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List View

- General Information
- Contact
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- Document Information
- Clarification Request

Procurement Folder: 1017124

Procurement Type: Central Contract - Fixed Amt

Vendor ID:

Legal Name: ZDS LIMITED LIABILITY COMPANY

Alias/DBA:

Total Bid: \$0.00

Response Date:

Response Time:

Responded By User ID:

First Name:

Last Name:

Email:

Phone:

SO Doc Code: CEOI

SO Dept: 0211

SO Doc ID: GSD2200000004

Published Date: 3/16/22

Close Date: 4/6/22

Close Time: 13:30

Status: Closed

Solicitation Description:

Total of Header Attachments: 2

Total of All Attachments: 2



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

**State of West Virginia
 Solicitation Response**

Proc Folder: 1017124
Solicitation Description: EOI: Building 3 Hydronic Boiler System Upgrade Project
Proc Type: Central Contract - Fixed Amt

Solicitation Closes	Solicitation Response	Version
2022-04-06 13:30	SR 0211 ESR04052200000006108	1

VENDOR
 000000208495
 ZDS LIMITED LIABILITY COMPANY

Solicitation Number: CEOI 0211 GSD2200000004
Total Bid: 0
Response Date: 2022-04-05
Response Time: 11:24:44
Comments:

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

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

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

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	EOI: Building 3 Hydronic Boiler System Upgrade Project				0.00

Comm Code	Manufacturer	Specification	Model #
81101600			

Commodity Line Comments:

Extended Description:

EOI: Building 3 Hydronic Boiler System Upgrade Project



**Expression of Interest to Provide
Professional Architectural,
Engineering, and
Consultant Services**

**Building 3 Hydronic Boiler
System Upgrade Project**

**April 6, 2022
CEOI 0211 GSD2200000004**



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State of WV Centralized Expression of Interest

State of WV Purchasing Affidavit



SECTION I.

**Executive Summary Letter
Project Goals & Objectives**





Design/Consulting Services

135 Corporate Center Drive / Suite 532 / Scott Depot, WV 25560
(304) 755-0075 / www.ZDSDesign.com

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

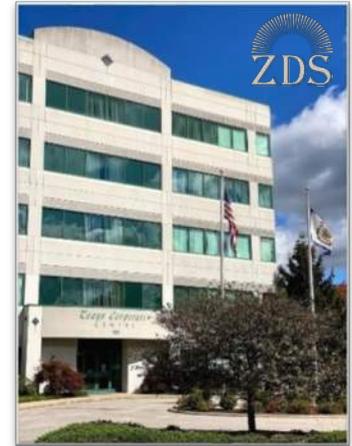


April 6, 2022

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

Please accept our Expression of Interest to provide Professional Architectural/Engineering/Consultant Services for the **Building 3 Hydronic Boiler System Upgrade Project**.

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



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

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

The **ZDS** Team will provide comprehensive professional services for the proposed Boiler System upgrades. We have had numerous successful projects including many on the Capitol grounds for the State of West Virginia, WV DHHR facilities, WVArNG, WVU, Ohio University, Marshall University, cities, and towns throughout the state and regionally.

The **ZDS** staff brings unique strengths to the Project due to our familiarity with the buildings and systems within the Capitol complex. We have extensive knowledge and understanding of the existing underground steam systems and are familiar with the individual buildings' HVAC systems currently reliant on the steam distribution system.

ZDS has designed and coordinated upgrades for many projects of all types, sizes, budgets, and schedules. We have been successful on renovation projects through dialogue and proper planning with the Owners and Contractors for phasing the work successfully and minimizing the impact on the daily activities of the occupants. We will communicate closely with the appropriate personnel in the General Services Division to ensure that our approach to the Project will address their needs and concerns. Realizing the similarity of our mission, and the desire to serve West Virginia clients, we will be honored to work with you.

Project Goals, Objectives & Approach

GOAL/OBJECTIVE 1: For the project, the Vendor shall survey the existing heating system then design conversion from steam to water.

RESPONSE: ZDS personnel have replaced hundreds of boiler systems including converting many steam boilers to heating hot water boilers. ZDS was selected to design and implement the State of West Virginia's pilot program to convert existing coal-fired steam boilers to low NOx high-efficiency heating hot water boilers using federal funding from a WVDEP grant. Contact Mike Pickens, who was with the WV Department of Education at the time on how ZDS' strength in boiler design made this program a success. We also have extensive experience with steam boilers used for campus settings and industrial applications. Providing condensing heating hot water boilers offer excellent energy efficiency improvements over steam boilers and our specialties in proven sustainable energy-efficient design are demonstrated by our Energy Star Certified facilities to LEED Certified facilities. This broad experience and our knowledge of the WV Capitol Campus make ZDS an excellent fit for this project. Our boiler projects have included hundreds of schools, commercial buildings, healthcare facilities, colleges, university campuses, and industrial facilities like the DOW Technology Campus in South Charleston. Our work includes the hot water boilers for the WV Culture Center boiler plant and the central hot water boiler plant for the WV Capitol Complex. Others include the University of Charleston's Innovation Center central plant that converted steam to heating hot water boilers and the Ben Franklin Career Center in Dunbar.

GOAL/OBJECTIVE 2: One anticipated challenge is the selection of the new boiler plant location, observing the appropriate location for boiler flue exhaust.

RESPONSE: Building #3 was constructed with a utility building located on the site including a tunnel directly leading into the basement of Building #3. Steam to hot water heat exchangers are located in the basement of Building #3 which could be replaced with heating hot water boilers. Several options could be evaluated including locating the new hot water boilers integrated as part of the utility building through an addition to the building or reconfiguring the building in a way to hold the new boilers. The benefit of locating the boilers in this area is an easy way to address the boiler flues and access to the basement through the tunnel for routing heating hot water piping. We could 3D scan the areas to coordinate special requirements with built conditions for determining those design details and commission the system when operational. ZDS has extensive experience with boiler and chiller plants that serve individual buildings as well as the interconnection of multiple buildings. For the goal of selecting a location for a new boiler plant, ZDS will first request any available information (through documents and discussions with personnel) on the existing HVAC systems from the Owner and will perform a thorough field investigation of the facility to better understand what will be necessary to connect the new heating hot water to the existing systems in the building. This will assist us in evaluating a potential location for the new boiler plant keeping in mind the distance (length of piping) and accessibility for the installation. The proximity of the boiler plant to any existing outside air intakes is of primary concern and the locations for boiler flues will be critical. We will analyze and compile the information received/found to determine potential solutions and feasible recommendations to review with the Owner.

