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04/25/18 15:55:06  
Purchasing Division



# **SECTION I**

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## **ZDS Approach to Project**

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**Design/Consulting Services**

281 Smiley Drive  
St. Albans, WV 25177  
Phone: (304) 755-0075  
Fax: (304) 755-0076  
www.ZDSDesign.com



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

April 26, 2018

Ms. Linda B. Harper, Buyer  
WV Department of Administration  
Purchasing Division  
2019 Washington Street, East  
Charleston, WV 25305

**Re: Expression of Interest to provide Professional Architectural/Engineering Services for the *West Virginia State Capitol Building Fire Protection & Sprinkler Design***

**ZDS** is pleased to submit this proposal for our Team of professional firms to provide the services requested for the *West Virginia State Capitol Building Fire Protection & Sprinkler Design* Project.

**ZDS Design/Consulting Services** was founded in 1994 and is located at 281 Smiley Drive, St. Albans, WV 25177. The project will be assigned to **Todd A. Zachwieja, PE, CEM, LEED AP – Principal and CEO**, ZDS' principal-in-charge who has full authority to execute a binding contract on behalf of the **ZDS** Team and will follow the Project from inception through design and Construction Administration. Refer to [Section II](#) for a brief description of **ZDS'** Overview and Services.

**ZDS** founding members have over six decades of engineering experience in West Virginia and are recognized for our specialties in buildings' systems evaluations and design. **ZDS'** experience involves hundreds of projects including working with many state and federal agencies and our professionals are dedicated to performing quality services with the goal of meeting our clients' needs, scheduling and budgets. **ZDS is familiar with, and understands the Capitol Complex as we have been involved in numerous projects throughout the campus.** Our past projects at the Capitol Complex include multiple renovation projects in the Capitol Complex in buildings #1, #3, #4, #5, #6, #7, #8, #9, and #11, including the Culture Center **Fire Protection/emergency power/HVAC** renovations. We have worked in 24 states but our home and corporate offices are in West Virginia just minutes from the Capitol Complex.

**Team Approach:**

**ZDS** has assembled a Team of professional firms that will fulfill the needs outlined in the RFQ for the Project. The Team is comprised of several registered professionals including, but not limited to, (6) Registered Engineers, (1) Registered Fire Protection Engineer, (2) Registered Civil/Structural Engineers, (2) Registered Architects and (3) Team members having the professional qualifications for historical properties and restoration or preservation prescribed by the Secretary of the Interior in 36 CFR 61 (Appendix A).

**ZDS** will serve as the lead firm acting on behalf of the other Team members during discussions and Contract negotiations with the State of West Virginia. The proposed sub-consultants that will be active throughout the process for this important Project are as follows:

**Reardon Fire Consulting, P.C.** provides fire protection, life safety, building codes and security services for all types of occupancies specializing in investigation, evaluation, risk assessment and design of systems for existing facilities. Michael T. Reardon, P.E. is President and has a B.S. and a Master Certification in Fire Protection Engineering as well as being certified in fire, arson and explosion investigations. Mr. Reardon has extensive experience in designing systems to meet the needs of a facility including, but not limited to, detection and alarm, special suppression systems, mass notification, foam and clean agent systems and facility-wide integration of these various systems. Reardon Fire Consulting, P.C. meets or exceeds the requirements for a Registered Professional Fire Protection Engineer as outlined in the Expression of Interest, Section Three, Item 4. Resume and relevant Project experience can be found in [Sections III and IV](#).

**EHT Traceries, Inc.** is a certified woman-owned small business specializing in history and historic preservation. Since 1977, this award-winning firm has provided its clients with a wide range of professional services, including archival research, survey and documentation, evaluation, regulatory compliance, and preservation planning. EHT Traceries has a staff of architectural historians, historians, preservation planners, and preservation specialists, all of whom meet the professional qualifications prescribed by the Secretary of the Interior (36 CFR 61). Laura H. Hughes, Principal-in-Charge will serve as the main point of contact for this Project accessing resources from the Traceries' staff where necessary. EHT Traceries, Inc. has the experience and capability to fill the needs as outlined in the EOI for assessment of historical significance and the preservation of same. Resumes and relevant Project experience can be found in [Sections III and IV](#).

**Chapman Technical Group** with offices located in Saint Albans, WV will provide Architectural services to collaborate with the work of EHT Traceries. CTG is a diverse firm of professionals with many individuals educated in West Virginia colleges and universities. Chapman Technical Group's award-winning experience in historic architecture informs the design and coordination for their work. Having great relationships with both the WV State Fire Marshal and the WV SHPO enables them to work with both entities to manage each building's unique characteristics. Getting to know the client's needs and the facility's conditions drives the process and their Historic Architect's years of experience yields the knowledgeable design and careful detailing necessary to work on a structure with the presence and stature of the West Virginia State Capitol. Resumes and relevant Project experience can be found in [Sections III and IV](#).

**CAS Structural Engineering, Inc.** is an award-winning, West Virginia Certified Disadvantaged Business Enterprise (DBE) structural engineering firm and will provide structural engineering services as needed for the proposed evaluation and related work. Carol A. Stevens, PE, and President of CAS Structural Engineering has excellent forensic engineering skills and firsthand knowledge of the Capitol Building that will provide unique structural solutions for issues encountered as different approaches may be presented to meet the Fire Protection/Life Safety goals of the Project. CAS, a local firm, is currently assisting with the Capitol dome repairs and previously worked on the Capitol building's exterior façade restoration, complete rebuild of the parapet wall on the Main building and both wings, North portico slab reconstruction and prior dome repairs. Carol has reviewed and worked with the existing drawings of the structure several times and has crawled throughout the building on many occasions during her investigative work. Her familiarity with the Capitol building structural components will provide insight to the Team for this highly sensitive Project. Resume and relevant Project experience can be found in [Sections III and IV](#).

## **SCOPE OF SERVICES – Phase I**

### **Project Understanding:**

Designed in the Italian Renaissance style by noted architect Cass Gilbert, the West Virginia State Capitol Building was listed in the National Register of Historic Places in recognition of its architectural and historical significance. The Indiana limestone building is dominated by its dome, which rises 292 feet above a colonnaded drum, and is embossed with gold leaf. The interior is richly detailed with Italian and Vermont marble. Ceilings are highly decorated and include plaster and carved details with coffered panels and bronze and gold leaf finishes. The West Virginia State Capitol Building equals the best of the state capitols across the country in the quality of its materials and workmanship.

The project calls for the creative and efficient integration of fire protection and sprinkler design into a highly ornamented National Register listed historic building. Because of the uniqueness and historic significance of the building creative ways to integrate code requirements and life safety measures that adheres to the Secretary of the Interior's Standards for Rehabilitation are necessary. Our work will identify the character defining features of the building and provide guidance to assist the project through the relevant design and preservation reviews by the West Virginia State Historic Preservation Office (SHPO). Every effort will be made to avoid and minimize impacts to historic features and richly ornamented components of the building.

It is anticipated that the project will be reviewed by the West Virginia State Historic Preservation Office who are responsible for preserving and protecting West Virginia's cultural resources. The SHPO office will work with the project Team as the Section 106 process is initiated and the project designs are developed.

### **Historic Preservation:**

We will provide historic preservation consultation to establish design parameters that are sensitive to historic preservation and SHPO requirements and are consistent with the Secretary of the Interior Standards for Rehabilitation. Such assistance will include consultation related to the assessment of direct and indirect effects of any proposed alterations or new construction, and compliance with Section 106 requirements.

As such our work will include:

- Review existing conditions of the West Virginia State Capitol Building as necessary to verify findings of previous reports, document changes in conditions, and complete digital photographic documentation of the building for use as necessary with any issues of preservation or historic fabric.
- Review of existing documentation for the West Virginia State Capitol Building, including the National Register of Historic Places nomination form and the Historic American Building Survey documentation (HABS WV-217) to inform our understanding of the historic structure and better advise the Team engineers regarding appropriate treatments and locations for fire protection and sprinkler designs. We will conduct additional archival research as necessary to supplement existing documentation of the State Capitol Building to provide sufficient background information to evaluate the impacts of any proposed work on the historic building. Character defining features and preservation zones will be identified and developed at this stage (if they have not previously been documented).

- Coordinate with SHPO office, initiate Section 106 consultation, advice regarding the potential effect of proposed alterations on the historic integrity of the West Virginia State Capitol building. Suggest ways to avoid, minimize or mitigate adverse effects from proposed installation of fire protection and sprinkler systems.
- Review analysis and design of all alternatives leading up to decisions affecting important preservation zones (as identified in existing documentation or as developed as part of this project) of the State Capitol. Review and comment on all submissions in their entirety for impact on the preservation zones. Confirm submissions meet the Secretary of Interior's Standards.
- In **Phase II** (development of Construction Documents) we will provide continuing review and approvals consultation through the design completion as necessary to comply with the approvals of proposed treatments and design details. Develop any Section 106 documentation including Assessment of Effects documentation, Mitigation (if adverse effect identified), and Memorandum of Agreement (if necessary).

### **Fire Protection/Life Safety Analysis and Performance-Based Designs:**

Previous studies have determined non-compliance with building and fire codes with regards to life safety, egress, fire protection, fire alarm, and passive fire protection features. This project will consist of the analysis of the specific existing features of the Capitol building to determine the levels of non-compliance. All areas of the building will be analyzed to determine occupancy type, use group, and level of fire risk and fire growth. In addition, the existing architectural features will be carefully analyzed to determine allowable modifications while still maintaining historic requirements.

The existing sprinkler system and fire alarm system will be analyzed to determine the extent of additional protection and performance features necessary to meet current sprinkler and fire alarm code requirements. Due to the historic nature of the facility, modifications to these systems may be limited in some areas of the facility. If modifications are not feasible, alternative performance-based designs will be recommended to provide an equivalent level of protection to meet the intent of the codes. Performance-based calculation methods necessary in determining performance-based designs include evaluating fire growth rates, smoke development rates, fire/smoke propagation, and occupant evacuation times. Based on these calculated results, alternative protection measures may be utilized in providing adequate levels for detection and protection. These alternative protection measures could include design methods such as aspirating smoke detection, specific detection placement, special suppression systems, fire compartmentalization, smoke evacuation, and performance specific sprinkler systems.

The existing life safety and egress components of the building will be analyzed to determine the level of non-compliance based on the current building code. Since alterations to existing areas/features such as partitions, corridors, ceiling/floor assemblies, etc., will most likely not be permitted, performance-based design alternative would need to be determined. In addition to the calculation methods discussed earlier, egress modeling and fire-resistance rating calculations will be necessary in to determine the current level of occupant protection during a fire event within the building. Increases to occupant notification such as very early warning smoke detection and mechanical smoke control is an effective alternative design to improved occupant evacuation. Fire and smoke compartmentalization is also key to increased occupant evacuation including fire-resistance and smoke passage improvements to existing partitions and ceiling/floor assemblies. Historic requirements would not allow for exterior alterations to these assemblies, thus performance-based methods will be necessary to limit the alterations while increasing fire-resistance ratings. These methods include utilizing modern technologies and fire-rated products to allow for equivalent UL listed assemblies.



Evaluate and integrate statutory building requirements and performance requirements associated with fire department access, suppression and site/building security that will address the Agency's needs and requirements imposed by insurance carriers:

- Design ingress/egress simplified diagrams to enable firefighters to easily locate areas of the facility;
- Provide directions for quick access to fire department connections (FDC), fire command center, fire alarm control panels/equipment, annunciators, key boxes, hose valves, elevators and stairs;
- Provide strategic locations for fire hydrants around the perimeter of the building and accommodate the access of fire apparatus and the control point layout(s);
- Coordinate with Security personnel and Local Authority Having Jurisdiction to comply with security measures, West Virginia statewide Building Codes and all applicable NFPA standards.

In addition to passive and active protection systems, fire prevention is key in increasing the level of safety to both the occupants and protection to this historic structure. Evaluating the fire risks and day to day operations within the facility will allow for the determination of additional fire prevention methods to be implemented. Such methods include fire prevention awareness training, reduction of fire loading, reduction of fire ignition sources, fire extinguisher training, and evacuation drills. Training programs and fire safety programs may be developed to assist managers/supervisors in providing a continuous level of safety.

We will evaluate the existing emergency power, lighting and exit signage to provide an assessment of compliance with applicable Codes, the expected lifespan of the existing systems, any electrical safety issues and how the energy resources are currently distributed. Recommendations based on these evaluations will be presented for review by the Agency to determine if upgrades will be pursued.

Upon final determination of all prescriptive and performance-based improvements to the passive and active fire protection systems, the design and construction methodologies will be generated to provide a cost-effective approach and phased improvement plan. Phased approaches may be to specific areas or specific building elements such as initial improvements to the sprinkler and fire alarm systems. Specific design criteria and specifications will be developed in **Phase II** based on the calculated results for the performance-based designs to allow contractors to properly bid on construction contracts. The installation will be carefully monitored during the various construction phases to verify it meets the unique design parameters while maintaining the historic architectural features of the building.

