

**State of
West Virginia
Department of
Administration
Assessment of WV
State Laboratory
Testing Facilities**

CEOI 0211 GSD2200000006

Statement of Qualifications

Architectural & Engineering
Design Services

April 27, 2022

04/27/22 09:54:32
WV Purchasing Division



**EXPRESSION OF INTEREST
ARCHITECT AND ENGINEERING SERVICES
WV STATE LABORATORY TESTING
FACILITIES NEEDS ASSESSMENT
PROJECT
CEOI 0211 GSD2200000006**

APRIL 27, 2022

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April 27, 2022

Melissa Pettrey, Senior Buyer
Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130

RE: Solicitation No. CEOI 0211 GSD2200000006

Dear Ms. Pettrey:

Omni Associates-Architects, Inc. is pleased to submit our Proposal to provide architectural and engineering design services for the WV State Laboratory Testing Facilities Needs Assessment project.

Omni has extensive experience in providing both needs assessment studies and providing architectural design services for laboratory spaces. These services have been provided over our 40 year history for private industry as well as Federal, State and Local governmental agencies.

Our team for this project would include **H.F. Lenz Company** who we share a long history of successful project collaboration with including over 70 projects for Mylan Pharmaceuticals from 1984 until the facility closed. Omni and H.F. Lenz also teamed for the successful completion of a 15 year IDIQ Contract with CDC/NIOSH undertaking over 20 projects of a similar scope to that proposed in this CEOI.

Omni Associates will serve as the lead firm and coordinator of architectural and engineering services. As Omni's Principal-in-Charge, I will guide this project from programming to construction administration in an efficient and effective manner and serve as the as the point-of-contact.

Thank you for allowing us to present our credentials. We look forward to the opportunity to work with the General Services Division again.

Sincerely,
OMNI ASSOCIATES – ARCHITECTS, INC.

A handwritten signature in black ink, appearing to read 'J.M. Miller'.

Jason M. Miller, AIA, NCARB
Principal

DESIGN TEAM QUALIFICATIONS

OMNI ASSOCIATES - ARCHITECTS is an award-winning architectural firm located in Fairmont, West Virginia. Our approach to design has allowed us to avoid the confines of specialization and afforded us the opportunity and experience to create a diverse body of work.

Since the beginning in 1980, Omni has earned recognition for the programming, planning, and design of a variety of structures; which includes corporate office and governmental buildings, health care facilities and medical campuses, academic and educational buildings, recreational, religious, military and public safety facilities.

Our reputation and superior work product are the result of efficient and effective communication with our clients and consultants.

Each project is a unique undertaking that begins with analyzing the needs and desires of the client, and interpreting them into a distinctive design that exceeds expectations.

Omni has a successful history of designing intimately with each client and creating collaborative solutions that meet the project goals, resulting in an impressive record of customer satisfaction. These qualities that draw our clients back, resulting in lasting relationships.

Omni Associates provides clients with the results they value most: innovative designs consistent with the building program, cost effective designs which meet the budget, and efficient project management to provide on-time deliverables.

We firmly believe that the best gauge in determining our performance and abilities is the quality of the personnel of

which we are comprised. Omni's greatest resource is our professional staff of dedicated, experienced, and creative individuals. Our project team goes beyond our in-house staff however. Omni carefully selects its project team based on each member's ability to add directly-related experience, ensuring our ability to meet the specific challenges and goals of each client.

Throughout our years of experience, we have worked with a variety of consultants specializing in structural engineering, civil engineering, mechanical and electrical engineering, and other disciplines as each project dictated. You can be assured that the consultants we select for your project are selected for their particular and relevant experience as well as their superior work ethic.

It is the mutual respect of each team member's skills and perspectives that enables the design process to conclude with a successful project of which we all can be proud.

In short, for each project we undertake at Omni, we carefully staff our teams, including in-house professionals and outside consultants, with the type of personnel we would want working for us, to work for you.

DESIGN TEAM QUALIFICATIONS cont'd

Omni Associates - Architects provides comprehensive, in-depth professional architectural services for new construction, renovation, addition, and adaptive reuse utilizing a variety of delivery methods to best serve our clients' needs.

Design-Bid-Build Delivery Method

Omni has performed private and public projects of every building type using this traditional method of project delivery. We organize your entire project in advance of bidding and work extensively with you to achieve alternates to program goals. Construction documents are prepared and bid to multiple general contractors to achieve competitive pricing. Omni has successfully negotiated with contractors to maintain changes and costs to a minimum and still achieve the initial time schedule.

Omni has also worked on "fast-track" and "multiple-prime" contract projects to achieve an accelerated building construction time schedule. As a variation of the traditional design-bid-build delivery, the negotiated select team approach allows for selection of a contractor early in the design process. We prepare construction drawings in stages and bid these "parts" of the total building program so construction can be ongoing as the next phase is programmed and designed. We have worked with General Contractors, Construction Managers and multiple prime subcontractors to successfully complete this type of project delivery.

Design-Build Delivery Method

More and more owners and developers are seeking a simpler delivery style with a single point of responsibility for both design and construction. Under design-build, a consolidated entity provides both design and construction services to the owner. A single contract is established between the owner and the architect-contractor or design-

builder. Omni has experience with both scenarios and has contracted with owners and with general contractors to achieve this streamlined method of project delivery for two West Virginia schools as well as numerous private Owners. Additionally, Senior Principal, Richard T. Forren is a member of the West Virginia Design Build Board.

Construction Administration

Omni has worked on projects for only the construction phase of the total building life. This would include projects designed by another firm who needs local supervision or a "pre-designed" project from a national restaurant or store, which requires local implementation. Omni has also performed bank or financing inspections to determine the completion status of the project for periodic applications for payment.

ORGANIZATIONAL CHART



Celebrating 40 years of design excellence.

PRINCIPAL OWNERSHIP

Richard T. Forren, President
Adam L. Rohaly, Vice President
John I. Rogers, III Member
David A. Stephenson, Sec/Tr

PRINCIPAL ARCHITECTS

Jason M. Miller
David E. Snider

REVIT OPERATORS

Reuben Losh, BIM Manager
Rich Greathouse
Dan Baldwin
Greg Morris

ARCHITECT EMERITUS

Stephen A. Barnum Founding
Member | Est 1980

INTERN ARCHITECTS

Jaime Ryan, LEED AP
Joshua Shinn
Sarah Bush
Mariah Falcon

PROJECT SUPPORT

Shelly McLaughlin-Snider, Project Administrator
Eileen Layman, CPA
Colbi Dick, Accounting Manager
Lisa Bombardiere, Administrative Assistant
Katie Nunan, Marketing
Riley Tonkery, FSU Student Intern

TECHNICAL EXPERIENCE

Upgrading existing technology and utilizing the latest design tools available is a key component of our business model. Technology facilitates innovative design, results in economic benefits for our clients, and enhances communication with clients and consultants.

BIM: Building Information Modeling

In 2006, Omni Associates began the transition from traditional CAD software to Autodesk® Revit® Building Information Modeling (BIM). We immediately recognized the basic benefits to both designers and owners: more efficient, cost-effective project delivery, and an accurate building model that can later assist in both energy analysis and building management.

Omni implemented the use of BIM as our primary software platform for all projects in 2006. In utilizing BIM, we discovered the real depth of its value.

With a virtual model of the building, clients can clearly see the design intent as the project progresses and design options can be explored with greater ease than ever before.

Sharing the model among all disciplines as the design progresses allows early input from all of the design professionals involved, resulting in efficient designs.

Creating a building in the virtual world before constructing it in the real world allows the design team to anticipate conflicts and objections before they arise, eliminating many issues which could result in project change orders or Requests For Information from the contractor.

Omni is proud to show that we do not just use Revit software, but we are adept at utilizing it, and can provide skilled support as needed.

Omni Project Manager, Reuben Losh is now an Autodesk Revit Architecture 2011 Certified Associate.

Electronic Submission of Project Documents

Since 2007, Omni has utilized a web-based solution for secure file storage and project team collaboration. The site employs a simple and intuitive interface, similar to social networking sites, that is much easier to navigate than an FTP site. This encourages communication among team members while leveraging the security of data encryption and controlled access.

This tool supports building information modeling (BIM) workflows and can be used throughout all phases of a project for such tasks as file storage, RFI and Shop Drawing management, and project milestone tracking. Since these processes are electronic, the time it would take to mail or fax documents is eliminated and project information is centralized. Project information is hosted on secure third-party servers, which means that it is available to team members from wherever they have internet access. The Owner and Architect work together to determine to whom and to what extent site access is given.

PROJECT TEAM

In order to guarantee a constant level of dedication and commitment, it is Omni's philosophy and practice that a Principal remains with the project from commencement to closeout. It is essential that a single individual be intimately involved in every aspect of the process to ensure the client's needs are being met in a timely and cost effective manner and that the Contract Documents reflect the intent as well as the content of the design.

Omni Associates - Architects

Jason Miller, AIA, NCARB

Principal in Charge

Mr. Miller has over 18 years of experience as a licensed architect and Project Manager and has been a Principal in Charge of projects for over 10 years. Known as one of Omni's most talented designers and project managers, Mr. Miller has demonstrated his skills successfully on projects for a Confidential Federal Agency, WVU Medicine, Mylan Pharmaceuticals and Pierpont C&TC. As the Principal in Charge, his primary responsibility is to guide and coordinate the team in the development the overall concept of design by performing technical tasks which include project space programming; schematic layout of functional spaces; aesthetic design and development; and concept and coordination of building systems such as mechanical, electrical, plumbing and fire protection.

Omni Associates - Architects

Joshua Shinn

Project Manager

Mr. Shinn joined Omni in 2020 after working for 10 years as a Planner and Construction Manager for West Virginia University. In his brief time at Omni, Mr. Shinn has demonstrated his vast experience as a PM on such projects as the WVU Engineering Sciences G85 Lab project, the Pierpont Community and Technical College's Facilities Master Plan and the renovation of the campus data center for the Community College of Allegheny County. Mr. Shinn's previous work at WVU included work on projects such as Eiesland Hall, Chitwood Hall, and White Hall.

CONSULTANTS

For each project we undertake at Omni, we carefully staff our teams, including in-house professionals and outside consultants, with the type of personnel we would want working for us, to work for you. Omni has specifically chosen **H.F. Lenz Company to provide MEP, Structural and Civil Engineering services** for this project. Omni and Lenz share a long history of successful project collaboration.

H.F. Lenz Company

Steven J. Gridley

Principal in Charge of MEP/FP System Engineering

Mr. Gridley is responsible for the master planning and design of college and university facilities, health care facilities, industrial facilities, data operations centers, commercial office buildings, utility systems, and renovation/retrofit of historic buildings for private, public, and governmental agencies. With over 40 years of experience in Mechanical Engineering and over 32 years of experience in Project Management, Mr. Gridley will oversee the project design and provide QA/QC for our project team. He has a long resume of successful project experience and a strong personal commitment to remaining directly involved with his projects and his clients to foster long-term working relationships.

H.F. Lenz Company

John M. Weiland, P.E., CEM, LEED AP

Project Engineer

Mr. Weiland specializes in the design of HVAC systems for colleges and universities and healthcare facilities. His responsibilities include client contact, project scheduling, preparation of reports and cost estimates, coordination and supervision of project design teams and other projects management functions. His duties include design calculations, equipment selection, schematic and construction document design, specification writing, and life cycle cost analyses.

PROJECT TEAM cont'd

H. F. Lenz Company

**Joel C. Shumaker, P.E., C.B.I.E.,
LEED AP**

Principal/Electrical Engineer

Mr. Shumaker is a Principal of H.F. Lenz Company with 34 years of experience with HFL. He is responsible project scheduling, preparation of reports and cost estimates, coordination and supervision of project design team. Mr. Shumaker is an electrical engineer and is experienced in the design of electrical systems for both new buildings and building retrofits for educational, health care, commercial, government, industrial, residential, and utility-related facilities.

