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WV Purchasing Division

WVDA Lab Engineering/Evaluation & Assessment Project

AGR180000004 July 12, 2018



CANNONDESIGN





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

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

Proc Folder: 461054

Doc Description: WVDA Lab Engineering/Evaluation Assessment Project

Proc Type: Central Contract - Fixed Amt

Date Issued	Solicitation Closes	Solicitation No	Version
2018-06-12	2018-07-12 13:30:00	CEOI 1400 AGR1800000004	1

BID RECEIVING LOCATION

BID CLERK
 DEPARTMENT OF ADMINISTRATION
 PURCHASING DIVISION
 2019 WASHINGTON ST E
 CHARLESTON WV 25305
 US

VENDOR

Vendor Name, Address and Telephone Number:

ZMM, Inc.
 222 Lee Street, West
 Charleston, WV 25302
 (304) 342-0159

FOR INFORMATION CONTACT THE BUYER

Guy Nisbet
 (304) 558-2596
 guy.l.nisbet@wv.gov

Signature X

FEIN # 55-0676608

DATE 7/2/2018

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

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

ARK, PRINCIPAL
 (Name, Title)
 Adam R. Krason, AIA, LEED AP, Principal
 (Printed Name and Title)
 222 Lee Street, West, Charleston, WV 25302
 (Address)
 304-342-0159 304-345-8144
 (Phone Number) / (Fax Number)
 ark@zmm.com
 (email address)

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contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated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

ZMM, Inc.

(Company)

ARK, PRINCIPAL
 (Authorized Signature) (Representative Name, Title)
 Adam R. Krason, AIA, LEED AP, Principal

(Printed Name and Title of Authorized Representative)

7/2/2018

(Date)

304-342-0159 304-345-8144

(Phone Number) (Fax Number)

West Virginia Ethics Commission Disclosure of Interested Parties to Contracts

(Required by W. Va. Code § 6D-1-2)

Name of Contracting Business Entity: ZMM, Inc. Address: 222 Lee Street, West
Charleston, WV 25302

Name of Authorized Agent: Adam R. Krason Address: Same as Above

Contract Number: CE01 1400 AGR2800000004 Contract Description: WVDA Lab Engineering/
Evaluation Assessment
Project

Governmental agency awarding contract: WV Department of Agriculture

Check here if this is a Supplemental Disclosure

List the Names of Interested Parties to the contract which are known or reasonably anticipated by the contracting business entity for each category below (attach additional pages if necessary):

1. Subcontractors or other entities performing work or service under the Contract

Check here if none, otherwise list entity/individual names below.

2. Any person or entity who owns 25% or more of contracting entity (not applicable to publicly traded entities)

Check here if none, otherwise list entity/individual names below.

ZMM, Inc. Robert Doeffinger

ZMM, Inc. David E. Ferguson

ZMM, Inc. Adam R. Krason

3. Any person or entity that facilitated, or negotiated the terms of, the applicable contract (excluding legal services related to the negotiation or drafting of the applicable contract)

Check here if none, otherwise list entity/individual names below.

Signature: AKR

Date Signed: 7/2/2018

Notary Verification

State of West Virginia, County of Kanawha

I, Adam R. Krason AKR, the authorized agent of the contracting business entity listed above, being duly sworn, acknowledge that the Disclosure herein is being made under oath and under the penalty of perjury.

Taken, sworn to and subscribed before me this 2nd day of July, 2018

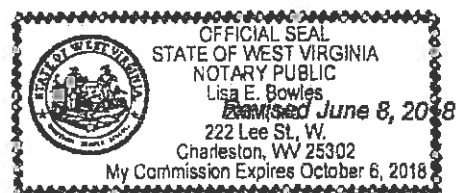
Lisa E. Bowles
Notary Public's Signature

To be completed by State Agency:

Date Received by State Agency: _____

Date submitted to Ethics Commission: _____

Governmental agency submitting Disclosure: _____



STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

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

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

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

DEFINITIONS:

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

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

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

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: ZMM, Inc.