We will develop preliminary opinion of construction cost estimates based on varying approaches to assist in developing the scope to determine if phased modifications or alternative solutions may be required to meet the goals and objectives. Throughout the evaluation/design process we will periodically update the costs to reflect any changes in direction of the Project. These updates will occur as a minimum at each crucial milestone. Cost estimates will be prepared in a clear and concise method and shared with all team members for potentially necessary decisions. **ZDS** employs an extensive library of historical costs from past projects combined with RS Means construction cost manuals and, at times, have also reviewed the proposed work with trusted contractors/subcontractors as another method of checking our estimated costs.

We utilize quality control on every project as an effort to maintain schedules and stay within the stipulated budget. Peer review of the design process involving various members of our Team is an important step in the process and coupled with our previously mentioned cost estimating resources will result in a better project for the Client.

## **SCOPE OF SERVICES – Phase II**

### **Additional Services:**

Based on the evaluations, findings and recommendations in our report(s) including the phased construction of the upgrades the Owner will determine if the **ZDS** Team will be retained to provide the development of Construction Documents in a multi-phased approach for the Project(s). All services performed in this Phase will be as Additional Services as mutually agreed between all parties and may be a Change Order to the original Contract for the Phase I services. Our Team will prepare the Bid packages, assist with the bidding and negotiations process and perform Construction Administration services. We understand that it will be critical to integrate Code requirements with historic preservation measures while meeting the intent to provide overall safety for the facility pertaining to fire protection, evacuation egress and emergency systems throughout this process. We have successfully incorporated phased construction in facilities to reduce disruptions and to allow adjacent spaces to remain occupied and functional.

Our evaluations and designs have included many projects for entire campus facilities of various occupancies incorporating fire protection, life safety and security in historically significant buildings so we have the experience and background to address the needs of this project. **ZDS** will request copies of any existing documentation available for our review and use in preparing a feasible approach to the evaluation Phase of this Project.

**ZDS Design/Consulting Services'** Team has registered professionals that can effectively execute the requirements of the EOI and believe that our experience makes us the most qualified to provide the desired services and subsequent goals. Below is a partial listing of the proposed Team for this Project.

**Todd A. Zachwieja, ZDS CEO, Principal-in-Charge, PE, CEM, LEED AP**

**Ted A. Zachwieja III, ZDS Chief Technical Officer, PE, CEM**

**Jim Watters, ZDS Associate, Construction Administrator**

**Paul O'Dell, ZDS Senior Engineer, PE**

**Norm Fetterman, ZDS NFPA/Life Safety Specialist, CFPE, CFI**

**Michael Reardon, Reardon Fire Consulting Fire Protection Engineer, PE**

**Laura H. Hughes, EHT Traceries, Principal-in-Charge**

**Kim Daileader, EHT Traceries, Lead Technical Preservation Services**

**Bill Marzella, EHT Traceries, Lead Historic Preservation Planner**



**Carol A. Stevens, CAS, Structural Engineer, PE**

**Phillip A. Warnock, CTG, Project Architect, NCARB, AIA**

**W. Thomas Cloer, CTG, Project Architect, NCARB, AIA**

**David C. Hoy, CTG, Civil/Structural Engineer, PE**

The **ZDS** Team personnel have worked on many projects that have been driven by fire protection and life safety in historical structures including many with Governmental agencies.

We encourage you to call the references listed below to establish how well we worked with their staff, our technical strengths and our ability to work with contractors to provide a quality project.

1. Mr. Mike Pickens, Executive Director, WV Dept. of Education, 1900 Kanawha Blvd. East, Bldg. 6, Room 215, Charleston, WV 25305 (304) 558-2711, [mepicken@k12.wv.us](mailto:mepicken@k12.wv.us). Involved with dozens of MEP and Fire Protection projects in West Virginia since the 1990's.
2. Mr. Charles Moeller, Director, Project Manager for Constellation New Energy, 24 Summit Park Drive, Suite 103, Pittsburgh, PA 15275, (724) 584-3331, [charles.moeller@constellation.com](mailto:charles.moeller@constellation.com). Former Johnson Controls Project Manager on the Capitol Complex PC project.
3. Mr. Gary Boyd, Director of Facility Services, University of Charleston, 2300 MacCorkle Avenue S. E., Charleston, WV 25304 (304) 357-4871, [garyboyd@ucwv.edu](mailto:garyboyd@ucwv.edu). Worked on projects at both WVU and UC involving MEP and Fire Protection systems since 1990's.
4. Mr. Ron Adkins, Construction Manager for WVDHHR, One Davis Square, Suite 100, Room 103, Charleston, WV 25301 (304) 634-9379, [ron.adkins@wv.gov](mailto:ron.adkins@wv.gov) and former Project Manager for the \$43 million WV Air National Guard project that includes specialized fire protection systems. Construction Manager for DHHR facilities since 2011 including \$45.5 million addition/renovations to William R. Sharpe, Jr. Hospital, Weston, WV that involved fire protection, smoke evacuation and emergency power systems for the hospital.
5. Mr. Greg Nicholson, Retired Chief Operations Officer, WVDHHR, Charleston, WV (304) 552-0101, [gregnicholson@suddenlink.net](mailto:gregnicholson@suddenlink.net) Involved with evaluation and master planning for seven hospitals involving MEP and Fire Protection systems at each facility over multiple years.

**ZDS** Team is the right size to provide the level of service necessary and listen and care about your needs. We have an excellent track record of evaluating, planning and completing projects on time and in budget and we are ready and willing to start on your project. We feel confident that our Team specialties will provide you with the best expertise to provide economical solutions and look forward to discussing our qualifications. If there are any questions, please do not hesitate to call.

Sincerely,



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



# General Services Division

Client/Owner



## Prime Contract

**M/E/P Design & Prime Contract**  
ZDS Design/Consulting Services

**Historic Preservation Consultant**  
EHT Tracerles, Inc.

**Architectural Consultant**  
Chapman Technical Group

**Fire Protection Consultant**  
Reardon Fire Consulting, P.C.

**Structural Consultant**  
CAS Structural Engineering, Inc.

Principal, PE, CEM, LEED AP  
Contract Administrator  
Todd A. Zachwieja

Principal in Charge  
Laura Harris Hughes

NCARB, AIA  
Project Architect  
W. Thomas Cloer, III

President, PE  
Fire Protection Engineer  
Michael T. Reardon

President, PE, FASCE  
Structural Engineer  
Carol A. Stevens

CTO, PE, CEM  
Project Manager  
Ted A. Zachwieja III

Lead Technical Preservation  
Services  
Kim Delleader

NCARB, AIA  
Project Architect  
Phillip A. Warnock

Associate  
Construction Administration  
James E. Watters

Lead Historic Preservation Planner  
Bill Marzella

Interior Design  
Sharon L. Chapman

CFPE, CFI  
NFFPA/Life Safety Specialist  
Norman R. Fitzerman

# SECTION II

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## ZDS Company Overview

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## ABOUT **ZDS** DESIGN/CONSULTING SERVICES

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

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

## COMPANY LEGAL NAME

**ZDS** Limited Liability

Company dba **ZDS** Design/Consulting Services

## LOCATION OF INCORPORATION

West Virginia

## FOUNDERS

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

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

Daniel H. Kim, Ph.D.

## OFFICE

281 Smiley Drive, St. Albans, WV 25177

## EMPLOYEES

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



## CLIENTS & EXPERIENCE

- ◆ Cass Scenic Railroad
- ◆ Charleston Area Medical Center
- ◆ Charleston National Bank/Chase
- ◆ Coal Heritage Discovery Center
- ◆ Concord University Nick J. Rahall II Technology Ctr.
- ◆ District 2 Headquarters' Building HVAC Renovations
- ◆ General Motors North America Operations
- ◆ Harvard University Arboretum
- ◆ Hopemont Hospital, WVDHHR
- ◆ IMC Data Center
- ◆ Jackie Withrow Hospital, WVDHHR
- ◆ Kanawha County Commission Courthouse & Judicial Annex
- ◆ Laidley Towers
- ◆ Marshall University Harris Hall & Smith Hall
- ◆ Meadowbrook & Burnsville Rest Areas, WVDOT
- ◆ Mercer County Courthouse
- ◆ Pendleton County Courthouse & Annex
- ◆ Pocahontas County Community Center
- ◆ Robinson Grand Performing Arts Theatre
- ◆ Redmond House, WVDOT
- ◆ St. Patrick Church Renovations
- ◆ Toyota Manufacturer, WV Inc.

- ◆ Tucker County Courthouse
- ◆ University of Charleston Innovation Center
- ◆ Veterans Administration
- ◆ Webster County Development Authority
- ◆ Webster County Schools
- ◆ White Sulphur Springs Welcome Center
- ◆ William R. Sharpe, Jr. Hospital, WVDHHR
- ◆ World Trade Center, MD
- ◆ WV Air National Guard
- ◆ WV Army National Guard
- ◆ WV Children's Home, WVDHHR
- ◆ WV Dept. of Education
- ◆ WV Division of Energy
- ◆ WV Dept. of Transportation
- ◆ WV Dept. of Health & Human Resources
- ◆ WV Division of Culture and History Renovations
- ◆ WV Division of Protective Services
- ◆ WV General Services Division
- ◆ WV Higher Education Policy Commission
- ◆ WV Parkways Authority HVAC Renovations
- ◆ WVU Stewart Hall & Wise Library
- ◆ Yeager Airport

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

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

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

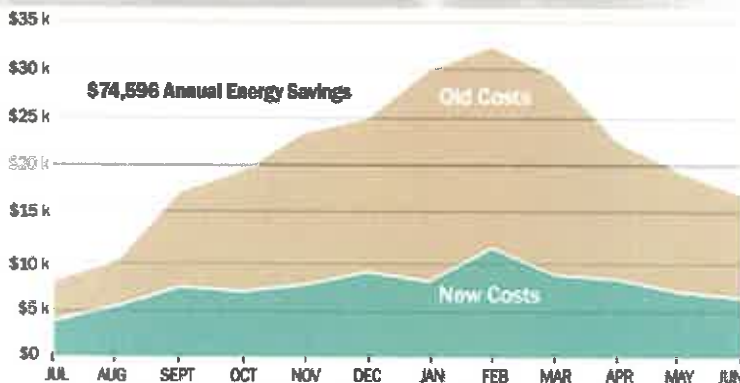
**ZDS'** organization has an unbeatable, long running, and well-known track record for meeting our clients' needs, on time and within budget, with outstanding quality. **ZDS** views these characteristics as the foundation of Quality. We look forward to the opportunity to discuss our ideas with you and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



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

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

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



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

### 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



1<sup>st</sup> Place 2014  
ASHRAE  
Technology  
Award

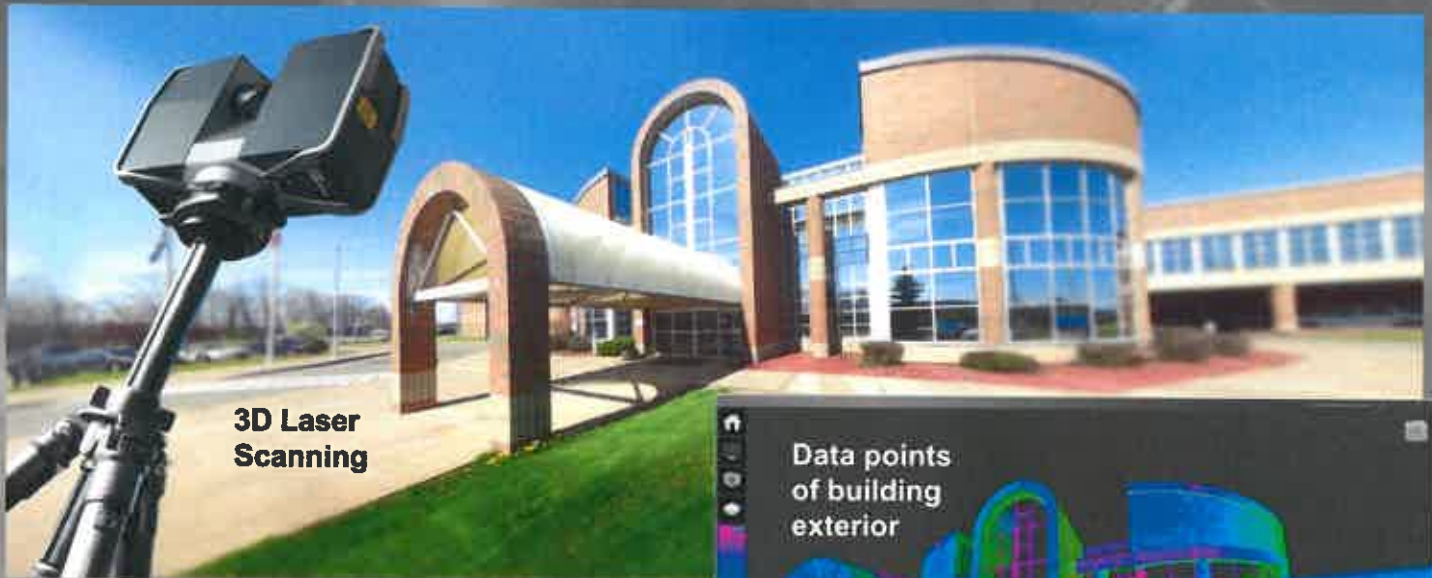


In addition to the energy management projects outlined above, the **ZDS** team members have extensive experience in identifying and implementing energy efficient operating and maintenance measures. These are typically low cost or no cost measures that include:

