. For example, he managed the master planning and renovations of the seven hospital campuses for the West Virginia Department of Health and Human Resources, each in a different area of the State.

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 the evolving ADA standards. Some award-winning projects where Jim has had involvement include, but are not limited to, the West Virginia Department of Transportation prototype (AIA Award), the Air National Guard 130th Airlift Wing (LEED Silver Certification), and Elkins Middle School (2013 Energy Star Award).



PROFESSIONAL AND COMMUNITY AFFILIATIONS

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 (IEEE)

OTHER RECOGNITIONS

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



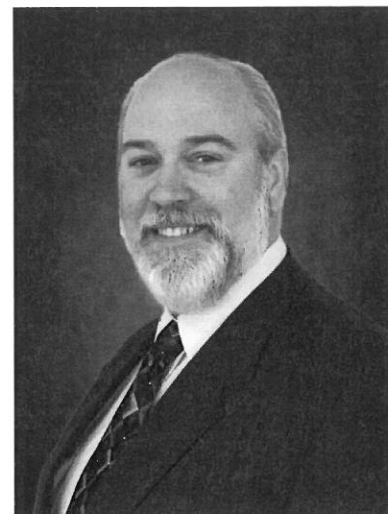
Jennings Davis has more than 25 years of experience in the design, project management and construction of heating, ventilating and air conditioning (HVAC), plumbing, electrical and specialized systems for facilities. He has been involved with performing construction commissioning and retro-commissioning services throughout most of his professional career. His professional experience includes positions as an Owner's Representative at West Virginia University (WVU), as a Mechanical Engineer for the West Virginia Department of Education (WVDE), and as a Project Engineer with design and consulting engineering firms.

During his employment with WVU, Jennings was responsible for management of major repair and capital construction projects designed by outside Architectural and Engineering firms with budgets ranging from \$50,000 to \$37,000,000, as well as the design of smaller in-house projects. While working for the WVDE, he was responsible for quality control of design documents for construction projects; troubleshooting maintenance for HVAC controls and for Indoor Air Quality (IAQ); recommissioning of HVAC systems to original design parameters; performing energy audits of educational facilities and making recommendations for upgrades and operational modifications of MEP systems to maximize potential energy savings; and training of maintenance personnel. He investigated facilities concentrating primarily on HVAC operation and occupant safety, which included measurements such as temperature, humidity and carbon dioxide; HVAC equipment visual inspection; life safety assessment; and building component checks.

As a Project Engineer, Jennings specializes in developing scope, budget and design parameters; establishing program requirements through interaction with Owners and other Team members; design reviews; budget analysis and control; schedule control; complete design oversight and task assignment; and project closeout. Some of the projects he has been involved with include numerous renovation projects at several VA Medical Centers including multiple radiology room/suite installations and renovations, MRI's, X-ray and CT Scanners, Emergency Department renovations, numerous hospital out-patient treatment areas and specialty clinic renovations, a new \$4.4 million Hospice facility at the VA Medical Center in Coatesville, PA, and a new \$5 million Medical Office Building for Somerset Hospital in Somerset, PA.

Other projects include a \$37 million addition and renovation to WVU's Wise Library, a \$2.1 million chiller replacement for WVU's Engineering Sciences Building, a new primary 23kV power feed to the existing sub-station for the WVU Coliseum, engineering design for a hydrogenation reactor laboratory for WVU's Engineering Research Building and an \$8 million HVAC and sprinkler renovation for WVU's Armstrong Hall.

His knowledge and understanding of ASHRAE Standard 90.1 as the State's recently adopted energy code led to Jennings being selected to participate in training of West Virginia State Code officials. Most recently, Jennings' active involvement and industry leadership resulted in his election as President-Elect of the West Virginia Chapter of ASHRAE.