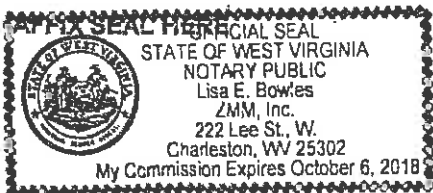
Authorized Signature: [Signature] Date: 7/2/2018

State of West Virginia

County of Kanawha, to-wit:

Taken, subscribed, and sworn to before me this 2nd day of July, 2018.

My Commission expires 10/6, 2018.



NOTARY PUBLIC [Signature]



July 12, 2018

Guy Nisbet, Buyer
Department of Administration
Purchasing Division
2019 Washington Street, E.
Charleston, WV 25305

Subject: WVDA Lab Engineering/Evaluation Assessment Project - AGR1800000004

Dear Mr. Nisbet:

ZMM Architects and Engineers is pleased to submit the attached information to demonstrate our experience and our qualifications to provide professional architecture and engineering services for the West Virginia Department of Agriculture's Laboratory Engineering / Evaluation and Assessment Project. Our team for this project includes CannonDesign, nationally recognized leaders in the planning and design of science, technology, and laboratory facilities. ZMM elected to partner with CannonDesign for this project because in part due to their vast laboratory design experience, but also because our firms share a commitment to employing an integrated design approach. The CannonDesign team also includes many professionals who were instrumental during previous site assessments for WVDA. The ZMM/ CannonDesign team is uniquely qualified to provide design services for the WVDA Lab relocation for the following reasons:

- **Experience.** Our team has a history of providing lab design programming, and site evaluations. In addition to our experience at the Tech Park, our team has a vast portfolio of Microbiology and Chemistry laboratory design projects including work at the Illinois Science and Technology Park, Johns Hopkins University, Novartis, NIH, Agriculture Testing Labs in Vermont, and multiple projects at Oak Ridge National Laboratory.
- **Quality.** ZMM has a history of providing high quality design services on new and renovation projects throughout the Kanawha Valley. Recent experience includes the Renovation of Davis Hall for Bridgemont CTC, the Renovation of the 10th Floor of State Office Building #5 for the Office of Technology, the CFMO Expansion for the West Virginia Army National Guard, as well as the Renovation of the DOW Headquarter Building on MacCorkle Avenue. Several of our local renovation projects have been honored with state and national design awards. CannonDesign shares this commitment to quality, which has been demonstrated by recognition of their work with more than 250 design awards.
- **Proximity.** All of ZMM's design professionals providing services on this project will be located in our office in Charleston. Our local design team, which includes architects, civil, structural, mechanical, and electrical engineers, as well as interior and lighting designers, will be supplemented by the specialized design expertise of CannonDesign. Our ability to provide integrated design services, as well as our ability to have regular access to each of potential sites due to our location, will help ensure the quality of the project for WVDA.
- **Sustainability.** ZMM is a leader in providing sustainable design services in West Virginia, and our team for this engagement has worked on more than 160 LEED Certified or Registered projects. We are committed to designing and engineering the most energy and resource efficient buildings possible. We are also engaged in state-wide conversations surrounding business practices that meet the triple bottom line, including the "Sustaining Lean" conference planned in conjunction with Bridgemont CTC, as well as the 2013 Sustainable Schools Symposium: Higher Education Edition, which was produced in

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conjunction with. Additionally, two of ZMM's mechanical engineers serve on national ASHRAE committees – Load Calculation; ASHRAE 90.1 and Energy Modeling.

Thank you for taking the time to review the attached expression of interest that includes our recommended project approach, information about our experience providing design services on WVDA Lab Site Assessment as well as information regarding the history, services, personnel, experience, and qualifications of our team. Additionally, please visit our websites at www.zmm.com and www.cannondesign.com to see the full range of projects that we have designed, and to learn about working with us from a client's perspective. We appreciate your consideration for this important assignment.

Respectfully submitted,

ZMM, Inc.

CannonDesign

Handwritten signature of Adam R. Krason in blue ink, consisting of stylized initials 'AK' followed by a horizontal line.

Adam R. Krason, AIA, NCARB, LEED-AP

Principal

Handwritten signature of Stephen Blair in black ink, consisting of stylized initials 'SB' followed by a horizontal line.