H. F. Lenz Company

**Ryan W. Buff, P.E., C.E.M.
Mechanical Engineer**

Mr. Buff is experienced in the master planning and design of research facilities, health care facilities including acute care hospitals, and medical office buildings. He is also experienced in the design of heating, ventilating, and air conditioning systems including steam, hot water, chilled water, refrigeration, and air distribution systems. Mr. Buff's involvement has encompassed field survey of existing conditions, engineering analyses, systems design, and the preparation of cost estimates. He has been involved in several energy conservation studies.

H. F. Lenz Company

**Jeffrey L. Jarvis
Plumbing and Medical Gas Designer**

Mr. Jarvis is highly experienced in all aspects of the design and commissioning of plumbing systems including medical gas systems, acid waste and vent, plumbing fixture requirements, decontamination chambers and complete plumbing system requirements for health care, correctional, institutional, industrial, educational, and commercial facilities.

He also has several years of hands-on experience with a variety of field plumbing healthcare systems including laboratory, medical gas, and balancing return systems. Mr. Jarvis coordinates with other trades, municipal fire protection authorities, utility companies, and with the Project Engineer and project Architect.

H.F. Lenz Company

**Gregory D. Rummel, CPD
Plumbing/Fire Protection Designer**

Mr. Rummel has designed complete plumbing and fire protection systems for colleges, office buildings, military installations, prisons, hospitals, and industrial facilities. He is extremely knowledgeable of NFPA Codes and experienced in the design of wet, dry, preaction, FM200, and deluge fire protection systems.

H. F. Lenz Company

**David A. Blackner, P.E.
Principal/Structural Engineer**

Mr. Blackner is responsible for the complete layout, design and detailing of building structural systems. He has diverse experience in the structural analysis and design of projects involving steel, engineered masonry, reinforced cast-in-place concrete, pre-cast/pre-stressed concrete and wood frame structures. He is proficient in multiple analysis platforms (STAAD, RAM Structural Systems, 3-D Analysis and Finite Elements). He also oversees structural coordination with other trades, as well as conducting periodic site visits related to the structural work.

H. F. Lenz Company

**Keith A. Gindlesperger, P.E.
Principal/Civil Engineer**

Mr. Gindlesperger is experienced in site planning and design for numerous types of facilities. His responsibilities in these areas include site design, site utilities, parking and traffic circulation, roadway design, stormwater management, and erosion and sedimentation control.

JASON M. MILLER, AIA, NCARB

EDUCATION

Master of Architecture: Virginia Polytechnic Institute, 2004

REGISTRATION / PROFESSIONAL AFFILIATIONS

American Institute of Architects, Member

American Institute of Architects—West Virginia, Member

Accredited Learning Environment Planner (ALEP)

U.S. Green Building Council, Firm Membership Associated Builders and Contractors,

Firm Membership Registered in West Virginia

West Virginia Board of Architects License [REDACTED]

State of Pennsylvania License # [REDACTED]

GENERAL EXPERIENCE

Known as one of Omni's most talented and creative designers through his use of varied material selection and application. Jason has the unique ability to visualize a structure early in the design process and blend the design to the surrounding environment. Jason joined Omni Associates in 2007 and became a Principal Architect in 2015.

Architectural practice has included diverse project types including educational facilities, government and military facilities, office buildings, health care facilities, commercial design, multifamily and single-family housing, and custom fabrication.

SELECT PROJECT EXPERIENCE

Dick's Sporting Goods, Corporate Daycare Center, Coraopolis, PA:

Principal Architect – Provided conceptual and schematic design for a 15,000 SF shell building on an existing corporate campus for a new employee daycare center. Prepared construction documents and provided construction administrations services. Provided schematic programming to coincide with the eventual interior fit-out.

West Virginia University: Blanchette Rockefeller Neurosciences Institute, Morgantown, WV

Interior fit-out of 11,000 SF of unfinished office and laboratory space.

Mylan Pharmaceuticals: Research and Development Center, Morgantown, WV
Assisted the Principal Architect with design documents for the 153,000 SF facility housing laboratories, production rooms and offices.

WV Army Reserve National Guard, Buckhannon Readiness Center, Buckhannon, WV:

Project Architect – Assisted the Principal Architect in the developing building programming and conceptual design for the 37,000 SF facility. Developed construction and bidding documents and performed construction administration services.

United States General Services Administration, Charleston GSA Building, Charleston, WV:

Project Architect – Assisted the Principal Architect in the developing building programming and conceptual design for the 20,000 SF federal facility. Developed construction and bidding documents and performed construction administration services.

JOSHUA R. SHINN, NCARB

EDUCATION

Master of Architecture: University of Tennessee, 2007

B.A. Art History: West Virginia University, 2000

RELEVANT EXPERIENCE

Omni Associates – Architects: 2020-Present
Project Manager

WVU Engineering Sciences Building Lab G85

Renovation of Fabrication and Design Lab

With H.F. Lenz

Morgantown WV

Pierpont Community and Technical College Master Plan

Multi-campus, multi-building assessment and planning

Fairmont, WV

Community College of Allegheny County

Renovation of Central Campus Data Center

With H.F. Lenz

Pittsburgh, PA

West Virginia University – Planning, Design, Construction, and Scheduling: 2010-2020
Planner and Construction Project Manager

- Worked closely with individual College administrations and FM to provide overall management and administration of projects from Schematic Design through end of construction. Provided oversight of construction to assure spaces were constructed per the Colleges requirements and budgets.

WVU Engineering Sciences Building Lab G86

Renovation of Advanced Prototyping Lab

With H.F. Lenz

Morgantown WV

WVU Martin Hall Incubator Lab

College of Media

Multipurpose Audio Visual and Classroom Space, Offices

Morgantown, WV

Oglebay Hall Forensics Lab and Classroom Renovation

New Ground Floor Forensic Lab and Renovation of Computer Classroom

Grant Funded

Morgantown, WV

WVU Eiesland Hall IEP Classroom Renovation and HVAC Replacement

With H.F. Lenz and Omni Associates – Architects

New Third/Fourth Floor Classrooms and replacement of the HVAC system

Morgantown, WV

Numerous other lab, office, and classroom projects for the Eberly College in buildings including Woodburn Hall, Chitwood Hall, Brooks Hall, Armstrong Hall, Hodges Hall, Life Sciences Building, Chemistry Research Lab, Oglebay Hall, Stansbury Hall, and Eiesland Hall.



Steven J. Gridley, P.E.

Principal-in-Charge of MEP/FP System Engineering

Mr. Gridley is responsible for the master planning and design of college and university facilities, health care facilities, industrial facilities, data operations centers, commercial office buildings, utility systems, and renovation/retrofit of historic buildings for private, public, and governmental agencies. With over 40 years of experience in Mechanical Engineering and over 32 years of experience in Project Management, Mr. Gridley will oversee the project design and provide QA/QC for our project team. He has a long resume of successful project experience and a strong personal commitment to remaining directly involved with his projects and his clients to foster long-term working relationships

EDUCATION

Bachelor of Science, Architectural Engineering, 1979, Pennsylvania State University

EXPERIENCE

H.F. Lenz Company 1979-Present

PROFESSIONAL REGISTRATION / CERTIFICATION

Licensed Professional Engineer in all 50 States and the District of Columbia

PROFESSIONAL AFFILIATIONS

First Place, 1987 ASHRAE International Energy Award • National Society of Professional Engineers • Pennsylvania Society of Professional Engineers • American Society of Heating, Refrigerating and Air-Conditioning Engineers • International Code Council • Professional Engineers in Private Practice • National Fire Protection Association

PROJECT EXPERIENCE

West Virginia University – Morgantown, West Virginia

- › PIC for over 100 projects in the past 25 years
- › Robert C. Byrd Health Sciences Center Engineering Evaluation, master plan and renovations
- › Ag Science Building addition and renovation
- › New Forestry Greenhouse
- › White Hall, phased renovation of the 95,000 sq.ft. Physics Lab Building

University of Pittsburgh - Pittsburgh, Pennsylvania

- › Phased renovation of Benedum Hall, Swanson School of Engineering building and new 42,000 sq.ft. Mascaro Center for Sustainable Innovation addition - LEED Gold
- › Life Sciences Complex – renovations to various buildings and building systems for the 200,000 sq.ft. complex
- › Grad School of Public Health - Master plan and renovations to the 173,600 sq.ft. Parran Hall and 63,900 sq.ft. Crabtree Hall buildings

Duquesne University - Pittsburgh, Pennsylvania

- › New 80,000 sq.ft. College of Osteopathic Medicine Building and Gumberg Library Renovation - Current Project

Yale University and Yale School of Medicine - New Haven, Connecticut

- › Multiple laboratory renovation projects under several consecutive term contracts

CDC/NIOSH - Morgantown, West Virginia and Pittsburgh, Pennsylvania

- › Multiple laboratory renovation projects and infrastructure studies and upgrades under consecutive term contracts



John M. Weiland, P.E., CEM, LEED AP

Project Engineer

Mr. Weiland specializes in the design of HVAC systems for colleges and universities and healthcare facilities. His responsibilities include client contact, project scheduling, preparation of reports and cost estimates, coordination and supervision of project design teams and other projects management functions. His duties include design calculations, equipment selection, schematic and construction document design, specification writing, and life cycle cost analyses.

EDUCATION

Bachelor of Architectural Engineering, 2002, Pennsylvania State University

EXPERIENCE

H.F. Lenz Company 2002-Present

PROFESSIONAL REGISTRATION / CERTIFICATION

Licensed Professional Engineer in Pennsylvania • Certified Energy Manager • LEED Accredited Professional

PROFESSIONAL AFFILIATIONS

ASHRAE – Johnstown, PA Chapter

PROJECT EXPERIENCE

PA State Police - Greensburg, Pennsylvania

- › New 50,000 sq.ft. DNA Lab Building that houses DNA Lab space, Lab Offices, Administration Offices, Evidence Storage and Evidence Control

West Virginia University - Morgantown, West Virginia

- › Ag Science Building addition and renovation
- › New Forestry Greenhouse
- › White Hall, phased renovation of the 95,000 sq.ft. Physics Lab Building

St. Vincent College - Latrobe, Pennsylvania

- › Feasibility Study and Design services for the renovation and addition to the Science Complex - LEED Gold

Yale University - New Haven, Connecticut

- › Greeley Memorial Laboratory: renovation of 4,487 sq.ft. North Lab and 2,015 sq.ft. Green Chemistry Lab
- › Wright Nuclear Structures Laboratory
- › Dunham Psychiatry Laboratory Renovation
- › Yale Commons Telecom HVAC Upgrade: Upgrade and consolidate six HVAC systems serving the telecom switch room into two new fully redundant HVAC systems

University of Pittsburgh at Johnstown - Johnstown, Pennsylvania

- › Renovation of the 66,000 sq.ft. Engineering & Science Building and a new 7,000 sq.ft. addition

University of Pittsburgh - Pittsburgh, Pennsylvania

- › Renovation of Benedum Hall, 400,000 sq.ft. lab building- LEED Gold
- › New 42,000 sq.ft. Mascaro Center for Sustainable Innovation building housing wet and dry lab - LEED Gold
- › Life Sciences Complex – renovations to various buildings and building systems for the 200,000 sq.ft. complex

CDC/NIOSH - Morgantown, West Virginia and Pittsburgh, Pennsylvania

- › Multiple laboratory renovation projects and infrastructure studies and upgrades under consecutive term contracts

H.F. LENZ COMPANY

RESUME



Joel C. Shumaker, P.E., C.B.I.E., LEED AP

Principal/Electrical Engineer

Mr. Shumaker is a Principal of H.F. Lenz Company and specializes in Higher Education projects. He has 34 years of experience with HFL. He is responsible for client contact, project scheduling, preparation of reports and cost estimates, coordination and supervision of project design teams, and other project management functions.