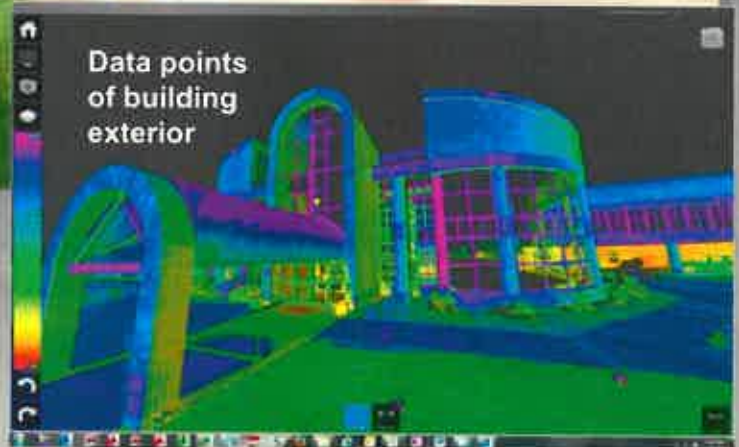
- Inspecting, calibrating temperature controls and adjusting outdoor air dampers
- Commissioning economizer cycle operation
- Testing steam traps and pressure relief equipment operation
- Enabling heating and cooling equipment only when required

# BIM - 3D Digital Imaging

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



**3D Laser Scanning**



## **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.





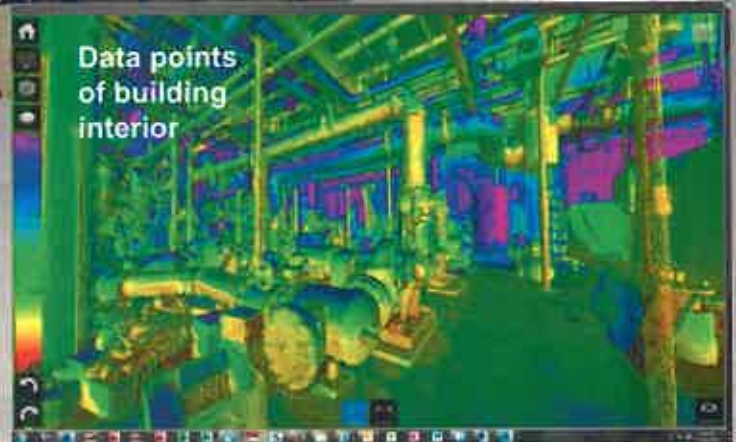
# BIM - 3D Digital Imaging

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

*DHHR*



**3D Laser Scanning**



**Data points of building interior**

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

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

*DHHR Director of Construction & Project Management*



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

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



# **SECTION III**

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## **Team Expertise & Project Experience**

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**ZDS Design/  
Consulting  
Services**

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1. *Phragmites australis* (Cav.) Trin. ex Steud.

2. *Spartina patens* (Muhl.) B.S.P.

3. *Spartina cynosuroides* (L.) B.S.P.

4. *Spartina anglica* (Muhl.) B.S.P.

5. *Spartina pectinata* (L.) B.S.P.

6. *Spartina alterniflora* (L.) B.S.P.

7. *Spartina patens* (Muhl.) B.S.P.

8. *Spartina cynosuroides* (L.) B.S.P.

9. *Spartina anglica* (Muhl.) B.S.P.

10. *Spartina pectinata* (L.) B.S.P.

11. *Spartina alterniflora* (L.) B.S.P.

12. *Spartina patens* (Muhl.) B.S.P.

13. *Spartina cynosuroides* (L.) B.S.P.

14. *Spartina anglica* (Muhl.) B.S.P.

15. *Spartina pectinata* (L.) B.S.P.

# Engineering for State & Local Government Facilities



Governor's Mansion

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

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



Building #3



WV State Capitol



LEED Certified Candidate





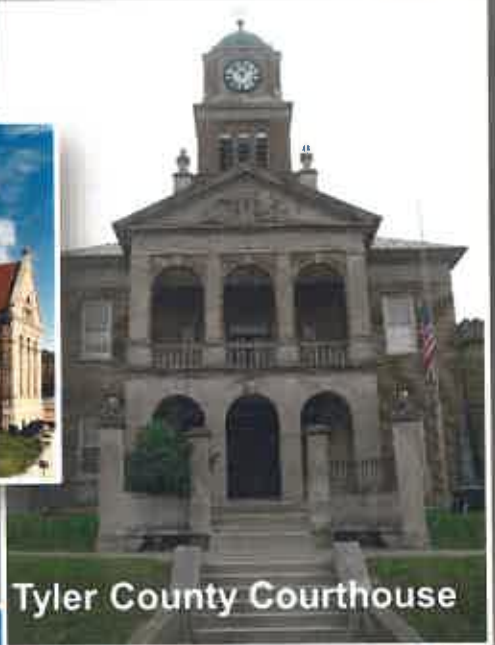
# Engineering for State & Local Government Facilities

ZDS project experience includes historical facilities sensitive to finding solutions that address IEQ which includes acoustics, lighting, Indoor Air Quality and comfortable energy-efficient HVAC systems.

**St. Patrick's Church**



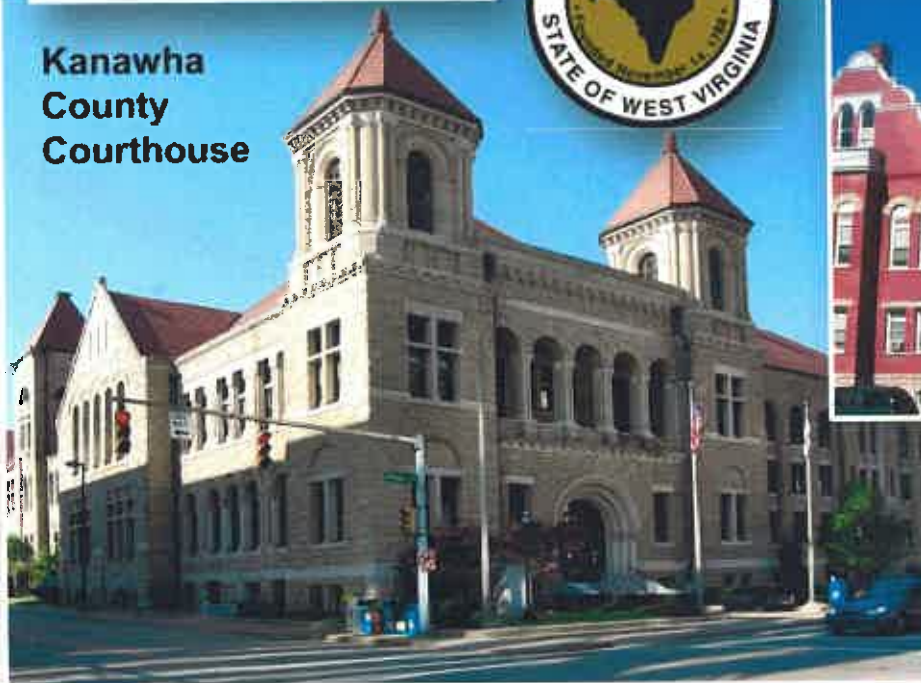
**WVU Stewart Hall**



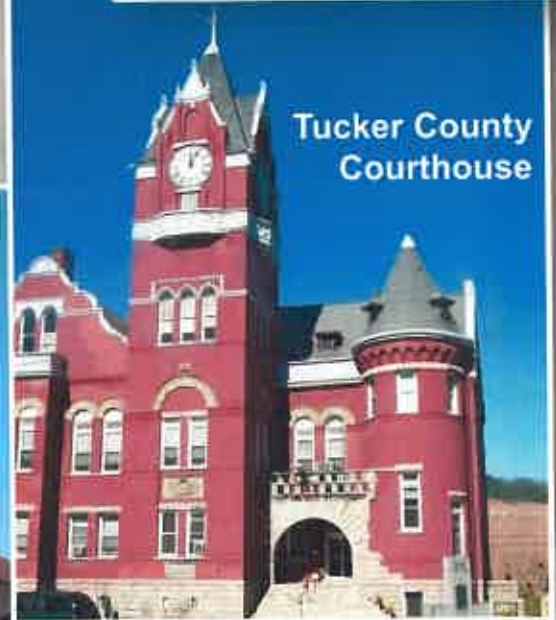
**Tyler County Courthouse**



**Kanawha County Courthouse**



**Tucker County Courthouse**



**Design/Consulting Services**



# Engineering for State & Local Government Facilities

ZDS engineering project experience includes facilities registered as official Historic Buildings



Jackie Withrow State Hospital



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



Hopemont State Hospital

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



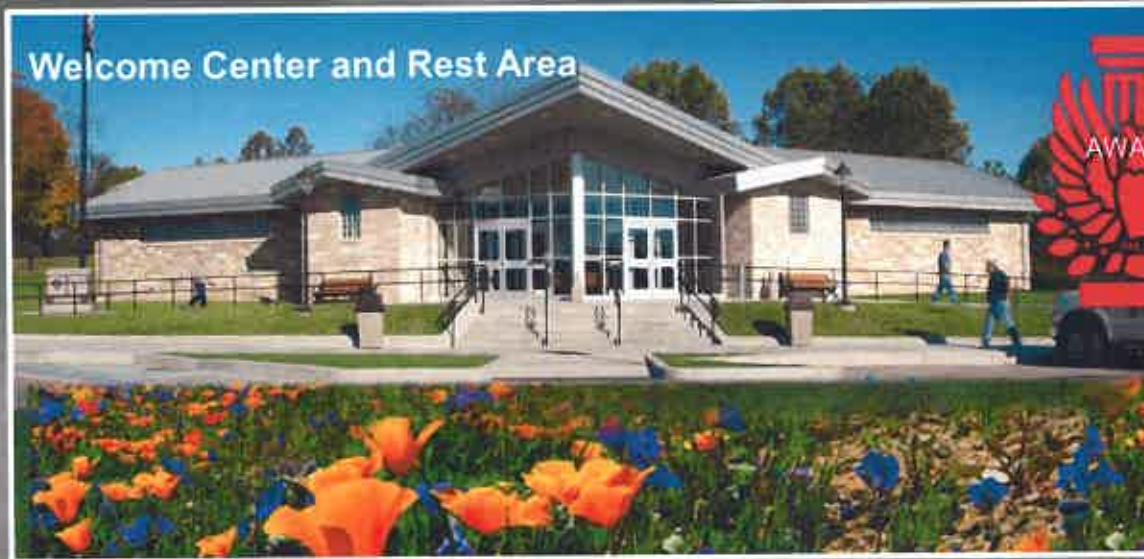
Mildred Mitchell-Bateman State Hospital



Design/Consulting Services



# Engineering for State & Local Government Facilities



Welcome Center and Rest Area



ZDS engineered the prototype for several Welcome Centers and Rest Areas.

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



Division of Culture and History  
A 228,500 ft<sup>2</sup> 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



# Engineering for Commercial Facilities

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

**World Trade Center, MD**



**Bank One/Chase Tower**



**West Union Bank**



**General Motors Corp.**

**Kanawha County Courthouse**



**Mercer County Courthouse Annex**



**Design/Consulting Services**





# University of Charleston Russell & Martha Wehrle Innovation Center

MEP Engineering,  
Planning, & 3D Scanning

**ZDS** provided MEP engineering planning and design for the 87,500 FT<sup>2</sup> Eddie King Gym and Gorman Hall plus a 30,000 SF addition. **ZDS** provided 3D scanning services to collect "built conditions" due to the age of the facilities and lack of as-built MEP drawings. The facility meets NCAA competition requirements. The facility consists of classrooms, offices, flexible meeting areas and a large two-story Innovation Center space. Mechanical and Electrical work includes new chiller and boiler plants with pumps and accessories, HVAC air handling units, DDC Controls, new domestic and fire protection water services, new gas service, domestic water heating equipment, extensive plumbing fixtures/showers/lockers, new electrical service from the campus 12.5 kv distribution loop, switchgear, distribution and branch panel boards, and new state-of-the-art energy efficient LED lighting systems.