GOAL/OBJECTIVE 3: Vendor shall also be responsible for designing a new natural gas utility supply to the building, to serve the new boiler plant. Agency's intent is to cause as little disruption to Capitol Complex activity or construction as possible.

RESPONSE: A high-pressure gas line is located near building #5 and can be extended underground from where the existing central heating plant is served with gas to where it will be needed. Routing the gas line to the new boilers' location will be carefully coordinated by ZDS and our extensive knowledge of the campus, including the site utilities in the areas, will be advantageous. ZDS has provided design services for work involving campus utility planning that required close coordination and, in some cases, phasing of the Work to avoid conflict with the daily operations of the facilities. We are familiar with the Capitol Complex grounds and realize the challenges of maintaining ingress and egress flow for the public as well as occupants within the Complex buildings. ZDS most recently worked very closely with the Capitol Complex personnel on the proposed upgrades to the underground steam system vaults and piping. During the process, we identified and defined the specific criteria for the construction process to help minimize disruption to the Capitol grounds.

GOAL/OBJECTIVE 4: Vendor shall also be responsible for designing the project for bidding using the State of WV procurement procedures (incorporating AIA construction documents into the bidding documents) and then for performing construction administration services during the construction project.

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

Our Team will include Architectural and Structural consultants on an as-needed basis determined by the evaluations, findings, and direction from the Owner. We propose to utilize the services of **WYK Associates, Inc.**, 205 Washington Avenue, Clarksburg, WV 26301 with James B. Swiger, AIA, NCARB, LEED BD+C, President, and his staff as our Architectural consultant. Any necessary structural engineering services will be provided by Carol Stevens, PE, F. ASCE, and President of **CAS Structural Engineering, Inc.** located in Alum Creek, WV. Carol has extensive experience working with the State of West Virginia including many projects within the Capitol Complex.



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

Sincerely,

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

SECTION II.

Firm Overviews





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

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

EMPLOYEES

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



CLIENTS & EXPERIENCE

- ◆ 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
- ◆ Kanawha County Metro 911
- ◆ 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

- ◆ Tyler County Commission Courthouse
- ◆ Tucker County Courthouse
- ◆ University of Charleston Innovation Center
- ◆ Veterans Administration
- ◆ Webster County Development Authority
- ◆ 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 - State wide PreK-12 Schools
- ◆ 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
- ◆ WVU Tech (Montgomery Campus) Engineer Bldg.
- ◆ WVU Davis Hall
- ◆ 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.

INDOOR AIR QUALITY SERVICES

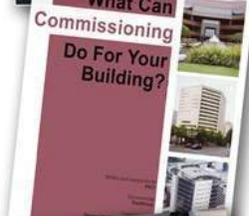
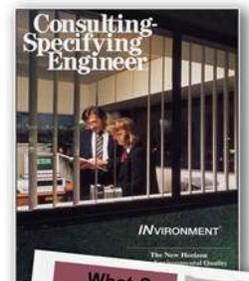
ZDS provides consulting engineering services for the indoor air quality (IAQ) environment. These services include: strategic planning for renovation and new construction projects; technical research and writing; specialized applications software development; corporate and professional training programs; publications support and fulfillment; and site-specific engineering and scientific consultation. Todd Zachwieja, **ZDS** Principal, is contributing editor for the following IAQ publications:

- Technical Review Panel for the publication of the *INvironment™ Handbook of Building Management and Indoor Air Quality*, by Chelsea Group and published for Powers Educational Services
- Technical Review Panel for the quarterly publication of the *INvironment™ Newsletter*, by Chelsea Group for Powers Educational Services
- *Ventilation for a Quality Dining Experience: A Technical Bulletin for Restaurant Owners and Managers*, released in January 1993
- *The New Horizon: Indoor Environmental Quality*, published as a supplement to an issue of *Consulting-Specifying Engineer* magazine, a trade magazine distributed to roughly 50,000 engineers
- Editorial Advisory Board member reviewing the articles of the monthly publication *INvironment™ Professional*
- Editorial Advisory Board member of **POWER PRESCRIPTIONS™ Indoor Air Quality Publication** by Electric Power Research Institute

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

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

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

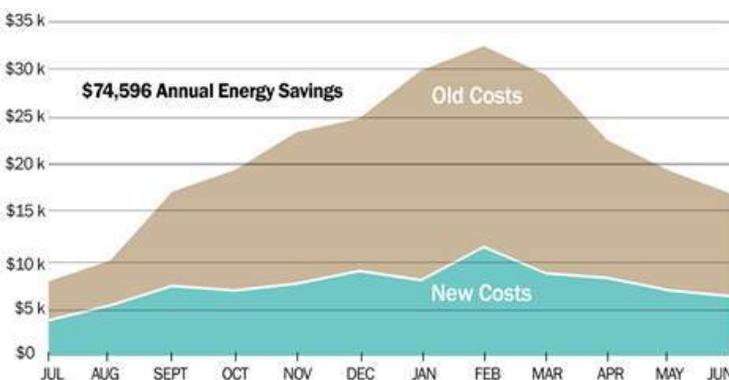




At **ZDS**, our engineering staff integrates energy efficiency into each project design to provide you, our client, with the added value that you expect and deserve. The **ZDS** team approach represents a tremendous amount of experience in designing energy efficient facilities. **ZDS** offers a comprehensive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

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

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



Recent projects include:

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



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

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

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.