EDUCATION

BS in Mechanical Engineering from
West Virginia University

REGISTRATIONS

Professional Engineer:

- West Virginia No. 15060
- Pennsylvania No. PE062186
- Virginia No. 040028

PROFESSIONAL AFFILIATIONS

President-Elect - West Virginia
Chapter of ASHRAE



Associate Member West Virginia
Society for Healthcare Engineering



James has over 14 years of experience and has focused on HVAC, fire protection, plumbing and commissioning engineering. James' experience includes the project management, engineering design and commissioning for HVAC, plumbing, electrical and lighting. His work involves a wide variety of facility types including commercial, educational, governmental, health care and industrial. He researches and applies International Building Codes, NFPA, ASHRAE standards, NEC and FGI Guidelines for Design and Construction of Health Care Facilities.

During his tenure with ZDS, James has had extensive experience with HVAC renovations and Performance Contracting HVAC Retrofits and Master Planning for Security/Fire Alarm/Life Safety systems for a variety of projects. Some of his commercial projects have included Building 11 of the West Virginia Capitol Complex and the Kanawha County Judicial Annex, as well as assisting with the design of the North and South Bound Burnsville Rest Areas, an AIA Merit Award Recipient.

In addition to the above projects, James has worked on a variety of health care clients. Some of those include the Charleston Area Medical Center (CAMC) Wound Center, the Charleston Surgical Center and the VA Hospital in Huntington for the steam distribution system, extension upgrades and CT Scan renovations. Others include a Master Planning Study, new central steam plant and renovations to heating system and lighting renovations for seven (7) hospitals for the WVDHHR – Jackie Withrow Hospital, Beckley; Hopemont State Hospital, Terra Alta; John Manchin, Sr. Health Care Center, Fairmont; Lakin State Hospital, West Columbia; Mildred Mitchell-Bateman Hospital, Huntington; Welch Community Hospital, Welch; and the William R. Sharpe, Jr. Hospital, Weston - fifty bed forensic addition and renovations to entire existing hospital while building remains in use including new central heating/cooling plant, 2,100 KW emergency power station and comprehensive HVAC and electrical renovations throughout the facility.

James has been involved with HVAC and electrical renovations for many schools throughout the State of West Virginia. Some of these projects include Elkins Middle School, Glade Elementary/Middle School and Webster Springs Elementary School, all of which have received the 2013 Energy Star Certification. Also included in his experience are the following educational facilities: Harvard University Weld Hill Research and Administration Arnold Arboretum – LEED Gold Certified; Mercer County Schools Boiler Renovations for seven schools; Woodrow Wilson High School HVAC/electrical renovations; and West Virginia Higher Education Policy Commission (WVHEPC) South Charleston Tech Center – Campus Comprehensive Infrastructure Evaluation.

James has also had commissioning experience for projects, one of which includes the West Virginia Air National Guard – Commissioning for \$43 million maintenance and fuel cell hangars – LEED Silver Certified.



EDUCATION

BS in Mechanical Engineering
from West Virginia University
Institute of Technology,
Montgomery, WV in 2004

REGISTRATIONS

Professional Engineer

- West Virginia No. 18948
- Ohio No. E-77003

PROFESSIONAL AFFILIATIONS

Member and Chapter Technology
Transfer Committee (CTTC) Chair
for ASHRAE's West Virginia
Chapter



Association of Energy Engineers
(AEE) – Senior
Member



OTHER RECOGNITIONS

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



Ted has over ten years of experience and has completed extensive Building Information Modeling studies through Autodesk. He also had special courses in Advanced Computational Techniques, Control Systems, Design Project Management, Design Optimization, Measurement Instruments and Controls, and Sound Attenuation, as well as extensive studies in several of the leading engineering programs: Autodesk Revit software, AutoCAD, Pro-Engineering software, ANSYS, Lab View, MATLAB, and complete training in Microsoft Office Software.

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

Ted's project experience includes the commissioning and design for heating, ventilating, air conditioning, plumbing, electrical and lighting systems for educational, health care, industrial and commercial facilities. His experience encompasses working both on new construction as well as renovation projects. He also has experience as a Building Information Modeling (BIM) manager, 3D scanning for buildings, and excels at technical communications. Scanning experience involves over 75 projects in the last 3 years.

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.