**Construction Costs:** \$16,800,000 Estimated

**Date Completed:** Early 2017

**Owner:** Mr. Gary Boyd, Director of Facilities; (304) 357-4871, [garyboyd@ucwv.edu](mailto:garyboyd@ucwv.edu)

## Marshall University Harris Hall & Smith Hall Renovations

**ZDS** Harris Hall included engineering planning, design, bidding and construction administration services for HVAC, Plumbing & Electrical retrofits, DDC Controls, AHU's replacement, chiller replacement, VVV pumping, new electrical service, switchgear and addressable fire alarm systems for the 56,680 square-foot facility towers.

Smith Hall, an eight story classroom facility, consisted of exit stair tower smoke control system, and plumbing sanitary stack renovations as part of complete window replacement/upgrade to the largest classroom building on campus. It was completed a year ahead of schedule and under budget.

**Construction Costs:** Harris Hall \$2,856,000, Smith Hall \$2,800,000

**Owner:** Mr. Ron May, Retired Capital Projects Mgr; (304) 654-2367  
Mr. Tony Crislip, Retired Project Mgr.; (304) 633-2081

Harris Hall



Smith Hall



*"Harris Hall is now the most comfortable one on Campus!"*  
- Tony Crislip, **Marshall University**



Design/Consulting Services

**ZDS** Design/Consulting Services

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



**Client Contact:**

**Mr. Chuck Moeller**

Constellation Energy

24 Summit Park Drive, Suite 103

Pittsburgh, PA 15275

(412) 489-9445

charles.moeller@constellation.com

**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**

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, 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, 7, 8 (Governor's Mansion) and provisions for #10 (Holly Grove) plus additional future capacity.



## PROJECT EXPERIENCE

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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.

<b><i>Contracting Costs:</i></b>	<b>\$10,108,802</b>
<b><i>Initial Year Savings:</i></b>	<b>\$1,079,296</b>
<b><i>Size:</i></b>	<b>1,929,155 ft<sup>2</sup></b>
<b><i>Completion:</i></b>	<b>2008 for Construction</b>

**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 ft<sup>2</sup> museum and protecting the artifacts.



**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**.

**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.

**Total Culture Center Project Cost:** \$6,000,000  
**Size:** 228,500 FT<sup>2</sup>  
**Completion:** 2001 for HVAC, 2010 for FA/Sprinklers  
**Estimated Energy Savings:** Reduced HVAC Operating Costs up to 50%



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## PROJECT EXPERIENCE

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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.*

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# **EHT Traceries, Inc.**

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**NAME / ROLE**

EHT Traceries, Inc.  
Historic Preservation

**PRIMARY OFFICE LOCATION  
FOR SERVICES PERFORMED  
DURING THIS PROJECT**

440 Massachusetts Avenue, NW  
Washington, DC 20001  
202-393-1199

**PRIMARY CONTACT INFO**

Laura Hughes  
Principal-in-Charge  
Laura.hughes@traceries.com

**FIRM SIZE**

14 employees

**AREAS OF SPECIALTY**

Building Modernizations  
Survey & Documentation  
Design Review  
Section 106/NEPA Compliance  
Preservation Planning

**BUILDING TYPES**

Government Buildings  
Colleges/Universities  
Campus Libraries  
Office Buildings  
Theaters  
Apartment Buildings  
Rural Structures  
Landscapes

**EHT TRACERIES, INC.**

Historic Preservation  
Architectural History and Preservation Planning

Traceries **will** serve as a sub-consultant for matters related to historic preservation, architectural history and history. Laura Hughes **will** serve as the main point of contact for Traceries.

EHT Traceries, Inc., is a certified woman-owned small business specializing in history and historic preservation. Since 1977, our award-winning firm has provided its clients with a wide range of professional services, including archival research, survey and documentation, evaluation, regulatory compliance, and preservation planning. EHT Traceries has a staff of architectural historians, historians, preservation planners, and preservation specialists, all of whom meet the professional qualifications prescribed by the Secretary of the Interior (36 CFR 61).

EHT Traceries is also a recognized authority in the documentation and evaluation of historic and cultural resources. We have worked throughout the country applying and adapting national standards to a wide range of historical periods and resource types. From individual building rehabilitations to large-scale master plans, we are an integral member of a project team and contribute a sound understanding of the issues of historic significance, compliance and compatibility. Working collaboratively with design teams and other consultants helps ensure that historic preservation is a successful component of any project. We also have extensive experience working closely with government agencies, State Historic Preservation Offices, and other stakeholders to guide projects through stringent reviews at local, state, and federal levels.

**RELEVANT PROJECT EXPERIENCE IN ACCORDANCE WITH  
PROJECT SCOPE OF WORK**

Cannon House Modernization Exempt from National Register      Switzer Building Modernization: National Register Eligible

US Capitol Building Exempt from National Register      Carnegie Library National Register Listed

Union Station National Register Listed      Old Post Office National Register Listed

US Department of Agriculture National Register Listed      Smithsonian Institution National Historic Landmark





## US CAPITOL BUILDING - WASHINGTON, DC BUILDING PRESERVATION GUIDE

### SCOPE OF WORK:

Lauded as one of the most iconic and impressive buildings in the nation, the United States Capitol was constructed in a series of phases beginning in 1793. Since its initial construction, the Capitol Building has been partially burned and rebuilt, extended, and restored. As both an architectural icon and a functioning office building for the United States Congress, the Capitol has undergone extensive changes on the interior to accommodate growth and the changing needs of its tenants. The U.S. Capitol retains much of its original historic fabric, despite necessary modernization, however, a comprehensive inventory documenting significant historic architectural features and elements has not been completed to date. In an effort to remedy this void of documentation, EHT Tracerics was hired to work as part of a team, advised by the Architect of the Capitol, to complete a Building Preservation Guide (BPG).

EHT Tracerics reviewed previously prepared studies and histories, conducted an on-site survey of significant features, and assessed the evolution of the structure. Research and survey efforts resulted in individual inventory sheets for exterior elevations, corridors, stairs, ceremonial spaces, and offices considered to be within historic restoration and rehabilitation zones. In order to create a comprehensive and user-friendly BPG Inventory, each room-by-room inventory sheet details elements ranging from flooring to light fixtures and provides the material composition, finish, and date for each photo-documented element. This BPG Inventory will serve as a guiding document for future restoration and rehabilitation projects.

**OWNER**  
United States Government

**LOCATION**  
Washington, DC

**SCOPE**  
Building Preservation Guide

**PROJECT SIZE**  
718, 740 sf  
(floor area)

**PROJECT DATES**  
2012- present

**REFERENCE**  
James C. Dudney, AIA  
Karn Charuhas & Twohey  
1120 Connecticut Avenue, NW  
Washington, DC 20036  
Phone: 202.659.5600ext134  
Email: JDudney@kcct.com





## SMITHSONIAN INSTITUTION SOUTH CAMPUS MASTER PLAN AND SECTION 106 REVIEW

### SCOPE OF WORK:

The Smithsonian Institution was founded in 1846 and has grown to become the world's largest museum and research complex. Steward to many of the Nation's most valued artifacts, specimens, and records, the Smithsonian houses its collections in nineteen museums and galleries, the National Zoological Park, and nine research facilities. Although the institution has an international presence, its most popular museums and most iconic buildings are located on the National Mall in Washington, DC.

EHT Traceries has been retained to provide historic preservation consulting services to aid in the creation of a Master Plan for its South Mall Campus. The master plan will improve the visitor experience and strengthen physical and programmatic connections among existing facilities. Included within the project scope are the Smithsonian Institution "Castle," the Arts and Industries Building, the Hirshhorn Museum and Sculpture Garden, the Freer Gallery, the Quadrangle, and several gardens. Traceries conducted extensive research and drafted a historic context report to inform the master plan approach. As a federal undertaking, the proposed redevelopment will require a consideration of the potential effects on historic resources under Section 106 of the National Historic Preservation Act and will be coordinated with the Environmental Assessment process. Traceries is overseeing Section 106 consultation with the DC Historic Preservation Office and other consulting parties. Traceries is also preparing materials for presentation to the Commission of Fine Arts and the National Capital Planning Commission. Upon completion, the master plan will leverage the Smithsonian's historic, iconic resources to transform the visitor experience from a static and collections-oriented approach to one that is dynamic, social, and lively.

**OWNER**  
Smithsonian Institution

**LOCATION**  
Washington, DC

**SCOPE**  
Extensive Contextual and  
Archival Research;  
Section 106 Consultation;  
Design Review and Agency  
Approvals Consultation

**PROJECT SIZE**  
Approximately 20 acres

**PROJECT DATES**  
Early 2013 to present

**REFERENCE**  
Mr. Christopher Lethbridge  
Project Manager, Office of  
Planning & Project Management  
600 Maryland Avenue,  
SW Suite 5001  
Washington, DC 20013  
(202) 633-6545  
LethbridgeC@si.edu







## UNION STATION HISTORIC PRESERVATION CONSULTATION

### SCOPE OF WORK:

Union Station was constructed between 1903 and 1908 as a monumental entrance to Washington, D.C. In its 1902 City Beautiful Plan for the city of Washington, the McMillan Commission identified the need for a "grand gateway to the capital, through which everyone who comes to or goes from Washington must pass ... it becomes the vestibule of the capitol." Commission member Daniel H. Burnham was charged with the design of Union Station. Through the use of classical elements, Burnham designed a train terminal that combined utility and art. His monumental design for Union Station is considered one of the finest examples of Beaux Arts architecture in the nation. In 1985, Union Station was redeveloped into a multi-modal transportation hub and shopping center.

EHT Traceries has been retained by Union Station Investco (USI), the station's long-term leaseholder, to provide historic preservation consulting services and help guide the commercial redevelopment of Union Station. USI aims to leverage the unique historic setting of Union Station to create a premier retail attraction in Washington, D.C. Traceries is assisting USI in developing design alternatives for the station's retail spaces that will enhance and preserve the significant architectural features of the building. Union Station is listed in the National Register of Historic Places and falls under the jurisdiction of the National Capital Planning Commission and the U.S. Commission of Fine Arts. Therefore, Traceries is advising USI on the various review processes that may apply to proposed changes. As a federal building, the proposed redevelopment will also require a consideration of the potential effects on historic resources under Section 106 of the National Historic Preservation Act. Traceries is overseeing the coordination of this Section 106 Review with the D.C. State Historic Preservation Office. Ultimately, this project will ensure that the historic Union Station continues to function as a successful transportation and retail center.

**CLIENT**  
Union Station Investco, Inc.

**LOCATION**  
Washington, DC

**SCOPE**  
Section 106 Consultation  
Design Review and Approvals  
Consultation

**PROJECT SIZE**

**PROJECT DATES**  
2009-present

**REFERENCE**  
Mr. Joe Press  
Asset Manager  
Union Station Investco, LLC  
4333 Fifth Avenue  
New York, NY 10016





## MARY E. SWITZER BUILDING SECTION 106 CONSULTATION AND AGENCY REVIEW



**OWNER**  
General Services Administration

**LOCATION**  
Washington, DC

**SCOPE**  
Contextual and Archival  
Research;  
Section 106 Consultation;  
Agency Review

**PROJECT SIZE**  
571,000 square feet

**PROJECT DATES**  
2013 to present

**REFERENCE**  
Mr. Wayne Heil  
Senior Associate  
Callison RTKL  
2101 L Street NW, Suite 200  
Washington, DC 20037  
(202) 912-8263  
wayne.heil@callisonrtkl.com

### SCOPE OF WORK:

The Switzer Building was constructed in 1939 as part of a New Deal-era construction project that also included the adjacent Cohen Building. The building was constructed to house the Railroad Retirement Board, an agency established during the Great Depression to provide pension security for American railway workers. Overseen by Louis A. Simon, then Supervising Architect of the Treasury Department, the building was designed by consulting architect Charles Z. Klauder. Klauder was well-known for his use of the Stripped Classical style, which incorporated traditional architectural elements with a Moderne aesthetic to create bold, massive, and simply ornamented buildings. In 2007, the Switzer Building was listed in the National Register of Historic Places.

EHT Traceries was retained to act as historic preservation consultants for the phased modernization of the Switzer Building. These alterations will allow for more efficient occupancy and security screenings by the building's principal tenant, the Department of Health and Human Services. Traceries completed archival and contextual research to identify preservation zones and character-defining features. Traceries is also responsible for preparing documentation to ensure GSA's compliance with Section 106 of the National Historic Preservation Act. Traceries also assisted GSA and the project team with the preparation of submission materials for National Capital Planning Commission and Commission of Fine Arts Review.



# BUILDING PRESERVATION PLANS

PROJECTS COMPLETED IN IOWA, MASSACHUSETTS, NEW HAMPSHIRE, WEST VIRGINIA, VIRGINIA, NEW YORK

## SCOPE OF WORK:

The Building Preservation Plan (BPP) is a comprehensive building management plan for historic federal buildings under the control of the General Services Administration (GSA). The BPP provides a standardized, automated system for the analysis, management, and treatment. The information is grouped into three stages that are modeled after the standards of the National Park Service Historic Resource Survey (HSR):

- Stage I: Basic information about the building, including a statement of significance and an architectural description.
- Stage II: Documentation of buildings into zones based on distinctive historic or architectural qualities.
- Stage III: Detailed building element inventory and condition assessment within each zone.

EHT Traceries is fluent with the BPP format and has applied the BPP standards nationwide, including projects in Iowa, Massachusetts, New Hampshire, New York, West Virginia, and Virginia. As the project architectural historian, EHT Traceries was responsible for Stage I documentation as well as collaborating with preservation architects on Stage II zoning and character defining features identification and Stage III recommendations work. EHT Traceries conducted field investigations, developed preservation zoning strategies, and prepared condition assessments.

**OWNER**  
General Services Administration

**LOCATION**  
14 Building Preservation Plans  
Nationwide

### Buildings Include:

- The United States Post Office, Federal Building & Courthouse, Cedar Rapids, Iowa
- United States Courthouse & Post Office, Sioux City, Iowa
- Walter E. Hoffman Courthouse, Norfolk, Virginia
- Sidney L. Christie Federal Building & Courthouse, Huntington, West Virginia





## CANNON HOUSE OFFICE BUILDING BUILDING RENEWAL AND MODERNIZATION

### SCOPE OF WORK:

The Cannon House Office Building is a six-story, Beaux-Arts structure designed in 1904 by the architectural firm of Carrere and Hastings. Completed and occupied in December 1908, it was designed as an elegant yet deferential backdrop to the US Capitol. The building is open to the public and provides office space for members of the US House of Representatives and their staff, as well as numerous committee hearing rooms, and the elegantly detailed Rotunda, split staircase, and Caucus Room.

EHT Traceries was part of a team that advised the Architect of the Capitol on the rehabilitation and renovation of the Cannon HOB in 2010-11. The focus of the firm's effort was to ensure that proposed work would be sensitive to the building's most historically significant interior architectural features. Specifically, EHT Traceries reviewed previously prepared studies, conducted an on-site survey of significant features, and assessed existing conditions to inform the establishment of criteria, priorities, and guidelines for the project. Historic documentation that was reviewed included textual records, as well as drawings and photographs from original construction, subsequent remodeling, and recent assessments. Monumental, ceremonial, special purpose, office, and circulation spaces were all considered in the delineation and prioritization of preservation zones.

**OWNER**  
Architect of the Capitol

**LOCATION**  
Washington, DC

**SCOPE**  
Research and Documentation  
Design Consultation

**PROJECT SIZE**  
826,465 sf

**PROJECT DATES**  
2010-2011

**REFERENCE**  
Kevin Milstead  
Shalom Baranes Associates  
1010 Wisconsin Avenue, NW  
Suite 900 Washington, DC  
20007  
(202) 342-2200  
KMilstead@sbaranes.com





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**CAS Structural  
Engineering, Inc.**

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# STRUCTURAL INVESTIGATION MAIN CAPITOL BUILDING DOME

Charleston, West Virginia



Concrete at the railing level was hidden from view and repaired once the sheet metals was removed and the deterioration was found.



The structural steel in the lantern level shows evidence of deterioration. Project included probing to determine extent of deterioration and preparation of plans and specifications for repairs.



The structural steel after being repaired and the regilding complete. Project included returning the dome to the original Cass Gilbert color scheme.



Completed dome restoration shows the original sheet metal detail on the previous lead coated copper sheet metal. The lead coating was compromised over the years. As a result, a coating system had to be applied to protect the copper sheet metal.



**AIA New York State Merit Award 2006**



# PARAPET/BALUSTRADE INVESTIGATION MAIN CAPITOL BUILDING Charleston, West Virginia

This project was completed and involved an exploratory investigation of the Main Capitol Building parapet and balustrade in an effort to determine the source of movement in the limestone panels. In addition, the leaking that is currently occurring in the upper floor ceilings was addressed. This building is listed on the National Register of Historic Places.



There were a number of locations around the parapet where limestone panels or joints exhibited cracks and significant movement. There was evidence of minor efflorescence within the ceiling



The exploratory investigation involved removing limestone and brick at several locations, documenting the findings, and developing a budget estimate for repairs to the parapet.

Once the stonework was removed and the source of water infiltration and subsequent deterioration was discovered, plan and specs were developed to make the appropriate repairs. A contract for these repairs was awarded and work is now complete.





# EXTERIOR FAÇADE RESTORATION MAIN CAPITOL BUILDING

Charleston, West Virginia



Exterior façade restoration included cleaning, pointing, and repairs to the limestone and terra cotta components, windows and doors.



Portions of the limestone cornice were damaged to the point that they fell when work was being conducted and had to be pinned back in place.



Other repairs included various spall repairs, pinning and epoxy injection of larger cracks and lifting and pinning key-stones over windows.



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**Chapman  
Technical  
Group**

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# COMPANY OVERVIEW & AWARDS



Established in 1984, Chapman Technical Group has steadily grown into a diverse firm of professionals, many of whom were educated in West Virginia colleges and universities. We have achieved an outstanding reputation for developing high-quality projects, while meeting schedules and budgets.

In 2013, Chapman Technical Group was acquired by the Lexington, Kentucky based A/E firm of GRW, allowing us to provide a wider range of services while expanding our resources. Now, in addition to our offices in St. Albans, Buckhannon, and Martinsburg, West Virginia, as part of the GRW family, we also work in Kentucky, Ohio, Tennessee, and Indiana.

Our architectural group not only designs new buildings from the ground up, but also specializes in renovations and historic restoration projects. Our award-winning landscape architects provide master planning, as well as detailed site design for parks and public spaces projects.

In addition to our building studio, our engineering support staff gives us the ability to meet almost any challenge a project may present. All of our mechanical, electrical, plumbing engineering is provided in-house, and our civil engineers work with our landscape architects to provide site designs that are functional while achieving a high level of aesthetics.

Water and sewer system design is accomplished by our environmental engineers, and when on-site wastewater treatment is required, we can do it.

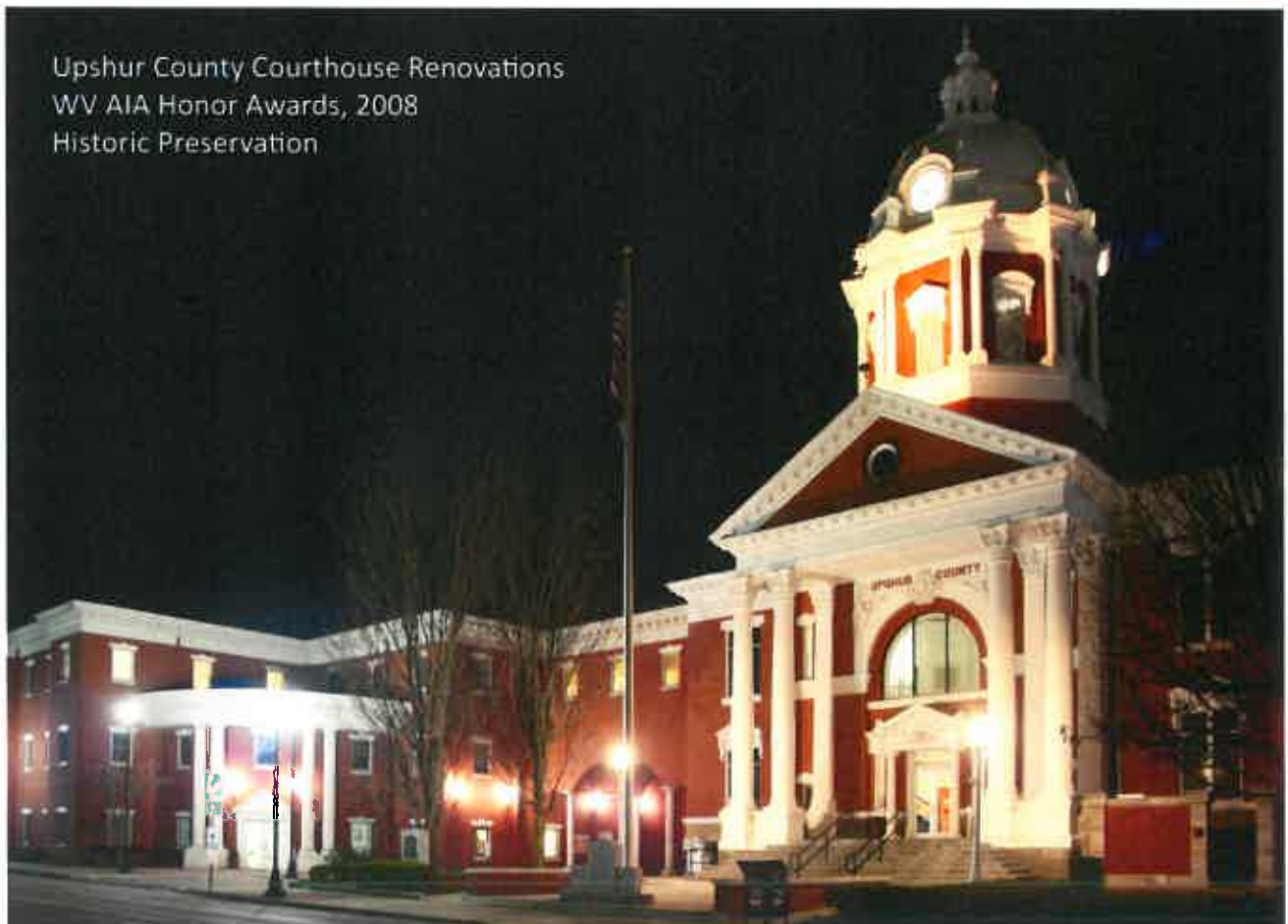
Working with our airport group, we can provide full airport design services, from runway and lighting design, to hangars and terminal buildings.



# COMPANY OVERVIEW & AWARDS



SRC Building Renovations  
WV AIA Merit Award, 2016  
Historic Preservation



Upshur County Courthouse Renovations  
WV AIA Honor Awards, 2008  
Historic Preservation



## WV Division of Highways State Road Commission Building Renovation Charleston, WV

As part of the West Virginia Division of Highways District One Campus Renovation, the former State Road Commission Building was renovated to serve as an office building for various DOH personnel. The historical 40,000 square-foot facility retained many historical features, including original doors and transoms, while providing energy-efficient and cost effective systems throughout. In addition to a complete interior makeover that included a historic information center and radio studio, the building also received new exterior doors, windows, roofing and a new elevator. A skywalk connects the building to a new Headquarters Building being constructed beside the SRC Building. A courtyard was also constructed for employee use.





# ARCHITECTURE



## Coal Heritage Area Authority Coal Heritage Discovery Center Mt. Hope, West Virginia

The Coal Heritage Discovery Center will occupy the historic Patteson Building in downtown Mt. Hope. The Coal Heritage Discovery Center will consist of offices, meeting rooms, an historic information center, a small theater space, a public lobby area, a gift shop, and a small café area. There will also be an outdoor patio which can be used as exterior café seating.

The Center will be constructed in two phases. The first phase consisted of remedial work to weatherize the building and included the installation of a new roof and roof structure; repointing and repair of the exterior brick; cleaning the interior of the building and the installation of new doors and storefront.



*Right: Interior prior to renovation.*





## Chapman Technical Group St. Albans Office

200 Sixth Avenue  
St. Albans, West Virginia 25177

The project included the design of the renovation of an existing 7,000 square-foot building and an 8,000 square-foot addition. The building, formerly U.S. Post Office, now serves as the main office of Chapman Technical Group. The renovation was completed in accordance with the U.S. Department of Interior standards and is now on the National Register for Historic Places.

The office was designed to provide optimum working conditions and included custom-designed CADD workstations and lighting, as well as conference and meeting room facilities. The building houses a complete fitness center, including locker rooms and showers, to provide incentive for employee wellness.



# **SECTION IV**

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## **Team Resumes**

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**ZDS Design/  
Consulting  
Services**

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## Ted (Todd) A. Zachwieja, P.E., CEM, LEED AP CEO, Principal-in-Charge M/E/P/FP Design and Commissioning

Todd has over 38 years of experience involving the analysis, design, construction management and specifications for mechanical engineering, heating, ventilating, air conditioning, plumbing, fire protection, electrical and lighting, as well as indoor environmental quality analysis, building system commissioning and forensic engineering for educational, governmental, military, commercial, industrial and health care clients. He is also recognized as a campus master planner for utility infrastructure providing master planning at many Universities, hospitals and the State of WV Capitol Complex.

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

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

### GOVERNMENT/HISTORIC/COMMERCIAL PROJECT EXPERIENCE

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



### PROFESSIONAL REGISTRATIONS

Professional Engineer:

Florida  
Georgia  
Kentucky  
Maryland  
North Carolina  
Ohio  
Pennsylvania  
South Carolina  
Virginia 0402  
West Virginia

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



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



LEED Accredited Professional,  
National Certification through  
USGBC No. 10083891

### EDUCATION

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

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



www.zdsdesign.com

# Ted (Todd) A. Zachwleja, P.E., CEM, LEED AP

## CEO, Principal-in-Charge M/E/P/FP Design and Commissioning

### PROFESSIONAL AND COMMUNITY AFFILIATIONS

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

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

Recognized by the International Who's Who of Professionals

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

Recognized by AEE nationally in 2007 as a Legend in Energy

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

Charter Life Member of the Association of Energy Engineers

Professional Affiliate Member of the American Institute of Architecture

Associate Member West Virginia Society for Healthcare Engineering

Member of the International Code Council

Member of the National Society of Professional Engineers



### OTHER RECOGNITIONS

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

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

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

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

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

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

1<sup>st</sup> Place 2014 ASHRAE Technology Award, Region VII

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

LEED Gold Certified Harvard Arboretum, Boston, MA

First ASHRAE bEQ certified building in West Virginia, 2015



## Ted Zachwieja III, P.E., CEM

### Chief Technical Officer

Ted has over 14 years of experience in building construction design industry. His strategic thinking and development of technical resources at ZDS has helped streamline design processes and improve quality of work office wide. Ted is an innovative problem solver in engineering design, communication methods and management of BIM models between stakeholders during a design project. As a pioneer and a believer in technological processes Ted has championed Integrated Design Practices that has become the fabric of ZDS's day to day operations.

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

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

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

Ted maintains an active membership to the ASHRAE professional society and also has a lifetime membership to the Association of Energy Engineers. He maintains an active continuing education towards today's standards and codes as well as participates in ASHRAE at both a local and society level. He was recently appointed to the Electronic Communications Standing Committee with ASHRAE. Ted has designed renovations to existing K-12 schools which received **Energy Star Certifications** placing them in the nation's top 25% of energy efficiency schools.

#### GOVERNMENT/HISTORIC/COMMERCIAL PROJECT EXPERIENCE

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



#### PROFESSIONAL REGISTRATIONS

Professional Engineer:

Florida  
West Virginia

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



#### EDUCATION

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

#### AWARDS AND RECOGNITIONS

Awarded 2012 Legend In Energy by the Association of Energy Engineers

Awarded acceptance into ASHRAE's 2015 Leadership University.

ASHRAE Blue Ribbon Award of Excellence

Co-Author at Autodesk University



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

  
Design/Consulting Services

www.zdsdesign.com



## James E. Watters

### Associate - Production Manager

Jim has over 40 years' 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. Jim's strengths reside in his ability to manage projects and people in an organized and cost-effective manner. Jim has been involved with the design and production of mechanical and electrical drawings including HVAC, plumbing, fire protection, lighting, electrical power, fire alarm and specialized systems. He has worked with and managed engineers in projects for health care, educational and commercial buildings in the states of West Virginia, Florida, Maryland, Pennsylvania, Ohio, Kentucky, Virginia, Georgia, New York, Arizona, Illinois and Massachusetts.

Jim has extensive experience in energy savings' programs for HVAC, plumbing and electrical systems in hospitals, state and government office buildings, school systems, and manufacturing facilities, as well as managing performance contracts for a large facility's campus totaling \$10,000,000 in construction costs on various projects, including the conception, design and construction administration for the installation of a 1.5 Megawatt emergency generator. The propane-fired generator and associated switchgear in conjunction with 60,000 gallons of propane fuel storage served to provide peak shaving/load shedding to save on the campus utility costs as well as emergency power functions. Through the years, Jim has researched and implemented into practice International Building Codes, NFPA Codes, National Electrical Codes, Life Safety Codes, IES standards, AIA Guidelines for Design and Construction, and ADA guidelines. His involvement in construction through the years has been mainly from the design side of the industry with a 9 year stint working for a contracting firm at the turn of this century. His experience includes coordinating with Architects, Owners and Agencies including an excellent relationship with the office of State Fire Marshal.

### GOVERNMENT/HISTORIC/COMMERCIAL PROJECT EXPERIENCE

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



### PROFESSIONAL AFFILIATIONS

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

Member of the National Fire Protection Association (NFPA)

Member of the Health Care Section of the NFPA

Member of the Illuminating Engineering Society (IES)

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

Past member of the Institute of Electrical Engineers (IEE)

### OTHER RECOGNITIONS



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

**ZDS**  
Design/Consulting Services

www.zdsdesign.com

## Paul S. O'Dell, P.E.

### Senior Project Engineer

Paul has over 21 years of engineering experience involving the analysis, design, project management, specifications' writing and construction management on many projects throughout the region. This experience includes heating, ventilation, air conditioning (HVAC), plumbing, electrical systems and lighting for governmental, commercial, educational, healthcare, industrial and military facilities. He also has knowledge and experience with indoor environmental quality assessment, recommended remedial work and design of the necessary modifications in various types of buildings.

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

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



#### PROFESSIONAL REGISTRATIONS

Professional Engineer:  
West Virginia

#### EDUCATION

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

#### PROFESSIONAL AFFILIATIONS

Member American Society  
of Mechanical Engineers

Member ASHRAE

#### GOVERNMENT/HISTORIC/COMMERCIAL PROJECT EXPERIENCE

- WVARNG Armory/Annex
- Bruceton Bank
- Bank One
- Culture Center,  
WV State Capitol Complex
- Cuissets Residence
- Camp Dawson barrack/mess hall
- DOT Huntington District II  
Headquarters Renovations
- Yeager Airport Terminal Expansion/  
Renovation
- DOH Testing Lab
- GMC Lordstown Assembly Plant
- GMC Janesville Assembly Plant
- GMC Pontiac East Assembly Plant
- GMC Bowling green Assembly Plant
- GMC Arlington Assembly Plant
- Harrison County Bank
- IMC Office Bldg.
- Kanawha County Commission,  
Judicial Annex
- WV Capitol Complex Central  
Boiler Plant
- Appalachian Tire
- Laidley Towers
- Robinson Grand Performing Arts  
Theatre
- USDA Forestry Building
- University of Charleston Innovation  
Center Additions/Renovations
- World Trade Center, MD
- William R. Sharpe, Jr. Hospital  
Additions/Renovations, WVDHHR
- Numerous K-12 School Renovations

  
Design/Consulting Services

[www.zdsdesign.com](http://www.zdsdesign.com)

**Norman R. Fetterman, CFPE, CFI**  
**NFPA/Life Safety Specialist/Construction Administration**

Norman has over 50 years experience in Life safety, Fire Protection, building inspections and evaluations and a veteran. He served honorably in the United States Air Force for 12 years as a firefighter, a fire inspector and responsible for enforcement of NFPA . He had two tenure's with the WV State Fire Marshal's office. After serving in the Air Force, he worked for the West Virginia State Fire Marshal's (WVSFM) office as a fire safety plans examiner for 5 years and within two (2) years he was promoted to Assistant State Fire Marshal with duties including, but not limited to, code compliance and safety inspections of new and existing buildings. He then took a position at Fort Sam Houston Army Post where he served 10 years as fire inspector for the federal government to review plans for codes' compliance in new construction and renovations in existing facilities including performed inspections for the newly constructed 2.3 million sq. ft. Brook Army Medical Hospital designed by the Army Corps of Engineers. Norman then returned to Charleston, WV for over another 19 years, working for WVSFM; first in the Plans Review section and then later working in the field as an Assistant State Fire Marshal until his retirement. Throughout his career he participated in continuous training through the NFPA and FEMA to keep up with current codes, regulations and standards and applying that experience during evaluations, design reviews and in the field for construction administration.

**CERTIFICATIONS/TRAINING**

- Fire Marshal's Association of WV NFPA/NEC Update for AHJ's Code Updates
- NFPA International Fire Plan Examiner I
- US Airforce Certificate of Training Installed Fire Protection Systems
- Society of Fire Protection Engineers Performance Based Design Process, 2001
- NFPA International Certified Fire Inspection I Program, 2001
- NFPA International Fire Prevention Code & NFPA 101 Life Safety Code, 2000 Edition
- NFPA International Life Safety Code Seminar, 2003
- National Fire Academy Certification Evaluating Performance Based Designs 2003
- Underwriters Laboratories, Inc. Fire Alarm Seminar, 2004
- International Code Council IBC Performing Structural Plan Review, 2005
- International Code Council IBC Performing Nonstructural Plan Reviews, 2005
- NFPA International Fire Plan Examiner I, 2005
- Fire Marshals Association of WV Inspection, Testing & Maintenance of Water Based Fire Protection Systems, 2006
- Fire Marshals Association of WV Seminar on UL Fire-Resistive Construction, 2006
- Fire Marshals Association of WV Fire Alarm Compliance in WV NFPA 1600 Overview of all Hazard Planning 2008
- Fire Marshals Association of WV NFPA 13 & NFPA 25 Commercial Sprinklers, 2009
- Fire Team USA Fire Prevention & Sprinkler Education, 2010
- Fire Marshals Association of WV NFPA 101 & 1, 2012 Edition
- NFPA International Certified Fire Inspection I, 2012



**BACKGROUND**

United States Air Force  
United States Army  
West Virginia State Fire Marshal

**CERTIFICATIONS**

NFPA Certified Plans Examiner 1  
#CFPE I [REDACTED]

NFPA Certified Fire Inspector 1  
#CF [REDACTED]



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**Reardon Fire  
Consulting, P.C.**

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## Michael T. Reardon, P.E. President/Fire Protection Engineer



### SUMMARY OF QUALIFICATIONS

#### EDUCATION

- Master Certificate Fire Protection Engineering, WPI; 2009
- B.S. Fire Protection Engineering, University of Maryland; 2001
- PATC Fire/Arson Investigator Academy; 2006

#### PROFESSIONAL LICENSES & BOARD CERTIFICATION

- Professional Engineer (PE)
  - District of Columbia [REDACTED]
  - Maryland [REDACTED]
  - West Virginia [REDACTED]
- Third-Party Inspector
  - Prince George's County, MD
- Certified Fire and Explosion Investigator NAFI # [REDACTED]

#### PROFESSIONAL AFFILIATIONS

- Member, Society of Fire Protection Engineers (SFPE); 1999-Present
- Member, National Fire Protection Association (NFPA); 1999- Present
- Member, National Association of Fire Investigators; 2005-Present
- Laurel Volunteer Fire Department, Prince George's County Fire/EMS Department Station 10; 1999-Present

#### SPECIALTY FIELDS

- Building, Fire, & Life Safety Code Analysis or Performance-Based Design
- Fire Protection System and Special Fire Suppression System Design
- Third Party System Inspections
- Fire Suppression & Alarm System Testing and Commissioning
- Passive Fire Protection System Design
- Site-Wide Strategic Planning, Mass Notification System, & Central Monitoring/Reporting Center Design, including Fiber Networking
- Performance-Based Fire Protection and Detection Design
- Fire Alarm and Mass Notification System Design
- Fire Risk Assessments
- Passive

#### SECURITY CLEARANCE

- Active

Mr. Reardon is the President of Reardon Fire Consulting, P.C. and is a licensed Professional Engineer in fire protection with twelve years of fire protection engineering experience in both the private and federal sectors. Mr. Reardon has extensive experience in designing fire protection and alarm systems including special suppression systems such as mass notification systems, foam systems, CO<sub>2</sub> systems, and clean agent systems. In addition to his design experience, Mr. Reardon has extensive field knowledge in performance-based designs, due diligence surveys, facility and campus fire risk assessments, hazardous material assessments, and building construction/passive fire protection and life safety inspections. Mr. Reardon has also performed inspection, testing and commissioning of fire protection and alarm systems and serves as a third-party inspector for Prince George's County, MD.

Mr. Reardon's specialty is in existing facility system upgrades and retrofits particularly in fire alarm and fire protection systems. Having worked for a fire alarm and sprinkler manufacturer as a design engineer, Mr. Reardon has detailed experience in fire alarm and sprinkler system designs and capabilities. This knowledge is very effective for property owners/managers in determining budgetary costs, system performance criteria, and long-term system reliability and maintenance costs. In addition, Mr. Reardon is very knowledgeable on campus wide fire alarm system integrations and mass notification system designs including severe weather warnings, security threats, hazardous material incidents, and manual paging means.

#### REPRESENTATIVE EXPERIENCE

**Wild Goose Farm Barn** – (2018) Performed a performance-based design to an existing 1840's barn which is being converted to an Assembly hall. The existing barn was registered under the historic society. The existing floor assembly was required to meet a fire-resistance rating and an analysis was conducted utilizing fire load calculations to determine current fire-resistance ratings and any other alteration measures necessary to meet current code.

**NIST Building 245** – (2014) Performed an analysis of an existing research facility which consisted of four stories below grade. The analysis was to determine how to install a smoke evacuation system without altering the existing structure due to its infrastructure and disturbance to the facilities operations.

**Hogan's Alley FBI Training Academy** – (2018) Served as the qualified fire protection engineer for the project. Was responsible for providing a detailed code analysis report and provide life safety, fire protection, and fire alarm design drawings to the FBI. Provided oversight to the sprinkler and fire alarm shop drawing design.