Stephen Blair, PE, LEED AP

Principal



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TEAM OVERVIEW



Putting the Power of Partnership to Work

The team of ZMM and CannonDesign creates a partnership that provides a local presence and familiarity of the local market with world class science and technology design expertise and an unsurpassed knowledge of state-of-the-art laboratory facilities.

ZMM Architects

ZMM has been dedicated to the integrated approach to building design which is unique to architectural firms of our size. Our past successful experience demonstrates that providing multi-disciplined services within one organization results in a fully coordinated project. ZMM has the qualified professionals available to provide services throughout the duration of a project from the initial planning phases through post-occupancy evaluations and beyond.

Advantages of an integrated Design Approach:

- The Owner has a Single Point of Design Responsibility
- Improved Design Schedule
- Improved Coordination of Documents
- Improved Construction Phase Services
- Well Coordinated Documents Lead to Better Bids for the Owner

Additionally, ZMM is constantly working to improve the services we offer by addressing emerging and evolving trends that impact the design and construction market. ZMM has eight LEED accredited Professionals on staff to address the needs of our clients who are interested in designing buildings that meet the US Green Building Council's standards. This continues ZMM's active implementation of sustainable design principles on our projects.

CannonDesign

CannonDesign is an award-winning architectural, engineering, lab planning, and interior design firm. In practice since 1945, they have an international reputation for design excellence, technological innovation, and unsurpassed client service.

CannonDesign has been recognized with over 650 awards for design excellence, technological innovation, and imaginative thought leadership. Having won R&D Magazine's Lab of the Year Awards in 2017 and 2018, they are nationally recognized for their contributions to the development of science and technology facilities across the nation.

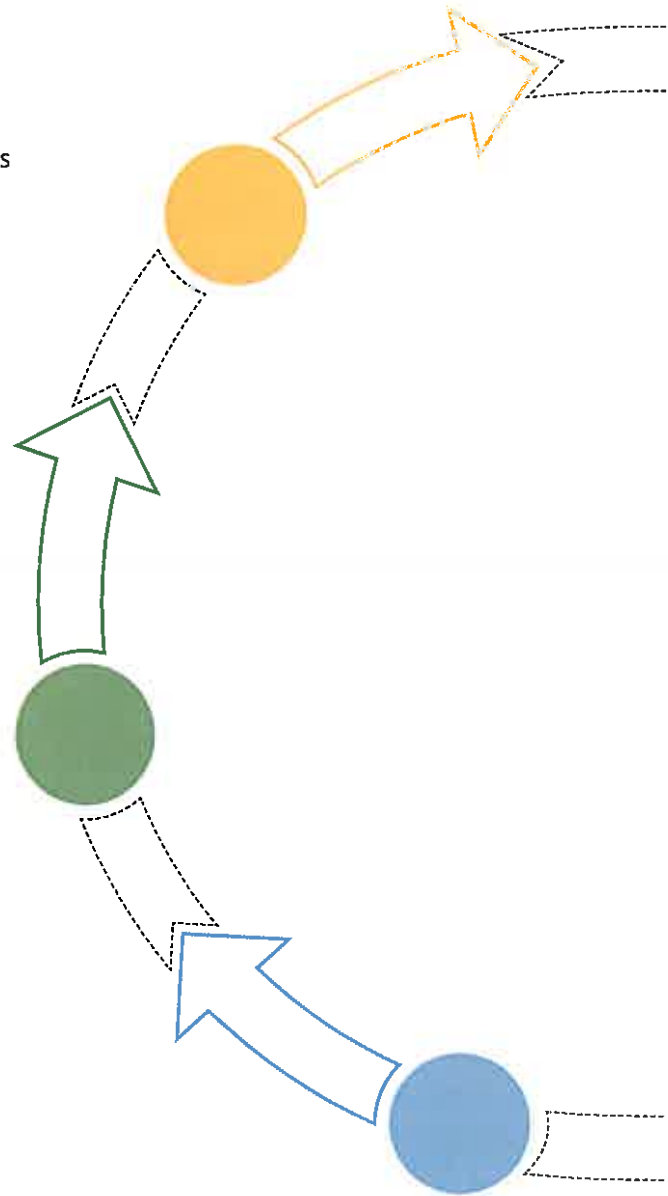
CannonDesign designs laboratories for the science of today and tomorrow, creating flexible, highly interactive spaces that maximize researchers' freedom and promote physical and mental well-being. Our practice is ranked in the top 10 globally for science and technology according to World Architecture.