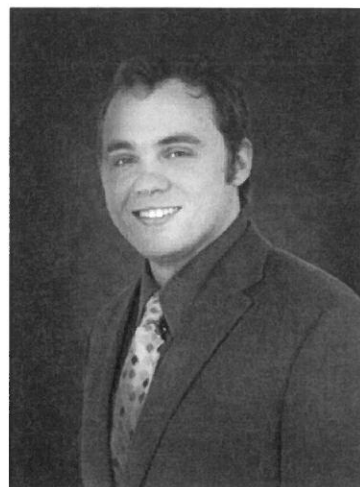
Some of Ted's project experiences include the following:

Commercial and Industrial: West Virginia Air National Guard Maintenance Hangar, Charleston, WV; West Virginia Air National Guard Fuel Cell Hangar, Charleston, WV; Bayer Material Science; I-70 Welcome Center, WV; West Virginia State Capital Complex Central Heating Plant.

Health Care: West Virginia Department of Health and Human Resources Hospitals: Jackie Withrow Hospital, Beckley; Hopemont State Hospital, Terra Alta; John Manchin, Sr. Health Care Center, Fairmont; Lakin State Hospital, West Columbia; Mildred Mitchell-Bateman Hospital, Huntington; Welch Community Hospital, Welch; William R. Sharpe, Jr. Hospital, Weston.

Educational: Greenbrier West High School Additions/Renovations; Davis-Thomas Elementary/Middle School Renovations; South Charleston High School Renovations; Glade Elementary/Middle School Renovations (*2013 Energy Star Certified*); Elkins Middle School Renovations; Iaeger/Panther Elementary School; plus 29 Schools in Raleigh County, WV.

Ted's awards and recognition include the 2012 Legend in Energy by the Association of Energy Engineers; Vice President and Social Chair for Phi Kappa Psi, a predominant scholastic fraternity celebrating over 20 years at Rochester Institute of Technology (RIT); distinguished by the RIT Dean's List for outstanding scholastic achievement; and numerous scholarships to RIT including Recipient of RIT Presidential Scholarship.



EDUCATION

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

REGISTRATIONS

West Virginia State Board of Registration for Professional Engineers

- West Virginia No. 9569

PROFESSIONAL AFFILIATIONS

Membership Promotion Chair and Board Member of ASHRAE's West Virginia Chapter



Lifetime Member of the Association of Energy Engineers (AEE)



Associate Member West Virginia Society for Healthcare Engineering



OTHER RECOGNITIONS

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



V – Testimonials/Publications



July 19, 2013

To whom it may concern:

ZDS Design/Consulting Services was sub-contracted by SAIC to perform the fundamental commissioning activities on a two-phase maintenance and fuel cell hangar project for the 130th Airlift Wing on the West Virginia Air National Guard Base at Yeager Airport outside Charleston, West Virginia.

Without hesitation, I recommend Todd Zachwieja and his team for their efforts on this complex project. The first phase, the Replace Aircraft Maintenance Hangar and Shops phase, was initially scoped to meet a certifiable level for LEED® certification. ZDS Design/Consulting Services worked with my team and the West Virginia Air National Guard (WVANG) representatives through the design phase to provide the necessary activities required to meet the LEED® Energy and Atmosphere Prerequisite 1, Fundamental Commissioning of the Building Energy Systems. However, when the second phase, the Fuel System/Corrosion Control Hangar and Shops phase, came to life about the time that phase 1 construction began, the entire project was required by the National Guard Bureau to be certified by the Green Building Certification Institute (GBCI) at a LEED® Silver level. ZDS Design/Consulting Services diligently worked with the general contractor, the WVANG and SAIC to develop an approach to the phasing of the commissioning activities for both buildings that still met the fundamental commissioning prerequisite requirements as one of the hangars was to lay dormant after completion for an extended period of time until near the completion of the second phase. This required that ZDS Design/Consulting Services perform some of the commissioning activities for the first phase during the first phase construction and the remainder during commissioning of the second phase.