Mr. Shumaker is an electrical engineer and is experienced in the design of electrical systems for both new buildings and building retrofits for educational, health care, commercial, government, industrial, residential, and utility-related facilities. He is experienced in the design of power distribution systems; emergency power systems and monitoring; uninterruptible power supplies; lighting and emergency lighting systems; fire alarm systems; nurse call; security; sound; and telephone systems.

EDUCATION

Bachelor of Science, Electrical
Engineering Technology 1993,
University of Pittsburgh at Johnstown

EXPERIENCE

H.F. Lenz Company 1985-Present

PROFESSIONAL REGISTRATION / CERTIFICATION

Licensed Professional Engineer in
Pennsylvania (License [REDACTED])

Also Licensed in Connecticut,
Delaware, Maryland, New York,
Vermont, Virginia and West Virginia

PROFESSIONAL AFFILIATIONS

Pennsylvania Society of Professional
Engineers, Johnstown Chapter
Secretary • National Society of
Professional Engineers • Keystone
Chapter of Association of Physical
Plant Administrators • International
Society of Pharmaceutical Engineers
(ISPE)

PROJECT EXPERIENCE

CDC/NIOSH - Morgantown, West Virginia and Pittsburgh,
Pennsylvania

- › Multiple laboratory renovation projects and infrastructure studies and upgrades under consecutive term contracts

U.S. Department of Agriculture - Morgantown, West Virginia

- › Tenant-fit out of approximately 40,000 sq.ft. of a GSA-leased building - LEED Certified

Evoqua Water Technologies - Pittsburgh, Pennsylvania

- › New 18,000 sq.ft. building with wet lab and office space

Mylan Pharmaceuticals - Morgantown, West Virginia

- › Multiple projects involving design of laboratories, clean rooms, warehouses, offices and storage space

University of Pittsburgh - Pittsburgh, Pennsylvania

- › Phased renovation of the 400,000 sq.ft. Benedum Hall and new 42,000 sq.ft. Mascaro Center for Sustainable Innovation building housing wet and dry lab - LEED Gold
- › Life Sciences Complex - renovations to various buildings and building systems for the 200,000 sq.ft. complex
- › Grad School of Public Health - Master plan and renovations to the 173,600 sq.ft. Parran Hall and 63,900 sq.ft. Crabtree Hall buildings

University of Pittsburgh at Johnstown - Johnstown, Pennsylvania

- › Engineering and Science Building renovations and addition and new chemical engineering building addition



Ryan W. Buff, P.E., C.E.M.

Mechanical Engineer

Mr. Buff is experienced in the master planning and design of research facilities, health care facilities including acute care hospitals, and medical office buildings. He is also experienced in the design of heating, ventilating, and air conditioning systems including steam, hot water, chilled water, refrigeration, and air distribution systems. Mr. Buff's involvement has encompassed field survey of existing conditions, engineering analyses, systems design, and the preparation of cost estimates. He has been involved in several energy conservation studies.

EDUCATION

Bachelor of Architectural Engineering, 2005,
The Pennsylvania State University

EXPERIENCE

H.F. Lenz Company 2005-Present

PROFESSIONAL REGISTRATION / CERTIFICATION

Licensed Professional Engineer
Pennsylvania and Ohio • Certified
Energy Manager, sponsored by the
Association of Energy Engineers

PROFESSIONAL AFFILIATIONS

American Society of Heating,
Refrigerating and Air-Conditioning
Engineers • Pittsburgh Chapter -
Pennsylvania Society of Professional
Engineers

PROJECT EXPERIENCE

Yale University and Yale School of Medicine - New Haven, Connecticut

- › More than 15 Laboratory Projects including the following
- › Wright Nuclear Structures Laboratory: study, cost estimates, and renovation of 52,000 sq.ft. lab and office space
- › Electron Accelerator Laboratory: renovations of 65,000 sq.ft. of lab and office space
- › W-ISTC EM Core: Renovate electron microscope lab facility
- › W-ABC glass wash facility upgrade
- › W-ABC Freezer Farm: cooling, monitoring, and exhaust system for 350 SF freezer and cryogen storage room
- › W-SRC clean room - Class 10,000 clean room new build
- › 300 George St. 2nd floor laboratory renovation: multi-discipline fit-out of entire 2nd floor for future lab tenant
- › 300 George St. 6th floor laboratory renovation: multi-discipline fit-out of entire 6th floor lab tenant
- › Greeley Memorial Laboratory: Chemistry Lab & Offices
- › BCMM 437 Laboratory Microscope
- › BCMM B03 Laboratory Microscope Rooms
- › TAC NL MRI Upgrade

WVU Medicine, Ruby Memorial Hospital - Morgantown, West Virginia

- › Design of New 10,000 sq.ft. Clinical lab - current project
- › New 176,000 sq.ft. addition and 47,000 sq.ft. renovations and morgue

Veterans Affairs Medical Center - Philadelphia, Pennsylvania

- › Renovation of the clinical lab in 10 phases and maintain operations during construction

AHN West Penn Hospital - Pittsburgh, Pennsylvania

- › New Melanoma/Skin Care Research Lab - current project
- › Grossing and Histology Lab
- › Evaluation of HVAC and electrical systems for upgrades



Jeffrey L. Jarvis

Plumbing and Medical Gas Designer

Mr. Jarvis is highly experienced in all aspects of the design and commissioning of plumbing systems including medical gas systems, acid waste and vent, plumbing fixture requirements, decontamination chambers and complete plumbing system requirements for health care, correctional, institutional, industrial, educational, and commercial facilities. He also has several years of hands-on experience with a variety of field plumbing healthcare systems including laboratory, medical gas, and balancing return systems. Mr. Jarvis coordinates with other trades, municipal fire protection authorities, utility companies, and with the Project Engineer and project Architect.

EDUCATION

Associate Degree, Specialized Technology, Mechanical Drafting, 1988, Hiram G. Andrews Center, Johnstown, PA

EXPERIENCE

H.F. Lenz Company 1989-Present •
L. Robert Kimbell and Associates, 03/89 - 09/89, US Government, The Pentagon, 06/85 - 08/85

PROFESSIONAL REGISTRATION / CERTIFICATION

ASSE 6005 Certified Medical Gas Specialist •
American Society of Plumbing Engineers, Medical Gas Professional Healthcare Organization,

PROJECT EXPERIENCE

WVU Medicine, Ruby Memorial Hospital - Morgantown, West Virginia

- › Design of New 10,000 sq.ft. Clinical lab (current project)
- › New 176,000 sq.ft. addition and 47,000 sq.ft. renovations and morgue

Children's National Medical Center - Washington, DC

- › New 150,000 sq.ft. addition and 5,200 sq.ft. renovations to create a new Animal Research including BSL-1 and BSL-2 spaces

MetroHealth - Cleveland, Ohio

- › New GMP (Good Manufacturing Practice) Cleanroom Facility

UPMC Altoona - Altoona, Pennsylvania

- › 600 sq.ft. morgue relocation
- › T3 clinical lab renovation
- › T2 pharmacy renovation with both hazardous and non-hazardous clean rooms
- › Laboratory expansion and renovation, CSR expansion and renovation, surgical suite expansion

Veterans Affairs Medical Center - Philadelphia, Pennsylvania

- › Full Dental Clinic renovation, which required a temporary dental lab to be built prior to the demolition of the old lab

Pennsylvania Department of Labor - Pittsburgh Job Corps

- › New Medical/Dental Building including simulation labs

University of Pittsburgh - Pittsburgh, Pennsylvania

- › Various projects involving research labs, office facilities, and conference spaces at the main and branch campuses



Gregory D. Rummel, CPD

Plumbing/Fire Protection Designer

Mr. Rummel has designed complete plumbing and fire protection systems for colleges, schools, office buildings, hospitals, prisons, laboratories, industrial facilities, and military installations. He is fully knowledgeable of NFPA codes and is experienced in the design of wet, dry, preaction, FM200, and deluge fire protection systems. He is responsible for plumbing and sprinkler system design, layout, and calculations; selection and sizing of equipment; cost estimates; and site survey work. Mr. Rummel supervises drafting personnel; coordinates the plumbing design with utility companies, with other trades, and with the Project Engineer and Project Architect; and is responsible for assembling complete and accurate plumbing bid documents which meet H.F. Lenz Company standards.

EDUCATION

Bachelor of Science, Mechanical Engineering Technology, 2000, Point Park College

Associate in Specialized Technology 1984, Architectural Drafting and Construction with CAD Technology, Triangle Institute of Technology

EXPERIENCE

H.F. Lenz Company 1989- Present •
Newport News Ship Building 1984-1989

PROFESSIONAL REGISTRATION / CERTIFICATION

Certified in Plumbing Design, ASPE

PROJECT EXPERIENCE

Pennsylvania State Police - Greensburg, Pennsylvania

- › New DNA Laboratory
- › New 31,000 sq.ft. Headquarters

New Bolton Center (NBC) Feasibility Study - Chester County, Pennsylvania

- › Feasibility study for a 55,000 sq.ft., \$52 M facility which will provide diagnostic, forensic, and research support services to the PA Dept of Agriculture through the PA Animal Diagnostic Laboratory System (PADLS) and the PA Equine Toxicology and Research Laboratory (PETRL)

DOE/NETL - Morgantown, West VirginiaPittsburgh, Pennsylvania, Albany, Oregon

- › Multiple laboratory renovation projects and infrastructure studies and upgrades under consecutive term contracts

U.S. Drug Enforcement Agency - Pittsburgh, Pennsylvania

- › New 50,000 sq.ft. office building and parking garage – LEED Certified

The Pennsylvania State University - University Park, Pennsylvania

- › College of Agricultural Sciences - Multiple renovations, infrastructure upgrades, laboratory spaces and greenhouse projects
- › New 132,000 sq.ft. Erikson Food Science Building
- › Swine Research facility renovations
- › NARCO Building – Steady Thermal Aero Research Turbine (START) Lab
- › Nano Tech Modular Clean Room Lab



David A. Blackner, P.E.

Principal/Structural Engineer

Mr. Blackner is responsible for the complete layout, design and detailing of building structural systems. He has diverse experience in the structural analysis and design of projects involving steel, engineered masonry, reinforced cast-in-place concrete, pre-cast/pre-stressed concrete and wood frame structures. He is proficient in multiple analysis platforms (STAAD, RAM Structural Systems, 3-D Analysis and Finite Elements). He also oversees structural coordination with other trades, as well as conducting periodic site visits related to the structural work.

EDUCATION

Associate, Mechanical Engineering Technology, 1988, Pennsylvania State University

Associate, Architectural Engineering Technology, 1988, Pennsylvania State University

EXPERIENCE

H.F. Lenz Company 1998-Present •
L. Robert Kimball & Associates 1995-1998 •
George D. Zarnias Developer 1989-1995

PROFESSIONAL REGISTRATION / CERTIFICATION

Licensed Professional Engineer in Pennsylvania, Arizona, Colorado, Connecticut, Delaware, Georgia, Maine, Maryland, Massachusetts, New York, and North Carolina

MEMBERSHIPS

Member of American Institute of Steel Construction (AISC), Member of American Concrete Institute (ACI), Member of American Society of Civil Engineers (ASCE), The Engineer's Society of Western Pennsylvania (ESWP), Pennsylvania Society of Professional Engineers - Johnstown, Chapter, Engineer of the Year Award 2005

PROJECT EXPERIENCE

Sigma-Aldrich Corporation - Bellefonte, Pennsylvania

- › Structural design to support a complete roof-mounted lab exhaust system upgrade; the design extended building columns through the roof to accommodate structural steel framing to support mechanical equipment, elevated walkways, and maintenance/testing platforms

Mylan Pharmaceuticals - Morgantown, West Virginia

- › Multiple projects involving design of laboratories, clean rooms, warehouses, offices and storage space

Carnegie Mellon University - Pittsburgh, Pennsylvania

- › Mellon Institute Building - various renovations throughout the 350,000 sq.ft. structure that houses research laboratories for the Biology and Chemistry Departments

Penn State University - University Park, Pennsylvania

- › New 132,000 sq.ft. Food Science Building containing a dairy manufacturing facility, research and teaching laboratories, classrooms, and academic offices

Slippery Rock University New Science Building - Slippery Rock, PA

- › New three-story building utilizing composite concrete slabs on metal deck, steel beams and columns, k-joists and long span joists. The façade consists of masonry walls and curtain walls

University of Pittsburgh at Johnstown - Johnstown, Pennsylvania

- › Engineering and Science Building renovations and addition

Repurposing of Former Sony Plant - Mount Pleasant, Pennsylvania

- › Structural design services for master planning and renovations of this 2.8 million sq.ft. former manufacturing plant into tenant space for industrial tenants



Keith A. Gindlesperger, P.E.