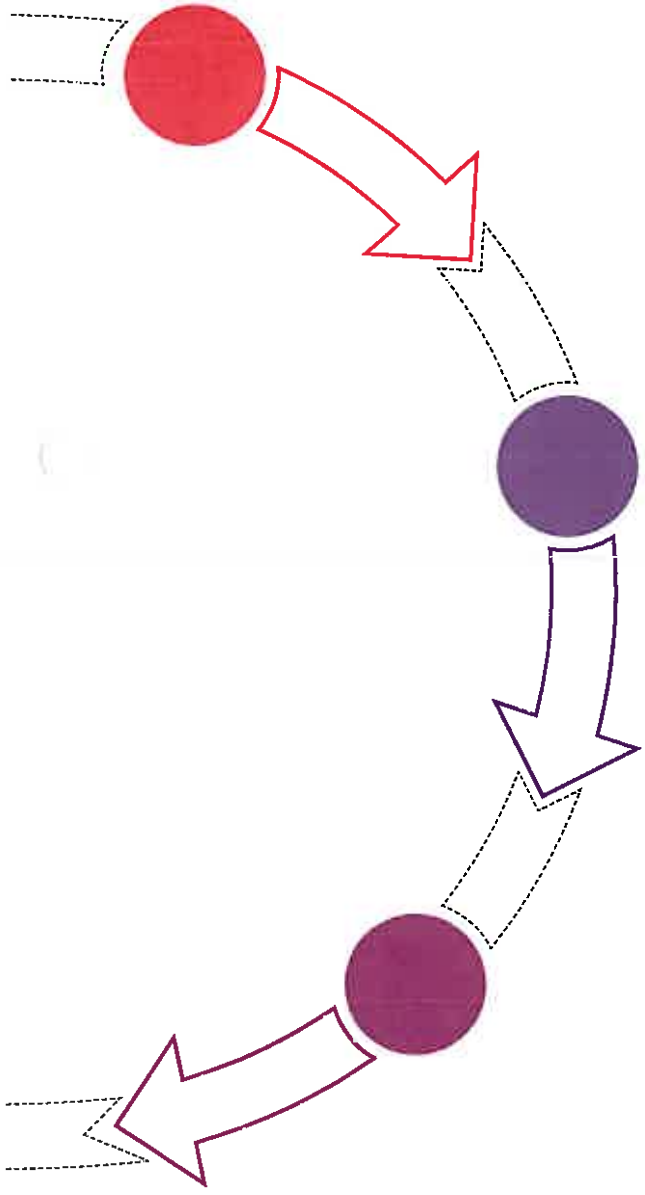
As a leading design firm, they operate on a global scale using a unique Single Firm Multi Office (SFMO) practice methodology, utilizing their 19 offices and more than 1,000 employees, with the Arlington, Virginia office taking the lead on the WVDA Lab Engineering / Evaluation Assessment Project.

Integrated Services

A strong team of complementary professionals is essential for success in creating transformative business strategies, integrating operational systems, and implementation through inspiring environments. For this reason, CannonDesign is committed to a continuum of inter-disciplinary design focused teamwork. By assembling cohesive teams of multiple experts from within our organization, we provide our clients with a seamless single point of responsibility, accountability, coordination, and communication.

- ENHANCED INVESTMENT**
 - Post Occupancy Evaluation
 - Real Estate Assessment
 - Space/Human Capital Analysis
 - Renovation Design
 - Investment Modeling
 - Tax/Depreciation
- PRODUCTIVE SUSTAINABILITY**
 - Energy Modeling
 - Life Cycle Costing
 - LEED
 - Carbon Targeting
 - Net Zero Strategies
 - Green Audit
- INTELLIGENT TECHNOLOGY**
 - MEP Design
 - Process Engineering
 - Technology Planning
 - Equipment Planning
 - Audio/Visual Systems
 - Lighting