Through the construction process, Todd Zachwieja's group kept me well informed on their schedule and their deliverables. Todd was frequently on my LEED status calls with the contractor to stay abreast of any upcoming issues that would affect the commissioning activities and to assist in how to resolve issues that would come up. In addition, ZDS Design/Consulting Services assisted us with services beyond the commissioning activities as well. These included providing and reviewing building flush-out calculations to determine if LEED® Indoor Environmental Quality Credit 3.2, Construction IAQ Management Plan, Before Occupancy, was achievable and providing light level readings for a light pole that needed to meet certain light levels. The project achieved LEED® Silver certification and the fundamental commissioning prerequisite was approved by the GBCI after the first construction review without qualification.

ZDS Design/Consulting Services proved to be a well-qualified firm that provides timely and efficient services. SAIC was extremely pleased with their services on this challenging project.

Sincerely,

SAIC Energy, Environment & Infrastructure, LLC

A handwritten signature in black ink, appearing to read "Thomas Warner", with a stylized flourish extending to the right.

Thomas Warner, LEED® AP, BD&C
LEED Administrator/Senior Architect

SAIC Energy, Environment & Infrastructure, LLC

60 East Plato Boulevard, Suite 300 | St. Paul, MN 55107 | tel: 651.771.2222 | fax: 651.778.3911 | saic.com/EEandI



ELSWICK & ASSOCIATES, LLC

August 5, 2013

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

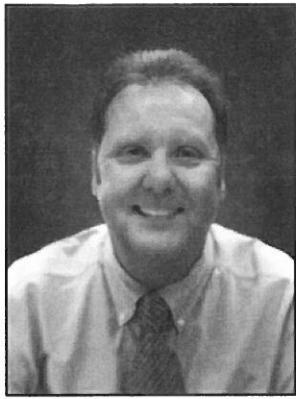
Likewise, ZDS helped establish one of the first performance contracting programs in the State of Ohio's higher education system for Ohio University, saving the Athens campus millions annually while the savings were used for the mechanical, electrical and building automation improvements to generate the 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 dark ink, appearing to read 'Bill Elswick', with a stylized flourish at the end.

Bill Elswick, MBA, CEO



Michael Pickens

172 Oak Street

Dunbar, WV 25064

(304) 400-9993

July 26, 2013

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,

Michael E. Pickens

Fayette County Board of Education

July 29, 2013



111 Fayette Avenue
Fayetteville, WV 25840
(304) 574-1176

To Whom It May Concern:

I have had the privilege of working with ZDS Design/Consulting Services from when I was a principal at a Beckley Stratton Middle School in Raleigh County in 1997 to my current position as Director of Operations for Fayette County Schools. ZDS is a firm we have come to rely on. When I worked for Raleigh County Schools, ZDS commissioned a new large school that helped resolve many complex control and HVAC issues after others tried but failed to correct. The ZDS staff is effective in communicating technical issues in ways administrative staff can understand. They have an excellent attention to important details that improve any project. Their expertise and services have added significant value on every project they have been involved with.



Ron Cantley II
Director of Operations

ZDS works well with administrators, maintenance, contractors, code officials, and others that benefit any project. They have technical acumen that is well respected among their peers. I value and strongly consider their opinions when we make capital improvement decisions, independently audit the work of other companies, correct stubborn problems, or reassure our constituents in regards to our educational facility activities. This assessment comes from multiple interactions over the years. I recommend ZDS for engineering and commissioning services for which they are asked to engage.

Respectfully,

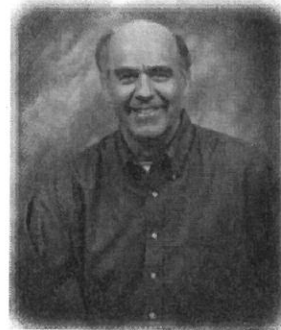


Ronald Cantley II
Director of Operations
Fayette County Board of Education

TIM HOLBROOK

305 East Foster Street, Lewisburg, WV 24901

Phone: 304-645-1073 Cell: 304-546-1893



July 8, 2013

Re: ZDS Design/Consulting Services.

To Whom It May Concern:

I have had the recent privilege to work with ZDS Design/Consulting Services on several construction projects for the Greenbrier County Board of Education. In my role as the Clerk of the Works (owner's representative) for these projects, I was fortunate to be able to work with a company possessing their level of knowledge and expertise as an important part of our design team.