Principal/Civil Engineer

Mr. Gindlesperger holds a bachelor's degree in Civil Engineering Technology with experience in site planning and design for numerous types of industrial, commercial, and government facilities. His responsibilities in these areas include site design, site utilities, parking and traffic circulation, roadway design, stormwater management, and erosion and sedimentation control. He also has experience working with local municipalities enforcing local planning and zoning codes. He has completed continuing education in stormwater management.

EDUCATION

Bachelor of Science, Civil Engineering Technology, 1998, University of Pittsburgh at Johnstown

EXPERIENCE

H.F. Lenz Company 1998 – Present

PROFESSIONAL REGISTRATION / CERTIFICATION

Licensed Professional Engineer in Pennsylvania, Maryland, Oregon, Virginia and West Virginia

PROJECT EXPERIENCE

West Virginia University - Morgantown, West Virginia

- › Site design for the new Ag Sciences Building II; included site utilities, grading and drainage plan, stormwater management plan, erosion and sedimentation control plan, WV DEP Permitting, Morgantown Utility Board Approvals.

United Parcel Service, Master Paving & Concrete Rehabilitation Programs - Various Pennsylvania and West Virginia Locations

- › Evaluation of existing asphalt and concrete pavement at multiple UPS facilities throughout the Laurel Mountain District
- › Recommended a pavement management and rehabilitation program to repair/replace existing pavement or preserve the existing where possible

Commerce Crossing at Westmoreland - Sewickley Township, Pennsylvania

- › Civil/site design for a new 256-acre industrial park including design of the infrastructure and creation of pad-ready sites to support large industrial type structures

DRS Laurel Technologies - Johnstown, Pennsylvania

- › Site design for a new 130,000 sq.ft. manufacturing facility including parking and traffic circulation, site lighting, roadway design, drainage design, stormwater management

Robert Morris University – Moon Township, Pennsylvania

- › Design and implementation of campus-wide comprehensive GIS mapping of all site utilities
- › Design underground electric/telecom ductbank
- › Campus loop road extension
- › New 460-stall parking lot
- › Extend 12-in. campus waterline loop by 5,200 LF

PROJECT APPROACH

At Omni, we have incorporated a rigorous design approach to projects that allow us to identify the unique attributes needed to bring a project like the assessment and potential renovation of multiple laboratory testing facilities for the state of West Virginia. A clear perception of how these facilities either need updated or combined with other facilities will result from our attention to detail. This means documenting and understanding the needs of the testing facilities stakeholders and structuring that into a cohesive design approach that resolves problematic issues such as operations, ADA accessibility, develops spatial recognition and department identity while promoting clean and workable spaces.

Based upon the background given and the project goals we at Omni believe this project has great potential. As WV State agencies we recognize that your stewardship of cost is of utmost importance, we anticipate working closely with our cost estimators throughout the process to establish necessary baseline costs and contingencies that take into account product availability and inflation. We are at a time where creative approaches and alternate back-up material selections can prove necessary and are not uncommon.

Goal Objective #1

Omni anticipates engaging in information gathering among the different WV State testing agencies to help us better understand how the different agencies use laboratory space and equipment. In this we should be able to extract necessary data to compile results for inefficiencies, deficiencies, spatial requirements, likely adjacencies of lab space, common use areas, etc. This will allow Omni to develop solid programming to be used for space planning purposes which in turn will help identify facility needs. In most cases combining facility needs and usage leads to less redundancies and better use of building resources.

For the entirety of the project Omni will employ consultants that are familiar with laboratory procedures and equipment requirements. This will include our Mechanical, Electrical and Plumbing Engineers along with specialty consultants to assist with equipment requirements and lab casework selection recommendations to fit the criteria obtained from the facility end-user and our gathered information regarding all spaces.

Goal Objective #2

Omni will provide an overall assessment of each laboratory space and associated building. This will include the following assessments:

- Physical assessment of the space and associated buildings
- HVAC condition and age
- HVAC temp controls
- Lighting upgrades and lighting controls
- Code related items
- Casework to include any hazardous storage
- Hoods and the need for upgrades pertaining to intended use
- Interior materials including flooring
- Baseline cost estimations for improvements and/or relocation
- Associated office space and ancillary space for meetings

Goal Objective #3

Omni will evaluate relocating WV State laboratory facilities to other existing building spaces that might or might not need renovated to accommodate the agency's requirements for laboratory space. We will also evaluate available real estate in the vicinity in conjunction with the noted state agencies and divisions in order to properly determine if a feasible building could be constructed to meet the needs of combining state testing agencies under one roof or multiple. Omni will help determine if there is an economy of scale to building new versus multiple existing building renovations.

Our company has assessed many facilities in the past for clients that were faced with either renovating existing space, adding on to an existing building or building a new building to accommodate their needs.

PROJECT APPROACH cont'd

Examples:

- WVU Blanchett Rockefeller Neuroscience Institute
- WVU School of Agriculture Meat Processing Labs

- Mylan Pharmaceuticals Headquarters
- Mylan Pharmaceuticals Granulation Addition
- Mylan Warehouse/R & D
- Mylan Collins Ferry Lab Expansion
- Over 70 projects small and large with

Mylan

Goal Objective #4

Omni will provide a written report compiling our findings for the previous three goal objectives. This report will depict individual assessments of laboratory spaces and their associated buildings. We will include photographs taken from site visits for physical assessments, diagrammatic information to emphasize data gathered from the state agencies and programmatic diagrams of spaces and their relationships within existing buildings. We will also include general cost estimates looking at direct costs and impacts based on renovations and/or new construction to include escalations for pandemic related delays and increases.

For example, we are currently finalizing a Master Facilities Plan for Pierpont Community and Technical College in Fairmont, WV that looked at the assessment of their buildings along with their program needs and how actual usage of current facilities compares to community and student needs. This led to looking at expansion for certain offered programs as well as rearranging room schedules, etc. We also looked at rough costs for expanding certain key programs with new space and renovated space.

MYLAN PHARMACEUTICALS

North Expansion



SERVICES PROVIDED

Architectural Design

DELIVERY METHOD

Design-Build

PROJECT SIZE

513,000 SF

PROJECT COST

\$103 million

YEAR COMPLETED

2006

AWARDS | RECOGNITIONS

Excellence in Construction Award

for Mega Projects: More than

\$100 Million—2007

Mylan Pharmaceuticals is the largest generic drug manufacturer in the United States and experienced the need to increase productivity. Mylan Pharmaceuticals planned a major expansion to their manufacturing facility in Morgantown, WV.

The overall expansion created a new flow of material and process that not only increased production capacity but reorganized the process and made for better work flow. The new work involves new receiving and shipping docks with associated high volume warehousing. The manufacturing steps from raw material to finish product including sampling, weighing, blending, tableting and packaging are all included. Specialized processes such as fluidization, capsulation and granulation are organized into the work flow as well. Quality control laboratories and operating procedure rooms were designed to be integral with the manufacturing

The five-story addition was started in August of 2002 and was completed in the fall of 2006 as part of a design-build process. The design included the ability to phase various portions of the completion to allow for installing, validating and utilizing manufacturing equipment in stages. This provided immediate production needs while creating room for future growth and implementation of new equipment. The increased staffing needs were met with new training rooms, locker spaces and a 300 seat cafeteria including indoor and outdoor dining space.

MYLAN PHARMACEUTICALS

Executive Offices—Morgantown, West Virginia



SERVICES PROVIDED

Architectural &
Engineering Services

DELIVERY METHOD

Design-Build

PROJECT SIZE

63,000 SF

YEAR COMPLETED

2000

AWARDS | RECOGNITIONS

Excellence in Design from WV
Society of the American Institute
of Architects—Honorable Mention

The Omni Associates designed a 63,000 SF four story addition for the existing Mylan Pharmaceuticals Plant. The project was "fast track" design meaning the construction drawings were made during the actual construction. The Omni Associates stayed ahead the Contractor and enabled the project to be completed on time and within the budget.

The addition contains executive offices and board room, training and conference rooms, cafeteria and kitchen, employee locker rooms, research and development area and storage warehouse space. A skywalk connects the second floor to the already existing executive offices. The outdoor dining/meeting balcony is located on the third floor.

MYLAN PHARMACEUTICALS

Research & Development Center



SERVICES PROVIDED

Architectural Design

DELIVERY METHOD

Design-Build

PROJECT SIZE

153,000 SF

PROJECT COST

\$14.8 million

YEAR COMPLETED

2009

Mylan Pharmaceuticals 14.8 million dollar Research and Development facility was constructed to help the expanding generic drug manufacturer grow by moving many non production functions into a separate state-of-the-art building. The existing plant was in need of more room but was unable to grow due to its confined site. The new building was sited several miles away on a sloping riverside area. Along with research and laboratory programs, the new building holds the sales and marketing teams, the accounting and information system departments and an expansive warehouse.

The site, due to its severe slope to the river, had to be excavated down twenty feet to create enough area for the 153,000 square foot building; the footprint being nearly one acre. The main entrance is located on the Third floor. Functionally, the building is divided by its program. The upper floor has research labs (Pharmakokinetics, Analytical Chemistry and Material Management) and a prototype production plant to manufacturer samples of new research. Tele-conference and executive office space keep the research members near the work at hand as well as Mylan's other facilities and offices.

The Second floor is shared by Information Systems and Accounting. This floor also contains the building's lunch room and has the company's wellness center, good health being a company mission. The First floor has executive offices and a training center for sales and marketing. The bulk of this lower floor is designated for a materials warehouse. Raw materials and equipment for the research facility above is received, tested and quarantined.

All of the laboratories, production rooms and offices are design and equipped with the latest technologies from computer systems to room finishes. The Research and Development Center has enabled Mylan Pharmaceuticals to create new products and expand its manufacturing.

Engineering Sciences Building—Lab G85

West Virginia University



SERVICES PROVIDED

Architectural Design

DELIVERY METHOD

Design-Bid-Build

PROJECT SIZE

4,900 SF

PROJECT COST

\$422,000

YEAR COMPLETED

2022

The lab in G85 was one of the final spaces in the College of Engineering's Lane Innovation HUB to be updated. The existing space received minor adjustments to walls to improve the layout of the main fabrication lab, create an enlarged interior room for finishing and layout from a small office, and to improve the separation of the mezzanine storage and the electrical equipment areas from the main fabrication floor. Selected ceilings were removed and new lighting installed to increase the height of the space and improve visibility when working on detailed projects. Bright finishes enhanced the light throughout the lab, relocated electrical service provided single access to service panels, a new shop floor provided a slip resistant and chemical resistant surface, and improved separation of spaces allowed for more hazardous activities to occur adjacent to non-hazardous fabrication work.

WV GENERAL SERVICES ADMINISTRATION

State Office Complex— Fairmont



SERVICES PROVIDED

Architectural Design

DELIVERY METHOD

Design-Bid-Build

PROJECT SIZE

70,000 SF

PROJECT COST

\$ 17.6 million

YEAR COMPLETED

2017

Omni Associates—Architects was selected by the West Virginia General Services Division to provide all architectural and engineering services for a new state office building located in downtown Fairmont.

It was important that the new building fit within the context of the down-town area's historical buildings while reflecting an era of progress and new growth. To that end, the building's exterior features traditional brick and cast stone masonry integrated with insulated formed metal panels and an aluminum curtainwall.

The building will be occupied by eight state agencies and include offices for the Secretary of State. Programming services included interviews of the individual agencies to determine the specific requirements of each. Interior fit-outs include a variety of user-specific spaces including training rooms, interview rooms, waiting areas, individual offices, large open offices, break rooms, and kitchenettes.

Omni also provided all necessary surveying of the site, and all existing infrastructure systems and material to determine appropriateness for construction. Pre-construction services also included the verification, coordination, and documentation of extensions, tie-ins, and relocations of all utilities as well as an extensive demolition package released prior to the new construction package.

In addition to compliance with all applicable local, State, and Federal regulations as well as ADA requirements, the Owner requested that the building be designed with the goal of achieving LEED™ Silver certification. Current calculations suggest the project could achieve LEED Gold.

MON POWER

Regional Headquarters



DELIVERY METHOD

Design-Build

PROJECT SIZE

148,000 SF

PROJECT COST

\$35 million

YEAR COMPLETED

2010

AWARDS | RECOGNITIONS

2012 AIA West Virginia Merit Award
for Achievement in Design

Prior to its merger with First Energy, Allegheny Energy selected Omni Associates – Architects via a competitive selection process to provide all Architectural and Engineering services for its new transmission operations headquarters in Fairmont, West Virginia.

Now the Mon Power Regional Headquarters, the environmentally friendly facility serves as the center for multi-state energy transmission functions, including around-the-clock management of the electric grid. The building houses the Transmission Operations Control Center, a Data Center, Class A commercial office space, and all associated electrical, mechanical, and support facilities. The Transmission Operations Control Center and Data Center was constructed to meet a site infrastructure performance rating of Tier III. The new construction project is LEED® (Leadership in Energy and Environmental Design) Certified.

Services provided by Omni include site selection assistance and development services, architectural design services, civil, structural, mechanical, and electrical engineering services, bid document development, construction contract administration services, and post contract administrative services.



SHAFT DRILLERS

International Headquarters— Mt. Morris, PA



SERVICES PROVIDED

Architectural Design

DELIVERY METHOD

Design-Build

PROJECT SIZE

40,000 SF

PROJECT COST

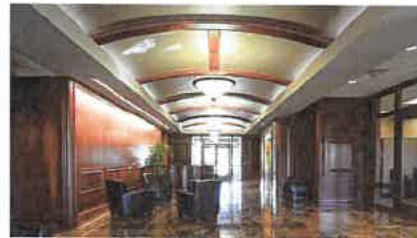
\$6 million

YEAR COMPLETED

2011

Shaft Drillers International Headquarters in Mt. Morris, Pennsylvania is a new four-story, Class A corporate headquarter facility. The 40,000 sf structure was designed to achieve a comfortable and efficient work environment. The Owner's request for a more traditional aesthetic was met with a classic masonry and stone exterior paired with sophisticated interiors featuring raised wood paneling, wood coffered ceilings and marble flooring. The facility includes over 70 private offices, serviceable balconies on each floor, a central lunch room, a fitness center with locker rooms and showers, and other amenities to support and complement the demanding work schedules of SDI's employees and corporate officers.

Omni and SDI were recognized along with CEC – Civil & Environmental Consultants, Inc. as the winner of the West Virginia Chapter of Associated Builders and Contractors 2011 Excellence in Construction Awards in the "Other Specialty Construction Less than \$1 Million" category for the structural steel supporting the building.



BUCKHANNON READINESS CENTER

West Virginia Army National Guard



The Buckhannon Army National Guard Readiness Center is a dual-use building funded by a combination of Federal, State, and local money. The 37,000 sf facility houses three units of the West Virginia Army National Guard (WVARNG) and serves the public sector of Upshur County with a multi-purpose conference center. These dual purposes are reflected in the basic design.

The two functional areas are located in separate wings spanning east and west from the main lobby entrance with clear distinctions between public and private spaces. The west wing is a public conference center, which, through the use of operable partitions, can be configured any number of ways to allow for educational, business, community, and private events. The two-story east wing houses the WVARNG units. It includes office space, a classroom, storage, sleeping rooms, fitness room, and locker rooms.

This project was designed and constructed to achieve LEED® Silver certification. Cost effective energy conserving features include energy management control systems and high efficiency motors, lighting, and HVAC systems.

SERVICES PROVIDED

Architectural Design

DELIVERY METHOD

Design-Bid-Build

PROJECT SIZE

37,000 SF

PROJECT COST

\$13.2 million

YEAR COMPLETED

2017

FAIRMONT READINESS CENTER

West Virginia Army National Guard



SERVICES PROVIDED

Architectural Design

DELIVERY METHOD

Design-Bid-Build

PROJECT SIZE

91,500 SF

PROJECT COST

\$25 million

YEAR COMPLETED

2015

The specially designed AFRC is permanent masonry type construction with standing seam roof, concrete floors, and mechanical and electrical equipment with emergency power generator backup. This 150 member training facility includes administrative, educational, assembly, library, learning center, vault, weapons simulator and physical fitness areas for one each WVARNG and USAR units. The maintenance shop provides work bays and maintenance administrative support. The project provided for adequate parking space for all military and privately owned vehicles.

This project has been coordinated with the installation physical security plan, and all physical security measures are included. All required antiterrorism protection measures are included. Sustainable principles will be integrated into the design, development, and construction of the project in accordance with Executive Order 13123.

Supporting facilities include weapons cleaning, maintenance, issue, turn-in sheds, access roads, security fencing and dark motor pool lighting, vehicle wash system and pump house, fuel storage and dispensing systems, loading ramp, flammable materials storage building, controlled waste handling facility, and sidewalks. Extension of gas, electric, sewer, water and communication utilities to the building site is included. Physical security measures include maximum feasible standoff distance from roads, parking areas, and vehicle unloading areas, beams, heavy landscaping and bollards to prevent access when standoff distance cannot be maintained. Cost effective energy conserving features are incorporated into design.



Johnstown Headquarters
 1407 Scalp Avenue
 Johnstown, PA 15904
 Phone: 814-269-9300
 Fax: 814-269-9301



H.F. Lenz Company

H.F. Lenz Company was established 1946 in its present form, under the name H.F. Lenz Company, R.E., and in 1953 the company was incorporated, as a Private Corporation, in Pennsylvania as H.F. Lenz Company. Our projects span the nation, with the heaviest concentration in the Northeast, and exceed \$600 million in MEP, Civil and Structural construction annually. Each market sector—corporate, government, health care, education, and industry—is served by a team of specialists who understand the unique needs of the clients they serve. Our staff consists of 160+ individuals, including 44 Licensed Professional Engineers and 19 LEED Accredited Professionals. Our headquarters is in Johnstown, Pennsylvania with branch offices in Pittsburgh and Lancaster, Pennsylvania; Conneaut, Ohio; and Middletown, Connecticut.

DISCIPLINES/SERVICES OFFERED IN-HOUSE INCLUDE:

- › Mechanical Engineering
- › Electrical Engineering
- › Data/Communications Engineering
- › Fire Protection / Life Safety Engineering
- › Structural Engineering
- › Civil Engineering
- › Surveying
- › GIS
- › Construction Phase Services
- › Commissioning and Training
- › 3D CADD
- › Energy Modeling
- › Sustainable design/LEED Services
- › Building Information Modeling (BIM)

The H.F. Lenz Company has vast expertise in the design of specialized MEP/FP systems for strictly controlled laboratory and research environments. The design of laboratories requires special consideration involving multiple zoning for flexibility and pressurization control. Our designs also consider energy conserving features including variable air volume systems to minimize outside air while maintaining proper air flows for indoor air quality and fume hood air flow requirements within prescribed safety limits. Our projects have included chemical, biological, and analytical laboratories; optical research laboratories; environmental testing chambers; radiation cells; carcinogenic research; coatings and resins research; film and surface material research; chemical vapor deposition; laser diagnostic laboratories; and animal research facilities. These projects have included new facilities as well as renovations of existing systems where phased construction of occupied facilities is often required.

Our experience includes projects for state and government agencies, healthcare facilities, colleges and universities, pharmaceutical companies and multi-tenant corporate buildings and campuses. Our core team members for this project have been working together for an average of 15 years.



U.S. Department of Agriculture

Morgantown, West Virginia

BASE BUILDING AND TENANT FIT-UP OF OFFICE BUILDING

H.F. Lenz Company is currently providing the mechanical, electrical, plumbing, and fire protection engineering services for the tenant-fit out of approximately 40,000 sq.ft. of a GSA-leased building to be utilized by the U.S. Department of Agriculture. The fit-out space consists mainly of offices, conference areas, lobbies, mailroom, credit union, computer center, storage space and a loading dock.

The project included:

- A central HVAC system with main and branch lines, VAV boxes, dampers, flex ducts, and diffusers for the office layout and commons areas. Separate HVAC units for the mail room and lobby spaces were provided in order to prevent contamination of other areas of the building in the event of a security threat. A separate computer room air-conditioning unit was also provided for the central computer center.
- New 277/480 V and 120/208 V, 3 phase, 5-wire electrical distribution system serving panelboards located on each floor of the complex. Receptacles supplying power to sensitive equipment were provided with an isolated ground system to prevent unwanted noise from being passed through the electrical distribution system.
- Energy Efficient Lighting with occupancy sensors for automatic control of the lighting fixtures.

The project incorporated several sustainable concepts and was designed to attain LEED™ Certification.

ENGINEER:

H.F. Lenz Company
 Project Engineer, Farm Service Agency
 U.S. Department of Agriculture
 100 Earl Core Road, Suite 102
 Morgantown, WV 26505
 304-284-4881



New Bolton Center

Chester County, Pennsylvania

FEASIBILITY STUDY FOR NEW STATE LABORATORY

H.F. Lenz Company was retained by the Pennsylvania Department of General Services to provide a feasibility study for the 55,000 sq.ft. New Bolton Center (NBC). The NBC will provide diagnostic, forensic, and research support services to the Pennsylvania Department of Agriculture through the Pennsylvania Animal Diagnostic Laboratory System (PADLS) and the Pennsylvania Equine Toxicology and Research Laboratory (PETRL).

The existing facilities are scattered, outmoded and inadequate to effectively meet the needs of the laboratories providing diagnostic and forensic services. Consolidating the facilities in one building will greatly facilitate work flow, and create efficiencies and opportunities for collaboration. The study will provide detailed cost estimates for all options, breaking out specialized building and mechanical systems costs, and projected operating costs. The proposed new facility will connect to the bio-processor that was sited per the first phase of the master plan. The necropsy suite will be adjacent to the bioprocessor.

Proposed spaces include Microbiology Lab, Large Animal Pathology Lab, Poultry Pathology Lab, Toxicology Lab, a Field Investigation Office, lab space convertible to Biological Safety Level 3 Facilities, PCR/Molecular Diagnostics and 20 mass spectrometers.

The new facility will also include a large conference room, pharmacy, robotic sample prep area, human sample testing area, refrigerators and freezers for samples and a bio-safety cabinet.

Laboratory spaces are critical to the facility. Both the PADLS and PETRL Departments need safe, efficient, and effective labs. Our study will address these goals through performing a risk assessment and addressing both the primary and secondary containment. Space pressurization will be key as well as designing air intake and exhaust systems to avoid re-entrainment of hazardous air.

Lab energy usage is critical, and the principles of the Labs21 Program will be incorporated. Lab spaces will be designed to provide user friendly access to utilities, equipment, fume hoods, etc. Lighting of spaces will incorporate the use of daylighting and appropriate controls to maintain its usage.

The study was completed in 2019. The estimated construction cost for the facility is \$52 million.

CONTACT:

Tom Kopple
 Vet Facilities
 15-898-4228
 le@vet.upenn.edu



Centers for Disease Control and Prevention (CDC) / National Institute for Occupational Safety and Health (NIOSH)

Pittsburgh, Pennsylvania and Morgantown, West Virginia

INDEFINITE DELIVERY TERM CONTRACT

H.F. Lenz Company, as part of an A/E/ team, was awarded two Open End Contracts for A/E services for CDC/NIOSH for projects at their research facilities in Morgantown, West Virginia, and Pittsburgh, Pennsylvania. Multi-discipline engineering services provided by HFL include Mechanical, Electrical, Plumbing/Fire Protection, Civil, Structural, and Surveying services. A few of our relevant projects included:

NIOSH Mine Safety Training - Morgantown, West Virginia

- › Mine Rescue and Escape Training Laboratory (MRET) – Design incorporated a unique water reclaim system for a simulated coal mine that separates ash from water
- › Schematic design for a BSL-2 laboratory
- › Master plan for site improvements
- › New security entrance

NIOSH Morgantown, West Virginia

- › Schematic design for a BSL-2 laboratory
- › Master plan for site improvements
- › New security entrance
- › Chiller access safety improvements
- › Atrium electrical study
- › Laboratory fume hood study

NIOSH Bruceton Research Center, Pittsburgh, Pennsylvania

- › Building 141 Laboratory Building Renovation
- › Boiler study – Comprehensive study for the decentralization of a boiler plant serving 51 buildings to reduce energy consumption and present options to reduce CO2 emissions and evaluate the use of renewable energy
- › Energy Conservation Study – Feasibility study to install "smart electrical metering" for 73 buildings to reduce the facilities' carbon footprint and reduce energy usage by 30%
- › Electrical Continuity of Operations Study
- › Building 152 – HVAC study of the existing air-handling units and controls for the office/research building
- › Data Center Water Remediation – Design to mitigate water infiltration into the facilities data center
- › Building 156 HVAC Study

CT REFERENCE

Donald Cummings
 of Administrative & Management Services
 H/CDC
 ochrans Mill Road
 rgh, PA 15236
 12-386-6681
 cdc.gov



National Energy Technology Laboratory

Morgantown, WV, Pittsburgh, PA and Albany, OR

INDEFINITE DELIVERY TERM CONTRACT

H.F. Lenz Company is providing multi-discipline engineering services through our second consecutive Indefinite Delivery, Indefinite Quantity (IDIQ) for NETL sites. In total, NETL's facilities include 81 buildings and 14 major research facilities on nearly 200 acres. We have completed more than 70 work orders to date.

A few of our recent laboratory projects have included:

Building 94 (Pittsburgh)

- Renovations and modifications of the laboratory space within a five-story, 45,000 sq.ft. building; the two-phase renovation consisted of approximately 8,400 sq.ft. of laboratory space that included two 2,100 sq.ft. "ballroom type labs" for materials research, which includes manufacturing type space with flexibility to deploy equipment to meet the needs of a specific process, scale-up or scale-out. The space houses 13 fume hoods, including 3 walk-in types; also included were 7 smaller labs for a variety of research capabilities.

Building 31 (Albany, OR)

- Renovation of laboratories including a thermal analysis lab, SEM labs, XRD, XRF lab, EMTL lab, chemical labs and spare labs, a darkroom and office spaces. Features included electron microscopes, mass spectrometers, EMF shielding, strobic fans for fume hoods, blast resistant wall, structural separator for vibration, and gas sheds.

Building 34 (Albany, OR)

- Advanced Alloy Development Facility renovation of 8,000 sq.ft. and a new 3,000 sq.ft. addition, which houses laboratories, offices, highbay labs with bridge crane/hoist system and materials staging/storage area with roll up garage doors, shower/eye wash stations, and dust collection systems, the building also contains a VAR furnace, ESR furnace, ISM furnace, electron beam furnace, control room, blast resistant walls, ceilings, doors, blow out panels and barrier walls, and exterior gas shed.

Building 17 East Wing and Central High Bay (Albany, OR)

- Renovation consisting of two phases; the East Wing and the CHB area. The \$3.2M EW project converted 9,700 sq.ft. of mineral lab spaces and office areas on the 1st and 2nd level into new open office workstations and private office space. Common lounge areas, meeting and conference rooms, a large break room, and an open copy and mail area were incorporated into the design.



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H.F. LENZ COMPANY

RELEVANT STATE & FEDERAL PROJECTS



Pennsylvania State Police

Greensburg, Pennsylvania

New DNA Lab

Through a contract with the Pennsylvania Department of General Services, H.F. Lenz Company provided the MEP engineering for a new State Police Headquarters. This facility is a new multiple story steel and masonry DNA lab building of approximately 50,000 sq. ft. It is constructed on 13 acres that was subdivided from the SCI Greensburg property. Parking is provided for 159 vehicles.



The building includes DNA Lab space, Lab Offices, Administration Offices, Evidence Storage and Evidence Control. Lab spaces include fixed and movable casework, chemical fume hoods, and biosafety cabinets, as well as administrative offices, conferences rooms, library, breakrooms, training rooms, wellness center, maintenance storage and loading docks. The facility is designed to accommodate 100 scientists and personnel.

Security and confidentiality of what goes on within this building must comply with special standards required for an accredited law enforcement lab. Special consideration is given to security of evidence.

A backup emergency generator is provided for the facility in the event of loss of commercial electrical power. A security access system was included to protect the secure evidence.

The HVAC system consists of central VAV air handling units served by air cooled chillers and modular high efficiency boilers. Lab exhaust is removed from the building by a central, manifolded exhaust system using high dilution and high plume lab exhaust fans.

The building is fully sprinklered with evidence storage areas receiving dry pipe systems and double interlocking wet pre-action systems for increased protection of evidence.

A REVIT model was developed and utilized to coordinate the MEP/FP engineering documents, as well as the architectural and structural design and construction documents.

The \$22.5 million project was completed in 2021.



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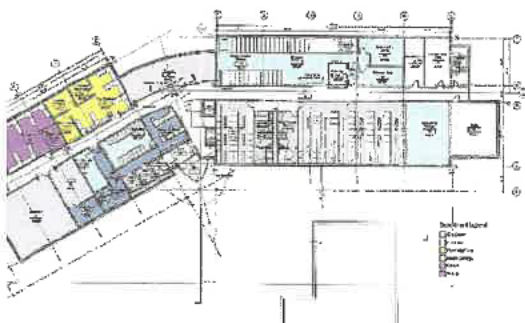
Pennsylvania State Police

Greensburg, Pennsylvania

NEW HEADQUARTERS FACILITY

Through a contract with the Pennsylvania Department of General Services, H.F. Lenz Company provided the MEP engineering for a new State Police Headquarters. The new facility consists of a new two story steel and masonry headquarters building of approximately 31,000 sq. ft. The facility is constructed on 13 acres and is adjacent to the existing headquarters building that was too small and updated to support the troop operations efficiently. The new site provides parking for 100 state owned vehicles, 80 personal vehicles, 15 visitor's vehicles, and 4 ADA compliant vehicle spaces.

The design included a new emergency generator backup for the facility to support operations during the loss of commercial electrical power. The project also included the demolition of the old headquarters. All utilities on site were extended to the new facility.



The building includes the following areas:

Headquarters

- › Command staff
- › Criminal investigation
- › Forensic services unit
- › Vice/intelligence
- › Patrol section
- › Collision analysis
- › Commercial vehicle enforcement Motor carrier enforcement Vehicle fraud investigation
- › Communications desk
- › Records
- › Staff services
- › Troop administration

Lab

- › Scientific services
- › Drug identification Serology
- › AFIS
- › Ballistics
- › Fire Marshal
- › Polygraph

Space Requirements include:

- › Headquarters building 31,000 sq.ft.
- › Evidence storage (inside HQ) approximately 2,500 sq.ft.
- › Impound yard approximately 10,000 sq.ft.
- › Radio tower 150 sq.ft.

The \$15 million project was completed in 2020.

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U.S. Drug Enforcement Administration

Pittsburgh, Pennsylvania

NEW OFFICE BUILDING

H.F. Lenz Company provided HVAC, electrical, plumbing, fire protection/life safety and structural engineering services as part of a design build team selected by the U.S. General Services Administration for the delivery of a new office building for the Drug Enforcement Administration located in the Pittsburgh area. The two-story, 50,000 sq.ft. building has office space on the upper floor with the ground floor serving as a garage and storage space.



The building was designed and constructed to obtain a LEED Certified rating. The building included a non-HCFC refrigerant rooftop air handler with CO2 control which garnered two LEED points. In addition the building met all prerequisites in the Energy and Atmosphere and Indoor Environmental Quality sections for LEED. This includes a separate Commissioning Team from H.F. Lenz Company performing the Fundamental Commissioning Services for the project.

The building systems also included specialized exhaust systems for carbon monoxide removal from the garage and filtration of exhaust system associated with drug evidence storage rooms. Multiple split systems supplement critical cooling applications throughout the building. Plumbing systems included shower facilities for the workout and clan lab prep areas and penal fixtures in holding cells.

H.F. Lenz Company worked extensively with FM Global to provide a fire protection system that met code and FM requirements without having to provide a fire pump and tank on site due to low pressures in the municipal water system.

Exterior lighting systems were designed to maximize building security to comply with federal guidelines including video monitoring.

The project has attained LEED Certification.

CT REFERENCE

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CT REFERENCE
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General Services Administration (GSA)

Charleston, West Virginia

NEW OFFICE BUILDING FOR FEDERAL AGENCY

H.F. Lenz Company provided the mechanical, electrical, plumbing and fire protection engineering services for the design of a new, two-story 19,427 sq.ft. office building in Charleston, West Virginia to house an agency of the intelligence community offices. The facility includes forensic evidence labs, investigators' work and technology spaces, and service bays to modify surveillance vehicles.

The building was designed with energy efficient systems and sustainable design criteria including water conservation, use of regionally manufactured materials, increased ventilation, use of renewable energy sources, and a pre-occupancy construction indoor air quality management plan. The project goal was to meet the requirements of LEED Silver (minimum) and attain an ENERGY STAR rating of 75 or above.

Features of the Project Included:

- › Variable air volume HVAC system consisting of gas-fired rooftop air-handling units with DX cooling and energy recovery, supplemental cooling for specialty areas such as server rooms and areas with concentrated high heat loads. A separate air-handling unit for the mailroom area will minimize any airborne threats. Another HVAC security measure includes the strategic placement of outdoor air intakes to minimize the risk of contaminants being entrained into the building through the outdoor air intake
- › An electrical distribution system that will supply 10 watts/sq.ft. of power to the building, as well as an exterior 50kw standby/emergency generator that will serve the backup power needs
- › A complete data/communications system which includes separate telecommunications closets for the internal system servers that will be used to meet the function of the building. The system features include category 6A horizontal cabling, incoming optical fiber cabling, wire racks and bridal rings for wire management
- › A fire alarm system with a voice/alarm communication system
- › An automatic sprinkler system designed to NFPA requirements
- › The design of a wet lab area that includes a separate fume hood exhaust system
- › Garage bays that are used to modify/examine vehicles
- › Building commissioning

The \$4,500,000 project was completed in 2010.



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State of West Virginia

Clarksburg, West Virginia

CLARKSBURG STATE OFFICE BUILDING

H.F. Lenz Company provided the mechanical, electrical, plumbing, fire protection, and telecommunications engineering services for the design of a new 85,250 sq.ft., five-story office building to house seven West Virginia state agencies.

The HVAC system utilizes a chilled water system with ice storage to save energy costs. The majority of the building is served by three VAV modular air handling units located in the building penthouse. A Direct Digital Control (DDC) System provides the control for the HVAC system. The system interfaces with the current system that the State of West Virginia uses to monitor its buildings from a remote location in Charleston, WV.

Lighting relay panels provide 24/7 control of the lighting in the larger areas on the various floors. Relay panels are installed on all floors except the basement. Vacancy (Occupancy) sensors are installed in all areas not described above to provide automatic shut off lights. In areas subject to larger amounts of natural light, daylight harvesting sensors are placed near windows to step-dim (reduce light output to 50%) local light fixtures in response to amount of sunlight present within the space and save energy.

A Main Telecommunications Room (MTR) is provided that houses all the service entrance equipment for signal system demarcation points as well as distribution equipment to provide the buildings signal infrastructure. Intermediate Telecommunications Rooms (ITR), feed from MTR, are constructed on each floor and contain equipment to distribute signal systems to the end user.

The project was designed to achieve LEED Silver Certification. State agencies began moving into the new building in 2016.

Meeting the Project Goals

An important goal of the project was to provide an energy efficient, state-of-the-art facility with sustainable design features capable of achieving LEED Silver Certification. H.F. Lenz Company helped meet this goal by designing an HVAC system that utilizes a chilled water system with ice storage to save energy costs. The lighting system design also contains several energy conserving elements.

The \$20 million project was completed in 2016.



WVU Medicine, Ruby Memorial Hospital

Morgantown, West Virginia

NEW CLINICAL LAB

H.F. Lenz Company is providing full mechanical, electrical, plumbing and fire protection engineering services for the design of new Clinical Cytology, Cytogenetics and Histology Labs for WVU Medicine. Previously these functions were located in within a 5,000 sq.ft. space in the existing Health Sciences Center, which is adjacent to Ruby Memorial Hospital. This project involves the design of new labs within an existing building off campus at the Ruby Office Complex (ROC).

The new clinical laboratory space is 10,000 sq.ft. and includes the following areas:

- › Cytology Screening
- › Cytotechnology
- › Cytology Lab
- › Histology Lab
- › Tech Specialist
- › Culture Blood/Bone
- › Microarray
- › Culture PAC
- › Probe Prep
- › Fish Dark Room
- › Accessioning Screening
- › Block Storage
- › Central Accessioning
- › Specimen Storage
- › Slide Storage
- › Transcription
- › Director (2)
- › Administration Office
- › Conference Room
- › Copier Storage
- › Pathology Office (4)
- › Histology Techs
- › AP Manager
- › Resident Room
- › Lockers
- › Back Hall
- › Mechanical Room
- › Entry Hall



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The project is currently in design. Construction Cost: \$3M (estimated)

NEW ADDITION AND RENOVATIONS

H.F. Lenz Company provided full mechanical, electrical, plumbing, fire protection and structural engineering services for the \$44 million, new 176,000 sq.ft. addition and renovation of 47,000 sq.ft. existing hospital including the morgue. We also designed a new central energy plant to serve a total of 878,000 sq.ft. of clinical space.



VAMC Philadelphia

Philadelphia, Pennsylvania

CLINICAL LAB RENOVATIONS

H.F. Lenz Company provided Design and Commissioning Services for an 18,000 sq.ft. renovation of the Primary Clinical Lab, Building 2. The areas renovated include the Chemistry Lab, Histology, Microbiology, Sequencing Lab, Toxicology, Molecular, Blood Bank, and offices.

The project involved extensive coordination with the laboratory equipment planner and the architect. Designed in 6 phases, it required temporary and permanent utilities for each phase. The temporary lab required exhaust for fume hoods and supply make up air. The temporary air handling unit was provided during the replacement of the existing air handling unit. HVAC was maintained during all phases to maintain ventilation rates, air movement, and cooling requirements. The \$6.9 million project was completed in 2014.



THIRD FLOOR RESEARCH LAB

H.F. Lenz Company provided the mechanical, electrical, plumbing/fire protection, and structural engineering services for the \$4 million renovation of the Third Floor Research facility to accommodate researchers from the University of Pennsylvania completing research under grants from the Veterans Administration and various government agencies. The research space was designed to be capable of handling most types of research except radiological contaminants. The project scope included renovating the entire third floor into distinct and separate labs for BSL-1, 2, and 3 level research.

The existing primary air systems remained and new distribution, monitoring, and control systems were provided. The lab systems were designed for maximum flexibility so that simple changes can be made as research is completed and new projects are brought in. The area contains approximately fifteen (15) biosafety or fume hoods with future space for additional hoods, tissue culture labs, autoclave, microscopy, and large rooms for refrigerators and freezers. A separate controlled temperature room and instrument room with support spaces are also located on the floor.

Code Violations in the existing exhaust systems and building shafts were identified early in the project, thus the scope of work was expanded to complete an HVAC system distribution master plan to identify corrective actions. The corrective actions are integrated into the third floor renovations.

The existing plumbing and medical gas systems were renovated to support the new requirements. A new instantaneous hot water generation and distribution system was also design for the entire building.

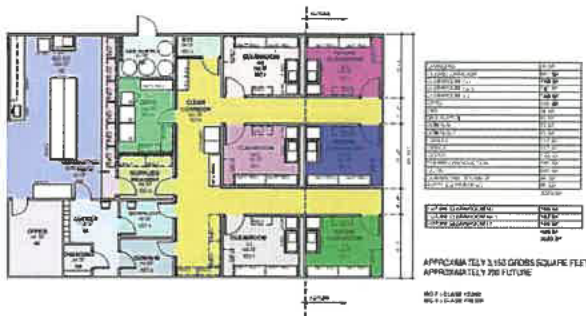
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H.F. LENZ COMPANY

RELEVANT HEALTHCARE LABORATORIES

Cleveland, Ohio



H.F. Lenz Company provided concept design services for a new GMP (Good Manufacturing Practice) Cleanroom Facility. The concept plan was developed as a prototypical space, with no specific existing building envelope or parameters to consider. The project goal was to establish a "prototypical model" in an effort to generate a probable cost of construction in order to secure the proper amount of funding for a future project. This will also establish best practices within the GMP facility for future consideration.

Concept Design plans for the area identified the following breakdowns of program space:

- › Positive pressure cleanroom
- › Negative pressure cleanroom
- › Varying pressure cleanroom
- › Changing room
- › Storage and supply areas
- › Office space
- › Lab spaces (non-cleanroom)

The intent of this concept design narrative was to define the engineering systems proposed for use on this project. Should the project progress beyond concept design, these systems would be refined and amended throughout the various design phases of the project as the building architecture, aesthetics and program uses were further developed.

Close communications with facility representatives was maintained to aid in the continued process of design. Close review of this document was encouraged to ensure that all parties were aware of decisions made toward the design and engineering intent moving forward.

The project incorporated sound sustainability practices, and quality practice and design strategies that provide healthy, productive environments for staff while providing a secure setting for the occupants of the project area.

Construction Completion Date: N/A

Construction Cost: \$3,000,000

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Mylan Pharmaceuticals

Morgantown, West Virginia

74 ADDITION AREA

H.F. Lenz Company provided the engineering services for the renovation of the 74 Addition Area at the Mylan Chestnut Ridge Facility. The facility includes laboratories, clean rooms, offices and storage space.

The project was completed in a phased approach. The renovation consisted of demolition and the rebuild from the foundation to the roof decking of all utilities (mechanical, electrical and plumbing), equipment and infrastructure. Field verification of all utilities, equipment and infrastructure was required during the engineering design. A roof hatch was designed to be constructed during Phase 1 that would be used during all phases to remove materials and equipment from the facility during demolition.

Phase 2 consisted of the qualification and relocation of production and facilities equipment. Utilities and equipment installed during Phase 1 were qualified. Existing facilities equipment remained in operation and have been modified to be re-balanced.

Phase 3 consisted of the demolition of seven rooms and construction of 11 rooms.

Design is complete and construction is currently on-going.

The renovation of existing manufacturing area included:

- › Dust collector replacement with HEPA filtration and bag-in/bag-out
- › Installation of a new Compactor
- › Water chiller replacement
- › Fluid Bed with Gral
- › Coater replacement
- › Air-handler w/HEPA filtration replacement
- › Creation of Mid-potent rooms
- › Creation of controlled substance rooms
- › Installation of new blenders
- › Wastewater storage
- › Compressed air, nitrogen, pure water and process water distribution
- › Purified water system

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LAB RENOVATION

H.F. Lenz Company provided the engineering services for the renovation of an existing warehouse and office area, into a new research laboratory. The area is approximately 20,000 sq.ft. and is designed to be dedicated lab space. The first floor is used for existing warehouse space and mechanical equipment support space. The space is designed to maintain a very narrow band of temperature and humidity at all times throughout the year.

Renovation details include:

- › The lab area will house 60 HPLC stations complete with supporting work stations and setup stations
- › A drug storage room with a controlled drug area will be installed on this floor.
- › Balance room with vestibule entry
- › Bathrooms for personnel
- › Glassware wash room
- › Supporting utility space and storage
- › Balance room with vestibule entry
- › Glassware washroom
- › Bathrooms for personnel
- › Explosion proof bulk solvent room
- › Supporting utility space and storage
- › Training/Multipurpose Room
- › Bathrooms for personnel
- › Mechanical room (Boilers, Water System, Compressor)
- › Uninterruptable power system to serve the HPLC stations

The project also included:

- › Field verification for all utilities, equipment and infrastructure
- › Demolition of current utilities
- › Run utility lines (HVAC and ductwork, potable water, sanitary drains, and purified water)
- › Factory Mutual approval for the design, layout, materials, equipment, systems, etc.

Construction was completed in February 2018.



Various Additional Projects at Multiple buildings on the Morgantown Campus:

STUDY OF HIGH DENSITY ARCHIVE ROOM

- › Study to bring existing paper storage into environmental requirements of FDA

BULK SOLVENT STORAGE TANK REPLACEMENT

- › Installation of new 10,000 ethyl alcohol and acetone tanks, containment dikes and distribution piping

CONDENSATION REMEDIATION

- › Study of existing masonry walls to determine the source, and remediation of, condensation issues in storage areas

FLUID BED REPLACEMENT

- › Mechanical, electrical and structural design for the replacement of existing fluid bed, air-handling unit, chiller and dust collectors

CLIMATE CONTROLLED WAREHOUSES

- › Design of a 19,000 s.f., a 16,000 s.f. two-story warehouse, and a 35,000 s.f. warehouse into multiple tightly controlled storage spaces
- › New deionized water system
- › Replacement of air-handling units
- › Security system design
- › Monitors to map temperature and humidity throughout the areas
- › (2) 600 kW Standby generators
- › Installation of stability chambers

LAB EXPANSION

- › New 12,000 s.f. lab addition to an existing building
- › Purified water system
- › Creation of a Mass Spectrometer Lab
- › 300 kW standby generator
- › Lab exhaust system
- › Methanol and nitrogen storage and distribution system
- › Creation of a Capillary Electropherograph lab

SECURITY HEADQUARTERS

- › Mechanical, electrical, plumbing and fire protection design of the security headquarters for the North American Operations



West Virginia University

Morgantown, West Virginia

AG SCIENCE BUILDING ADDITION AND RENOVATION

When we were contracted by the University for this project, the Agricultural Sciences facility was split between the original Agricultural Sciences Building and Brooks Hall. This isolated the plant and soils department from the other departments such as natural resources, animal and nutritional sciences, forestry and landscape design. In addition, the entire Agricultural Sciences department needed a 250-seat lecture hall for both in-house and out-of-house seminars and programs. The University also had a requirement to complete the project in a total of 18 months in order to comply with funding requirements. The design team was given five months to complete the design. The University required three months to bid and award contracts, and the successful bidder was given ten months to complete construction. The University desired this project to be one of their first "green" projects. While they were not going for LEED™ certification, the goal was to be the equivalent of a Silver LEED™ building. The project goals represented a challenge in timing, first cost, and energy efficiency for the design team.



The site itself was bounded by the existing Agricultural Sciences building to the north, a large direct buried electrical ductbank to the south, and a large buried steam line to the east. The new structure would become an addition to the existing Agricultural Sciences building and, therefore, needed to be aligned to provide access between the new facility and existing facilities.



The final program resulted in providing 7 research labs and 2 teaching labs for use by plant pathology and environmental microbiology as well as other programs, 12 faculty offices, a greenhouse to house the world's largest collection of beneficial soil fungi, a large 250-seat multi-tiered general purpose lecture hall, constant temperature rooms, a radioactive workroom, a library conference room, assorted support rooms, and a large unfinished shell space for future expansion.

To take advantage of natural lighting, the greenhouse was located on the southeast corner of the building, and faculty offices were located on the outside the building. The expediency of the project necessitated a building envelope that was easily constructed, affordable, and efficient. It also needed to provide a connection to the existing white/gray masonry Agricultural Sciences building. An insulated steel panel system that provided an excellent R value and could be hung to the interior steel support frame was selected. It was also important that the building frame be lightweight as pyretic shale and a coal seam were present underground.

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To provide a high level of energy efficiency, a variable air volume laboratory exhaust and supply system was utilized. The system also incorporated year-round heat recovery to optimize energy efficiency. This was the first laboratory energy recovery system installed on the West Virginia University campus. The system incorporated the equipment and controls necessary to maintain the tight environmental, temperature, humidity, differential pressure, and air flow requirements of the research being performed.

Some of the other green building strategies employed were selection of efficient lighting and lighting control, daylighting control, water use reduction through the use of water saving fixtures, individual room controls, energy efficient hoods, and connection to the campus central utility plants.

The project bids came in within \$150 of the estimate on a \$7,500,000 project. The project design and construction were completed on schedule, and the University was very satisfied with the space.

Under separate projects, the building was completely commissioned by H.F. Lenz Company, and the shell space was fit-out for landscape architecture students.



NEW FORESTRY GREENHOUSE AND LABS

H.F. Lenz Company provided the engineering services for a replacement facility for the existing Greenhouse and Headhouse for the Ag-Science Department on the Evansdale Campus. The location of the project is on the current site of the existing Greenhouse facility. The new buildings utilize the campus steam line for mechanical systems.

The Plant and Soil Sciences Greenhouse is an essential space for teaching, research, and outreach for WVU and the Davis College. The greenhouse supports research from the Plant and Soil Sciences Department and is 28,250 sq.ft. total, 19,000 sq.ft. greenhouse, 9,250 sq.ft. headhouse.

In addition to growing space, the new greenhouse houses multiple lab rooms, a classroom, offices, and various support services. The new facilities allows WVU and the US Forestry Service to apply new research methods and use updated technology

The \$8.8 million project was completed in 2012.





Pennsylvania State University

University Park, Pennsylvania

GREENHOUSES

In an effort to improve research abilities for students in the College of Agricultural Sciences, Penn State opted to undergo renovations to eight of the nine greenhouses located on their main campus. HFL was initially tasked with a feasibility study which moved into a design-build effort.

Features of the project include:

- › New climate control system
- › LED grow lights
- › Heat exchangers
- › Evaporative cooling pads
- › Custom greenhouse benches
- › Miscellaneous renovations

The project was split into two phases to accommodate research currently being done in one of the greenhouses. Seven of the greenhouses (A, B, C, D, E, F and G) were renovated in Phase I, with Greenhouse H being renovated in the subsequent phase. The project which included replacement of existing metal halide growth lighting fixtures with energy efficient LED lighting fixtures saved the university approximately \$62,000/yr in energy savings. We also studied the energy cost associated with the operation of the heating system. We provided updated controls which allow for better space conditions and energy savings. The energy savings program contributed funds to this project based on the energy savings calculations submitted by the design-build team.

One of the major challenges on the project was the tight schedule, which required an expedited procurement of the greenhouse equipment. Our project team was able to successfully order the equipment directly, allowing for the project to be completed on time.

Another major challenge was selection and installation of the LED growth lights. The fixtures were selected based on the emitted light wave length conducive to plant growth. HFL was also tasked with using a fixture installation solution that would minimize shade cast by the fixtures. The design solution included installation of the lighting fixtures on unistrut supported from the structure. A custom clip was specified which allowed the fixture to be mounted directly to the unistrut.

The \$4,215,000 project was completed in 2016.

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H.F. LENZ COMPANY



ADDITIONAL GREENHOUSE PROJECTS FOR PSU HAVE INCLUDED:

Chemical Ecology Lab

- › The project consisted of replacing and upgrading the existing HVAC system throughout the 15,000 sq.ft. lab building to meet code/standard requirements and the needs of the CEL researchers.

Chemical Ecology Greenhouse

- › New 1,200 sq.ft. greenhouse and 600 sq.ft. head house
- › Mediated ecological interactions among plants, herbivores and parasitoids
- › Head house included "dirty" side which will be used for reception of plant materials, soils and other greenhouse supplies. The "clean" side houses a preparation lab in which plant and soil samples are prepared for use in the greenhouse
- › Pass-through autoclave is used for sterilizing soil prep
- › Compressed air and RO water
- › Special infiltration and screen is provided on all air intakes and exhaust locations
- › Pressurization control for ante room

New Entomology Greenhouse

- › New 1,200 sq.ft. greenhouse and 750 sq.ft. headhouse
- › Research includes the interactions between plants and their enemies, especially insects
- › Reception area is for unloading soils for the greenhouse which are handled through a past-through sterilizer for use in the soil preparation area
- › Special attention to detail was necessary in order to provide the highest level of protection against the infiltration of insects into the soil preparation area and subsequently into the greenhouse itself
- › Pressurization control for ante room
- › All air handling equipment is designed for proper pressure relationships between the adjacent spaces
- › Special filtration and screening were provided on all air intake and exhaust locations
- › Selection of light sources
- › Natural and mechanical ventilation
- › Greenhouse is connected to CEL Building

Honeybee Research Lab

- › New AHU's
- › New perimeter FCU's
- › New fume hood exhaust system
- › New DDC controls

HLF LENZ COMPANY



Pennsylvania State University

University Park, Pennsylvania

NEW BERKEY DAIRY FOOD SCIENCE RESEARCH AND LABORATORY FACILITY

H.F. Lenz Company provided full service mechanical, electrical, and structural engineering and surveying services to assist Penn State University with their pursuit to construct the Berkey Dairy Food Science Building which is a symbolic statement by the College and Administration concerning the importance of Food Science as a Department and an academic program. This \$36 million, 132,000 sq.ft. research and laboratory facility contributes to the Department's effectiveness in recruiting undergraduate and graduate students, retaining the best faculty members and staff, and allows the College of Agricultural Sciences to remain current with researchers in food science departments in the Big Ten Conference and the Northeast.



The Berkey Dairy Food Science Building is a truly unique building in that it contains all of the following components under one roof for one using agency:

- › A Dairy manufacturing facility
- › Flexible, modern, ever-changing Pilot-Scale processing plants
- › Research Laboratories as described below
- › Teaching Laboratories
- › Classrooms
- › Academic offices
- › The Creamery Retail Sales Area



No other Food Science Department across the country operates a full-scale manufacturing plant.

Some of the specific laboratories include chemistry, food safety, and micro-biology. The pathogens lab is designed for bio-safety Level 2. Also, a food sensory laboratory in which foods are sampled for taste is included.

Functions formerly housed in Borland Laboratory have been relocated to the new building.

The pilot-scale processing plants are used to further develop research and manufacturing ideas. Research is initiated on a bench-top (laboratory) scale, and then tested on an intermediate scale (the "pilot scale") before full-scale manufacturing is performed.



Cellomics, Inc.

Pittsburgh, Pennsylvania

NEW BIOTECHNOLOGY FACILITY

Located in what is now Bridgeside Point, Cellomics Inc. was founded to exploit technology from Carnegie-Mellon University and produce instruments, software and reagents for use in drug discovery applications. That legacy is now part of Thermo Fisher Scientific.



The H.F. Lenz Company provided the mechanical, electrical, plumbing / fire protection, and civil engineering services for Cellomic's original 160,000 sq.ft. corporate headquarters and research facility.

The high-tech facility contains approximately 30 fume hoods and three Class 10,000 Clean Rooms. The hoods were integrated with the building automation system to ensure that the amount of conditioned make-up air entering the lab space was controlled and a proper pressure differential to the adjoining spaces was maintained.

The exhaust system consisted of four laboratory exhaust fans mounted on the roof. In an effort to increase the efficiency of the heating and cooling system, heat exchangers were designed to be installed into the exhaust stream.



The plumbing system consisted of providing a separate distilled water system, a natural gas distribution system, a vacuum system, and a lab air system. The distilled water produced here will be used not only for the research being conducted at this facility, but it will also be sold to customers to be utilized as a reagent in the systems already in use.

This multi-tenant building was originally designed, and was partially constructed as a speculative office building when H.F. Lenz Company was commissioned for the project.

Recent additional projects in the facility have included:

- › Gross Anatomy Third Floor Renovations
- › Fit-out of second and fourth floors
- › Tenant fit out laboratory space
- › McGowan Institute Cell Sorter Changes
- › Rousseau Lab Third Floor Renovation
- › Third Floor Occupational Therapy Space
- › Emergency Power Study

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Evoqua Water Technologies

Pittsburgh, Pennsylvania

NEW LAB AND OFFICE BUILDING

Evoqua Water Technologies provides water and wastewater treatment solutions to industries such as Centers for Disease Control and Prevention in Western Pennsylvania. H.F. Lenz Company provided mechanical, electrical, plumbing and fire protection engineering design for the interior fit-out of approximately 18,000 sq.ft. of wet lab and office space located in the Tech Forge Building in Pittsburgh, Pennsylvania.



The project focused on a section approach of working in the front of the building first then moving to the back of the building. Phase one focused on creating 100% buildout for a working lab with added fire safety systems in the front. Phase two was focused heavily on MEP, electrical, and plumbing systems in the back of the building. The new state-of-the-art facility will enable further advancement and development of cutting-edge and sustainable water treatment technologies critical to addressing emerging water trends, including water and climate risks, connectivity, and health and safety.

The 18,000 sq.ft. facility houses a hands-on demonstration and training area, pilot testing environment, and a state-of-the-art laboratory to grow Evoqua's analytical and feasibility study capacity. The collaborative workspace is designed to provide strategic and timely technical capabilities, illustrating the company's commitment to delivering excellence to its customers.



Additional features included:

- › Private wastewater sump pump collection system to collect, process and clean the wastewater material
- › HVAC venting
- › Air and Water plumbing system
- › Spill protection
- › Sustainable rooftop

The \$3.5 million project was completed in 2021.

PROJECT REFERENCE

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College and University Laboratory Projects

	Square footage	Renovation	New Construction	
Rutgers University-Chem/Bio Engineering Bldg Renovation Study	73,000	✓		✓
University of Pittsburgh-Phased Renovation and Addition to Benedum Hall & Mascaro Center for Sustainable Innovation	42,000	✓	✓	✓
University of Pittsburgh at Johnstown - Engineering & Science Bldg Renovation and Addition	66,000	✓	✓	✓
St. Vincent College - Renovation & Addition to Science Complex	110,000	✓	✓	✓
Carnegie Mellon University - Doherty Hall Phase 2 Renovation	217,000	✓	✓	✓
Pennsylvania State University - New Berkey Dairy Food Science Research and Laboratory Facility	132,000		✓	✓
Pennsylvania State University - New Gaige Technology and Business Innovation Laboratory	62,000		✓	✓
Carnegie Mellon University - Wean Hall	4,900	✓		✓
Carnegie Mellon University - Mellon Institute	350,000	✓		✓
Geneva College - Science and Engineering Building	60,000	✓	✓	✓
Ohio State University - Celeste Laboratory - HVAC System Upgrade	97,900	✓		✓