- ADVANCING BUSINESS**
- Strategic Planning
 - Organizational Modeling
 - Business Modeling
 - Brand Translation
 - Research
 - Project Management
 - Cost Planning

- CREATING COMMUNITY**
- Master Planning
 - Campus Planning
 - Urban Design
 - Landscape Design
 - Scenario Simulation
 - Programming

- DEFINING CULTURE**
- Architectural Design
 - Interior Design
 - Laboratory Planning
 - Workplace Strategies
 - Environmental Graphics

Project Goals

The ZMM/CannonDesign team understands the goals for the WVDA Laboratory Engineering / Evaluation and Assessment Project. The ZMM/CannonDesign team is familiar with the current READ laboratories and the Animal Health labs within WVDA's Guthrie Agricultural campus. We have toured the site, collected data, and interviewed several of the lab personnel. This effort was part of our preliminary programming effort to fit-out the WVRTP project that has not been funded.

For Phase I, the project scope will include providing a laboratory, architectural, and engineering evaluation and assessment for up to five proposed sites for the relocation of two labs within WVDA: 1) the Animal Health Laboratories and 2) Regulatory and Environmental Affairs Laboratories (READ). Evaluations will include the assessments of the existing conditions for potential renovations for up to four sites, as well as evaluations for one potential site for new building construction.

The first objective includes reviewing the site plans, building plans, and site infrastructure of each of these five sites as provided from former proposals. We recommend that site tours and interviews of existing facilities personnel also be included as part of this objective. The second objective includes evaluation of these sites to meet laboratory safety requirements, mechanical, electrical, plumbing, and fire protection requirements. This objective will include the evaluation of the existing structure to confirm that the physical conditions of the architecture will be sufficient to support functional and safety requirements of the lab programs. Analysis of code compliance, loading, material flow, hazardous material storage and access, environmental conditions, and sustainability will also be included.

In order to assess the potential of the site relocations to accommodate current and future lab initiatives, the existing lab programs for Animal Health and READ will be analyzed and evaluated. This analysis will include initial programming, planning, and test fits of ideal layouts within each of the potential sites, and adjacencies to facilitate compliance with lab

standards, regulations, and other requirements.

Consequently, the goals for the lab site evaluations will also include:

- Support flexibility for future technologies. This goal is shared by all of our state laboratory clients.
- Support increased levels of molecular testing combined with rapid results. New testing equipment including automated lines are driving changes in testing methodologies. Labs must be designed to accommodate these changes with little or no cost and without disruption.
- Plan efficient flow of samples and materials to the lab. As operating budgets for lab operations continue to shrink, the streamlined movement and processing of samples through the lab can save money and improve safety by anticipating volumes and types of samples and by providing the staff with the appropriate environment for processing.
- Attract leading researchers and testing personnel. Attracting and retaining staff at state labs is a nationwide crisis. New state laboratories can act as a recruitment tool and assist in the retention of existing personnel through responsive design. Through our previous design experience, we know that by providing dedicated break areas, personal effects lockers in the lab, and natural light and views, the staff becomes more efficient and excited. These items have a small impact on the construction budget but a dramatic impact on employee satisfaction.

Other expectations include to provide an opinion of probable cost for the lab relocation to the potential sites. It is our understanding that the laboratories housed in this facility will be state of the art laboratory spaces and need to be BSL-2 capable. The relocation project will be designed to the highest levels of sustainability and to meet ASHRAE 90.1 2012 requirements.

The ZMM/CannonDesign team brings a strong understanding of both new and renovated laboratory facilities with similar requirements to WVDA's Animal Health and READ labs, including the complex issues surrounding retrofitting an existing facility.

We have experience providing innovative solutions through projects such as the Yale Sterling Chemistry Laboratory project which utilized cellular beams to create a chemistry laboratory in an existing building with low floor-to floor heights without altering the slabs of the building. The ZMM/CannonDesign team has found ways to retrofit existing buildings to become new and innovate science and technology spaces.