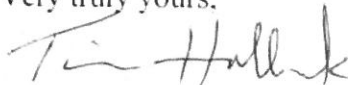
ZDS was on board from the conceptual design/development phase through the completion of construction and close out of the project. They constantly pushed to see that work progressed as it should and was done right.

Their personnel was extremely qualified and easy to work with. They were immediately responsive to any questions, problems, or issues that came up, and often called offering ideas and suggestions that could benefit the owner.

They were also instrumental in helping the board secure some rebates and credits that helped with the project costs.

I would be very happy to do another project with ZDS as they were a first class company, willing to do what it took give the owner a quality job. I highly recommend them for any mechanical and electrical construction project you may have.

Very truly yours,



Tim Holbrook



Ritchie County Schools

134 South Penn Avenue, Harrisville, WV 26362
Edward T. Toman, Superintendent

Telephone 304-643-2991
Fax 304-643-2994



August 6, 2013

To: Whom It May Concern

From: David B. Weekley, Director of Student Support Services

RE: ZDS Design/ Consulting Services

We have had the privilege of working with ZDS Design/ Consulting Services on construction projects for Ritchie County Schools. The first project was at Ritchie County Middle/High School. This was on an emergency basis with school closed due to indoor Air Quality issues with which all parties were struggling to determine the cause. ZDS promptly came to our need, assessed the issues, and identified solutions that helped immediately re-open the school. They developed a long-term plan while providing the design and construction administration services which solved the complex issues within the school. This job was ultimately completed to the satisfaction of all parties involved.

Ritchie County Schools had yet another opportunity to work with ZDS on the Smithville Elementary Addition and Renovation project. The professionalism exhibited by ZDS allowed their part of this project to progress smoothly and efficiently. Our community is still very proud of the facility they received.

ZDS Design/ Consulting Services works well with the West Virginia Department of Education, the School Building Authority, State Fire Marshal, and other agencies as needed. This has proven invaluable to Ritchie County Schools. They were very responsive to any issues raised and often offered ideas or suggestions that greatly benefit Ritchie County Schools. They are also very responsive long after these projects have been completed, helping our staff when requested in a prompt, professional manner.

I trust the staff of ZDS and their practical approach to solving challenging facility issues in both new construction and renovations. I would highly recommend ZDS Design/ Consulting Services as they are an exceptional company that is willing to do what it takes to provide a quality job.



Three Generations of Service to ASHRAE

By Pat Cross

As the First World War raged in Europe, Polish immigrant Walenty Zachwieja drove his pick into a coal vein in southern West Virginia. Back bent and lungs tarnished with the hardships of coal mining, he could not have conceived that three generations of engineers would rise from those black, dusty depths to navigate peak achievements in their industry.

Ted T. Zachwieja, Sr. founded the Mountaineer Chapter of ASHRAE, while his son, Ted A. Zachwieja, Jr., designed the first and largest commercial geothermal system in the West Virginia region.

Reaching from the shoulders of his father, Ted A. Zachwieja III graduated from the Rochester Institute of Technology and joined his father and grandfather in the family engineering business.

Their story catches the ears and hearts of anyone who acknowledges the challenges and unique achievements of a family business arising from the ashes of poverty and hazardous hardship of coal mining labor.

All three "Teds" are currently part of ZDS Design/Consulting Services, in its 17th year of operation. The company is located in Saint Albans, WV. ZDS provides a variety of engineering services including HVAC, plumbing, fire protection, electrical power, lighting, fire alarm and technology system design.

ASHRAE has played a key part in the three men's success, especially when they work on projects requiring



The Zachwieja family (from left to right), Ted (Todd) A., Ted A. III, and Ted T. — all are engineers and members of ASHRAE.

the integration of several engineering specialties, such as energy-efficient design, IAQ, HVAC systems and commissioning.