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

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

The commissioning process now required by ASHRAE 90.1 Energy Code and offers the following benefits:

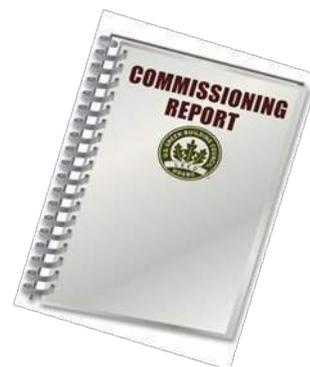
- Improved comfort, serviceability and owner understanding of systems and design intent
- Added technical support for the owner and being proactive in preventing new problems
- Reduced maintenance and decreased expenses related to operating deficiencies
- Early identification and resolution of system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

Commissioning is the missing link between design and implementation. Prior to joining **ZDS**, Todd Zachwieja established commissioning services for one of the nation’s largest energy service companies. He is also a LEED Accredited Professional. Many utility companies and building owners now require commissioning for new or renovated facilities in order to maximize the use of their investments in their facilities and to obtain LEED certification.

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

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

Since 1958, the **ZDS** design staff has provided millions of dollars of engineering design services on a variety of project types. The **ZDS** design team will provide comprehensive services utilizing experienced staff through planning, cost estimating, engineering, coordination of bidding, regular site visitation during construction and specifications for equipment.



You, our client, will greatly benefit from a single point of responsibility for every need your project may have.

Company Overview



WYK ASSOCIATES, INC.
ARCHITECTURE • PLANNING

Company Information

Identity · Project Philosophy · Project Management

www.wykarchitects.com



Our Identity

Who we are

WYK Associates, Inc. is a full service architectural and planning firm serving a wide variety of commercial, religious, educational, civic and industrial clientele.

WYK Associates, Inc. was established in 1900 by Edward J. Wood. Our archives are filled with a century's worth of historic work. From this, many predecessors who have carried the torch of the firm through the last century.

Wood's grandfather's firm had roots in North Central West Virginia dating back to the early twentieth century. William Yoke, Jr. and Howard Kelley partnered with Mr. Wood in 1974 to form WYK Associates, Inc.

Mr. James Swiger joined the firm in 2005 and became a principal and vice president in 2008. In 2010, Mr. James Swiger assumed sole owner of WYK Associates, Inc.

Project Philosophy

Our process at work

COMMUNICATION & TEAMWORK are our guide words for each project. Our client's requirements for quality, service and value are the driving force behind each decision.

Through collaboration with engineering consultants we address the needs and schedule requirements of each client.

We provide thorough planning in all areas of each project to fit the individual requirements for a positive impact on both the natural and built environments. Energy conservation and product safety are very important concerns.

Project Management

How we create excellence

We carefully evaluate the client's program, design concerns, budget, funding sources, and other available data to assure a clear understanding of each project.

We incorporate input from our client and consultants to establish the budget and schedule. These facets are updated during each stage of project development to ensure our client's parameters are met.

WYK's principals engage and manage the entire project team, from concept through occupancy. WYK Associates, Inc. has an outstanding reputation for providing construction administration services along with maintaining an excellent rapport with contractors.

“ Our building stands as a tribute to you and your firm for a job well done. ”

-Charles A. Feathers, Chief Bridgeport Fire Department, Retired

Company Overview



WYK ASSOCIATES, INC.
ARCHITECTURE • PLANNING

Company Information

Identity · Project Philosophy · Project Management

Architecture

Contact Information

WYK Associates, Inc.
205 Washington Avenue
Clarksburg, WV 26301

304-624-6326

304-677-3373 Cell

304-623-9858 Fax

www.wykarchitects.com

Summary

Established as a full service architecture firm in 1900, then named Edward J. Wood Architect, WYK Associates, Inc. has been located in Clarksburg for 119 years. Through innovative and thoughtful responses to the unique issues of each project, our goal is to create places that fit the needs and desires of those who use them.

Our team approach integrates the collaborative strengths of each member to produce a solution of balance between design quality, schedule and budget. We have always considered sustainability, the built environment, and quality of life long before the public began to focus on its benefits. We take seriously the responsibility of designs and solutions to be cost effective and operate efficiently throughout the building's lifecycle.

Relevant Project Experience:

West Virginia Folklife Center,
Fairmont State University
Central Fire Station, Clarksburg, WV
Circleville School,
Pendleton County, West Virginia
Pocahontas County Courthouse,
Marlinton, WV
Barbour County Courthouse,
Philippi, WV
Gassaway Depot,
Gassaway, WV
Immaculate Conception Parish
Center, Clarksburg, WV
Jackson Square, Clarksburg, WV
Robinson Grand Performing Arts
Center, Clarksburg, WV



Robinson Grand Performing Arts Center



West Virginia Folklife Center



Central Fire Station

Memberships



Company Overview



WYK ASSOCIATES, INC.
ARCHITECTURE • PLANNING

Company Information

Identity · Project Philosophy · Project Management

3D Laser Scanning / 3D Modeling / 3D Printing

WYK Associates, Inc. welcomed the New Year by taking a leap of progress in architectural design. By acquiring a color 3D printer, the Clarksburg architectural-planning firm puts themselves on the map as an industry leader in the region.

3D printing technology is just now becoming available, commercially. A color 3D printer creates a physical, three-dimensional gypsum-based model of any project from a digital prototype in nearly three million colors, allowing for exact detailing in every model.

“Our refined modeling process allows our clients to see and touch a new building at scale, but with its actual features. It enables our clients to make educated choices with less variance between their expectation and the actual outcome,” states James B. Swiger, President of WYK Associates, Inc.

The decision to purchase a color 3D printer was not made lightly. Evaluating different brands, methods

and technologies in 2013 and visiting maker labs and distributors in- and out-of-state, WYK opted for a solution tailored to the architectural environment and the company’s clients, by choice the “greenest”, most environmentally friendly model available to date.

To unleash the full potential of the 3D printer, WYK partners with ZDS Design/Consulting Services on 3D laser scanning. In the process of 3D laser scanning, laser beam signals that collect survey data points are used to capture images, make drawings and record measurements of a structure.

Combining the two technologies, existing buildings are scanned to the accuracy of one millimeter and then recreated as scale models on the 3D printer. An exciting combination - another first for the region - producing results greater than the sum of its parts.

“The possibilities are endless, and we have only just begun,” says Swiger enthusiastically.



Shinnston Community Center Physical Model

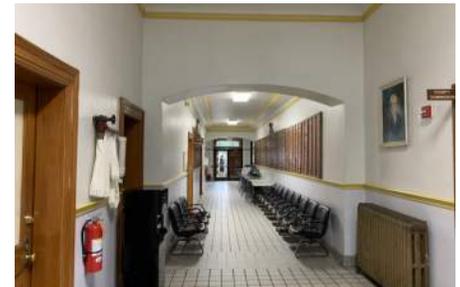
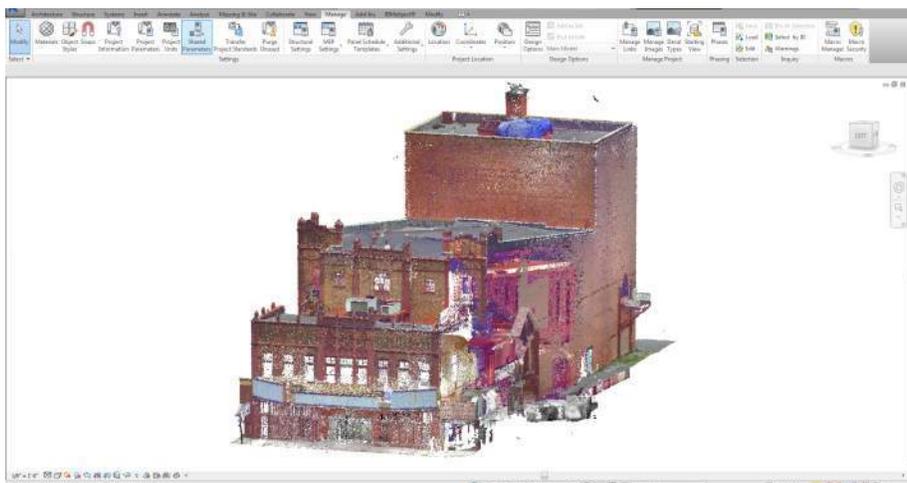


Photo of Building Interior



3D Scan of Building Interior



3D Modeling of Robinson Grand Theater



3D Laser Scanning

Company Overview



Firm Profile

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

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

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

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

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

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

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

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

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

WV **VA** **KY** **OH** **MD** **PA**

SECTION III.

Description of Project Experience

Additional Project Experience Brochures





Tyler County MS/HS

Ben Franklin Career Center

William R. Sharpe, Jr. Hospital

WV Capitol Central Plant

WV Cultural Center

VA Medical Center Huntington

Davis-Thomas Elementary

Elkins Middle School

Robinson Grande Theater

Woodrow Wilson High School

Trap Hill (Junior) Middle School

Mercer County Boiler Renovations

Southside K-8 School

laeger Panther Elementary

Concord Tech Ctr-M/E Design
Nick J Rahall Technology Center

Bank One (Chase Towers)

University of Charleston
Innovation Center



State of West Virginia Capitol Complex Charleston, WV

Project Cost: \$26,500,000

Size: 1,900,000 ft² covering 9 buildings

Date Complete: 2019 for latest project

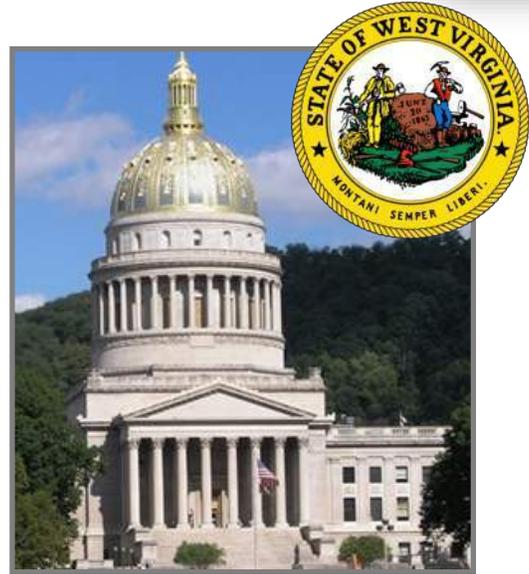
**HVAC Renovations, Fire Protection,
Electrical Renovations, Consultant for Performance Contracting**

Client Reference:

Mark Lynch, Mgr. Facility Operations; mark.w.lynch@wv.gov

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

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



Numerous design and renovation projects for the WV State Capitol Complex including engineering planning, design, supervision, preparation of construction documents, specifications, construction administration, and commissioning of HVAC systems, sprinkler systems, plumbing systems, electrical power, lighting, fire alarm, security, technology and communications for many facilities on the WV Capitol Complex: **WV Division of Protective Services:** Engineering master planning & design for specific life safety issues involving homeland security, fire alarm, sprinklers, emergency power, CCTV, intercom, mass notification and "giant voice" system for all State facilities on the Capitol Complex under a 10-year open-end contract. **WV Division of Culture and History Library** renovations addressing long-term HVAC and IAQ problems including fire alarm and fire protection upgrades completed in 2011. Renovations conserved energy without sacrificing comfort or indoor air quality. **District Heating System:** As a consultant to Johnson Controls under a Performance Contracting program to provide master planning and design for the district heating system for the **WV Capitol Complex**. The project included the Master Planning, IAQ evaluation, energy analysis, code analysis and Mechanical design involving more than 1,900,000 ft² of facilities including the Capitol Building, Building's #3, #4, #5, #6, #7, Holley Grove, Governor's Mansion and the Culture Center.

Master planning & design for central heating plant, DDC controls, Air Handling Unit replacements and retrofits, operating and maintenance, training, heat recovery, fuel conversion, VFD's, variable water



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



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

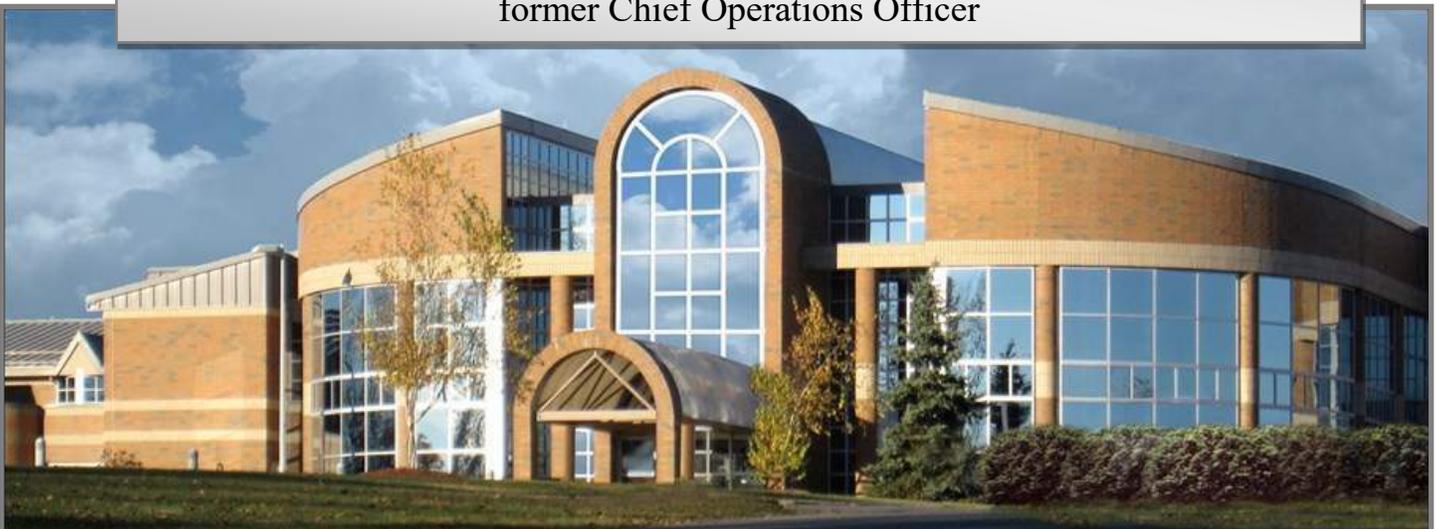
Date Complete: 2017

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

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

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

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



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

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

Robinson Grand Performing Arts Center

Clarksburg, WV



Project Cost: \$17,000,000, **Size:** 45,000 ft² **Date Complete:** 2018

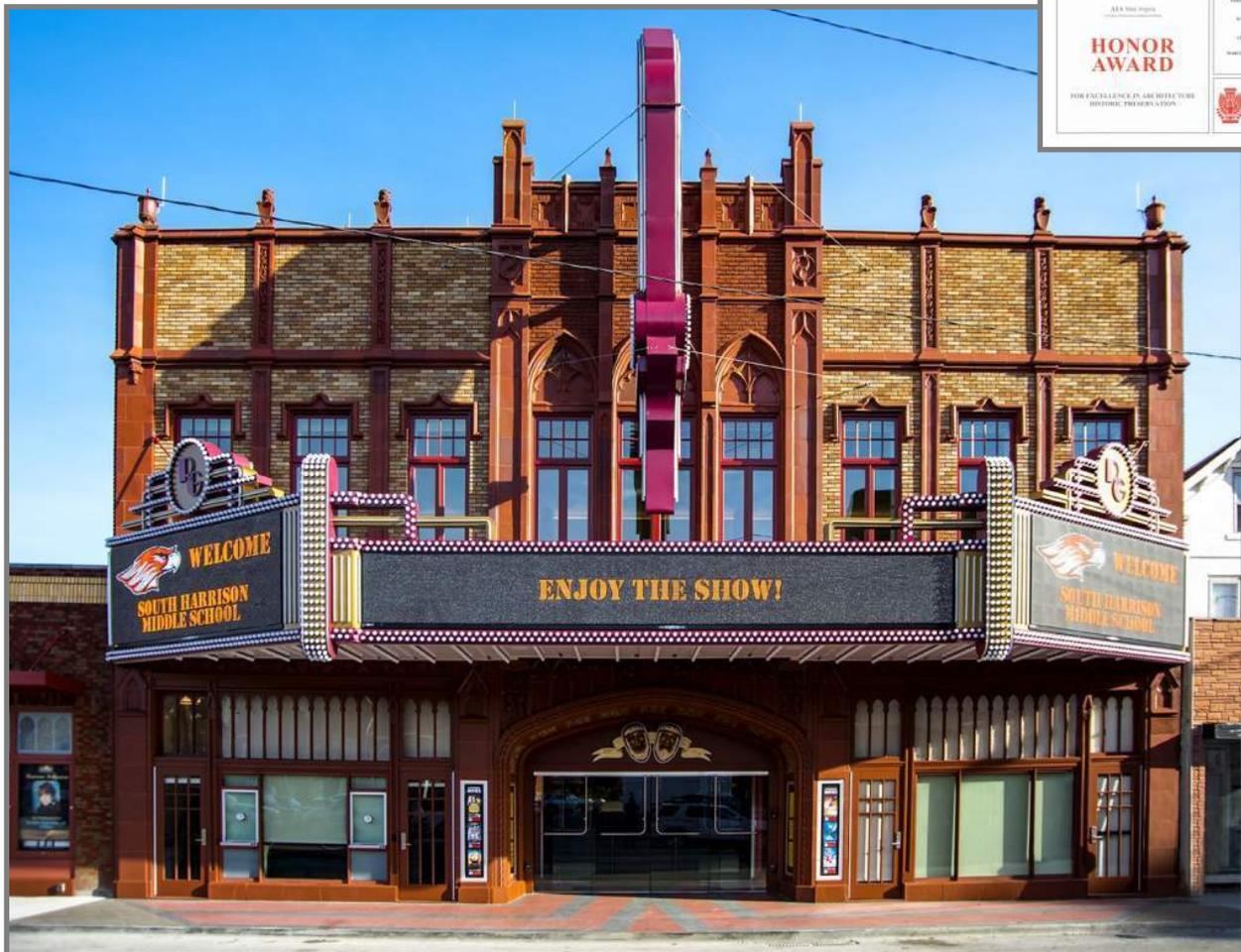
Study/Evaluation, HVAC Renovations, Fire Protection, Electrical Renovations, Emergency Generator, Lighting Upgrades, 3D Scanning

Client Reference:

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

High performance sustainable HVAC/Electrical/Plumbing/FP upgrades. **Condensing heating hot boilers water system with variable water volume pumping.** Quiet HVAC system meeting stringent acoustical performance requirements for Performing Art. 3D-Scan-to-BIM of the existing facility was invaluable to develop the comprehensive existing conditions. Built in 1913, this beautiful award winning historic theatre has come back to life!

*Renovations resulted in a **50.8% reduction in energy** over ASHRAE 90.1-2007 standards qualifying the project for EPA Act.*

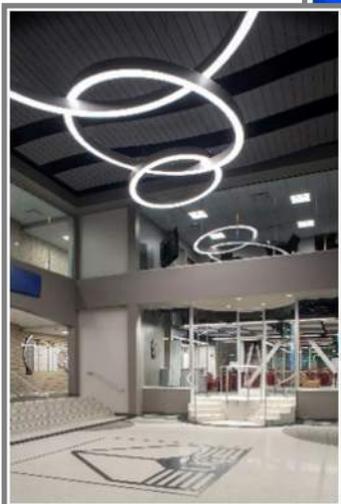
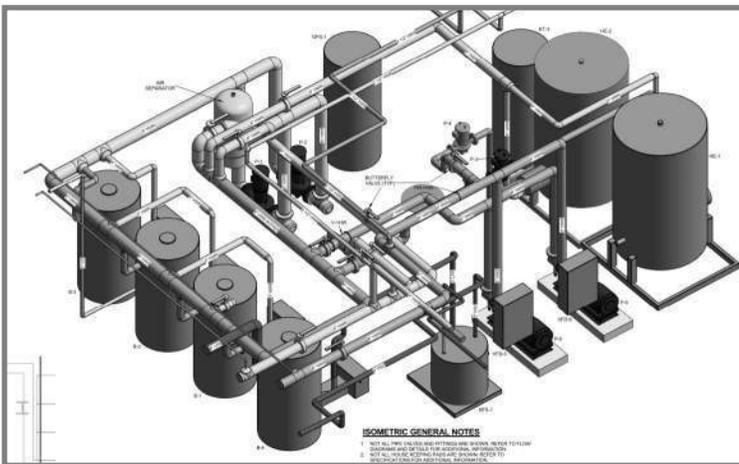


Project Cost: \$17,000,000, **Size:** 117,500 ft², **Date Complete:** 2017

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

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

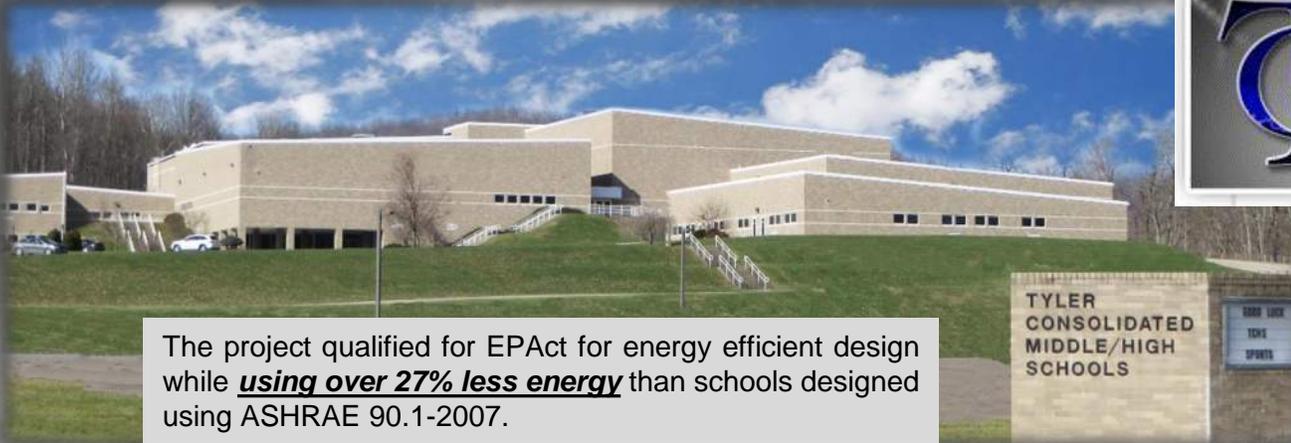
The facility consists of classrooms, offices, flexible meeting areas and a large two-story Innovation Center space. Mechanical and Electrical work includes new chiller and **three heating hot water boilers with a steam boiler for the central boiler** plants with pumps and accessories, HVAC air handling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



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

Tyler County Schools

Tyler Consolidated Middle/High School - HVAC Renovations



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



**Condensing
Hot Water Boilers**

ZDS provided professional engineering design, bidding, construction administration, and **commissioning services** for HVAC upgrades at the Tyler Consolidated Middle/High School to meet Indoor Air Quality and today's energy codes. The initial step in the project was to provide engineering investigations of existing conditions where ZDS performed 3D Scan-to-BIM for reliable and accurate 3D capture of "built" conditions to use in design, bidding and construction. The 3D scans were also valuable to communicate remotely between the Owner and Contractors. The demolition and new work to be included in Phase I of the project included two (2) new high efficient chillers piped so they could be used even during winter months, three (3) new high efficient condensing boilers, variable water volume hydronic pump system, VAV Air-Handling Units, VAV Blower Coil Units, Fan Coil Units, Energy Recovery Ventilators, DDC control upgrades, select new hydronic piping and ductwork for the equipment, exhaust fans, electric work associated with serving the new HVAC system equipment and new electrical panel-boards. The energy efficient design qualifies this school for the federal EAct credit and will provide excellent long-term operating savings to the Tyler County School systems over the life of the new systems.

The school remained occupied, and phasing of the Work was critical throughout the construction process. The project was completed ahead of schedule and within the allocated budget.

Phase II work is on-going and intended to complete the HVAC upgrades, renovate the auditorium, additions/renovations to the headhouse (greenhouse), a two-story addition and provide high efficient lighting.

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

Date Completed: Phase I completed 2019; Phase II projected 2023

School Size: 188,156 square feet

Contact: Ms. Amanda Kimble, Dir. Child Nutrition, Facilities and Support Services

(304) 758-2145 ext. 111, akimble@k12.wv.us

Mr. Jeff Davis, Treasurer, (304) 758-2145 ext. 108



Design/Consulting Services

Concord University Nick J. Rahall II Technology Center



Converted old White Hall into a new technology center involving 50,000 ft². **Separate central heating and cooling plant with high efficiency hot water boilers piped underground to serve facility.** Engineering planning & design for HVAC, Electrical, Plumbing, compliance with ADA, Fire Protection, Technology, DDC Controls, VAV AHU's, variable water volume pumping, UPS, Emergency Power, energy efficient lighting, and information technology. Extended campus medium voltage service to complete the campus loop.



Construction Costs: \$3,675,000 out of a \$10,300,000 total cost for approximately 50,000 ft²
Contact: Mr. Scott Darnold, Mechanical Contractor; (304) 988-1618

Ohio University, Chillicothe Stevenson Library and Bennett Hall Renovations

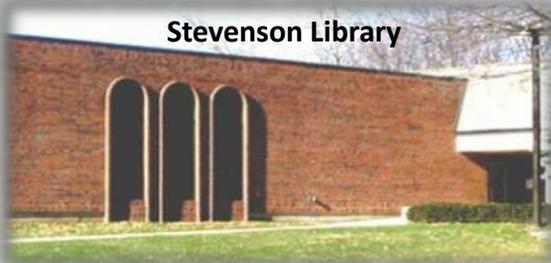


Addressed IAQ issues within Stevenson Library by providing the Engineering planning, mechanical and electrical design, consulting for establishing comprehensive Performance Contracting program coordinated with HVAC and electrical renovations to Stevenson Library, Bennett Hall and renovations to Shoemaker gym.



Bennett Hall

100,000 sf classroom facility with science labs



Stevenson Library



Shoemaker Gym

Construction Costs: \$4,400,000; Estimated annual savings between \$200,000/\$300,000
Contact: Mr. David Scott, Director of Facilities
(740) 774-7423; scott1@ohio.edu



Engineering for State & Local Government Facilities

ZDS engineering project experience includes facilities registered as official Historic Buildings



Jackie Withrow State Hospital



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



Hopemont State Hospital



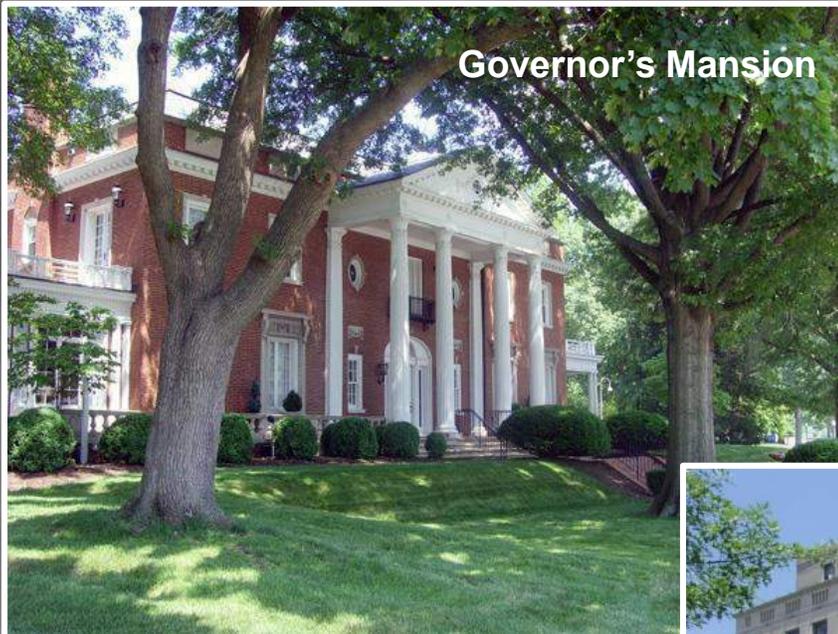
Mildred Mitchell-Bateman State Hospital

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



Design/Consulting Services

Engineering for State & Local Government Facilities



Governor's Mansion

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

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



Building #3



State Capitol



LEED Certified Candidate



Design/Consulting Services

Engineering for State & Local Government Facilities

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 ft² Facility



Emergency Power Generator

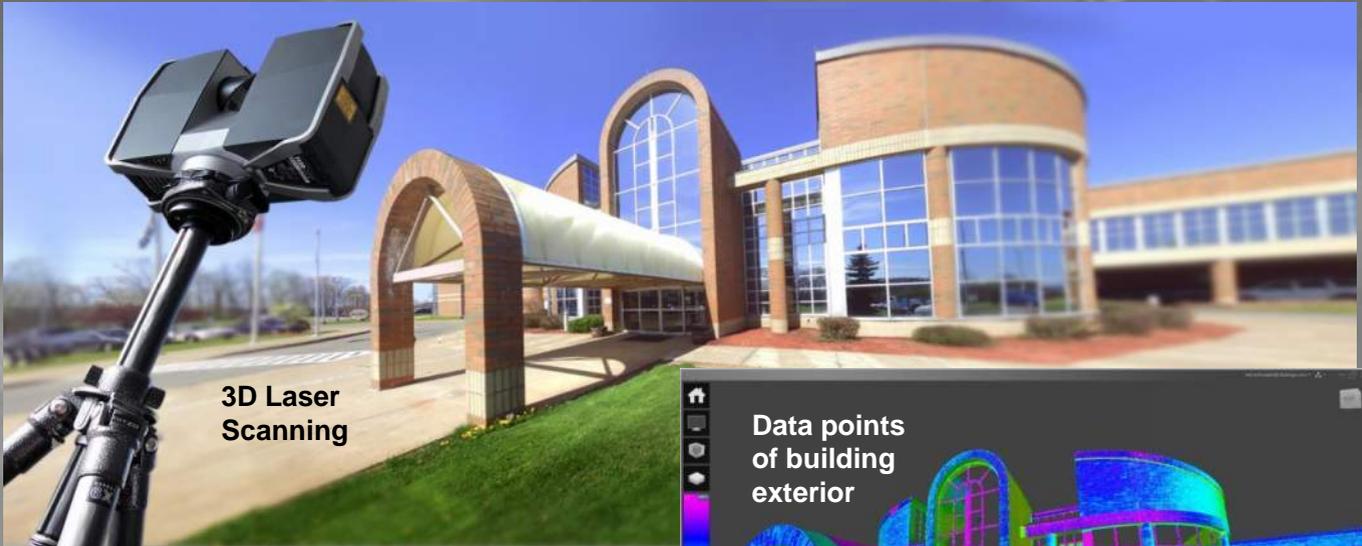
Renovations save the Museum nearly \$153,000 in annual energy costs while preserving the State's priceless collection with proper HVAC, humidification, lighting, electrical and power generator systems.



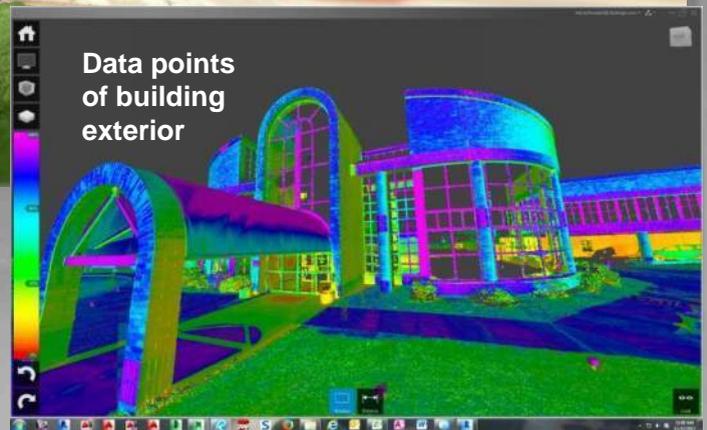
Design/Consulting Services

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



Data points of building exterior

Why 3D Laser Scanning is better:

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

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

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

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

former Chief Operations Officer



Web Share:

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



BIM - 3D Digital Imaging

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

DHHR



“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.





WYK ASSOCIATES, INC.
ARCHITECTURE • PLANNING

Frank & Jane Gabor WV Folklife Center

Fairmont State University, Fairmont, West Virginia

Education > Fairmont State University > Frank & Jane Gabor Folklife Center

The Folklife Center - A Success Story

Living history carefully updated

Originally a barn, this historic building is at Fairmont State University's new main campus entrance. This charming stone building was previously used as apartments and storage.

It is now the home of Fairmont State University's West Virginia Folklife Program and also serves the school as a Visitor's Center.

By removing the third floor and gutting the second floor plan, WYK designed a two story day lit gallery space on the existing second floor. Remedial structural repairs were needed to brace the existing roof structure once the third floor was removed.

The first floor houses offices, classrooms and informal gathering spaces. An elevator, replacement of 72 windows and doors, natural and specialized lighting, sprinkler system and HVAC systems have all been integrated into this structure.

By marrying the historic character of the building with upscale contemporary features and educational elements, the Folklife Center welcomes alumni, students, faculty and the general public to share many public functions.





WYK ASSOCIATES, INC.
ARCHITECTURE • PLANNING

Gore Building Build-Out

Clarksburg, West Virginia



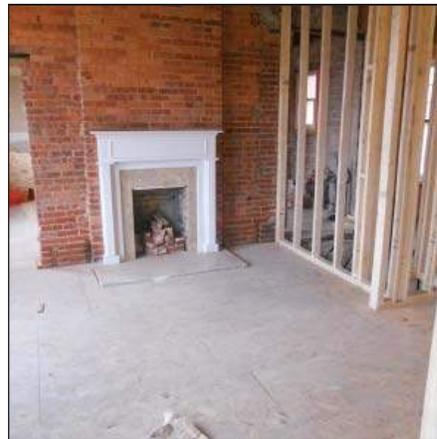
Historic building to provide upscale living in Clarksburg !

The Gore Hotel, located on West Pike and South Second Streets in downtown Clarksburg, served originally as a prestigist hotel in the 1920's It was built in 1913 by Truman E. Gore and Howard M. Gore, Governor of West Virginia and U.S. Secretary of Agriculture, respectively.

The 3rd, 4th, and 5th floors are being rehabilitated from multiple small hotel type rooms into seven seperate luxury apartments per floor with one and two bedroom options.

The inside of the exterior walls have been stripped of their original plaster and will be cleaned and sealed to leave a unique texture and feel to the apartments. The living areas will have laminate flooring while the bathrooms will have ceramic tile.

A new, large elevator and shaft is being installed to accomodate all levels of the building. Each floor will have a common area for residents to mix and socialize.



Project Facts

Size: 40,000 sq ft

Completed: Spring 2016

www.wykarchitects.com

DIVISION OF MOTOR VEHICLES—BUILDING 3 CAPITOL COMPLEX Charleston, West Virginia



The limestone at the canopy was deteriorated to the point that pieces were loose and ready to fall. The project included an investigation to determine the support conditions for the stone.

During the investigation, it was determined that the support structure was not as shown on the original construction documents.



The repair of this element was completed in 2002.



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.