As the subject matter experts, the laboratory planning team is engaged with the client and design team to provide guidance to the unique issues and drivers that influence laboratory design. The laboratory planning team provides the in-depth knowledge of industry trends and benchmarking as well as prudent practices and guidelines that are exclusive to laboratory facilities. These include Vermont's Department of Agriculture Lab, and North Dakota State's Veterinary Diagnostics Lab. Team experience includes public health labs for Maryland, Virginia, and DC, as well as Agricultural Labs at WVU. Our team has implemented site selection and feasibility studies, along with programming, and feasibility studies for many institutions like WVDA. These include Johns Hopkins University, the University of Maryland, and the NIH. Having designed and implemented over \$5 billion worth of lab construction in the last ten years, the ZMM / CannonDesign team has extensive experience in the Phase II, and Phase III scopes of work, as well. Such experience is essential to implement Phase I.

Project Approach

The ZMM/CannonDesign team will utilize a planning team that is the advocate for WVDA's laboratories and provides a unified project approach that knits together the strategic planning efforts of space programming and concept design to the analysis and evaluation of each potential site. The ZMM/CannonDesign team will form a partnership in which CannonDesign focuses on the laboratory programming and fit-out test fits, while ZMM focuses upon the analysis, evaluation, and feasibility of each site. Our in-house, fully integrated design team, including architects, lab planners, all engineering disciplines and cost estimators will quickly work with WVDA's stakeholders to define the most functionally and cost effective site to achieve project success.

It is our understanding that the design team selected to undertake Phase I will initially complete a Feasibility Study that includes analysis and evaluation of five sites, generally including the following tasks:

- Prepare an initial program of requirements for the lab relocations
- Evaluate the capacity of each of five sites to accommodate this program.
- Analyze four existing sites and one new site for potential relocations.
- Develop 'test fit', conceptual level plans to verify space allocation and functional suitability for the labs within each of the five sites
- Confirm concept level engineering design solutions and develop corresponding scope of work for tenant spaces
- Evaluate and confirm any non-tenant renovation requirements necessary for each of the sites to assure an appropriately operational facility
- Prepare a preliminary estimate of construction and overall project costs for the appropriate sites

Having previously toured, interviewed, and collected data on WVDA's Guthrie Agricultural campus, the

ZMM / CannonDesign team's approach to the project will begin with a Kickoff Meeting at this site to confirm project goals and objectives, as well as to collect additional data and validate our findings on the READ and Animal Health Labs.

This meeting will be followed by User Group workshops. While analysis of existing conditions and lab functions are critical, even more critical will be in-depth interviews of the laboratory directors and personnel to plan for future procedures and program expectations. The design team will provide benchmark data from similar institutions to facilitate the decision-making process concerning the lab's future.

We will also challenge the existing lab arrangement since much of the current layout has been organized to fit into existing buildings that were not constructed for labs. The ZMM / CannonDesign team will provide options and alternates that may improve the current process flow, encourage collaboration, the sharing of more resources, with more sustainable lab environments to accommodate the lab personnel, WVDA's most valuable resource. While these environmental controls will include utility infrastructure to accommodate the criteria for state-of-the-art lab equipment, they should also include daylight, acoustical control, and other potential amenities. This process will also encourage more efficient usage of the functional areas accommodated within the 8,926 square feet of space allocated. The aim of this design approach is to maximize the lab's capacity and functions within a given fixed cost.

Following these exercises, the ZMM / CannonDesign team will provide a preliminary program that includes space lists, ideal adjacency diagrams, and a Basis of Design Narratives for the architecture, laboratory, and engineering systems, for review and approval.

Parallel to the programming exercise, the ZMM / CannonDesign team will be collecting data on the five potential sites. This data gathering exercise will include reviewing site plans, building plans, and specifications provided from previous proposals, touring each site and interviewing facilities managers of these sites when possible. Analysis of the data gathered will be evaluated in the context of the Basis

of Design criteria, space list, adjacency diagrams, utility requirements, environmental criteria and other data developed during the programming exercises. Test fits will be performed for each of the sites that accommodate the functional program. These test fits will include the lab plans and adjacencies with the necessary modifications that may be required to meet the existing conditions of each site. Evaluations of each site will be presented to WVDA along with the Opinion of Probable Cost.