Ted T. Zachwieja, Founder Construction Administration & Project Executive

Ted T. Zachwieja, Sr. made his mark on the engineering industry in West Virginia not only by founding the ASHRAE West Virginia Chapter, but in an extensive project involving the design and construction of the West Virginia Capitol Complex. He also engineered many of the buildings at the West Virginia Capitol

Complex, which involved more than 640,000 square feet of new facilities; those systems continue working today.

"An ASHRAE Life Member [who who joined in 1964], I founded the Mountaineer Chapter of ASHRAE and served as president for many of its early years.

"I was born in the southern coal fields of West Virginia and am the only living son out of a family of seven (two brothers who died before the age of 10 and four sisters). My father was a first generation immigrant from Poland who went to

(Continue to next page)

the coal fields in West Virginia during World War I as a coal miner. The hardships of mining took his life with black lung, but not before he made sacrifices to be sure I had the opportunity to go to college and become an engineer.

"I have four children, one son and three daughters. I started working in the early 1960s and had to fast-track learn how to design HVAC, plumbing and electrical systems. I was responsible for all MEP design and didn't have the luxury of specializing in only one area like engineers do today—we had to learn it all."

**Ted (Todd) A. Zachwieja,
P.E., Principal, CEO**

Ted A. Zachwieja II (also known as Todd) acquired national acclaim with the design and installation of the largest commercial geothermal system in West Virginia and the surrounding region and pioneering indoor air quality practices in design prior to them ever being adopted into codes or standards.

"I started working for my father when I was 14 years old and found a passion in engineering design. I knew in sixth grade I wanted to be an engineer. I followed my father's advice in pursuing a mechanical engineering degree and then a M.A. in Engineering Management, with ASHRAE being an important part of my development.

"I have been involved with ASHRAE for over 30 years. I also founded the Mountaineer Chapter with my father and served as Technical Chairman for many years. My father encouraged me to continue developing my engineering skills, which allowed us to start our business in 1994 as partners."

ASHRAE has played a key part in the three men's success, especially when they work on projects requiring the integration of several engineering specialties, such as energy-efficient design, IAQ, HVAC systems, and commissioning.

**Ted A. Zachwieja III,
Systems Manager, Designer**

"I started working for both my father and grandfather at the age of 14 through ZDS Design/Consulting Services. I was told I had the 'knack' at a very early age and was very interested in the engineering field.

"I received a scholarship to attend Rochester Institute of Technology in mechanical engineering and in my senior year, I continued to co-op with ZDS and assisted remotely while completing my undergraduate engineering degree.

"I joined ASHRAE as a student member and attended my first Winter Conference with my father to gain the exposure and experience that ASHRAE has to offer. I am very fortunate to be able to work with both my father and grandfather and gain their wisdom with many opportunities to share in their ASHRAE experience and create lifetime memories."

The strong bonds between these three generations of engineers all named Ted give testimony to the tradition of the family business. The devotion and determination to make sacrifices for the benefit of the next generation show most clearly in the

story of these three Teds whose beginnings heard the ring of an iron pick on the black walls of the West Virginia coal mines nearly a century ago. ■

*Pat Cross is the daughter of
Ted T. Zachwieja.*

For more information on how ZDS Design/Consulting Services can help your organization improve its work environment, productivity and energy management, contact:

Todd A. Zachwieja, CEO
Ted T. Zachwieja, Sr.
Ted Zachwieja III

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ZDS
Design/Consulting Services



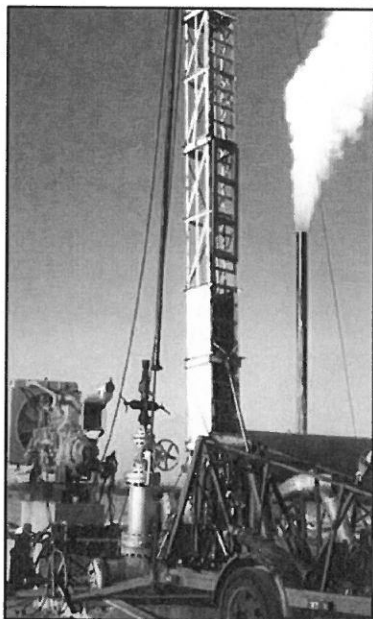
GEOEXCHANGE™ The GeoExchange National Information Resource Center Newsletter

Earth Comfort Update

First in Line in West Virginia

Webster County High School in Uppergrade, W. Va., is the first school in West Virginia to "go Geo" and has - in just eight months - realized energy costs savings of more than \$34,000 and cut its electrical demand nearly in half. **Update – annual energy savings exceed \$74,500.**

In 1997 the Webster County Board of Education requested funds from the School Board Authority (SBA) of West Virginia to replace several rooftop heating units at Webster County High School. Upon inspection, SBA officials recognized that restoring the existing electrical HVAC system wasn't the best solution. They recommended a qualified mechanical engineering firm review the system and develop better options.



School officials were leaning towards a propane gas heating system when Allegheny Power, Greensburg, PA, and ZDS Design/Consulting Services, St. Albans, WV, introduced them to GeoExchange, which could provide greater energy efficiency, cost savings, temperature control, reliability and safety.

Webster's 500-ton system is the largest GeoExchange installation to date in West Virginia and the surrounding region. School officials estimate that the system will save about \$50,000 a year in heating and cooling costs. **Update – Energy savings increasing every year and now exceed \$74,500 annually.** In addition, it provides a healthier environment for Webster's 600 students, its faculty and staff by incorporating a cost-effective, outside air ventilation system.

"We're very pleased with the system," said Harry Given, facilities manager for Webster County schools. **"We've seen energy savings, had zero maintenance problems, and we believe that the savings will be even greater over time."**

Investing in the Future

"GeoExchange offers schools the best return on investment with the lowest environmental impact," said Gary Valli, an HVAC engineer with Allegheny Power. "In most cases, the life-cycle costs of a geothermal heat pump system are lower than any other system available today."

The Geothermal Heat Pump Consortium (GHPC) helped Webster County school officials by providing additional training to ZDS through its Design Assistance Program. "We were not sure how comfortable the school personnel would be with this type of system," said Todd Zachwieja, owner of ZDS. "A commercial geothermal system of this size had never been installed in our area, and the system cost was higher than HVAC systems customarily funded for schools."

Drilling for the ground loop for Webster County High School's 500-ton GeoExchange system. It is the largest GeoExchange installation to date in West Virginia and the surrounding region.

The Webster County project was funded as a pilot project through a \$3.25 million grant from the SBA, which is responsible for overseeing all school construction in the state. The SBA is giving strong consideration to the GeoExchange system's positive performance at the school, Zachwieja noted. Significant lifecycle cost savings could allow more schools to benefit from funding for GeoExchange projects in the future.

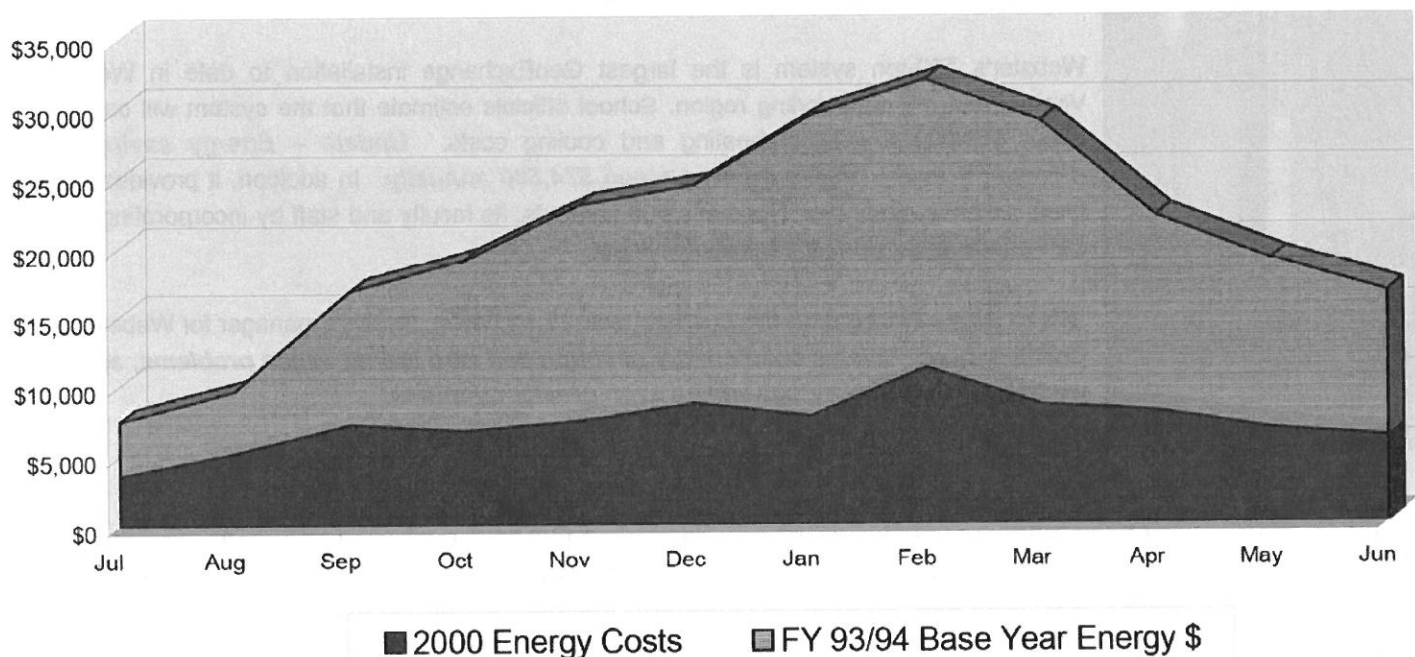
Improved Comfort and Efficiency

The Webster County High School system includes 240 vertical loop heat exchangers inserted 304 feet into the ground. The new units that replaced the old multizone units incorporate exhaust air heat recovery for the incoming outdoor air. "That's another benefit of the system -bringing the outdoor air indoors," Given said. ***"We've improved our indoor air quality; everyone appreciates that."***

"Schools are definitely realizing the benefits of GeoExchange for comfort and energy-efficiency," Valli said. To help, Allegheny Power is producing a technically detailed video on the step-by-step GeoExchange installation at the Webster County High School.

"Many schools have HVAC systems that are reaching the end of their useful life," Valli said. "These schools will look at a lot of options. Our job is to educate the decision-makers that GeoExchange is a viable and cost effective solution."

Webster County High School Geothermal Heat Pump Energy Savings



For More Information contact: Todd A. Zachwieja, PE, CEM, Principal
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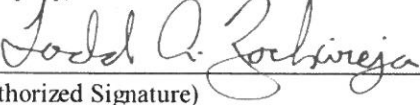
VI – Attachments

CERTIFICATION AND SIGNATURE PAGE

By signing below, I certify that I have reviewed this Solicitation in its entirety; understand the requirements, terms and conditions, and other information contained herein; that I am submitting this bid or proposal for review and consideration; that I am authorized by the bidder to execute this bid or any documents related thereto on bidder's behalf; that I am authorized to bind the bidder in a contractual relationship; and that to the best of my knowledge, the bidder has properly registered with any State agency that may require registration.

ZDS Design/Consulting Services

(Company)



(Authorized Signature)

Todd A. Zachwieja, President/CEO

(Representative Name, Title)

(304) 755-0075

(Phone Number)

(304) 755-0076

(Fax Number)

May 13, 2014

(Date)

RFQ No. DEFK14023STATE OF WEST VIRGINIA
Purchasing Division**PURCHASING AFFIDAVIT**

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

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

DEFINITIONS:

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

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

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

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that 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 ServicesAuthorized Signature: *Todd Q. Schiraja* Date: May 13, 2014State of West VirginiaCounty of Putnam, to-wit:Taken, subscribed, and sworn to before me this 13 day of May, 20 14My Commission expires November 1, 20 14.

AFFIX SEAL HERE

NOTARY PUBLIC

Patricia Hart

Purchasing Affidavit (Revised 07/01/2012)