**Fort Meade Building C** – (2016-2018) Served as the qualified fire protection engineer for the project. Was responsible for oversight on the sprinkler system design for a four-story office building on a government campus. Provided alternate sprinkler designs for specific SCIF and secured areas within the facility.

**Smithsonian Natural History Museum Rotunda** – (2004) Performed performance based designs for the sprinkler, fire alarm, and some control system in the rotunda area of the museum. Fire modeling calculations were performed to determine fire growth times for the existing displays. These models determined the requirements for smoke detection and sprinkler placement. The systems were designed to restrict alterations to the existing architecture while providing an equivalent level of safety for the occupants and protection of the facility.

**John Hopkins Hospital** – (2010) Performed performance based designs for various passive fire protection assemblies due to restrictions on maintaining UL listings. Provided alternative UL equivalent assembly designs while meeting client needs.

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# **EHT Traceries, Inc.**

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**LAURA HARRIS HUGHES**

Principal-in-Charge

**EDUCATION**

Masters of Science, Historic Preservation, University of Pennsylvania, 1988

Bachelor of Arts, Historic Preservation, Mary Washington College, 1984

**CERTIFICATIONS**

Meets professional qualifications prescribed by the Secretary of the Interior in 36 CFR 61 (Appendix A)

**YEARS OF EXPERIENCE**

31 Years with EHT Traceries, Inc.

Laura Hughes has primary management responsibilities for the majority of EHT Traceries major On-Call and IDIQ projects. Her expertise focuses on preservation strategies, design review, and compliance with local, state, and Federal laws. She is a recognized expert on the interpretation of the Secretary of the Interior's Standards for the Treatment of Historic Properties and Rehabilitation and Section 106 Review and Consultation.

Since its founding in 1977, EHT Traceries, Inc. has developed into one of the largest women-owned preservation consulting firms in the country. The firm has received national recognition for our expertise in developing successful preservation and consultation strategies for both public and private projects. Traceries projects are consistently distinguished, receiving a DC Preservation Award every year since 1992 when the awards program was initiated.

Ms. Hughes has worked extensively on the preservation of our most historic state and federal National Register buildings ensuring that historic preservation is a successful and integral component of every building modernization project. Ms. Hughes brings her expertise in historic preservation processes, contemporary documentation, construction materials, and on-site investigation that complements her ability to provide creative and efficient solutions for updating historic buildings for continued use and current life safety requirements.

**RELEVANT PROJECT EXPERIENCE**

U.S. Tax Courts Water Intrusion Repairs  
Washington, DC

Mary E. Switzer Interior Alterations  
Washington, DC

Smithsonian Castle – South Campus  
Washington, DC

US Capitol Bldg Preservation Plan  
Washington, DC

Buildings Preservation Plans for 15 General Services Administration Buildings (Nationwide), Webster School, Central and West Heating Plants in Washington, DC, Federal Buildings in Sedalia, Missouri, Laconia, New Hampshire; Foley Square, New York; Huntington, West Virginia; Big Stone Gap, Virginia and Boston, Massachusetts; and the US Court House in Cedar Rapids and Des Moines, Building 87, Fort Des Moines, Federal Office Building and US Courthouse, Davenport and Sioux City, and US Post Office and Courthouse, Dubuque, Iowa.

US Department of Agriculture – Perimeter Security Upgrades  
Washington, DC

Cannon House Office Building Modernization  
Washington, DC

**KIM DAILEADER****Lead Technical Preservation Services****EDUCATION**

Villanova University, 2006,  
Bachelor of Civil and  
Environmental Engineering

Prat Institute, 2012, Master of  
Science Historic Preservation

**CERTIFICATIONS**

Meets professional  
qualifications prescribed  
by the Secretary of the  
Interior in 36 CFR 61  
(Appendix A)

**MEMBERSHIP**

DC Preservation League  
Association for Preservation  
Technology DC Chapter  
National Trust for Historic  
Preservation

Ms. Daileader is a senior project manager and Lead of Technical Preservation Services at Traceries. She has experience as a structural engineer and preservationist, managing large and complex projects, renovations, and experience working through all agency review requirements including DC Historic Preservation Office, US Commission of Fine Arts, National Capital Planning Commission, and DC Historic Preservation Review Board. As a project manager Kim has experience handling large, multi-disciplinary projects involving research, mitigation strategies, and preservation solutions.

She provides research and consultation services regarding the preservation, restoration, and rehabilitation of historic buildings. She has worked as the project manager for projects involving the preservation process for federal and state projects in compliance with the Secretary of the Interior's Standards for the Treatment of Historic Properties, the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act (NHPA). She has conducted and directed research; prepared extensive building documentation; advised on local and federal preservation reviews; guided efforts to rehabilitate historic buildings using the Secretary of Interior's Standards; and advised on the design compatibility of major new additions to historic buildings and new construction within historic districts.

**RELEVANT PROJECT EXPERIENCE**

- Eisenhower Executive Office Building Historic Structures Report Part III
- Georgetown Reservoir, Army Corps of Engineering  
( Multiple Building Renovations)
- Lovett Hall, Rice University – Preservation Plan, Houston, Texas
- Rankin Chapel, Howard University – Historic Preservation Assessment  
and Recommendations, Washington, DC
- Russell Senate Office Building, Architect of the Capital  
– Preservation Guide, Wash DC
- Theodore Roosevelt Federal Building (office of Personnel Management  
Building) Preservation Plan, Washington, DC
- Hudson Theater Rehabilitation, New York, New York
- Duke Ellington School for the Performing Arts Modernization,  
Washington, DC
- Eagle Mill Building Rehabilitation, Lee, Massachusetts
- Schmidt Brewery Company, Keg House Rehabilitation, St. Paul, Minnesota



**BILL MARZELLA****Lead Historic Preservation Planner****EDUCATION**

University in Cincinnati, 2009,  
Bachelor of Science in  
Architecture

Cornell University, 2011,  
Master of Arts in Historic  
Preservation

**CERTIFICATIONS**

Meets professional  
qualifications prescribed  
by the Secretary of the  
Interior in 36 CFR 61  
(Appendix A)

**MEMBERSHIP**

Association for Preservation  
Technology  
Latrobe Chapter of the  
Society of Architectural  
Historians

**EXPERIENCE WITH**

**TRACERIES:** 8 years

Mr. Marzella has six years of experience with EHT Tracerics and provides research and consultation services regarding the preservation, restoration, and rehabilitation of historic buildings, specializing in federal and institutional buildings, transportation infrastructure, and cultural landscapes. Prior to joining EHT Tracerics in 2012, Mr. Marzella served as a Historic Preservation Specialist for the Federal Emergency Management Agency.

As firm's Lead Historic Preservation Planner, Mr. Marzella directs the firm's community planning efforts, Section 106 and NEPA consultation, and review processes to comply with planning regulations as they relate to historic preservation. He provides guidance to clients in the interpretation and application of relevant planning policies to the treatment of historic properties, districts, and landscapes. Additionally, he performs research and evaluation to determine the context and significance of historic districts and landmarks.

As a project manager, Mr. Marzella closely monitors staff allocation, takes primary responsibility for a project's scope of work, schedule, budget, final products, and coordination with the client to keep projects on track.

**RELEVANT PROJECT EXPERIENCE**

- Carnegie Library Building Rehabilitation, Washington, DC
- Freer Gallery of Arts Historic Structures Report, Wash, DC
- US Institute of Peace Section 106, Washington, DC
- Smithsonian South Mall Campus Master Plan and Perimeter Security, Washington, DC
- Long Bridge Modernization Environmental Impact Statement (EIS), Washington, D.C., and Arlington County, VA
- U.S. Department of Agriculture, People's Garden Site Improvement Plan, Washington, D.C.
- Bosch Palace, US Ambassador's Residence, Buenos Aires, Argentina
- Mary E. Switzer Building Interior Alterations, Section 106, Washington, DC
- US Department of the Interior Modernization and Updated Historic Structures Report, Washington, DC
- Old Post Office updated Historic Structures Report to inform Modernization, Washington, DC

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**CAS Structural  
Engineering, Inc.**

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# Carol A. Stevens, PE, F.ASCE

## Structural Engineer



### EDUCATION

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

### PROFESSIONAL REGISTRATION

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

### BACKGROUND SUMMARY

2001 – Present President, Structural Engineer  
CAS Structural Engineering, Inc.

1999 – 2001 Structural Engineer  
Clingenpeel/McBrayer & Assoc, Inc.

1996 – 1999 Transportation Department Manager  
Structural Engineer  
Chapman Technical Group, Inc.

1995 – 1996 Structural Engineer  
Alpha Associates, Inc.

1988 – 1995 Structural Department Manager  
Structural Engineer  
NuTec Design Associates, Inc.

1982 – 1988 Engineer  
AAI Corporation, Inc.

### PROFESSIONAL ASSOCIATIONS

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

### EXPERIENCE

**West Virginia, State Capitol Complex, Holly Grove Mansion:** Structural evaluation report for preliminary condition assessment of building structure. Another project included complete analysis of structure for new use. Building is on the National Register of Historic Places and was constructed in 1815.

**West Virginia, State Capitol Complex, Main Capitol Building Dome:** Exploratory investigation of structural steel components of Lantern Level of dome and development of contract documents for repairs. Building is on the National Register of Historic Places and was constructed in the 1930's. Received a NYAIA Merit Award for Design Excellence.

**West Virginia, State Capitol Complex, Main Capitol Building Exterior Façade Restoration:** Investigation and preparation of details for repairs to limestone and terra cotta exterior façade. Building is on the National Register of Historic Places and was constructed in the 1920's and 1930's.

**West Virginia, State Capitol Complex, Main Capitol Building Parapet:** Exploratory investigation of limestone/brick parapet/balustrade of Main Capitol Building to determine cause of movement/cracking/leaks. Construction contract for repairs has been completed. Building is on the National Register of Historic Places and was constructed in the 1920's and 1930's.

**West Virginia, Roane County Courthouse:** Structural analysis of existing floor framing for addition of new high-density file storage system on upper floor level.

**West Virginia, Lewis County Courthouse:** Structural investigation for work required to update structure and apply for grant monies through WVCFIA.

**West Virginia, Tucker County Courthouse:** Structural investigation for work required to update structure and apply for grant monies through WVCFIA.

**West Virginia, Boone County Courthouse:** Structural analysis of existing floor framing for addition of high-



density file storage systems at different locations.

**West Virginia, Gilmer County Courthouse:** Structural analysis of existing floor framing for addition of high-density file storage system on upper floor level.

**West Virginia, First Presbyterian Church Restoration:** Structural renovations of steel in lantern level and terra cotta cornice, overview of repairs to limestone and terra cotta façade of 1920's structure.

**West Virginia, State Capitol Complex, Governor's Mansion:** Structural analysis and design in addition to evaluation report for modifications and renovations to several areas of mansion. Building is on the National Register of Historic Places and was constructed in the 1920's.

**West Virginia, State Capitol Complex, Building 5:** Structural design and analysis for support of new boilers and other mechanical equipment to be placed in mechanical penthouse.

**West Virginia, State Capitol Complex, Building 7:** Investigation and development of Construction Documents for new elevators.

**West Virginia, State Capitol Complex, Building 3:** Structural design and construction administration of repairs to limestone canopy. Building is eligible to be placed on National Register of Historic Places and was constructed in the 1950's.

**West Virginia, Upshur County Courthouse:** Developed construction documents for structural repairs to main entrance, dome and monumental sandstone columns of 1899 structure. Work was recently completed and received a WVAIA Honor Award for Design Excellence.

**West Virginia, State Capitol Complex, Governor's Mansion:** Structural analysis and design in addition to evaluation report for modifications and renovations to several areas of mansion. Building is on the National Register of Historic Places and was constructed in the 1920's.

**Ohio, Mahoning County Courthouse:** Completed preliminary structural observation report of exterior façade conditions to recommended phased repairs for terra cotta and granite façade. Building is on the National Register of Historic Places and was constructed in the early 1900's.

### ***PREVIOUS EXPERIENCE***

**West Virginia, State Capitol Building, North Portico Steps:** Designed structural system to replace deteriorated reinforced concrete slab at landing on north side of Capitol steps. Building is on the National Register of Historic Places and was constructed in the 1930's.

**West Virginia, Upshur County Courthouse Annex:** Performed structural evaluation and design for repairs to existing multi-story Annex addition.

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**Chapman  
Technical  
Group**

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1. *Introduction*

2. *Methodology*

3. *Results*

4. *Discussion*

5. *Conclusion*

6. *References*

7. *Appendix*

8. *Notes*

9. *Index*



## Phillip A. Warnock, NCARB, AIA

### Project Architect

## Experience

Phill is an award-winning architect with extensive experience, having worked with clients on programming / planning, budget analysis, design, construction documents, meeting coordination, bidding / negotiation services, construction phase services, and code compliance. He is especially skilled in renovation and historic restoration projects for government and municipal facilities.

**Years of Experience: 23**  
**Years with Chapman: 12**

### Education

B.S., Architecture, 1995  
University of Tennessee

### Registration

Architect: WV, KY

### Affiliations

National Council  
of Architectural  
Registration Boards

WV Chapter,  
American Institute  
of Architects

### Awards

Honor Award, WV AIA  
Upshur County Courthouse

Merit Award, WV AIA  
I-79 Burnsville Rest Area

### Publications

Structure Magazine,  
February 2010  
"A Gem in the Mountains"  
Upshur County Courthouse  
Restoration

### WV DOH District One Historic Architect;

Charleston, WV  
Responsible for documenting historic structures for submission to the West Virginia State Historic Preservation Office in conjunction with the redevelopment of the District One campus.

### WV DOT Rest Areas and Welcome Centers

Project Architect for the design of the prototype rest areas and welcome centers for various locations throughout West Virginia.

### State Road Commission Building;

Charleston, WV  
Project Architect for the renovation of the historic State Road Commission Building for the West Virginia Division of Highways. The 40,000 square-foot building houses offices and support facilities for the local highway district. In addition to a complete interior makeover that included a historic information center and radio studio, the building also received new exterior doors, windows, roofing and a new elevator. A skywalk connects the building to a new Headquarters Building that was constructed beside the State Road Commission Building.

### District One Equipment Shop Building;

Charleston, WV  
Project Architect for the design of the new \$10 million vehicle equipment shop building for District One which includes multiple service bays, parts storage, welding shop, and offices.

### Coal Heritage Discover Center;

Mt. Hope, WV  
Project Architect for the Coal Heritage Discovery Center, which is a rehabilitation of the historic Patteson Building in downtown Mt. Hope. The Coal Heritage Discovery Center will consist of offices, meeting rooms, an historic information center, a small theater space, a public lobby area, a gift shop, and a small café area. There will also be an outdoor patio which can be used as exterior café seating.



## W. Thomas Cloer, III, NCARB, AIA

### Project Architect

### Experience

Tommy has extensive architectural experience, having worked with clients on programming / planning, budget analysis, design, construction documents, meeting coordination, bidding / negotiation services, construction phase services, and code compliance. He regularly provides leadership in architectural design and project management for new building design and renovation projects such as K-12, parks and recreation, and government and municipal facilities.

**Years of Experience: 17**  
**Years with Chapman: 11**

#### Education

B.S., Architecture, 2001  
University of Tennessee

#### Registration

Architect: WV, VA

#### Affiliations

National Council  
of Architectural  
Registration Boards

WV Chapter,  
American Institute  
of Architects

St. Albans Property and  
Maintenance Board

St. Albans Historic District  
Committee Member

#### **Mason County Sheriff's Office**, Pt. Pleasant, WV

Project Architect for the renovation of a three-story 11,500 square-foot facility to house the Mason County Sheriff's Office. The first floor interior of the building was completely demolished and rebuilt to house the new Sheriff's Office, while the second and third floor were renovated for Sheriff's office storage, voting machine storage and programming, and other County needs. Other additions and renovations included a new elevator at the rear of the building, a new sprinkler system throughout the building, and new lighting and HVAC systems.

#### **Jane Lew Elementary School Addition**; Jane Lew, WV

Project Architect for the design of an addition and renovation project that included five new classrooms, an updated office suite, and a new building entrance and bus loop. Toilet rooms were also renovated and new floor finishes were installed throughout the building. A new HVAC system serves the addition, and a new sprinkler system and fire alarm were installed for the entire school. New ceilings and lighting were also provided throughout.

#### **Chief Logan State Park Cabins**; Davis, WV

Project Architect for three new cabins at Chief Logan State Park. Each cabin has four bedrooms and a central-living, dining, kitchen area. Wood floors and trim as well as a large stone fireplace give these modern cabins give these cabins an upscale appearance.

#### **Tube Park Lodge**; Canaan Valley, WV

Project Architect for the New Tube Park Lodge and other existing facilities upgrades that were part of a wide range of improvements to the ski area at Canaan Valley Resort State Park. The new tubing lodge features a wood burning fire place, restrooms, a concession stand for hot drinks and an outdoor patio with wood-burning fire pit.





## Sharon L. Chapman

### Interior Design

## Experience

Sharon has extensive experience in space planning and interior design and has worked on a variety of projects ranging from industrial facilities to high-end professional offices. She offers a unique perspective, understanding the need to provide durable, low maintenance finishes, while enhancing the basic architectural design with just the right aesthetic touch.

**Years of Experience: 24**  
**Years with Chapman: 24**

### Education

B.A., Art and Interior  
Design, 1993  
University of Charleston

### Registration

Allied Member, American  
Society of Interior  
Designers

### Affiliations

Allied Member, ASID

St. Albans Rotary

Thomas Memorial Hospital  
Foundation

Gabriel Project of WV

**Jane Lew Elementary School Addition;** Jane Lew, WV  
Interior Designer for the addition and renovation project that included five new classrooms, and an updated office suite.

**Smithville Elementary School Addition;** Smithville, WV  
Interior Designer for the addition and renovation of the Smithville Elementary School project which included the design of a new classroom wing and a new kitchen addition adjacent to the remaining buildings.

**Man K-8 Addition;** Man, WV  
Interior Designer for the Man K-8 Addition which included the design and space planning for a 9,360 square-foot addition to the existing school. The addition included four new classrooms, a 2,400 square-foot gymnasium/multipurpose room, ADA compliant restroom facilities.

**Pocahontas Wellness Center;** Marlinton, WV  
Interior Designer for a community wellness center which included a middle-school size gym and basketball court; a wellness center; two multi-purpose rooms; a racquetball court; and a warming kitchen/concession stand.

**Coal Heritage Discover Center;** Mt. Hope, WV  
Interior Designer for the Coal Heritage Discovery Center which will consist of offices, meeting rooms, an historic information center, a small theater space, a public lobby area, a gift shop, and a small café area.

**State Road Commission Building;** Charleston, WV  
Interior Designer for the renovation of the historic State Road Commission Building for the West Virginia Division of Highways. The 40,000 square-foot building houses offices and support facilities for the local highway district.



## David C. Hoy, P. E.

### Civil/Structural Engineer

## Experience

Dave is experienced in the design of various building structural systems including timber, concrete, steel, and masonry construction, as well as foundation design, including deep foundation systems. He has provided structural engineering on a variety of structures including schools, office buildings, recreation facilities, and water and wastewater treatment structures.

**Years of Experience: 11**  
**Years with Chapman: 11**

### Education

B.S., Civil Engineering, 2006  
West Virginia University

### Registration

Civil Engineer: WV, KY, VA

### Affiliations

Chi Epsilon, National Civil  
Engineering Honor Society

ASCE, Member

### Clay County High School; Clay, WV

Project Structural Engineer for the design of a new bus garage, locker room renovations, new restroom facility, and press-box renovations.

### Jane Lew Elementary School Addition; Jane Lew, WV

Project Structural Engineer for the design of an addition and renovation project that included five new classrooms, an updated office suite, and a new building entrance and bus loop.

### Smithville Elementary School Addition; Smithville, WV

Project Structural Engineer for the addition and renovation of the Smithville Elementary School project which included the demolition of two buildings in the existing complex and the design of a new classroom wing and a new kitchen addition adjacent to the remaining buildings.

### Pocahontas Wellness Center; Marlinton, WV

Project Structural Engineer for a 13,000 square-foot community wellness center, constructed adjacent to but separate from the existing Marlinton Elementary School.

### Coal Heritage Discover Center; Mt. Hope, WV

Project Structural Engineer for the Coal Heritage Discovery Center, which is a rehabilitation of the historic Patteson Building in downtown Mt. Hope, consisting of offices, meeting rooms, an historic information center, a small theater space, a public lobby area, a gift shop, and a small café area.

### State Road Commission Building; Charleston, WV

Project Structural Engineer for the renovation of the historic State Road Commission Building for the West Virginia Division of Highways. The 40,000 square-foot building houses offices and support facilities for the local highway district.

### WV DOH District One Equipment Shop; Charleston, WV

Project Structural Engineer for the new 34,000 square-foot, 14-bay vehicle maintenance building. The design included pre-cast concrete wall panels and deep foundations and grade beams.

# SECTION V

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## ZDS Client Testimonial Letters

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**Michael Pickens**

172 Oak Street

Dunbar, WV 25064

(304) 400-9993

February 1, 2017

**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**



## **ELSWICK & ASSOCIATES, LLC**

April 15, 2017

To Whom It May Concern:

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

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

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

513 Havana Dr.  
Charleston, WV 25311  
304.542.8877

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

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

Sincerely,

A handwritten signature in blue ink, appearing to read "Bill Elswick", with a long horizontal flourish extending to the right.

Bill Elswick, MBA, CEO



# Boyd, Gary MA, CEFP

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

**August 11, 2016**

To Whom It May Concern

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

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

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

Sincerely,



**Boyd, Gary MA, CEFP**  
**Director of Facilities**  
**University of Charleston**



# Ritchie County Schools

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

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

October 30, 2017

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.

# SECTION VI

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## *ZDS* **Required Attachments**

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

State of West Virginia  
 Centralized Expression of Interest  
 02 – Architect/Engr

Proc Folder: 435826

Doc Description: EOI: Capitol Bldg Fire Protection and Sprinkler Design

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2018-03-30	2018-04-26 13:30:00	CEOI 0211 GSD1800000003	1

**BID RECEIVING LOCATION**

BID CLERK

DEPARTMENT OF ADMINISTRATION

PURCHASING DIVISION

2019 WASHINGTON ST E

CHARLESTON

WV 25305

US

**VENDOR**

Vendor Name, Address and Telephone Number:

ZDS Design/Consulting Services  
 281 Smiley Drive  
 St. Albans, West Virginia 25177  
 (304) 755-0075

**FOR INFORMATION CONTACT THE BUYER**

Linda B Harper  
 (304) 558-0468  
 linda.b.harper@wv.gov

Signature X *Judd A. Zachireja* FEIN # 550735995 DATE April 26, 2018

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

**ADDITIONAL INFORMATION:**

The West Virginia Purchasing Division for the agency, The West Virginia Department of Administration's, General Services Division is soliciting CEOI responses from qualified firms to provide a contract to provide necessary architectural and engineering services for West Virginia State Capitol Building Fire Protection and Sprinkler Design

INVOICE TO	SHIP TO
DEPARTMENT OF ADMINISTRATION GENERAL SERVICES DIVISION 112 CALIFORNIA AVENUE, 5TH FLOOR CHARLESTON WV25305 US	DEPARTMENT OF ADMINISTRATION GENERAL SERVICES 112 CALIFORNIA AVENUE, 5TH FLOOR CHARLESTON WV 25305-0123 US

Line	Comm Ln Desc	Qty	Unit Issue
1	A/E Svcs: WV State Capitol Bldg Fire Protection & Sprinklers		

Comm Code	Manufacturer	Specification	Model #
81101508			

**Extended Description :**

Online Responses Prohibited

**SCHEDULE OF EVENTS**

<u>Line</u>	<u>Event</u>	<u>Event Date</u>
1	Question Deadline 4:00 PM	2018-04-10

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

Todd A. Zachwieja  
(Name, Title)  
Todd A. Zachwieja, PE, CEM, LEED AP CEO, Principal in Charge  
(Printed Name and Title)  
281 Smiley Drive, St. Albans, WV 25177  
(Address)  
304-755-0075, 304-755-0076  
(Phone Number) / (Fax Number)  
todd.zachwieja@zdsdesign.com  
(email address)

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

ZDS Design/Consulting Services  
(Company)  
Todd A. Zachwieja  
(Authorized Signature) (Representative Name, Title)  
Todd A. Zachwieja, PE, CEM, LEED AP CEO, Principal in Charge  
(Printed Name and Title of Authorized Representative)  
April 26, 2018  
(Date)  
304-755-0075, 304-755-0076  
(Phone Number) (Fax Number)

**ADDENDUM ACKNOWLEDGEMENT FORM  
SOLICITATION NO.:**

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

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

**Addendum Numbers Received:**

*(Check the box next to each addendum received)*

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

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

ZDS Design/Consulting Services

Company

Authorized Signature



April 26, 2018

Date

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



STATE OF WEST VIRGINIA  
Purchasing Division

**PURCHASING AFFIDAVIT**

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

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

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

**DEFINITIONS:**

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

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

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or 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 §81-5-3) that: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

**WITNESS THE FOLLOWING SIGNATURE:**

Vendor's Name: ZDS Design/Consulting Services

Authorized Signature: *Judd A. Zebiraja* Date: April 26, 2018

State of Kanawha

County of West Virginia, to-wit:

Taken, subscribed, and sworn to before me this 26 day of April, 2018.

My Commission expires May 21, 2020.

AFFIX SEAL HERE



NOTARY PUBLIC

*Lauren M Headley*

Purchasing Affidavit (Revised 07/07/2017)