Cost Estimating

The team includes CannonDesign’s internal cost estimating team. ZMM/CannonDesign has a commitment to cost control and understands the importance of maintaining the project budget and securing financing to the end goal of the project. At CannonDesign cost control is integral to the design and construction process. CannonDesign maintains one of the industry’s largest in-house cost estimating resources, a LEED-accredited, multidisciplinary team responsible for estimating more than \$4 billion in construction value annually. CannonDesign has a proven track record delivering projects on time and on budget. Throughout the design process, options are presented with cost scenarios so educated decisions can be made. Cost models are developed from early programming estimates to construction documents

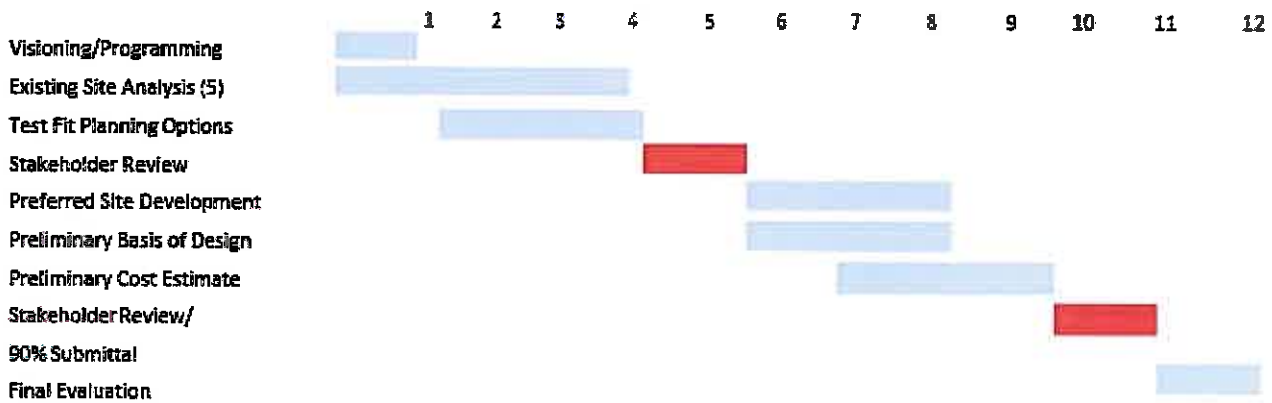
estimates. CannonDesign’s cost estimating expertise will allow the ZMM/CannonDesign design team weekly interaction with estimating trends.

We do not intent to find, after milestone deliverables, that a project is over budget. We integrate regular value management discussions with owners, users and estimators to keep the process moving forward on schedule and on budget.

Project Schedule

We are committed to working with WVDA to coordinate a project schedule that aligns with overall project goals and parameters. For preliminary planning purposes, we envision that the WVDA Lab Engineering / Evaluation Assessment Project could be completed in 10-12 weeks. The following schedule illustrates a 12 week process. If necessary, this schedule could be accelerated by minimally reducing design and review periods.

While the scope of tenant space design is unknown to us at this time, we anticipate that final design could be completed within a 4-8 month time frame, exclusive of stakeholder and agency reviews.



Quality Assurance / Control

Quality starts with listening to our clients. To achieve an outcome of high quality it is essential for us to have a deep understanding of the basic nature of what our client's seek to achieve with a project and the underlying value priorities including quality, program, time and cost. Together we integrate these factors into a decision-making and design and delivery process that establishes a methodology for a high quality experience and outcome.

Quality is a firm-wide initiative that is equally and voluntarily pursued by all members of our team. As a part of that goal, our Quality Program represents not a simple system of checks-and-balances, but a culture of quality that is supported by everyone on the team. This means striving to find ways to improve our performance in all areas of the product and process. This devotion to quality translates into increased benefits for our clients in a variety of ways, such as improved service, responsiveness, minimization of construction errors, schedule efficiency, and improved quality of the final design product.

Our Quality Assurance plan for WVDA's Site Evaluation and Assessment will include frequent document reviews inclusive of the following process:

Project Process

1. A Project Pull Plan – indicating deadlines that work back to milestones.
2. A Quality Management Plan (QMP) identifying external quality determinants including project specific requirements, scope, program, cost objectives and customer quality objectives.
3. A Quality Control Plan (QCP) appropriate to the size and complexity of the project, identifying at a minimum responsible internal reviewers and milestone reviews.
4. A BIM (Building Information Model) Plan, defining how BIM is used in the project;
5. A Sustainability Plan, identifying the project's sustainability goals, externally as set by Client, internally as set by CannonDesign.
6. A staffing plan with signoff from all Discipline Leaders.
7. Code Review
 - A. Identify and review appropriate codes, standards and guidelines for the project
 - B. The Project Architect and Project Engineer will conduct a code review at the earliest stages of the project as concepts are being developed.

Proposed Staffing Plan

This project poses multiple challenges (technical complexities, existing conditions of proposed building, interagency coordination and a new site) which all demand experience, breadth, local knowledge and coherence from our team. ZMM is teamed with CannonDesign to provide a complete local knowledge of the sites. Our approach to teaming and project organization is designed to address these challenges based upon three major principles:

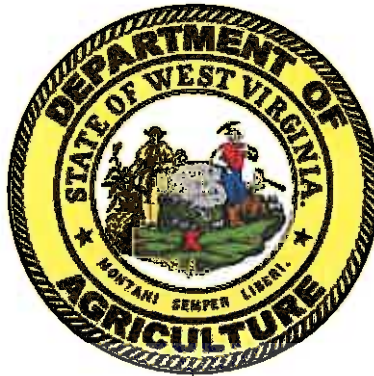
A Strong State Laboratory Focus – Our team is built around ZMM and CannonDesign staff and leaders with extensive state laboratory planning and design experience. A major objective of our approach is to strongly connect the lessons we have learned from our state laboratory projects with the local experience and knowledge to this new laboratory facility.

Local Presence and Expertise – The partnership of ZMM and CannonDesign provides our team the unique opportunity to have a top notch local presence who understands the local climate and can navigate the local politics with a team from CannonDesign comprised of leaders with extensive state laboratory planning and design experience. This partnership allows us to strongly connect the lessons learned in past projects locally and around the country and world to this new state of the art laboratory facility.

A Commitment to Team Integration and Integrated Delivery – An integrated design and delivery team is the primary attribute of the ZMM and CannonDesign project model. ZMM/CannonDesign have extensive knowledge of the lab program type, and have assembled a team of experts from our network that will best serve the project.

CannonDesign will operate on a global scale using their unique Single Firm Multi Office (SFMO) practice methodology. Utilizing the most advanced virtual technologies to fully integrate design and lab experts from all of their offices into a single unified firm without walls, offering WVDA access to the full resources of the entire organization, enabling the project to remain in contact motion across multiple time zones, sharing new ideas and best practices, enhancing quality and accelerating the speed of delivery.

The project team presented is committed to this project and excited to see this facility through to completion.



LEADERSHIP

Adam Krason, AIA, NCARB, LEED AP
ZMM Principal-in-Charge and Contract Manager

Stephen Blair, PE, LEED AP
CannonDesign Principal-in-Charge

PROJECT MANAGERS

Rodney Pauley, AIA
ZMM Project Manager

Steve Stinnette, AIA, LEED AP
CannonDesign Project Manager

ARCHITECTURE AND PLANNING

Joseph Popp, AIA, NCARB, LEED AP
Lab Planner

Curt Finrick, AIA, LEED AP BD+C
Design Principal

Nathan Spencer, AIA
Project Architect

Alissa McFarland, AIA, LEED AP
Lab Architect

David Esch, AIA
Quality Assurance / Quality Control

ENGINEERING

Scott Pegler, PE, LEED AP
Mechanical Engineer, Laboratory Design

Robert Doeffinger, PE
Mechanical Engineer, Core and Shell

Steve Wohlschlegel, PE, CDT, LEED AP
Electrical Engineer, Laboratory Design

Scot Casdorff, PE
Electrical Engineer, Core and Shell

Joe Scott, CPD, FASPE, LEED AP
Plumbing Designer, Laboratory Design

Mike Flowers
Plumbing Technician, Core and Shell

ADDITIONAL RESOURCES

Jack Mevorah, AIA, LEED AP BD+C
Sustainability Team Leader

Joseph L. