

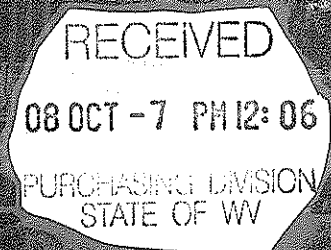
Expression of Interest to Provide:

Architect and Engineering Services for the Family Readiness Center

submitted to:

West Virginia Army National Guard
Charleston, WV

October 7, 2008





Suite 110
400 Tracy Way
Charleston, WV 25311

(304) 346-1127
(800) 274-2224
Fax (304) 346-7295

www.bh-ba.com

October 6, 2008

Department of Administration
Purchasing Division
2019 Washington Street, East
P.O. Box 50130
Charleston, WV 25305-0130
Attn: John Abbott, Buyer

Reference: Expression of Interest
WVANG Family Readiness Center
Requisition No. DEFK9011


Dear Mr. Abbott:

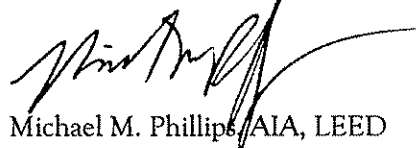
Buchart Horn, Inc., in association with **ZDS Design/Consulting Services, Inc.**, presents our qualifications to provide design engineering services for a new Family Readiness Center for the WV Army National Guard at Coonskin. Buchart-Horn is a full service architectural and engineering firm offering extensive experience in the design and administration of military facilities, including specific experience in the design of facilities of a similar size and function. We have been involved in the design of National Guard Facilities throughout Pennsylvania and Maryland. Our recent local experience includes a facilities assessment for the 130th Airlift Wing at Yeager Airport in Charleston, performed at the request of the Central West Virginia Regional Airport Authority as part of the local response to the preliminary recommendations of the Federal BRAC Commission.

This Expression of Interest package has been prepared in accordance with the requirements outlined in your Request for Quotation. Should you have any questions regarding the material contained in this package, please contact one of the undersigned at (304) 346-1127. Thank you for your consideration of Buchart Horn for this assignment. We look forward to the opportunity to serve the State of West Virginia on this important endeavor.

Sincerely,

BUCHART-HORN, INC.


Charles L. Kinney, P.G.
Vice President


Michael M. Phillips, AIA, LEED
Project Manager

CSK/mrk

Baltimore, MD
Charleston, WV
Chantilly, VA
Coatesville, PA
Frankfurt/Main, Germany
Harrisburg, PA
Hershey, PA
Kaiserslautern, Germany
King of Prussia, PA
Marlton, NJ
Memphis, TN
Morgantown, WV
Nashville, TN
New Cumberland, PA
Batesville, MS
Pensacola, FL
Pittsburgh, PA
State College, PA
Stroudsburg, PA
York, PA



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

Request for Quotation

RFQ NUMBER

DEFK9011

PAGE

1

ADDRESS CORRESPONDENCE TO ATTENTION OF

JOHN ABBOTT
304-558-2544

RFQ COPY

TYPE NAME/ADDRESS HERE

Buchart Horn, Inc.
400 Tracy Way, Suite 110
Charleston, WV 25311

DIV ENGINEERING & FACILITIES
ARMORY BOARD SECTION

1707 COONSKIN DRIVE
CHARLESTON, WV
25311-1099 341-6368

DATE PRINTED	TERMS OF SALE	SHIP VIA	FOB	FREIGHT TERMS		
09/11/2008						
BID OPENING DATE: 10/07/2008		BID OPENING TIME 01:30PM				
LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	LS		906-00-00-001		
ARCHITECT/ENGINEERING SERVICES, PROFESSIONAL						
CONTRACT TO PROVIDE ARCHITECT AND ENGINEERING SERVICES FOR THE WEST VIRGINIA ARMY NATIONAL GUARD, CHARLESTON, WV, PER THE EXPRESSION OF INTEREST (EOI).						
NOTICE						
A SIGNED BID MUST BE SUBMITTED TO:						
DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION BUILDING 15 2019 WASHINGTON STREET, EAST CHARLESTON, WV 25305-0130						
THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:						
SEALED BID						
BUYER: JOHN ABBOTT-----						
RFQ. NO.: DEFK9011-----						
SEE REVERSE SIDE FOR TERMS AND CONDITIONS						
SIGNATURE <i>Remond D. Byrd</i>			TELEPHONE (304) 346-1127		DATE October 7, 2008	
TITLE Regional Manager			FEIN 23-1498326		ADDRESS CHANGES TO BE NOTED ABOVE	

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'



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

Request for Quotation

RFQ NUMBER

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2

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400 Tracy Way, Suite 110

Charleston, WV 25311

DIV ENGINEERING & FACILITIES
ARMORY BOARD SECTION

1707 COONSKIN DRIVE

CHARLESTON, WV

25311-1099

341-6368

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
09/11/2008				

BID OPENING DATE:

10/07/2008

BID OPENING TIME

01:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
BID OPENING DATE: 10/07/2008-----						
BID OPENING TIME: 1:30 PM-----						
PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID: (304) 346-7295-----						
CONTACT PERSON (PLEASE PRINT CLEARLY): Kenneth D. Bryant, Jr., PE, PS-----						
***** THIS IS THE END OF RFQ DEFK9011 ***** TOTAL: _____						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	<i>Kenneth D Bryant</i>	TELEPHONE	(304) 346-1127	DATE	October 7, 2008
TITLE	Regional Manager	FAX	23-1498326	ADDRESS CHANGES TO BE NOTED ABOVE	

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

RFQ No. DEFK9011STATE OF WEST VIRGINIA
Purchasing Division**PURCHASING AFFIDAVIT****VENDOR OWING A DEBT TO THE STATE:**

West Virginia Code §5A-3-10a provides that: 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 the debt owed is an amount greater than one thousand dollars in the aggregate.

PUBLIC IMPROVEMENT CONTRACTS & DRUG-FREE WORKPLACE ACT:

West Virginia Code §21-1D-5 provides that: Any solicitation for a public improvement construction contract shall require each vendor that submits a bid for the work to submit at the same time an affidavit that the vendor has a written plan for a drug-free workplace policy in compliance with Article 1D, Chapter 21 of the West Virginia Code. A public improvement construction contract may not be awarded to a vendor who does not have a written plan for a drug-free workplace policy in compliance with Article 1D, Chapter 21 of the West Virginia Code and who has not submitted that plan to the appropriate contracting authority in timely fashion. For a vendor who is a subcontractor, compliance with Section 5, Article 1D, Chapter 21 of the West Virginia Code may take place before their work on the public improvement is begun.

ANTITRUST:

In submitting a bid to any agency for the state of West Virginia, the bidder offers and agrees that if the bid is accepted the bidder will convey, sell, assign or transfer to the state of West Virginia all rights, title and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the state of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the state of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to the bidder.

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership or person or entity submitting a bid for the same materials, supplies, equipment or services and is in all respects fair and without collusion or fraud. I further certify that I am authorized to sign the certification on behalf of the bidder or this bid.

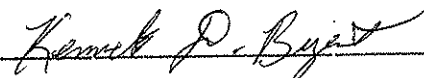
LICENSING:

Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agencies or political subdivision. Furthermore, the vendor must provide all necessary releases to obtain information to enable the Director or spending unit to verify that the vendor is licensed and in good standing with the above entities.

CONFIDENTIALITY:

The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures and rules. Vendors should visit www.state.wv.us/admin/purchase/privacy for the Notice of Agency Confidentiality Policies.

Under penalty of law for false swearing (West Virginia Code §61-5-3), it is hereby certified that the vendor acknowledges the information in this said affidavit and is in compliance with the requirements as stated.

Vendor's Name: Buchart Horn, Inc.Authorized Signature:  Date: October 7, 2008

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Project Team & OrganizationSection 3

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Qualifications Overview / Project Summary

The Buchart Horn/ZDS Team offers a number of benefits to the West Virginia Army National Guard, Construction and Facilities Management Office (C&FMO), for the performance of this work. These include:

Experience in the Design of Military Facilities

Including specific experience in the design of facilities of similar size and function.

Experience with West Virginia Codes and Standards

Gained through performance of a number of related designs in West Virginia, including recent new facilities designed for the West Virginia Department of Transportation and the Canaan Valley Institute.

Knowledgeable Project Team

Led by an experienced Project Manager, Michael Phillips, AIA, LEED, who possesses experience in the design of military facilities and in the design of new facilities in West Virginia.

Proven Project Approach

Developed and refined over past projects and specifically tailored to meet your needs, focused on quality and control.

Project Overview

The project mission is to provide architectural and engineering services for the construction of a 6,000 square foot Family Support Center, consisting of offices and meeting rooms. The facility will be located at the West Virginia Army National Guard, 1703 Coonskin Drive, Charleston, West Virginia.

The design will take into consideration the Army National Guard Design Guide's and Department of Defense Unified Facilities Criteria; specifically UFC_4_730_01 for Family Services Centers. This UFC describes the scope of this facility as providing support for "the programs that provide information and family services necessary to support qualified single and married Department of Defense (DoD) personnel and their family members in meeting the unique demands of the military lifestyle....". To accomplish that goal, the functional requirements of the building may address the following potential services: Relocation Readiness Program (RRP); Family Advocacy Program (FAP and EFMP); Army Emergency Relief (AER); Mobilization and Deployment (MOB); Stability and Support (SSO); Employment Support (ERP); Financial Management (FRP); Army Family Team Building (AFTB); Army Facility Action Plan (AFAP); Army Volunteer Coordinator (AVC); Victim Advocacy Program (VAP); New Parent Support (NPS). The functional layout will provide the appropriate level of efficiency and accessibility to provide the programs and services to "improve life skills by fostering competencies and coping skills, encourage self-sufficiency, and offer short-term support and assistance when necessary."

Approach

Buchart Horn will utilize a project approach that stresses early and open communication with the West Virginia Army National Guard and appropriate review agencies, including the State Fire Marshall's Office, to ensure that the design satisfies agency requirements while meeting an aggressive design and construction schedule. We propose a phased design approach, as follows:

- Planning and Programming Phase, including conducting a design charrette meeting and associated documents and other pre-planning services.
- Preliminary Design Phase, including field surveys, geotechnical investigations, cost estimates and development of 35% Design Documents
- Final Design Phase, including development of a final review packet and final construction documents.
- Bid Phase, including printing and document production, attendance at the pre-bid meeting, development and distribution of addenda, and assistance with award of a construction contract.
- Construction Phase Services, including shop drawing and information reviews, and appropriate on-site inspection.

We believe that the goal of every successful project is a fully satisfied client and workable, cost effective solutions to problems. The element that enables a successful project is the *people* - skilled and experienced technical personnel committed to a successful project and supported by the management and owners of the firms. We have assembled an exceptional group of professionals to work on the design of this new Readiness Center.

A chart showing the organizational structure and technical responsibilities of the project team is included within this submittal. Detailed resumes for all project personnel are also included.

Michael Phillips, AIA, LEED, will serve as Project Manager and Lead Architect. In this role, Mr. Phillips will serve as the lead point of contact with the State. As Lead Architect for Buchart Horn's West Virginia operations, Mike has served as Project Manager and Lead Architect for all of our recent West Virginia facilities. As Project Manager, Mike's responsibilities will include:

- Formulating the Project Work Plan.
- Establishing the Project Schedule.
- Ensuring that all project milestones are met through the coordination and monitoring of the project schedule and budget for the entire project team.
- Conducting meetings with the WVANG to document decisions or open items (project issues) and to publish meeting minutes that document those decisions/open items.
- Identifying and monitoring all open items/project issues so that all key project information is acted upon/ responded to in a timely and professional manner.
- Participating with the team in site visits in order to assess existing conditions and to collect and verify all appropriate program needs and requirements.
- Confirming that all work is being performed in accordance with the project scope and guidelines.
- Coordinating and monitoring of project engineers/ architects to ensure consistency and quality of work via regular meetings.
- Communicating among all members of the project team to ensure the consistent application of all project standards, schedules and date decisions.
- Responding to inquiries by the WVANG.

Founded in 1945, Buchart-Horn has extensive federal project experience, including successfully completing a wide range of A/E designs and studies for:

- › USACE, Baltimore District
- › USACE Charleston District
- › USACE Louisville District
- › USACE Memphis District
- › USACE Philadelphia District
- › USACE Pittsburgh
- › USACE Europe District

Engineering News Record ranks Buchart Horn (BH) among the Top 100 Green Design Firms in the United States. ENR also lists BH among the nation's Top 280 Design Firms and Top 200 Environmental Firms.

Locations

Our firm serves public and private clients around the world from the 21 offices in nine states and Germany listed below:

Pennsylvania: *York, Harrisburg, Coatesville, Hershey, King of Prussia, New Cumberland, Pittsburgh, State College, Stroudsburg*

Florida: *Pensacola*

Germany: *Frankfurt/Main, Kaiserslautern*

Louisiana: *Baton Rouge*

Maryland: *Baltimore*

Mississippi: *Batesville*

New Jersey: *Marlton*

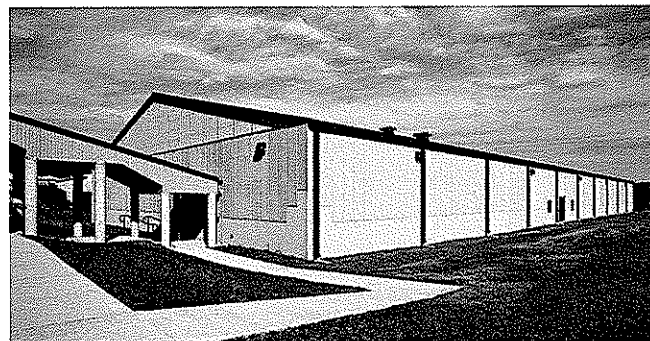
Tennessee: *Memphis, Nashville*

Virginia: *Chantilly*

West Virginia: *Charleston, Morgantown*

Services

We specialize in designing, improving, and solving infrastructure and structure problems and in helping our clients comply with environmental, life safety, and other codes and regulations. We provide:



Buchart Horn designed the Mission Training Support Facility (MTSF) for the Nation's only Stryker Brigade Combat Team, Fort Indiantown Gap, PA

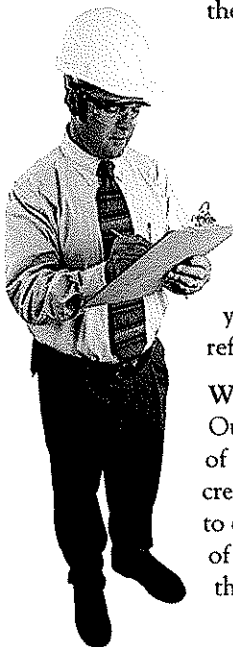
- › Civil/Site development
- › Architecture
- › Landscape architecture design
- › Environmental planning, engineering, compliance
- › Surveys/mapping
- › HVAC, plumbing, energy conservation
- › Construction management
- › Electrical systems and computer wiring
- › Structural design
- › Geographic Information Systems (GIS)
- › Hazardous and toxic substances
- › Highways, roads, streets
- › Bridges
- › Traffic and traffic management
- › Recreation parks and trails
- › Schools
- › Telecommunications
- › Telemetry and SCADA control systems
- › Vulnerability assessments
- › Water and wastewater treatment and systems



**BUCHART
HORN, INC.**
Engineers, Architects and Planners

Professional Services

With complete in-house capabilities, we assemble teams from our full-service staff to match your specific needs. Our staff is comprised of professionals who are recognized for their creative and imaginative as well as their technical skills.



Your vision starts the process

Starting with a client's expressed need, Buchart Horn staff will craft solutions that are consistent with your expectations, tastes, and budget. We do this in an interactive environment, providing ample opportunity for your participation, comment, and refinement.

We are more than designers

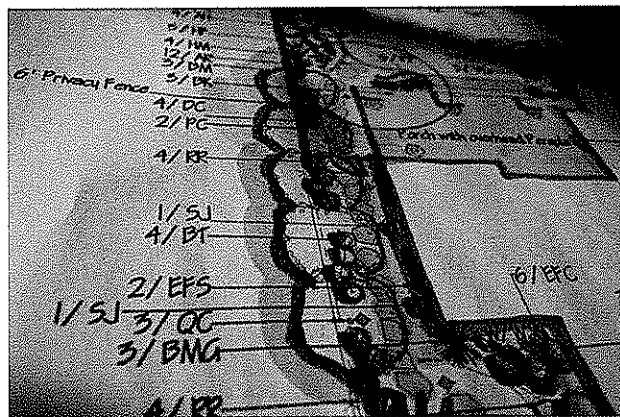
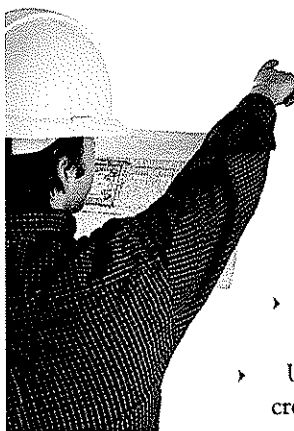
Our clients look to us as their team of professionals who combine creativity, practicality, and attention to detail. Our clients reap the benefits of creative, yet pragmatic, solutions to their project needs.

From project inception, the Buchart Horn team strives to:

- › Understand the client's vision
- › Incorporate the client's needs into the preliminary planning
- › Aid and guide clients to achieve balance between:
 - Facility/site features
 - Environmental values
 - Governmental regulations
 - Available funds
 - Market demands
- › Create a theme consistent with client goals and dreams

During project planning, the Buchart Horn team will:

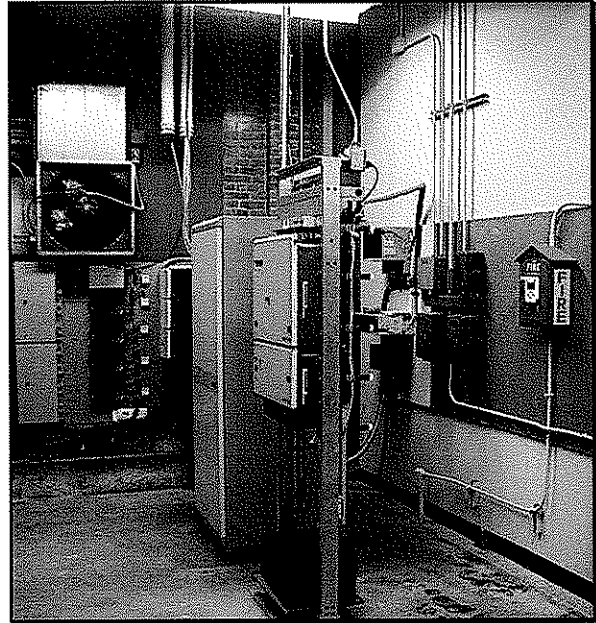
- › Strategize design considerations
 - › Creatively analyze and address opportunities and constraints
 - › Look beyond the obvious
 - › Integrate need for growth
 - › Preserve natural and cultural environment
 - › Use a functional and creative approach
 - › Seek uniqueness and balance
- › Accommodate natural assets
- › Promote harmony and continuity between nature and design
- › Prepare context sensitive designs
- › Understand the regulatory landscape
- › Initiate a multidisciplinary approach
- › Remain flexible
- › Analyze physical, environmental, economic, and social aspects



Architecture

Buchart Horn offers complete architectural design capabilities including site selection, feasibility analysis, and the following services:

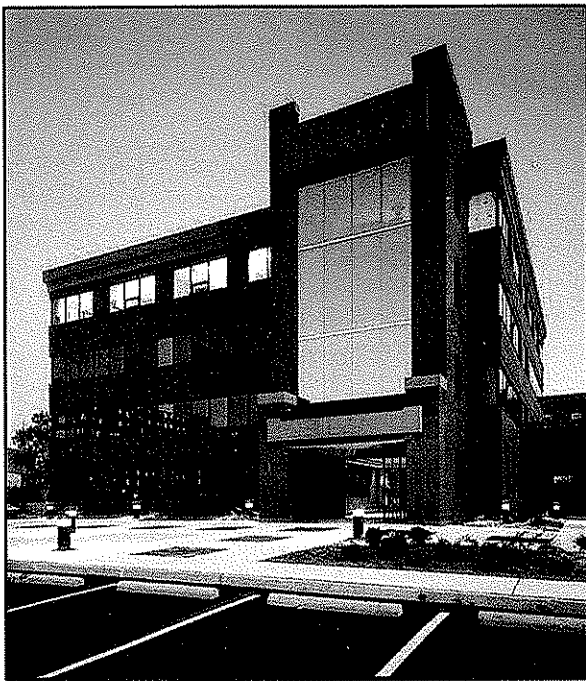
- › ADA Compliance
- › Architectural design
- › Building evaluation
- › Environmental assessments
- › Historic preservation
- › Interior design
- › Restoration
- › Site engineering
- › Site evaluation
- › Space planning



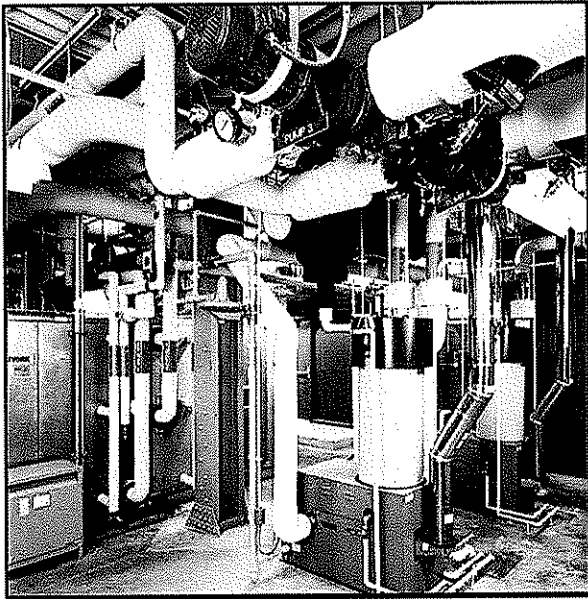
Electrical Engineering

From specialty lighting design and electrical power supply to completely automated systems development, our experienced electrical engineering staff can support a project from evaluation through system start-up and troubleshooting. Complete electrical engineering services are provided to architects, engineers, and public and private sector clients. Sophisticated instrumentation and control systems are often at the heart of today's electrical engineering projects. Our specialized experience brings cost-effective solutions to respond to client needs through the following services:

- › Navigational aids (NavAids)
- › Interior and exterior lighting
- › Power distribution
- › Facility systems
- › Telecommunications and networking
- › Process automation and control
- › Operation and maintenance evaluation
- › Systems commissioning, field inspection, start-up
- › Electrical studies and analysis



Mechanical Engineering



We provide complete system assessment, design and construction phase services for HVAC, plumbing, and fire protection systems. Our designs achieve a suitable balance of comfort, safety, health, and hygiene with sensitivity to client budgets and ease of upkeep. Our common-sense approach integrates the building systems with the need for a flexible, responsive, and energy-saving environment. Services include:

- › Alternative energy sources
- › Automatic temperature controls
- › Building management systems
- › Coal, gas, and oil burner retrofits
- › Compressed air systems
- › Dust collection systems
- › Energy protection systems
- › High-pressure boiler plants
- › HVAC systems
- › Industrial process distribution
- › Plumbing and drainage systems
- › Steam power distribution
- › Value engineering and life cycle analysis
- › Ventilation heat recovery

Structural Engineering

Our structural engineering services involve all types of materials and systems, including:

- › Structural studies, reports, investigations, evaluations, design for structural systems
- › Foundation systems
- › Retaining walls
- › Above- or below-ground containment structures
- › Masonry wall-bearing systems
- › Steel frames

Planning

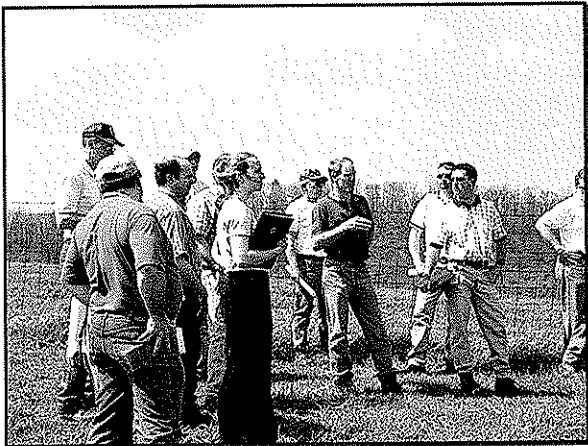


In our firm, planning is not a separate discipline. It is an important component in assisting our clients in making knowledgeable project and programming decisions. We provide planning for the following types of projects:

- › Comprehensive planning
- › Economic feasibility
- › Environmental planning
- › Facilities planning
- › GIS/mapping
- › Land planning
- › Landscape architecture
- › Master planning
- › Public meetings
- › Recreational planning
- › Space planning
- › Zoning and subdivision ordinances

Civil Engineering

Buchart Horn's civil engineering group matches sophistication and execution to complex, project-specific, and regulatory requirements to leverage the latest technological and computer advances.



- › Flood studies
- › Grading and drainage design
- › Parking studies and design
- › Right-of-way services
- › Sediment and erosion control
- › Signalization
- › Site development
- › Stormwater management
- › Traffic studies and analyses
- › Utilities design

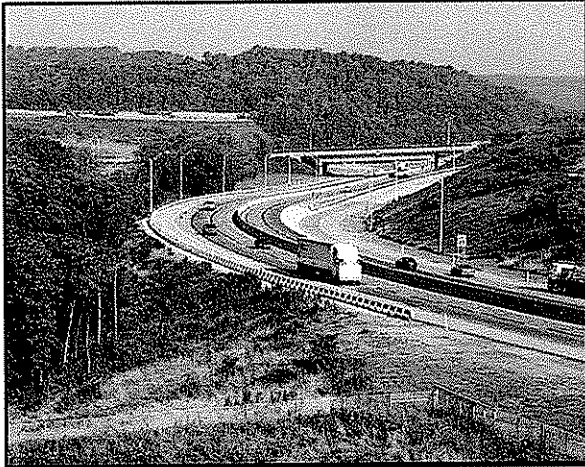
- › Environmental site assessments (Phases I-IV)
- › Financial analysis/funding assistance
- › Geological engineering
- › Geophysical investigations
- › Groundwater contamination investigations
- › Highway noise analysis
- › Hydrogeological studies
- › Industrial and hazardous waste management
- › Infiltration/inflow studies
- › Instrumentation, telemetering, and controls
- › Permitting and government regulations
- › Pollution prevention plans
- › Remedial action design and implementation
- › Soil contamination studies
- › Solid waste/air quality management
- › Stormwater management/NPDES permitting
- › Underground storage tank investigation
- › Water and wastewater collection/treatment systems
- › Water and sewage facilities planning
- › Water distribution/storage systems
- › Wetlands delineation and permit applications

Environmental Engineering

Our environmental engineering services range from water treatment to sludge management and disposal. Our staff is familiar with code regulations. Services available include:

- › Comprehensive planning
- › Environmental assessments/impact studies
- › Environmental auditing
- › Environmental compliance: CAA, CWA, RCRA, UST, CERCLA/SARA, PCB, Asbestos, HMTA





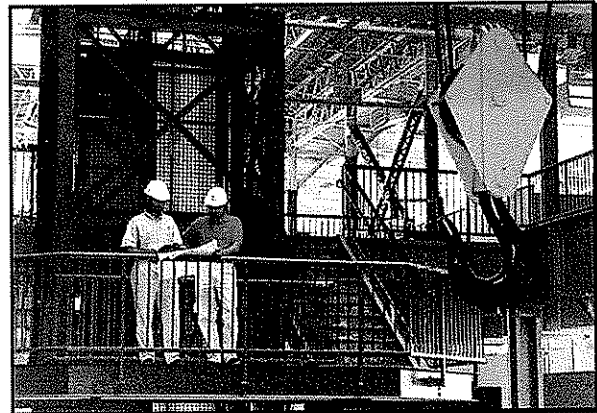
Transportation

Our Transportation Division offers a full range of transportation-related experience including:

- › Airport design
- › Bridge design and inspection
- › Dam design and inspection
- › Flood studies and hydrological analyses
- › General structural design
- › Highway design
- › Railroad and railroad bridge design
- › Site grading, drainage, and stormwater design
- › Traffic studies



Construction Services



Our construction management engineers and inspectors serve as representatives of the client/owner, providing liaison with contractors so that construction complies with contract documents. We provide the full spectrum of construction phase services for all types of architectural and engineering projects including:

- › Construction inspection
- › CPM scheduling and evaluation
- › Claims/change order management
- › Constructability analysis
- › Construction audits
- › Construction management
- › Contract administration
- › Design/build
- › Equipment start-up
- › Grants administration
- › Materials/equipment procurement
- › Material sampling and testing
- › Permit processing
- › Specialized testing
- › Videotaping

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

In 1983, Todd A. Zachwieja founded ZECO Consultants. In 1994 ZDS Limited Liability Company was incorporated in WV using dba **ZDS Design/Consulting Services**. This company was founded to provide design and consulting services. Today there are five principals with over 100 years of technical expertise:

- **Todd A. Zachwieja, PE, C.E.M.,** Chief Executive Officer, brings with him over 25 years in the design and consulting business.
- **Ted T. Zachwieja,** Principal over Construction Administration services with over 40 years experience in the design and consulting business. He was owner of Ted T. Zachwieja & Company from 1962 to 1982.
- **Daniel H. Kim, Ph.D.,** Manager of Strategic Planning, brings with him over 20 years in the design and consulting business and is one of the nation's leading experts in organizational management. He is also owner/founder of Pegasus Communications, Inc. from 1991 to present.
- **Lori Zachwieja, CPA,** Chief Financial Officer and cofounder of ZECO Consultants.
- **Sandra W. Zachwieja,** Specification writer and former co-owner of Ted T. Zachwieja & Company.

ZDS is a consulting engineering firm specializing in the following areas:

**MECHANICAL
ELECTRICAL
INDOOR AIR QUALITY
COMMISSIONING
ENERGY**

Each new project is assigned to a principal in-charge who will follow the project from inception through commissioning.

We assign 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, the same Principal of ZDS visits the job site regularly, all the way through the eight-month warranty inspection once the project is completed.

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

ZDS believes in the team approach when providing engineering design and consulting services. We start with *our client* as the number one member on our team. We listen to the **needs** and **concerns** of our client and that becomes the basis for our design. Our design expertise includes:

MECHANICAL DESIGN

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

ELECTRICAL DESIGN

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

ZDS provides comprehensive design services. We have experience and specialties in indoor air quality, energy management and commissioning, along with traditional mechanical and electrical design experience dating back as far as 1958. We offer a complete package.

We work with all levels of the client's staff: the building owner, the budget supervisor, the operating and maintenance staff and others impacted by the project. We recognize 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.

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."

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 technical and IAQ publications:

- Contributing Editor and Technical Review Panel for the publication of the *ENVIRONMENT^o 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 *ENVIRONMENT[™] 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 the June 1993, 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 *ENVIRONMENT[™] Professional*
- Editorial Advisory Board member of *POWER PRESCRIPTIONS[™]* Indoor Air Quality Publication by *Electric Power Research Institute*.

ZDS provides IAQ services for major corporations, government organization, and property owners to resolve their specific facility problems:

- Resolve the building's "sick building syndrome" complaints.
- Identify solutions to extensive biological contamination building related illnesses in renovated office buildings.
- Develop solutions for HVAC systems, temperature controls, equipment, operating and maintenance practices causing IAQ problems in schools and commercial buildings.
- Commission new and renovated facilities to minimize or eliminate IAQ issues before they become problems.
- 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, ZDS produces 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 that includes:

- Providing detailed analysis of facilities.
- Recommending sound and proven energy saving solutions.
- Implementing energy management improvements
- Determine, quantify and assist in securing available Utility & Government grants.
- Evaluating and documenting utility savings.

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.
- Optimizing HVAC equipment and operating sequences.
- Installing Direct Digital Control (DDC) Energy Management Systems.
- Replacing inefficient lighting equipment with energy efficient ones.
- Converting constant speed air handling equipment and pumping systems to variable speed operation.
- 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 trap and pressure relief equipment operation.
- Enabling heating and cooling equipment only when required.

The ZDS team is trained and experienced in advising you of program options to incorporate energy efficiency and operational saving 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 saving options and providing supporting financial information. We then help you to fit your energy efficiency needs and goals into a workable budget and schedule, and then design a program to fill those needs.

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

Subsequent to joining ZDS, Todd Zachwieja established commissioning services for one of the nations largest energy service companies. Many utility companies and building Owners now require commissioning for the new or renovated facilities in order to maximize the use of their investments in their facilities. The commissioning process offers the following benefits:

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

ZDS and its consultants, offer commissioning services for their commercial and institutional clients. These services include strategic planning operations assistance for renovation and new construction projects. Commissioning services consists of construction document review, equipment performance testing, documentation of design criteria, value engineering, operational fine tuning, 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 Owners operational needs.

NATIONAL RECOGNITION

The Second National Conference on Building Commissioning invited Todd Zachwieja, ZDS's owner, to speak. He jointly presented a paper with the Director of Maintenance of Charleston Area Medical Center's Memorial division. The Tampa, Florida Conference was held in May 1994.

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

The design team at **ZDS Design/Consulting Services** is the Best to provide engineering services for **your** project. Satisfying *our Client's* individual needs and distinct requirements is the foremost concern of ZDS.

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

The **ZDS** design staff continuously provides engineering design services value well into the millions of dollars on a variety of project types. Designing expertise goes as far back as 1958. Through the efforts of our staff, project locations include:

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

Our clients can rest assured that the design team will be available. Not just for the year or two that we are involved in the initial design and construction, but also for years that follow as questions arise about your facility. A good-engineered system and its equipment should last 15 to 40 years. A design firm with staff committed to their projects of comparable duration is logical.

Our 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.

Our 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 and the West Virginia Department of Health.

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 Client's* needs, on time and within budget with outstanding quality.

We view 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.

West Virginia Army National Guard

Principal-In-Charge/Program Manager

Glen R. DeWillie, PE

QA/QC

Anthony J Shinsky, AIA, LEED® A
Joseph C. Crumbling, AIA

Project Manager

Michael M. Phillips, AIA, LEED®AP

Architect

Michael M. Phillips, AIA, LEED®AP
Stephanie A Schaefer, AIA

Structural Engineer

James M. California, PE

Civil/Site/Utilities

Jason M. Boyd, PE, MBA
Vincent Wayne, PE

Electrical/Security/Fire Protection Engineer

Jeffrey B. Moreland, PE, LEED®
Mark A. Moore, PE
Daniel H. Kim, Ph.D
James W. Lowry, EIT

Mechanical Engineer

Michael G. Miller, PE, LEED® AP
Todd (Ted) A. Zachwieja, PE, CEM, LEED®
Ted T. Zachwieja
David G. Dial, PE

Interior Design

Beth A Dermota, ASID

Specifications and Estimating

Eugene G. Williams, PLS, CSI, CDT,
ASPE

Environmental Scientist

Matthew J Leisses

Over 300 support staff including
Field Survey, CADD, IT, GIS,
Environmental, Traffic/Transportation,
Landscape Architects, etc.

Michael M Phillips, AIA, LEED® AP

Project Manager/Lead Architect

Education:

*Bachelor of Architecture/
Architecture*

Registrations:

Registered Architect

NCARB

Years' Experience:

Total: 20

Professional Affiliations:

*American Institute of
Architects*

With a diverse background in project scale, type, and style, Mr. Phillips has a strong record of successfully working with and integrating existing facilities into new designs and programs. His knowledge and experience gained from a strong background and practice in historic preservation and renovation bring a keen insight into dealing with the issues of adaptive re-use and the recycling of existing built elements. This wide-ranging experience has also helped fashion a working knowledge of resilient, lasting designs, structurally, functionally, and pragmatically as well as aesthetically. Mr. Phillips has also given his time, talent, knowledge, and leadership skills to the community by being a founding tutor, board member, and past Vice President of PRO-Kids, Inc., a non-profit tutoring organization for disadvantaged children. He also was a founding board member, Vice President, and past President of the Greater Kanawha Community and Economic Development, a non-profit corporation dedicated to renovating affordable housing. Mr. Phillips currently serves as Chairman of Mainstreet Ripley's design committee, volunteering in their efforts as well as spearheading their recent streetscape program.

Mr. Phillips' relevant experience includes the following projects:

- New Maintenance Building and Yard, Canaan Valley Institute, Davis, WV.
- WVDOT, Design of Elkins Maintenance Facility, Randolph County, WV.
- Design of Huse Memorial Park Administration/Maintenance Facility, Town of Fayetteville, WV.
- Tri-State Transit Authority, Additions and Alterations to Bus Service Facility, Huntington, WV.
- Monongalia County Courthouse Addition and Intermodal Parking Facility, Morgantown, WV.
- Central West Virginia Regional Airport Authority, Yeager Airport Gate 10 Terminal and Airside Expansion, Charleston, WV.
- Yeager Airport, New Passenger Boarding Bridge, Charleston, WV.
- Yeager Airport, Design of Transportation Security Administration Offices, Charleston, WV.
- Aircraft Systems Maintenance Hangar Repair and Renovation, Building 304, Pennsylvania Air National Guard/171st Air Refueling Wing, Coraopolis, PA.
- Combat Arms Training Simulator and Combat Arms Training and Maintenance Facility Design, Pennsylvania Air National Guard/171st ARW, Coraopolis, PA.

Glen R DeWillie, PE

Principal-in-Charge

Education:

*MS/Civil Engineering
(Environmental)/Stanford
University*

*BS/Geography & Computer
Science/U.S. Military Academy,
West Point*

Registrations:

Professional Engineer

Years' Experience:

Total: 27

Professional Affiliations:

*International Joint Commission
(Service on Two US-Canadian
Water Control Boards)*

*Pennsylvania Regional Water
Boards (Susquehanna Region),
Governor appointed positions,
past member*

*Society of American Military
Engineers, member*

*Military Officers Association of
America, member*

Trout Unlimited, member

Mr. DeWillie has 25 years of federal engineering service, culminating in command of the Buffalo District, US Army Corps of Engineers. This experience includes construction management, geographic information systems integration, urban 3D visualization, environmental planning and program management. His federal background also includes three years of teaching at the US Military Academy. His project oversight experience includes leading diverse architectural and engineering teams in the completion of three sustainable facilities designs in support of the National Guard's only Stryker Brigade at Ft Indiantown Gap, Pennsylvania.

- Architectural and Engineering Design and Consulting, Odyssey International, Tobyhanna Army Depot, PA.
- Building 1A HVAC System Replacement Design Services, Odyssey International/Tobyhanna Army Depot, PA.
- Building 55 Lighting Design, Odyssey International, Tobyhanna Army Depot, PA.
- Building 10 (Bay C) Renovation, Odyssey International, Tobyhanna Army Depot, PA.
- Architectural, Mechanical, and Electrical Field Investigation for Building 4311 and Building E-1356, Odyssey International, Aberdeen Proving Ground and Edgewood Arsenal, MD.
- Building 4311 Renovation Design and Construction Phase Services, Odyssey International, Aberdeen Proving Ground, MD.
- Building E-1356 Renovation Design, Odyssey International, Edgewood Arsenal, MD.
- Renovation/Preparation of High Bay Building 19-126 for the Eastern Army Aviation Training Site Flight Simulator, USPFO for Pennsylvania, Fort Indiantown Gap, Annville, PA.
- Stryker Battalion Training Complex Conceptual Design, USPFO for Pennsylvania, Ft. Indiantown Gap, Annville, PA.
- Mission Support Training Facility Design, USPFO for Pennsylvania, Ft. Indiantown Gap, Annville, PA.
- Unmanned Aerial Vehicle Runway and Maintenance/Training Facility Design, USPFO for Pennsylvania, Ft. Indiantown Gap, Annville, PA.
- Battalion Storage Facility Design, USPFO for Pennsylvania, Ft. Indiantown Gap, Annville, PA.
- Combat Arms Training Simulator and Combat Arms Training and Maintenance Facility Design, Pennsylvania Air National Guard/171st ARW, Coraopolis, PA.
- Aircraft Systems Maintenance Hangar Repair and Renovation, Building 304, Pennsylvania Air National Guard/171st Air Refueling Wing, Coraopolis, PA.
- Ventilation Systems Repair, Fuel Cell Hangar 302, Pennsylvania Air National Guard, 171st ARW, Coraopolis, PA.
- Open-end A/E Consulting and Design Contract, USPFO for Pennsylvania, Statewide, PA.

Joseph C Crumbling, AIA
Quality Assurance/Quality Control

Education:

*Diploma/Architecture/
Pennsylvania State University*

Registrations:

Registered Architect

NCARB

Years' Experience:

Total: 57

Professional Affiliations:

*American Institute of
Architects*

*Society of American Military
Architects*

Mr. Crumbling has over 57 years of architectural experience with Buchart Horn. In his current role, Mr. Crumbling serves as the Quality Assurance/Quality Control Manager on many Facilities projects. As QA/QC Manager, he is responsible for confirming that the firm's Quality Assurance and Quality Control Process is followed on each project. This is done through regularly scheduled review of project files and work product with the Project Manager and, as necessary, meetings with individual project team members.

- Fort Indiantown Gap National Guard Armory Design, Lebanon County, PA.
- New Snyder County Maintenance Garage, PA DGS/PennDOT, Selinsgrove, PA.
- Naval Support Station, Building 306C, Mechanicsburg, PA.
- A/E DO #01, Security Building, Tobyhanna Army Depot, PA.
- Tobyhanna Army Depot A/E DO #07, Bldg. #11, Wing C Computer Room Renovation, Tobyhanna, PA.
- Tobyhanna Army Depot Master Plan Delivery Order #05 Facility-Space Management Prototype, Tobyhanna, PA.
- Tobyhanna Army Depot Electrical Distribution System Study, Tobyhanna, PA.
- U.S. Army Corps of Engineers, A/E DO #15, Rooftop Fall Restraint Study, Tobyhanna Army Depot, PA.
- Willow Grove Naval Air Station, Joint Reserve Base, Hangar Repairs for Building 177, Willow Grove, PA.
- Main Capitol Building, North Wing Basement Fit-Out, Pennsylvania State Senate, Harrisburg, PA.
- Montebello Maintenance Shop and Storage Building, City of Baltimore, MD.
- Kanawha County Judicial Annex Renovations, Charleston, WV.
- Combined Army National Guard Readiness Center, Pennsylvania DGS/PAANG, Waynesburg, PA.

Anthony J Shinsky, AIA, LEED® AP

Quality Assurance/Quality Control

Education:

*Bachelor of Architecture/
Architecture/Temple University*

Registrations:

Registered Architect

*LEED 2.0® Accredited
Professional/2005*

Years' Experience:

Total: 20

Professional Affiliations:

*American Institute of
Architects*

*Pennsylvania Society of
Architects - Central
Pennsylvania Chapter*

With 20 years in the Architectural and Construction fields, Mr. Shinsky's experience includes managing multi-discipline projects and personnel. His responsibilities have included facilities management, architectural firm and project management, architectural designer, technical oversight and coordination, quality review, and construction administration.

- Swatara Building Interior Renovations and Alterations, The Pennsylvania State University, Harrisburg Campus, PA.
- Trexler Nature Preserve "Green" Environmental Center, Lehigh County, Allentown, PA.
- Task Order No. 1 Under Open-End Contract with WATEK Engineering, Roop's Mill Well #11, Westminster, MD.
- Design of New Elementary School, East Stroudsburg Area School District, PA.
- Middle School Architectural/Engineering Services, Downingtown Area School District, Uwchlan Township, Chester County, PA.
- PennDOT Maintenance Facility, PA DGS, Bucks County, PA.
- Towson Place Apartment, Facilities Inspection and Summary Report, Towson, MD.
- Architectural Services for Hardin County Schools, Savannah, TN.

Stephanie A Schaefer, AIA

Architect

Education:

*Bachelor of Architecture/
Architecture/ Virginia
Polytechnic Institute and State
University*

*Graduate Coursework/Virginia
Polytechnic Institute and State
University*

Registrations:

Registered Architect

Years' Experience:

Total: 24

Professional Affiliations:

*American Institute of
Architects*

Ms. Schaefer has more than 24 years of diverse experience in the field of architecture. She is responsible for managing projects as well as coordinating design teams. Her abilities encompass all phases of architecture from feasibility studies and conceptual design through the production of construction documents and construction administration.

- U.S. Department of State, American Consulate General Housing Complex Renovations, Frankfurt, Germany.
- Odyssey International, Preparation of Record CADD Drawings for Lab Renovation in Building 431, Letterkenny Army Depot, PA.
- Building 4341 Design/Build Renovations and Addition, Odyssey International/Letterkenny Army Depot, PA.
- Odyssey International, Design/Build of Building 1 Toilet Renovations, Letterkenny, PA.
- Odyssey International, Building 320 Renovations, Letterkenny Army Depot, PA.
- Sixth Medical Logistics Management Center (6MLMC) Company Operations Facility Design/Build, Fort Detrick, MD.
- Odyssey International, Building E-1356 Renovation Design, Edgewood Arsenal, MD.
- Odyssey International, Building 4311 Renovation Design and Construction Phase Services, Aberdeen Proving Ground, MD.
- Odyssey International, Architectural, Mechanical, and Electrical Field Investigation for Building 4311 and E-1356 Complex, Aberdeen Proving Ground and Edgewood Arsenal, MD.
- U.S. Army Corps of Engineers, A/E DO #13, Design Building 1A HVAC, Tobyhanna Army Depot, PA.
- Indefinite Quantity A/E Contract, U.S. Army Corps of Engineers, Tobyhanna Army Depot, PA.
- Public Works Building DD1391, Tobyhanna Army Depot, Tobyhanna, PA.
- Tobyhanna Army Depot Master Planning Contract, Tobyhanna, PA.
- US Air Force, Dover Air Force Base Building #510, Dover, DE.
- Distribution Center Site Study, US Postal Service, Severna Park, MD.
- Aviano Air Base F-16 Beddown Support Projects, U.S. Navy Engineering, Aviano, Italy.
- U.S. Department of State, American Consulate Office Building, Frankfurt, Germany.

Michael G Miller, PE, LEED® AP

Mechanical Engineering Review

Education:

AS/Engineering/Pennsylvania
State University

Registrations:

Professional Engineer

LEED 2.0® Accredited
Professional/2006

Years' Experience:

Total: 38

Professional Affiliations:

American Society of Heating,
Refrigeration and Air-
Conditioning Engineers

National Fire Protection
Association, #000130913,
received 4/30/2003

American Society of Plumbing
Engineers

Mr. Miller is responsible for the overall design and quality control of mechanical engineering projects. In choosing economical and innovative plumbing, fire protection, and HVAC systems, he evaluates practicality of operation and application; energy conservation; compliance to building code, safety, and health issues; hygienic practice; energy reclamation devices and procedures; and estimates the economical construction, maintenance, and operating costs for life cycle value engineering analyses. As Director of Buchart Horn's Mechanical Group, Mr. Miller oversees the quality control checking of mechanical calculations, equipment and distribution systems, drawings and specifications.

- Fifth Regiment Armory Renovations and Upgrades, City of Baltimore, MD.
- IDC, McGuire AFB Hangar 2253 Alterations, McGuire Air Force Base, NJ.
- Public Works Building DD1391, Tobyhanna Army Depot, Tobyhanna, PA.
- WVDOT Testing Lab/Maintenance Facility, Charleston, WV.
- Indefinite Quantity A/E Contract, U.S. Army Corps of Engineers, Tobyhanna Army Depot, PA.
- U.S. Army Corps of Engineers, A/E DO #13, Design Building 1A HVAC, Tobyhanna Army Depot, PA.
- Yeager Airport New Passenger Boarding Bridge, Charleston, WV.
- Combined Readiness Center for the Army National Guard, Pennsylvania DGS, Waynesburg, PA.
- Utility Master Plan Study, Defense Distribution Center, New Cumberland, PA.
- Open-End Contract for Architectural/Engineering Services, Defense Distribution Depot, Susquehanna, New Cumberland, PA.
- Renovation/Preparation of High Bay Building 19-126 for the Eastern Army Aviation Training Site Flight Simulator, USPFO for Pennsylvania, Fort Indiantown Gap, Annville, PA.
- Stryker Battalion Training Complex Conceptual Design, USPFO for Pennsylvania, Ft. Indiantown Gap, Annville, PA.
- Mission Support Training Facility Design, USPFO for Pennsylvania, Ft. Indiantown Gap, Annville, PA.
- Battalion Storage Facility Design, USPFO for Pennsylvania, Ft. Indiantown Gap, Annville, PA.
- Aircraft Systems Maintenance Hangar Repair and Renovation, Building 304, Pennsylvania Air National Guard/171st Air Refueling Wing, Coraopolis, PA.
- Open-end A/E Consulting and Design Contract, USPFO for Pennsylvania, Statewide, PA.

Jeffrey B Moreland, PE
Electrical Engineering Reviews

Education:

MS/Electrical
Engineering/University of
Pittsburgh

BS/Electrical
Engineering/Carnegie-Mellon
University, Pittsburgh

Registrations:

Professional Engineer

NCEES Record/2007

Years' Experience:

Total: 24

Professional Affiliations:

Institute of Electrical and
Electronics Engineers: Control
Systems, Instrumentation and
Measurement, and Digital
Signal Processing Societies

Association of Energy
Engineers

Association of Iron and Steel
Engineers

Sigma XI Scientific Research
Society

Mr. Moreland is an Electrical Engineer with a solid background in process control and signal processing including a 23-year record of achievement in applying new and innovative technologies. He has also designed lighting, power, emergency and standby generation, telecommunications, CATV, fire alarm, and security systems.

Mr. Moreland's relevant experience includes the following projects:

- Combined Readiness Center for the Army National Guard, Pennsylvania DGS, Waynesburg, PA.
- Elkins Maintenance Facility, WVDOT, Randolph County, WV.
- Yeager Airport Gate 10 Expansion, Central West Virginia Regional Airport Authority, Charleston, WV.
- Administrative and Judicial Facilities Renovation Design, Preston County Commission, Kingwood, WV.
- Yeager Airport New Passenger Boarding Bridge, Charleston, WV.
- Combat Arms Training Simulator and Combat Arms Training and Maintenance Facility Design, Pennsylvania Air National Guard/171st ARW, Coraopolis, PA.
- Aircraft Systems Maintenance Hangar Repair and Renovation, Building 304, Pennsylvania Air National Guard/171st Air Refueling Wing, Coraopolis, PA.
- Statewide Architectural Services, WVDOT.
- Southside Expressway Lighting Renovation, WVDOT, Kanawha County, WV.
- Vesuvius USA, Instrumentation of Furnace Repair Pod, Carnegie, PA.
- New Maintenance Building and Yard, Canaan Valley Institute, Davis, WV.
- Huse Memorial Park Administration/Maintenance Facility, Town of Fayetteville, WV.
- Bus Service Facility Additions and Alterations, Tri-State Transit Authority, Huntington, WV.
- Investigation and Proposed Modifications to State Capitol Parking Facility, Charleston, WV.
- Architectural Services for Hardin County Schools, Savannah, TN.

James M California, PE
Structural Engineer

Education:

*Bachelor of Architectural
Engineering/Structural
Engineering*

Registrations:

Professional Engineer

Years' Experience:

Total: 26

Professional Affiliations:

*American Institute of Steel
Construction*

Mr. California is a Senior Structural Engineer and has extensive experience in structural building design on various projects; field investigation and evaluation of existing structures; technical report preparation; shop drawing review; and technical support during construction. He has also designed various tanks, towers, equipment supports, and foundations.

Mr. California's relevant experience includes the following projects:

- Ft. Indiantown Gap, Design of Vehicle Garage Building, Annville, PA.
- WVDOT, Design of Elkins Maintenance Facility, Randolph County, WV.
- WVDOT, Design of Testing Lab/Maintenance Facility, Charleston, WV.
- Design of Huse Memorial Park Administration/Maintenance Facility, Town of Fayetteville, WV.
- Tri-State Transit Authority, Additions and Alterations to Bus Service Facility, Huntington, WV.
- Central West Virginia Regional Airport Authority, Yeager Airport Gate 10 Terminal and Airside Expansion, Charleston, WV.
- Yeager Airport, Design of Transportation Security Administration Offices, Charleston, WV.
- Design of Montgomery County Police Vehicle Recovery Facility, Gaithersburg, MD.
- New Montebello Maintenance Shop and Storage Building, City of Baltimore, MD.
- New Maintenance Garage, New Emergency Services Building, and Municipal Building Renovations, Hampden Township, PA.
- Design of Rudy Park Maintenance Facility, County Commissioners of York County, PA.
- Modern Landfill, Truck Wash Facility Design and Bypass Pump Neutralization, York, PA.
- Poole Anderson Construction/Pennsylvania State University, Pre-engineered T-Hangars, Concrete Aprons, and Pilots' Lounge Design-Build, University Park Airport, State College, PA.

Jason M Boyd, PE, MBA

Site/Civil Engineer

Education:

MBA/Business Administration

BS/Civil Engineering

Registrations:

Professional Engineer

Years' Experience:

Total: 8

Mr. Boyd's civil engineering experience includes roadway design, right of way, geometric layouts, utility relocation design, maintenance of traffic, signing and marking, plan preparation/presentation, quantity/cost estimates, drainage design, hydrologic procedures, pavement/deck drainage, inlet spacing computations, channels, culverts, storm drains, and stormwater management.

Mr. Boyd's relevant experience includes the following projects:

- WVDOT, Corridor H, Section 4, Final Design, Grant County, WV.
- WVDOT, I-81 Tabler Station Interchange, Martinsburg, WV.
- WVDOT, Jones and Laughlin Overpass Bridge, Martinsburg, Berkeley County, WV.
- Allensville Low Water Crossing Design Study, Berkeley County, WV.
- WV Route 10, Logan County, WV.
- I-64 Widening Design Study, Putnam County, WV.

Vincent Wayne, PE
Site/Civil Engineer

Education:

*BS/Civil
Engineering/Pennsylvania
State University*

*AS/Architectural Engineering
Technology/Pennsylvania State
University*

Registrations:

Professional Engineer

Years' Experience:

Total: 24

Professional Affiliations:

*American Society of Civil
Engineers*

Mr. Wayne has more than 22 years of experience in the field of land development. He is responsible for managing projects as well as coordinating design teams. His abilities encompass all phases of land development, from conceptual design and final plan through production of construction documents. Mr. Wayne's experience includes residential, commercial, and educational site designs. His site planning experience includes designs for stormwater management, grading plans, erosion and sedimentation control plans, and site layouts.

- Maintenance Building Addition, Kutztown University/PA State System of Higher Education, Kutztown, PA.
- Tobyhanna Army Depot A/E DO #16, Stormwater Management Basin Study, Tobyhanna, PA.
- Harrisburg International Airport, Building 517 Apron Expansion, Middletown, PA.
- Combined Readiness Center for the Army National Guard, Pennsylvania DGS, Waynesburg, PA.
- Stryker Battalion Training Complex Conceptual Design, USPFO for Pennsylvania, Ft. Indiantown Gap, Annville, PA.
- Mission Support Training Facility Design, USPFO for Pennsylvania, Ft. Indiantown Gap, Annville, PA.
- Unmanned Aerial Vehicle Runway and Maintenance/Training Facility Design, USPFO for Pennsylvania, Ft. Indiantown Gap, Annville, PA.
- Battalion Storage Facility Design, USPFO for Pennsylvania, Ft. Indiantown Gap, Annville, PA.
- Combat Arms Training Simulator and Combat Arms Training and Maintenance Facility Design, Pennsylvania Air National Guard/171st ARW, Coraopolis, PA.
- Open-end A/E Consulting and Design Contract, USPFO for Pennsylvania, Statewide, PA.
- Building 11/1A Tunnel Renovation, Tobyhanna Army Depot, PA.
- Indefinite Quantity A/E Contract 2004 Re-Award, U.S. Army Corps of Engineers, Tobyhanna Army Depot, PA.
- Montgomery County Police Vehicle Recovery Facility, Gaithersburg, MD.
- Rudy Park Maintenance Facility, County Commissioners of York County, PA.
- New Maintenance Garage, New Emergency Services Building, and Municipal Building Renovations, Hampden Township, PA.

Matthew J Leisses
Environmental Scientist

Education:

Coursework/Biology/Pennsylvania State University

Training/38 Hour Wetland Delineation Program/US Army Corps of Engineers

Training/Wetland Identification

Training/Macroinvertebrate Training/EPA Mid-Atlantic Region 3

Training/Native Plants

Training/Pennsylvania Stormwater Symposium

Years' Experience:

Total: 3

Mr. Leisses has extensive knowledge of aquatic monitoring; native and invasive plant species; riparian buffers; streambed restoration; workshop/lesson plan research, development, and implementation; grant writing; community relations; and chemical and biological monitoring.

- Contract Documents Preparation for Priority Sewers Rehabilitation/Restoration/Repair, Washington Suburban Sanitary Commission, Montgomery County, MD.
- Engineering Services for Operations and Maintenance, FY 2006, Statewide, NJDOT.
- Brandywine Creek River Walk, City of Coatesville, PA.
- West Manheim Water Main Extension Wetland Determination, York Water Company, Adams County, PA.
- River Park Improvements, Borough of Columbia, PA.
- New York Wire, Hartman Run Stream Stabilization, Mt. Wolf, PA.
- 526 North Charlotte Street Redevelopment, Sam Lombardo, LP, Lancaster, PA.
- Paradis Pump Station, Bar Screen Cleaner and Deck, St. Charles Parish, LA.
- Upgrade of Wastewater Treatment Plant, Dover Township Sewer Authority, PA.
- Route 9 and Craig Road/East Freehold Road Intersection Improvements, New Jersey DOT, Freehold and Manalapan Townships, Monmouth County, NJ.
- Sandford Avenue Bridge Replacement, Union County, Plainfield, NJ.
- Widening and Reconstruction of Nyes Road (SR 2019), PennDOT District 8-0, Lower Paxton Township, Dauphin County, PA.
- Watershed Conservation Plan, Muddy Creek Trout Unlimited, York County, PA.
- Foundry Plaza, Inc., Codorus Creek Boat Basin Improvements, York, PA.
- Sewer System Mapping, Gettysburg Municipal Authority, PA.
- Conewago Creek Watershed Conservation Plan, Pennsylvania Environmental Council, York County, PA.
- Civil and Survey Services at Milton Hershey School, Derry Township, Hershey, PA.
- North-South Hurricane Evacuation Corridor Environmental Impact Statement, LADOTD, Southeastern Louisiana.

Beth A Dermota, ASID

Interior Design

Education:

*AA/Commercial Art/Antonelli
Institute of Design*

*AA/Interior Design/Fashion
Institute of Technology*

*Coursework/Interior
Design/Chamberlayne Junior
College*

Years' Experience:

Total: 16

Professional Affiliations:

*Allied Member, American
Society of Interior Designers*

*Member of Interior Design
Club*

Ms. Dermota has extensive experience in interior design including space planning/programming (private office configurations and furniture layouts). She also has experience working with systems workstations/modular units; millwork design (reception stations, lunchrooms, private exam rooms, etc.); furniture specifications and selection; interior finishes (wallcovering, paint, tile, carpet, VCT, solid surface, etc.); construction documentation, and project management.

- Master Agreement for A/E Services, American Water, New Jersey, Pennsylvania, West Virginia, and Virginia.
- Fulton Financial Corp., Addition and Interior Renovations to Existing Bank Facility, Elizabethtown, PA.
- New Snyder County Maintenance Garage, PA DGS/PennDOT, Selinsgrove, PA.
- Site Development Services, Shaner Hotel Group, Fairfield Inn and Suites, St. Augustine, FL.
- West Chester Hotel, Mixed-Use Project, Stan Zukin Properties, West Chester, PA.
- Site Development Services, Shaner Hotel Group, Fairfield Inn and Suites, Augusta, GA.
- Emergency and Municipal Services Center, Lower Allen Township, Camp Hill, PA.
- Design of New Elementary School, East Stroudsburg Area School District, PA.
- ARM Group Inc., Interior and Exterior Design Services for Office Building Expansion, Hershey, PA.
- Office Reconfiguration Design, PA American Water, Hershey and Mechanicsburg, PA.
- Residence Hall Improvements, Cheyney University/SSHE, Cheyney, PA.
- Third Avenue Streetscapes and Interior Renovation of Train Station Building, City of Coatesville, PA.
- Dixon University Center Campus Enhancement Plan, PA State System of Higher Education, Harrisburg, PA.
- Municipal Complex Design and Adaptive Re-Use, Township of Derry, Hershey, PA.
- Sigma Chi Fraternity House Renovations, Alpha Chi House Corporation, State College, PA.

Eugene G Williams, PLS, CSI, CDT, ASPE

Specifications/Estimating

Education:

Coursework/Civil Engineering
Technology

Registrations:

Professional Land Surveyor

Years' Experience:

Total: 41

Professional Affiliations:

Construction Specifications
Institute

American Society of
Professional Estimators

As Assistant Director of Specifications/Estimating Division, Mr. Williams directs and supervises the work of Specification Writers and Typists and prepares construction cost opinions relating to a variety of engineering projects. He is experienced in preparing both technical and non-technical project specifications and cost estimates from preliminary through final design phases. His experience includes generating architectural and engineering specifications as well as preparing front end documents using AIA, EJCDC, and our own documents. Mr. Williams has also developed architectural and engineering cost estimates for numerous projects to ensure that projects remain within budget.

Mr. Williams' relevant experience includes the following projects:

- Design of Emergency and Municipal Services Complex, Lower Allen Township Authority, Camp Hill, PA.
- New Maintenance Garage, New Emergency Services Building, and Municipal Building Renovations, Hampden Township, PA.
- Public Works Center and Materials Recycling Facility Planning and Design, Township of Derry, Hershey, PA.
- Municipal Complex Design and Adaptive Re-Use, Township of Derry, Hershey, PA.
- PA DGS/PennDOT, New Snyder County Maintenance Garage, Selinsgrove, PA.
- Susquehanna Area Regional Airport Authority, Design of Capital City Airport Snow Removal Equipment Storage and Maintenance Building, New Cumberland, PA.
- Power System Upgrades for Administration Buildings and Vehicle Storage Facilities in PA, Delaware River Joint Toll Bridge Commission.
- Battalion Storage Facility Design, USPFO for Pennsylvania, Ft. Indiantown Gap, Annville, PA.
- Design of Rudy Park Maintenance Facility, County Commissioners of York County, PA.
- Spring Garden Township, Master Planning and Design of Municipal Complex, York, PA.
- Sustainable Building Design of New Public Works Building, York Township, PA.
- Modern Landfill, Truck Wash Facility Design and Bypass Pump Neutralization, York, PA.
- Anne Arundel County Maintenance Garage, Addition of Truck Wash Facility, Pasadena, MD.
- New Montebello Maintenance Shop and Storage Building, City of Baltimore, MD.
- Monongalia County Courthouse Addition and Intermodal Parking Facility, Morgantown, WV.
- Yeager Airport, Design of Transportation Security Administration Offices, Charleston, WV.
- Design of Truck Maintenance Facility, Golub Corporation, Schenectady, NY.

TODD (TED) A. ZACHWIEJA, PE, C.E.M.

**Chief Executive Officer
Principal-in-Charge, M/E Design Project Manager**

- Education** Bachelor of Science in Mechanical Engineering from West Virginia Institute of Technology in 1982.
Masters of Science in Engineering Management from the University of West Virginia College of Graduate Studies in 1989.
- Registrations** Professional Engineer, West Virginia, No. 10,127
Certified Energy Manager (C.E.M.), National Certification
Professional Engineer, Pennsylvania, No. PE-040929-R
Professional Engineer, Virginia, No. 0402 025427
Professional Engineer, Ohio, No. E-53587
Professional Engineer, North Carolina, No. PE-17,445
Professional Engineer, Kentucky, No. PE-17,961
Professional Engineer, Georgia, No. 18,253
- Qualifications** Todd has more than 25 years of experience; in the design, construction management, and specifications for mechanical engineering, heating, ventilating, air conditioning, plumbing, electrical, and lighting; indoor air quality analysis and building system commissioning for institutional, commercial and industrial facilities. His specialties include mechanical engineering, HVAC systems master planning, conceptual design, energy conservation program development, commissioning and IAQ analysis relating to HVAC systems. He has extensive experience in industrial, commercial facilities, hospitals and school design including preparation of construction documents for millions in renovations and additions to facilities. Some of his project experience includes projects new Mercer County Courthouse, Princeton, WV, Kanawha County Commission - 120,000 sf additions/renovations for the Judicial Annex/Kanawha County Courthouse Charleston WV, Laidley Towers - Charleston WV, Renovations to Buildings #1, #3, #4, #5, #5, #7, #8, #9, #10 at the WV State Capitol complex, Cultural Center HVAC Renovation, Union Carbide, United Center - Charleston WV, Phillip Morris USA, Rhone-Poulenc, Toyota, Olin Corporation, Walker Machinery, WV Air & Army National Guard, Bank One, WV; Kohl's, Sears, WV Public Service Commission Headquarters, and Yeager Airport. He also designed one of the largest geothermal heat pump applications in the mid Atlantic region, commissioned HVAC systems and mechanical engineering at many General Motors facilities in North America.
- Some of his health care experience includes millions in renovation and new construction design for Charleston Area Medical Center including commissioning of Charleston Area Medical Center's \$41 million Surgery Replacement center. Other health care experience includes Bluefield Medical Center, Hopemont Hospital, Monongalia General Hospital, Montgomery General Hospital, United Hospital Center, St. Mary's Hospital, Summersville Memorial Hospital, Thomas Memorial Hospital, Webster Memorial Hospital, Cabell Huntington Hospital, Welch

Emergency Hospital, Surgicare Center, VA Hospital - Clarksburg, Mercy Medical Center, Wayne Memorial Hospital and Webster Memorial Hospital.

He also has experience in providing M/E design for the following College and Universities including: Bluefield State College, Concord University, Fairmont State College, Marshall University, Ohio University's Athens & Chillicothe campuses, Southern WV Community & Technical College, Washington & Lee University, WV Wesleyan College, and West Virginia University. He was recognized nationally for his work with Ohio University in development of a performance contracting program that is anticipated to save between \$2 to \$2.5 million annually in energy and operating costs.

He also has experience in providing M/E design for the following schools: Clay, Grant, Hardy, Harrison, Jackson, Kanawha, McDowell, Mercer, Monroe, Ohio, Pocahontas, Raleigh, Randolph, Ritchie, Summers, Taylor, Tucker, Upshur, Webster, and Wyoming County Schools. Some of his project experience includes the development and design of a pilot geothermal heat pump HVAC with variable speed pumping system at Webster County High School which reduced electric bills by more than 40% while meeting indoor air quality requirements.

Prior to joining ZDS, Todd Zachwieja coordinated more than \$10 million in comprehensive energy conservation programs resulting in annual energy saving of over \$2 million per year and managed a profitable regional office for one of the countries largest energy service companies. He has also assisted in the development of computer programs for building energy analysis and monitoring and presented technical papers at regional and national conferences.

**Professional
Affiliations**

Charter member of and instrumental in establishing the West Virginia Mountaineer chapter of American Society of Heating Refrigeration and

Air conditioning Engineers (ASHRAE)

Served as ASHRAE's Energy and Technical Affairs Chairman for 6 years. Recognized by the International Who's Who of Professionals.

Recognized nationally as West Virginia's 2003 Business Man of the Year

Charter life member of the Association of Energy Engineers

Member of the American Association of Hospital Engineers

Member of the National Society of Professional Engineers

Member of National Society of Plumbing Engineers

Contributing editor and served on the Editorial Review Panel for "The Handbook of Building Management and Indoor Air Quality", "Ventilation for a Quality Dining Experience", INvironment Professional, Power Prescriptions and other publications and articles dealing with Indoor Air Quality (IAQ) and mechanical/electrical engineering systems.

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

TED T. ZACHWIEJA**Principal-in-Charge Construction Administration****Education**

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

Qualifications

Ted's responsibilities include over 40 years of experience in mechanical and electrical systems design and construction administration. His specialties include the design and development of mechanical and electrical systems, master planning and budgeting for mechanical and electrical systems, and management of complex design and construction projects. He is also a Codes and Standards Specialists.

He has been involved in West Virginia since 1958 in all aspects of mechanical and electrical design and construction, including machine design, structural design and design of heating, ventilating, air conditioning, plumbing, fire protection and electrical systems. His experience includes work for U. S. Steel, Union Carbide, Rhone-Poulenc, Charleston Area Medical Center, United Hospital Center, Kanawha County Schools, Marshall University, most buildings on the West Virginia Capitol Complex, West Virginia Institute of Technology, West Virginia University, Bank One and many others in the private sector.

Ted's Design regarding Bank One, Charleston, formerly Charleston National Bank, including conducting a comprehensive energy audit, design of a Building Automation Energy Management System, HVAC renovations of floors LM and LM1, design of flat plate heat exchanger system for the perimeter fan coil units and design of the boiler replacement.

Ted has been involved in the Renovation Planning of West Virginia University's White Hall and Armstrong Hall, WVU's Wise Library Sprinkler System, WVU's Chilled Water Loop Interconnect, Morgantown, WV; Charleston Area Medical Center (CAMC), Memorial Division Chiller Replacement; CAMC's General Division Chiller Replacement, Variable Pumping System and Chillers Interconnect, Charleston, WV; and many others. He has worked on new and renovation projects such as West Virginia University Stadium and Forestry Building, Morgantown, WV; Addition and Renovation of the Air Conditioning System for the West Virginia State Capitol Building, Charleston, WV; Conley Hall and Science Building HVAC Renovations and Additions, West Virginia Institute of Technology, Montgomery, WV; Indoor air quality (IAQ) and HVAC Renovations of Andrew Jackson Junior High School for Kanawha County School Systems; Fume Hood Design and HVAC Additions and Renovations for Union Carbide, Charleston, WV; and Rhone Poulenc, Institute, WV; HVAC renovation for the Benedum Student Center at West Virginia Wesleyan College, Buchannon, WV; Greenbrier East and Greenbrier West Schools; Mingo County Schools; Raleigh County

Schools including Shady Springs Middle School, Trap Hill Junior High School, Academy of Career and Technology Center, Marsh Fork Elementary, Park Middle School, Woodrow Wilson High School and others, Pocahontas County High School (Geothermal), Wyoming County Schools; Tucker County Schools; Webster County High School & Webster Springs Elementary School HVAC Renovations (Geothermal) and Exterior Renovations, and various other secondary schools throughout the years.

Ted was involved with the mechanical and electrical renovations for the State of West Virginia Library Commission stacks and office spaces as part of a total \$4.5 million HVAC and Electrical Renovations for the Division of Culture and History, Charleston, WV. The indoor air quality, temperature and humidity each were not in accordance with good design practices for this type of structure. ZDS is commissioned to correct these deficiencies while conserving energy.

Ted was selected as one of three engineers to train and teach a course designed by the Department of Energy and American Society of Heating, Refrigeration and Air Conditioning Engineers for emergency building temperature restrictions.

Prior to forming ZDS, Ted was regional manager for a hospital design firm and responsible for designing, construction management and project management for over 200 million in hospital and health care facilities. The facilities were located over eastern United States. Some of his health care experience includes millions in renovation and new construction design for Charleston Area Medical Center's Special Care Facility. Other local health care experience includes Bluefield Medical Center, Hopemont Hospital, Monongalia General Hospital, Montgomery General Hospital, United Hospital Center, St. Mary's Hospital, Summersville Memorial Hospital, Thomas Memorial Hospital, Webster Memorial Hospital, Cabell Huntington Hospital, Welch Emergency Hospital, Surgicare Center, VA Hospital - Clarksburg, Mercy Medical Center, and Webster Memorial Hospital

**Professional
Affiliations**

Construction Specifications Institute (Charter Member)
American Society of Mechanical Engineers
American Society of Heating, Refrigeration & Air Conditioning Engineers
WV Mountaineer Chapter ASHRAE Past President and Charter Member
Association of Energy Engineers
Association of Hospital Engineers
WV Society of Hospital Engineers
Professional Affiliate Member of AIA
WV Association of Physical Plant Administrators

DANIEL H. KIM, PH.D.**Management Services**

Education Ph.D. in Management from Massachusetts Institute of Technology Sloan School of Management in 1993
Bachelor of Science in Electrical Engineering from Massachusetts Institute of Technology in 1987

Qualifications Daniel brings with him a strong design and management experience with over 20 years of experience in consulting ranging from traditional electrical and mechanical systems design to being one of the nations leading experts in organizational issues including Total Quality Management and Systems Thinking.

His specialties include the management and design of HVAC systems for new building construction in the \$50 - 150 million range including the One Hundred and Fifty, Federal Streets, Boston, MA; the Becton Dickinson World Headquarters, NJ; Marketplace Center, Boston, MA.

Daniel has been an organizational consultant and public speaker who are committed to helping problem-solving organizations transforming into learning organizations. He has worked with numerous companies including DuPont, Ford Motor, Harley Davidson, Hanover Insurance, Healthcare Forum, CIGNA, Life Technologies, Ameritech Services, Brigham & Women's Hospital and General Electric among others.

Publications "Learning Laboratories: Designing Reflective Learning Environments," *Proceedings of 1989 International System Dynamics Conference*, Stuttgart.
"Experimentation in Learning Organizations: A Management Flight Simulator Approach," *European Journal of Operations Research*, May 1992.
"Systems Archetypes: Diagnosing Systemic Issues and Designing High-Leverage Interventions" 1992, Cambridge, MA: Pegasus Communications.
"Toward Learning Organizations: Integrating TQC and Systems Thinking," *Special Report Series*, Cambridge, MA: Pegasus Communications.
"The Leader with the "Beginner's Mind," *Healthcare Forum Journal*, July/August 1993.

Lectures Keynote speaker and/or concurrent session at several conferences, including those hosted by The Planning Forum, The Healthcare Forum, Institute for Healthcare Improvement, The Conference Board. Speaker at Hofstra University, Monmouth College, University of Houston, and U.C. Berkeley.

LORI L. ZACHWIEJA, CPA**Chief Financial Officer**

- Education** Bachelor of Science in Accounting, Bachelor of Science in Business Management and a Bachelor of Science in Computer Management; all three degrees were with Honors, West Virginia Institute of Technology in 1983.
Master's Degree at Marshall University, December 2006.
- Registrations** Certified Public Accounting in 1988, No. 2542
Member of West Virginia Society of CPAs since 1985
Certificate Number 1949
- Qualifications** Lori has over 23 years experience in finance, business, and accounting including being a Partner in a consulting firm, a Senior Financial and Tax Analyst for the Corporate Financial Services and Small Systems Support Department at Blue Cross and Blue Shield of West Virginia, Inc. and Staff Accountant for Simpson and Osborne, a CPA firm located in Charleston WV. Lori also has worked with an architectural firm located in Charleston, WV.

SANDRA W. ZACHWIEJA**Administrative Assistant**

- Education** West Virginia Institute of Technology, Montgomery, WV, West Virginia State College, Institute, WV
Dale Carnegie Leadership and Communications Skills.
Certified Energy Auditor in West Virginia.
- Qualifications** Sandy is Specs Coordinator and has worked with the specifications of engineering design for over twenty years. She is familiar with the construction process. She has also provided assistance with contracts and Construction Administration documents. She handled payroll, bookkeeping and other office management activities for a consulting firm. Sandy has helped in the planning and the conducting of training seminars and workshops on the local and state level for non-profit organizations. She has a diverse background through previous volunteer and charity work activities. She has been actively involved in Literacy Volunteers as a member of the Board of Directors and as a tutor. She has served as co-coordinator and officer for numerous local groups and charities.

MARK A. MOORE, E. I. T.**Project Manager: Electrical, Fire Protection & Plumbing**

Education BS in Electrical Engineering from West Virginia University Institute of Technology, Montgomery, WV in 2001

Registration EIT West Virginia #08010
West Virginia State Board of Registration for Professional Engineers

Qualifications Mark has more than 7 years of experience in the information systems and design for mechanical engineering, heating, ventilating, air conditioning, plumbing, electrical, lighting for institutional, commercial and historical facilities. He researches and applies, International Building Codes, NFPA, Illuminating Engineers Society standards and National Electric Code in design. Mark has a strong background in microprocessor and microcomputer use in design. Mark has Auto CAD through 2006 design experience and manages CAD operators. He handles electronic processing and replicating functions and is responsible for Information Technology functions for ZDS and our customers.

Mark is also an information systems and technology specialist and provides networking solutions and Windows based programming system solutions. He designed the engineering programs in Excel and created customized programming in ACT databases.

Mark specializes in power, security, fire alarm, lighting, plumbing, HVAC piping, and fire protection. Some of his institutional project experience includes: Bluefield High school renovations/Performing Art Center, Clay Elementary School HVAC Renovations, Concord University Technology Center, Elkins Middle School Renovations, H. J. Keiser Elem renovations, Hopemont State Hospital Fire Alarm renovations, James Monroe High School renovations, Ohio University Bennett Hall M/E Renovations, Park Middle School renovations, Ravenswood High Renovations, Tucker County High/Career Center renovations, Webster Springs Elementary School geothermal heat pump system, Winfield High School HVAC/Electrical renovations, Pocahontas Co High School Renovations/science center additions, new War K-8 school, Woodrow Wilson High School HVAC/Electrical renovations, United Hospital Center Wound Center and others.

His commercial experience includes; Cass Railroad Clubhouse renovations, DOT Rest Area prototype, 4-H Camp Muffly Training/Dining facility, Hardy Co. Daycare, Kanawha County Judicial Annex Renovations, Mercer County Courthouse Annex, multiple branch bank facilities, Camp Dawson Barracks security renovations, IMC office facilities, Pendleton County Courthouse additions/renovations, new Webster Co. Multi-tenant Bldg., WV Capitol Complex Performance Contracting HVAC retrofits, WV Capitol Complex Master Planning for Security/Fire Alarm/Life Safety systems and others.

JAMES W. LOWRY, E. I. T.**HVAC, Plumbing & Fire Protection Designer**

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

Registration EIT West Virginia # 8376
West Virginia State Board of Registration for Professional Engineers

Qualifications James has completed 4 weeks of HVAC design training at Carrier Training Center, Syracuse, NY and hydronic design/applications at the B&G training center, Chicago, IL. He also had special courses in: Finite Element Analysis, Vibration Analysis, Fluid Power, Automatic Controls, Industrial Instrumentation, and Programmable Logic Controllers (PLCs).

Some of his education experience included; Sterling Engine Design where he was responsible for design calculations and project organization; Brick Lift Design where he was responsible for motor/pulley system & controls including performing finite-element analysis on ladder structure; Mechanical Press Design of Machine Elements including screw mechanism and performed finite-element analysis.

James has about 2 years of experience in the design for mechanical engineering, heating, ventilating, air conditioning, plumbing, electrical, and lighting for institutional and commercial facilities. He specializes in HVAC and Plumbing design. He researches and applies International Building Codes, NFPA and ASHRAE standards in design.

His commercial experience includes Pendleton County Courthouse additions/renovations, Cass Railroad Clubhouse renovations, DOT Rest Area prototype, 4-H Camp Muffly Training/Dining facility, Hardy Co. Daycare, multiple branch bank facilities, Webster Co. Multi-tenant build-out, WV Capitol Complex Performance Contracting HVAC retrofits & Master Planning for Security/Fire Alarm/Life Safety systems and others.

Some of his institutional project experience includes: Concord University Technology Center, Elkins Middle School Renovations, James Monroe High School renovations, Park Middle School renovations, Tucker County High/Career Center renovations, new War K-8 School, and Woodrow Wilson High School HVAC/Electrical renovations.

Professional Affiliations American Society of Mechanical Engineers

MARSHALL COCHRAN**MEP CAD Designer/Technical Analyst****Education**

Associate Degree in Computer-Aided Drafting, ITT Technical Institute, Murray, Utah, 1990. Has completed various courses at Parkersburg Community College, Parkersburg, WV and at Arch Moore Vo-Tech, Frozen Camp, WV

Qualifications

Marshall has specialized in Computer-Aided Drafting and design since 1988 and is presently working with AutoCAD 2005. He has a comprehensive knowledge of AutoCAD and Integraph.

Marshall has been involved with the design and production of mechanical and electrical drawings including HVAC, plumbing, fire protection, lighting, power and piping systems. He has worked with Engineers in the design of HVAC systems for schools and commercial buildings in the state of Utah and in West Virginia: determining CFM's to size ductwork, HVAC load calculations, plumbing design, computer rooms, gymnasiums, and auditoriums. He determined type, size and directional flow of diffusers; ductwork sizing, equipment selection and details. He has also worked on architectural and structural design of buildings, the design of blowout panels to be installed in hazardous buildings and civil drawings for layout of new roadways.

Some of Marshall's HVAC, plumbing, fire protection and electrical design project experience includes Kanawha County Judicial Annex HVAC Renovations, M/E renovations for schools in Clay County, Jackson, Kanawha, Grant, Hardy, Harrison, McDowell, Mercer, Monroe, Raleigh, Pocahontas, Summers, Tucker, Webster, and Wyoming County. Some of his college and University experience includes Bluefield College, Bluefield State College, Concord University, Marshall University, Ohio University, Southern WV Community & Technical College, WV Wesleyan College, Washington & Lee University, and West Virginia University. Some of his health care and commercial experience includes the Bank One of Charleston, Charleston Area Medical Center, Hopemont State Hospital, General Motors, Toyota, WV Cultural Center HVAC Renovations, Webster Memorial Hospital, and WV Public Service Commission Headquarters Building.

DAVID G. DIAL, P. E.
Senior MEP Engineer

Education Bachelor of Science Mechanical Engineering, WV University, 1978
Masters of Science Environmental Engineering, WV University, 1980

Registration Professional Engineer, West Virginia, No. 11692

Qualifications David has over twenty-seven years of experience in the design and commissioning of Mechanical and Electrical systems. He provides HVAC, electrical and plumbing design services for a variety of clients in West Virginia. His background also includes managing operating and maintenance repair and construction services for HVAC, plumbing, electric, and maintenance. David has managed grounds maintenance, security staff, information technology, IT NASA network, video surveillance and telephone systems. These areas provide inherent coordination expertise.

David has experience in Maintenance Engineering in plumbing, HVAC, clean room design, dust collector selections, steam and condensate flow measurement, transfer of steam production from in-house to private contractor, athletic field lighting design, farm pump water design, and even completed a successful energy grant application from the US Department of Energy.

Environmental Design experience includes PCB remediation, Air Pollution Control Commission annual reporting, removal of underground fuel storage tanks/pumps, installation & testing for radioactive material, conversion of a fleet of vehicles to operated dual fuel (gasoline and natural gas) including training, designing a filling station, custom built compressor station, cylinder operations area, filling post and monitoring of natural gas usage.

He has been involved in the design, document development, contract administration and recommissioning of the structural, mechanical, and electrical disciplines of several WVU projects including: Downtown Steam Tunnel Assessment, Coliseum Tunnel Redesign, Towers exercise room, Brooks Clean Room, lighting retrofits at Brooks Hall, exterior lighting for Mountainlair Parking Garage, cooling towers replacement at the Chemistry Annex, replacement of electric hot water boilers with natural gas pulse steam boilers, HVAC controls for Allen Hall, measure flow for sub metering/billing for campus steam/condensate systems, PCB removal from electrical equipment on campus, and power/cooling for a data Center at the WVU/NASA facility.

Other project experience includes design for Trinity High School's HVAC, plumbing and electric system, industrial dust collector system for the Percival Dust Collector, replacement of rigging of a 2500 seat Auditorium. As a production engineer, David optimized design of medical quality cryogenic freezers, incubator and shaker including scheduling the freight trucks, quality assurance of sheet metal shipments, writing repair manuals and set up insulation.

MARK W. ESTEP, PE
ME Consulting Engineers Inc.
Mechanical/Electrical/Plumbing Engineer

Education BS in Mechanical Engineering from West Virginia University Institute of Technology, Montgomery, WV in 1999
B.S. Architectural Engineering Technology and A.S. Mechanical Engineering Technology from Fairmont State College, Fairmont, WV 1990

Registration Professional Engineer, West Virginia #16199

Qualifications Mark has more than 15 years of experience in design for mechanical engineering, heating, ventilating, air conditioning for Public Housing, institutional and commercial facilities. He specializes in HVAC and supporting architectural design. Mark has a strong background in both architectural and mechanical design and continues to strengthen his piping, plumbing, lighting and power electrical design founded ME Consulting Engineers and New Dimensions. Mark has Auto CAD 14 through 2005 design experience.

Mark's Public Housing design experience includes modernization projects for 64 apartments and 10 community spaces plus a new 9,000 ft² community facility for Charleston Housing, modernization projects for 50 apartments at Sunset Terrace and Elizabeth Cather Towers for Grafton Housing, modernization projects for 504 handicapped accessible renovations to three separate complexes for the Point Pleasant Housing Authority and renovations to 13 separate structures and an addition of a new community room for the Huntington Housing Authority.

Mark's commercial, university and school experience includes Harris Hall HVAC & Electrical renovations for Marshall University, HVAC renovations to the WV Capitol Complex Buildings #3 and #5, Woodrow Wilson High School HVAC Renovations in Beckley WV and a new War K-8 School for McDowell County Schools through ZDS. Additional experience includes Upshur County Courthouse Annex for the 24,000 ft² three-story annex to the existing courthouse, Buckhannon WV City Hall renovations, Child Development Center of Central WV located in Buckhannon, new 2,000 ft² building for Elkins-Randolph County Airport Authority in Elkins, a new 28,000 ft² Maintenance Hanger for Crown Airways in Parkersburg WV.

Mark's industrial experience includes the design of 16 natural gas dispensing service stations located throughout WV, MD and Washington D.C., Design/Build for a 6,000 ft² two-story laboratory facility for Union Carbide in Charleston WV, and a new 50,000 ft² pre-engineered facility for multi-tenant at the Philippi Industrial Facility.

Professional Affiliations American Society of Professional Engineers
National Fire Protection Agency

CRAIG MILLER, PE
Miller Engineers, Inc.
Mechanical & Electrical Engineer

Education Bachelor of Science in Mechanical Engineering, WV University, 1995
Bachelor of Arts in Mass Communication, University of Charleston 1988

Registration Professional Engineer, West Virginia, No: 15184
Professional Engineer, Pennsylvania, No: PE062308
Professional Engineer, Maryland, No: 32894

Qualifications Craig has more than 12 years of experience in the design, specification, and construction/ project management of mechanical, electrical, and plumbing systems and 10 years experience in facilities operations, maintenance, management and "operational engineering". He has worked extensively in the commercial & institutional facilities including experience as an electrician and HVAC systems mechanic prior to obtaining his engineering education which gives him a distinctive "hands on" approach to engineering application and design.

Craig's MEP design experience includes Marion County Courthouse, Davis & Elkins Student Union, Charleston Area Medical Center Women's and Children's Hospital, Wetzel County Hospital and some retrofits at the WV Capitol Complex.

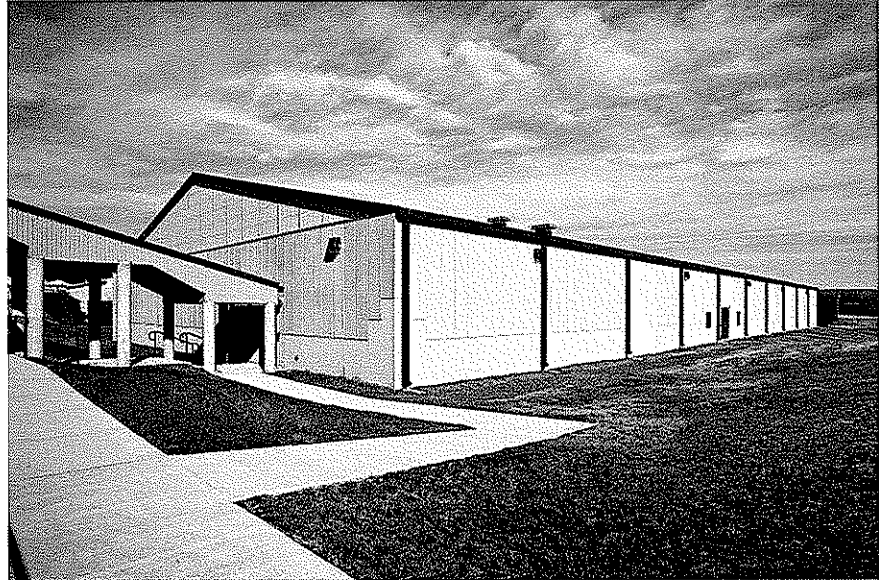
Craig's experience at West Virginia University included infrastructure upgrade projects, performed engineering design, assisted maintenance personnel with operational issues, and managed the University's Energy Program. Additionally, he served as the Owner's design review engineer on numerous capital construction projects including a new \$30 million Life Sciences Building and \$35 million Student Recreation Center. The Life Science and Rec. Center construction which required \$6 million in high voltage electrical and high pressure steam infrastructure improvements. \$4 million Downtown Campus Electrical Upgrade and Substation (23 & 4kv), \$2 million Coliseum Substation Replacement (23 & 4kv), \$2.5 million Stadium Electric and Lighting Upgrade, Natatorium HVAC replacement, Knapp Hall Heating retrofits, Natatorium Chemical Controllers, and others.

Professional Affiliations ICC International Code Commission
National Fire Protection Agency
American Society of Heating, Refrigeration & Air Conditioning Engineers
BACNET Interest Group

Mission Support Training Facility Design, USPFO PA/Ft. Indiantown Gap *Annville, Pennsylvania*

Client:

U.S. Property & Fiscal Office
Dept. Military and Veterans
Affairs
Ft. Indiantown Gap
Annville, PA



Buchart Horn provided conceptual through 100% designs for a 24,000 square-foot Mission Support Training Facility (MSTF) located at Fort Indiantown Gap, Pennsylvania. This facility serves as the command and control training facility centerpiece for the 28th Division's Stryker Brigade Combat Team. Units may conduct individual automation training and up to brigade-sized, classified command and control training exercises in this facility. When constructed, this facility will be able to handle all of the Stryker Brigade's advanced and extremely sophisticated telecommunications needs.

While the MSTF is designed with a future adaptive reuse potential in mind, it is optimized for today's simulation training needs. Buchart Horn led a fact-finding investigation of a similar facility at Fort Hood Texas, and through a charrette and design review process, integrated the most desirable features of the Texas facility into the MSTF to optimize its functional layout. The MSTF includes a secure room which is capable of processing and storing classified information and incorporates Secret Internet Protocol Router Network (SIPRNET) communication connectivity; a Force Battle Command Brigade and Below (FBCB2) Simulation Area (reconfigurable open space with overhead cable trays to allow flexible C4I equipment and workstation configuration); a Higher Control (HICON) Area (dedicated area for configuring, testing, and administering simulation exercises).

The Administrative Area is an open space area outfitted with modular furniture for contracted support staff. After Action Review (AAR) Areas provide flexible swing space for conducting AARs or for use in supporting simulation and collective C4I training exercises. Individual office areas, a break/kitchenette area, conference room, and latrines are also provided within the facility. The existing utilities of neighboring facilities required deliberate planning and routing to ensure disruptions, and encroachments were minimized while providing full service to the MSTF.



The facilities were all designed in accordance with the latest Army and National Guard sustainable design standards and International Building Code (IBC) 2003. Our team employed innovative structural design concepts to maximize open bay space and minimize construction costs. In addition, the building is scheduled for the "Gold" level of USACE Sustainable Project Rating Tool (SPiRiT) certification, leveraging an *Energy-Star*-compliant standing seam metal roof system, sandwich construction pre-cast wall panels, Kalwall ambient lighting systems in the endwalls, low maintenance aluminum window and door frames, innovative site design, and high energy efficiency and Johnson controls for its HVAC systems.

Our team used a SPiRiT spreadsheet model developed in house to allow the client to iteratively select SPiRiT-related features based on tradeoff analyses including cost and energy efficiencies. Major design references included: National Guard Bureau Pamphlet (NGB PAM) 415-5; NGB Design Guides (415 series); AR 190-11 (Physical Security) and Unified Facilities Code (UFC) 04-010 (anti-terrorism/force protection [AT/FP] design criteria). We ensured early coordination of all site permitting including Pennsylvania Natural Diversity Inventory (PNDI) searches and the necessary National Pollutant Discharge Elimination System (NPDES) permitting and stormwater control.

We are delivering a facility that will not only meet National Guard standards, but will serve as a model facility for National Guard-owned, contractor-operated training centers. This training space is very similar to portions of a readiness center that allow multiple uses and reconfiguration for various collective or individual training needs. Our design team has produced three other Stryker Brigade facility designs and has developed a database of design knowledge for transfer to Readiness Centers.



Pioneer Army Family Housing Upgrades

Hanau/Wolfgang, Germany

Client:

Staatsbauamt Frankfurt am Main II

This project involved the interior renovation of five (5) residential buildings of the U.S. Forces in Hanau/Wolfgang in Hessen. The buildings, constructed in the 1950's, were originally divided into 78 apartments. In the course of a new floor plan design, the number of apartments was reduced to 63.

Buchart Horn, Inc. (BH) GmbH performed the A/E design on behalf of the Staatsbauamt Frankfurt in coordination with an architectural office and an office for electrical engineering.

Based upon a survey of existing conditions, Buchart Horn GmbH planned the following disciplines:

- Water and Wastewater;
- Ventilation;
- Heating;
- and prepared the documents required for bidding. These comprised design analysis, calculations, specifications, cost estimates, and applicable drawings and diagrams.

Wastewater Systems

Dismantling of existing piping, floor inlets, new installation of risers of sleeveless cast iron pipe and connecting lines of plastic.

Water Supply

Dismantling of existing piping and sanitary objects, new supply lines of copper pipe with press fittings, Equipment of dwelling units with bathrooms and sanitary objects and hot water supply via district heating system.

Heat Generation Systems

Dismantling of existing system and installation of new district heating transfer stations with outside temperature supply control and connection of system to adjacent central monitoring and control system.

Space Heating

New installation of pipe system with piping of black steel, with thermal insulation and replacements of existing radiators with panel radiators, which included thermostatic valves.

Ventilation Systems

Single room ventilation for bathrooms and collective exhaust air duct above roof, exhaust air duct (plastic-coated) for drier above roof and vapor exhaust hoods in kitchens with exterior wall connection.

Construction Phase Services

The Buchart Horn A-E contract includes provisions for construction inspection and review services. Construction has not yet started.

Combat Arms Training and Maintenance and Combat Arms Training Simulator Facility, Pennsylvania Air National Guard, 171st Air Refueling Wing Coraopolis, Pennsylvania

Client:

U.S. Property & Fiscal Office
Dept. Military and Veterans
Affairs
Ft. Indiantown Gap
Annville, PA

Buchart Horn provided conceptual through 100% designs for a 2,800 square-foot small arms simulator training and maintenance facility to conduct individual and collective marksmanship training at the Air Reserve Center to support the 171st Air Refueling Wing. This project became the primary qualification training facility for small arms on the installation, preventing pollution by minimizing the use of lead rounds in the environment. Space programming for the facility included:

- Simulation Room: Allows CO2 system firing of small arms weapons with laser and projector-based simulator
- Weapons maintenance area: Dedicated cleaning and maintenance area capable of handling hazardous materials and providing appropriate safety controls (fire safety and ventilation)
- Instructor area: Dedicated area for record keeping and trainer preparation
- Administrative storage: Storage room for training support materials
- After Action Review (AAR) and Classroom Areas: Flexible swing space designed to allow AARs or be used for formal classroom training
- Individual Mechanical/Electrical and Communication rooms

The Simulator Training and Maintenance Facility is designed in accordance with Air National Guard sustainable design standards. The building is a simple split-faced block cavity wall system with low maintenance aluminum window and door frames, innovative site design, and high efficiency/DDC-controlled HVAC systems. The building also incorporated locally produced materials and emphasizes reused and recycled material throughout the facility. Major design tasks for the CATM/CATS included:

- Conduct site utilities layouts, topographic surveying, and geotechnical investigations
- Develop site and environmental plans to address erosion and sediment control, stormwater management and impacts on existing base air/water environmental permits
- Conduct design charrette to develop preferred floor plan and layout
- Incorporate sustainable design features to enhance building envelope and energy related systems
- Provide centralized fire protection and energy efficient HVAC system equipped with Direct Digital Controls
- Provide adequate safety features for operation and maintenance of small arms weapons and hazardous materials
- Provide future options for communications installation and network development within the building and connected to base system

Battalion Storage Facility Design USPFO PA/Ft. Indiantown Gap, Annville, Pennsylvania

Client:

**U.S. Property & Fiscal Office
Dept. Military and Veterans
Affairs
Ft. Indiantown Gap
Annville, PA**

Buchart Horn provided the conceptual through 100% design services for the Stryker Brigade's 20,000-square foot battalion storage area which gives rotating units secure space for equipment storage while training at Fort Indiantown Gap, Pennsylvania. The facility features: Centralized Storage Compartment Access (a wide central bay area is provided to allow easy forklift access throughout the facility); secure cage areas (individual company sized storage areas are provided to allow easy vertical stacking of palletized loads) and a secure Storage Area (secure vault is provided to handle temporary storage of sensitive equipment).

The facilities were designed in accordance with Army and National Guard sustainable design standards and IBC 2003. The facility is rated "Silver" using the USACE SPiRiT rating system. Construction materials include a pre-engineered steel frame structure with pre-cast concrete walls, an Energy Star compliant standing seam metal roof system and high energy efficiency/ DDC mechanical systems. Physical security and anti-terrorism/force protection features are designed into the site and facility itself including advanced electronic surveillance and security systems. We ensured early coordination of all site permitting including PNDI searches and the necessary NPDES permitting and stormwater control.

This storage area will become a model design for follow-on post needs and sets the design standard for facilities of this size at Fort Indiantown Gap. Floor slabs were thickened to allow adaptive reuse in the future to include possible maintenance operations, and the cage areas are easily removed to allow individual offices to be built in the future out of concrete masonry unit (CMU) block. Careful consideration was given to building approach angles to facilitate easy deliveries while minimizing the exposure offered by perpendicular alignment of driveways toward the building. A loading ramp provides easy materiel transfer in and out of the facility.

The building is integrated into a larger Battalion Complex area whose conceptual design was provided by Buchart Horn. All Stryker Brigade personnel training at Fort Indiantown Gap are housed and fed at this location, offering a single, efficient location for staging training units. This concept parallels the training efficiency of a readiness center and our design team understands how to integrate the necessary administrative and support functions into a single complex.



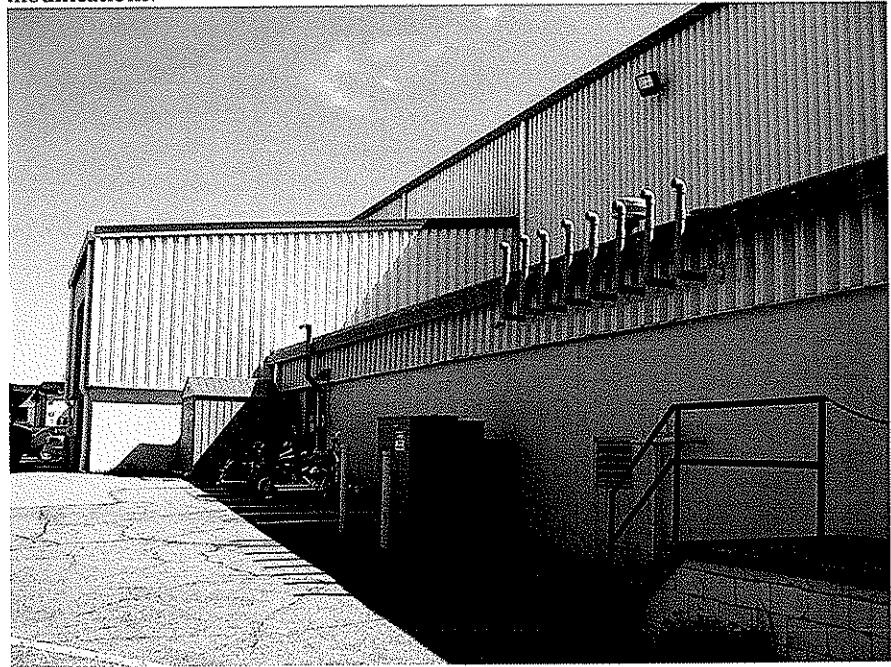
**Aircraft Systems Maintenance Hangar Repair and Renovation,
Building 304, Pennsylvania Air National Guard,
171st Air Refueling Wing
Coraopolis, Pennsylvania**

Client:

*U.S. Property & Fiscal Office
Dept. Military and Veterans
Affairs
Ft. Indiantown Gap
Annville, PA*

Building 304's primary occupant is the Fuel System Maintenance Dock. The Fuel System Maintenance Dock repairs aircraft fuel tanks, pumping systems, and pumping controls, performing the majority of its work on board the aircraft in the main hangar bay. The building's secondary occupant is the Repair and Reclamation (R&R) Work Center, which will jointly use available space. The R&R Work Center maintains aircraft landing gear systems, primary and secondary flight controls, and engine control systems. The R&R Work Center performs a significant amount of its work in shops after parts have been removed from the aircraft.

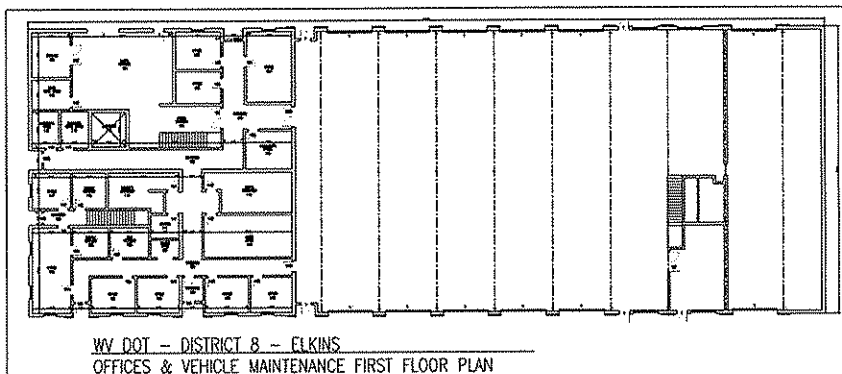
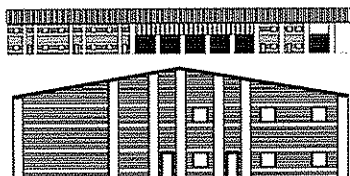
Buchart Horn designed facility repairs and upgrades to provide a complete and usable facility for the building's current functions. Work includes extensive exterior repairs, creation of men's and women's latrines, a laundry room, and a janitor's closet. The work also includes construction of new walls to create a new supervisor's office and a wheel and tire shop, and replacement of some of the interior finishes, as well as roof and exterior panel repairs, door replacements, electrical and lighting upgrades, floor drains, ventilation and air breathing systems, and heating system modifications.



Elkins Maintenance Facility, WVDOT

Elkins, West Virginia

Client:
WVDOT



Buchart Horn provided architectural, civil, structural, mechanical and general engineering services for this project. The facility will consist of approximately 22,500 square feet on the main level and 8,300 square feet on a second level for a total of 30,800 square feet.

At present, the facility includes five heavy equipment service bays with two five-ton rolling cranes, five light equipment service bays with lifts, machine shop, tire shop, tool shop and welding shop as well as office suites and staff crew rooms and lockers. The second floor will be parts storage with a freight elevator for access.

The designs also include all new campus phone system, radiant heating, oil separator equipment, compressor systems and other amenities.

Canaan Valley Maintenance Building

Davis, West Virginia

Client:
Canaan Valley Institute

Buchart Horn is preparing design plans for a new maintenance facility for the Canaan Valley Institute in Davis, WV. The new facility will be approximately 10,000 square feet, with four maintenance bays, including one heated bay. Storage, office, locker, and shower areas, as well as shop space, will all be included in the facility. In keeping with the mission of the Canaan Valley Institute, the building will feature green building techniques, and will be designed to achieve LEED certification. Special design considerations include:

- Development of a low impact building
- Reuse of natural resources
- Aesthetics
- Use of high efficiency materials and systems



Ventilation Systems Repair, Fuel Cell Hangar 302, Pennsylvania Air National Guard, 171st Air Refueling Wing *Coraopolis, Pennsylvania*

Client:

*U.S. Property & Fiscal Office
Dept. Military and Veterans
Affairs
Ft. Indiantown Gap
Annville, PA*

Workers in a maintenance facility to repair fuel systems were exposed to potentially high levels of exhaust fumes from fuel cell ventilation systems. We suspected that fumes from the exhaust of the fuel cell ventilation system were directed into the intake system for the building's HVAC system.

Buchart Horn provided investigative, design and construction administration services to repair a malfunctioning ventilation system of a 22,000 SF maintenance hangar at the Air Reserve Center supporting the 171st Air Refueling Wing. Major investigation, design, and construction administration tasks included:

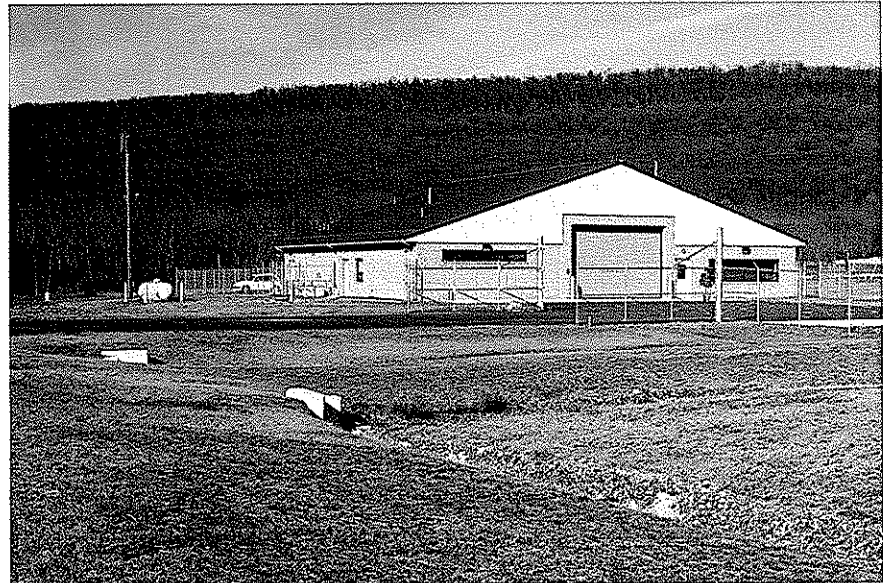
- Air Handling Unit 1 (AHU-1) evaluation: Verify existing AHU-1 conditions and investigate the control system used to operate AHU-1; assess the appropriate duct work and sensor system needed to automatically shut the system off when exhaust fumes reach hazardous levels.
- Direct Digital Control (DDC) integration: The air base operates an efficient energy management system using direct digital control systems tied into a central location. This task required the development of a digital interface for the AHU-1 unit to enable tie in to the central management system.
- Roof geometry/air current investigation: Careful analysis was required to assess the structural impacts of rooflines and duct locations as they pertain to air currents flowing over the building. We identified possible trapped air locations and provided recommendations about possible duct relocation.
- Phased work sequencing: Active repair mission in the building requires sequenced design assessment and construction approaches to ensure uninterrupted maintenance repair functions in the building
- New code/regulation assessment: All ventilation controls, fans, ductwork, and modifications to the building were reviewed to ensure conformance with applicable ventilation codes and applicable unified facilities criteria and regulations (UFC 3-410-04N included).
- Commissioning and Balancing: Test all new system components and balance as a system under varied outdoor conditions. The project also required verification of air flows, transport velocities, ductwork volumes and
- Construction Administration Services: Respond to any requests for information, conduct submittal reviews as applicable for new system design features. Provide as built drawings for client upon client completion.

This project provided experience for the operational requirements, compliance with codes, and other governing regulations for mechanical systems on large hangars at air bases. The project required multi-disciplinary reviews from environmental, structural and mechanical engineers and required updated knowledge of direct digital controls, sensors, and complex electrical interfaces to ensure compatibility with existing and future systems on the air base.

Unmanned Aerial Vehicle Runway and Maintenance Training Facility Design, USPFO PA/Ft. Indiantown Gap *Annville, Pennsylvania*

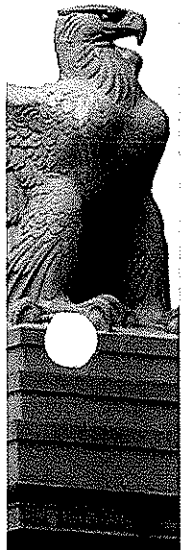
Client:

*U.S. Property & Fiscal Office
Dept. Military and Veterans
Affairs
Ft. Indiantown Gap
Annville, PA*



Buchart Horn provided conceptual through 100% designs for a 50- x 700-ft runway and supporting 5,600 square foot training and maintenance facility to conduct unmanned aerial vehicle (UAV) flight and training operations at Fort Indiantown Gap, Pennsylvania. This project will serve as the training area for all UAV flight training operations, allowing other units beyond the 28th Division's Stryker Brigade Combat Team to train throughout the year on this important new technology. The facility is a "one of a kind" addition to Fort Indiantown Gap and will become a much needed addition to accommodate the Stryker Brigade's unique training needs.

The UAV Training and Maintenance Facility is designed in accordance with the latest Army and National Guard sustainable design standards. The building is scheduled for the "Gold" level of SPiRiT certification, leveraging an Energy Star-compliant standing seam metal roof system, block cavity wall construction, low maintenance aluminum window and door frames, innovative site design, and high efficiency/DDC-controlled HVAC systems. Our team used a SPiRiT spreadsheet model developed in-house to allow the client to iteratively select SPiRiT-related features based on trade-off analyses including cost and energy efficiencies. The building also incorporated locally produced materials and emphasized reuse and recycled material use throughout the facility and on site. Particular attention was given to the integration of force protection features into the site to minimize interference to flight operations while enhancing security for the site.



Yeager Airport Transportation Security Administration Offices

Charleston, West Virginia

Client:

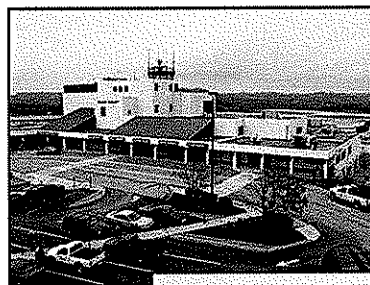
***Central WV Regional Airport
Authority***

With seemingly no available adjacent space to provide new critical services, Buchart Horn Inc was contracted to design an innovative solution to add space on the existing rooftop of the 1940's terminal building. This created much needed office space immediately adjacent to the airports executive offices which was a requirement of the TSA to allow close coordination of security, paramount in the event of emergencies.

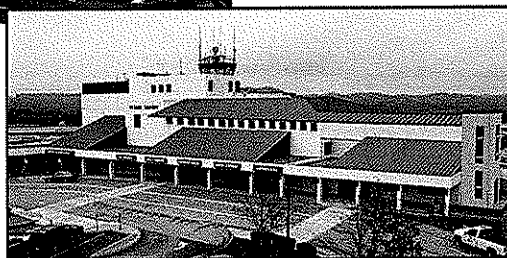
The space is utilized by the General Services Administration for the central offices of the Transportation Security Administration, for their West Virginia operations. The solution includes:

- Biometric security devices
- Proximity security devices
- Director's and administrative offices
- Conference/Emergency Operations area
- Outside runway observation deck
- Interior runway observation bridge
- Secure private elevator
- Training areas
- Information Technologies room
- Network servers
- Kitchenette and breakroom
- ADA-compliant restrooms

The project also included modifications to other existing spaces for ADA and sprinkler as well as adding HVAC to certain areas.



before



Building 4311 Renovation Design and Construction Phase Services, & Edgewood Arsenal Building E-1356 Renovation Design

Aberdeen, Maryland

Client:

*Odyssey International
11 Hap Arnold Boulevard
Tobyhanna, PA*

Building 4311 was constructed as an 11,550 SF dining hall at Aberdeen Proving Grounds, MD in the mid-1980's. It is a one-story, brick faced building. It was renovated at least once to serve as a telephone and internet café and snack bar for the troops. A set of 10 modular buildings (E1356 complex) was installed at Edgewood Arsenal for temporary office space. The US Army Corps of Engineers is renovating both spaces to establish Integrated Program Office spaces to house contracting, engineering and construction management personnel for BRAC related construction from 2008-2011.

This is a two phase project. Phase I involves a multi-disciplinary investigation of the E1356 complex and Building 4311. Architectural, mechanical, electrical and site civil deficiencies were identified and design recommendations made as options for the client to choose for incorporation into subsequent design. Phase II is the actual demolition and design-build portion of the project. The two integrated project office spaces contain similar design features; however, Building 4311 requires considerably more renovation and demolition work.

- **Demolition Planning.** Includes designing a safe plan for removing selected walls, electrical distribution, lighting, heating and cooling ductwork, plumbing and existing ceilings.
- **Architectural.** Tasks include additional space planning, designing appropriate wall and ceiling systems, floor systems, fenestration, doorways and supporting hardware. In addition to office space renovation design, other architectural tasks include upgrading the restrooms to ensure compliance with ADA regulations and reduce overall water consumption and performing necessary code review to assess and appropriately design building life safety features.
- **Mechanical/HVAC.** Performing assessment of existing HVAC system, including air handlers, ductwork integrity (leak detection), and other equipment.
- **Fire Sprinkler and Alarm.** Includes the design of a fire sprinkler system for building 4311 and designing a new fire alarm system compatible with upgraded centralized alarm system at Aberdeen Proving Grounds.
- **Electrical/communications.** Electrical upgrades include NEC code review and power distribution to newly created office spaces (wall drops); enhanced lighting for improved illumination; communications tasks include the routing of CAT6 and CAT 5 cable for data and voice service throughout the building.

These fast track renovation projects represent the onset of a major BRAC construction effort at Aberdeen Proving Grounds and Edgewood Arsenal, MD. These office spaces must be programmed for efficiency and comfortably support a sizeable construction and field support staff. The fast paced environment requires intense coordination between owner, designer, and construction personnel, leading to an efficient team and improved management, design, and communication processes.

Sixth Medical Logistics Management Center Company Operations Facility

Ft. Detrick, Maryland

Client:

*Odyssey International
11 Hap Arnold Boulevard
Tobyhanna, PA*

Base Realignment and Closure-related transformation has driven the need for the rapid construction of additional facilities to accommodate troop increases and mission expansion at a variety of installations throughout the mid-Atlantic region. Established in October of 2000, the 6th Medical Logistics Management Center's (6MLMC) mission continues to expand, driving the need for accelerated construction of additional administrative office space to conduct operations.

Buchart Horn led the design of a 4,464 square foot building to serve as the 6MLMC Supplementary Company Operations Building. The project was designated as a Design/Build with Odyssey International serving as the General Contractor. Buchart Horn's facilities design team included three subconsultants; Century Engineering for site/civil design and geotechnical; NMP Consultants as an expeditor to Maryland Department of the Environment for the processing of the site/civil design and EBL Fire Engineering for fire protection (sprinkler).

This fast track design build project represented a small part of the ongoing transformation effort and over one billion dollars of new construction at Fort Detrick, MD. The fast paced environment required intense coordination between the installation, owner, designer, and construction personnel, and led to an efficient team and improved management, design, and communication processes. Major tasks included:

- **Architectural.** The architect made adjustments to interior space planning, design appropriate wall and ceiling systems, floor systems, fenestration, doorways and supporting hardware. This project included a pre-engineered metal building with brick exterior and metal stud/gypsum board backup for interior fit-out and finishing. Details and finishes were cost effective and functional.
- **Structural.** While this is a pre-engineered building, our design team designed an additional entrance vestibule and performed the design of all foundations, floor slabs and other reinforced concrete work on site.
- **Mechanical/HVAC.** Design included all necessary interior and exterior plumbing, heating ventilation and air conditioning for the facility. The facility is DDC enabled and linked to a centralized post system.
- **Fire Sprinkler and Alarm.** This project incorporated the design of a fire sprinkler system for the building along with appropriate alarms and networked design to the installation's fire department monitoring system.
- **Electrical/communications.** Electrical design included all power distribution, interior lighting, security system and routing of telecommunications network for data and voice service throughout the building.
- **Land Development and Permitting Services.** Included a geotechnical investigation, site grading and design of a parking lot, security fencing, stormwater drainage, and the necessary environmental permits to initiate construction for this site.

Buchart Horn, Inc.

Preston County Administrative and Judicial Facilities, Space Needs Analysis and Design

Kingwood, West Virginia

Client:

Preston County Commission



Faced with overcrowding and paying rent to house County functions and in an effort to streamline their operations and serve their community more efficiently, Preston County hired Buchart Horn to perform a space needs analysis and a facilities inventory and assessment of their current facilities; as well as perform a feasibility study for remodeling a former bank building across from their courthouse into a County Administrative Office building.

Buchart Horn's analysis and feasibility study provided convincing evidence that this was indeed feasible and would be financially beneficial to the County for several reasons: the County would no longer have to rent space as all functions could be accommodated on County property; administrative offices which were currently scattered over 3 1/2 floors, could be located adjacent to each other on one floor. This alone would greatly reduce the amount of duplicate files, printers and storage necessary to fulfill their tasks as well as potentially eliminate needs for additional staff in the short term. Not to mention that the renovated modernized offices would be designed for their respective functions instead of 'making-do' with existing space. With unanimous approval, Buchart Horn was asked to continue into making the necessary modifications to the buildings.

Tobyhanna Army Depot A/E IDQ Contract 2002 Re-Award

Tobyhanna, Pennsylvania

Client:

*Tobyhanna Army Depot
11 Hap Arnold Boulevard
Tobyhanna, PA*

Upon completion of our original four-year contract for multi-disciplinary architectural and engineering services at Tobyhanna Army Depot, Buchart Horn was awarded a second three-year A/E contract for similar services. Work orders to date include:

On-site Mechanical Engineer

Buchart Horn provided an on-site Mechanical Engineer for specific durations to provide mechanical system design, field surveying, and engineering feasibility studies.

Building 9 Rest Room

Buchart Horn performed design and developed contract documents to renovate the rest room facilities. Trailer-mounted facilities provided temporary male and female shower and toilet areas.

Water Study

Buchart Horn performed a water study to determine the physical condition of existing water system elements including piping, tanks, and booster stations.

General's Quarters

Buchart Horn developed RFP documents based on best value selection to renovate the General's Quarters at Carlisle Barracks.

Rest Rooms, Buildings 1A, 5, 6, 8, 12, and 15

Buchart Horn prepared design and construction documents to renovate rest room facilities in several buildings at the Depot.

Building 11 Lobby and Wing

Buchart Horn prepared design and construction documents to renovate the main entrance and one wing of Building 11, providing a state-of-the-art lobby displaying the electronic capabilities of the Depot.

Building 11 Wing E & C

Buchart Horn prepared design and construction documents to renovate two additional wings of Building 11.



Lower Bucks Family YMCA

Fairless Hills, Pennsylvania

Client:

Lower Bucks Family YMCA

This building is a multi-story building consisting of approximately 26,000 ft. and a possible future addition of approximately 13,500 ft. The evaluation covers, for the most part, the HVAC systems throughout the building as well as the plumbing system. Areas include the natatorium, gymnasium, locker rooms, various training and fitness areas, classrooms, a child care center, meeting rooms, and offices. The evaluation not only includes a study of the existing condition of the building system but also recommendation for providing new state-of-the-art energy efficient systems. The existing building as well as provisions for the new addition are included.

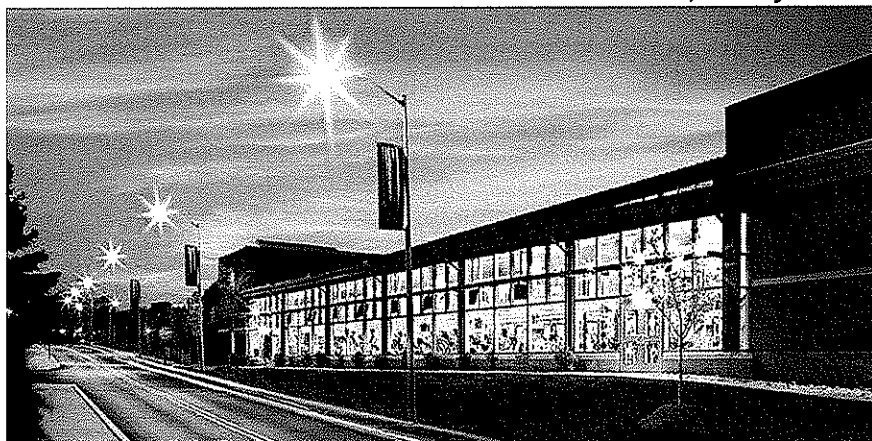
The final design recommendations included schematic plans and elevations, building system narratives, and a financial analysis including project cost estimate, project schedule, and an architectural rendering of the proposed building exterior.

Kutztown University, Campus Recreation Center

Kutztown, Pennsylvania

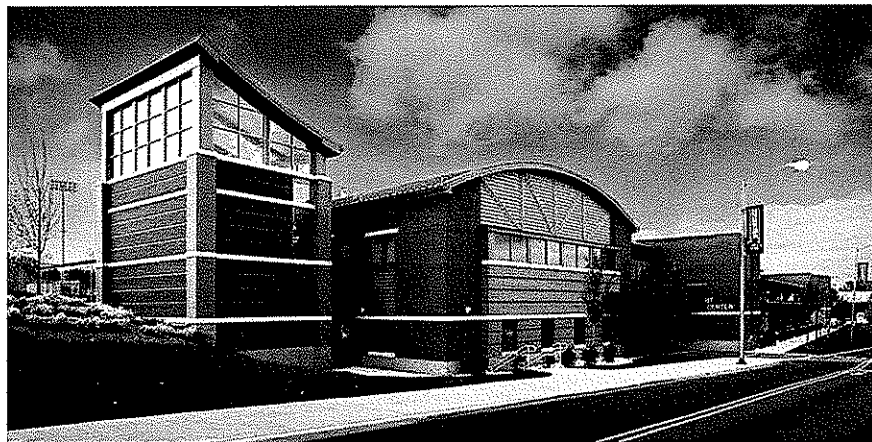
Client:

Kutztown University of
Pennsylvania
224 Stratton Administration
Building
Kutztown, PA



Building on the natural draw of the University's primary athletic attraction, Buchart Horn designed the 44,000 square foot Campus Recreation Center adjacent to University Field. The Recreation Center serves as a hub of fitness activity and social gatherings for students, athletes, and fans.

The Recreation Center provides a multi-activity gymnasium suitable for basketball, indoor soccer, hockey, volleyball, and badminton. Among the amenities are a nearly 9,000 sq.ft. fitness center and weight room, two group fitness studios, two racquetball courts, a two-story rock climbing wall, a synthetic surface full-size gymnasium with curved walls for indoor sports, a suspended jogging track (approximately 1/10 mile), an office suite for recreational services staff, retail space/snack bar and locker rooms with Jacuzzis®. The efficient design also includes a synthetic surface half-size gymnasium and running track, seminar rooms and administrative offices.



PA DGS, State Regional Correctional Facility Mercer, Administration & Program Facilities

Mercer, Pennsylvania

Client:

PA DGS
18th & Herr Streets
Harrisburg, PA



Buchart Horn provided construction management services for:

- A new inmate intake addition
- An administration building
- A control center
- A connecting corridor between the administration building and control center
- Parking lots

The floor area for the inmate intake addition was approximately 3,530 square feet. The combined floor area for the administration building, control center, and connecting corridor is 24,200 square feet. The structure for all three buildings and the connecting corridor is steel frame with brick and concrete block infill.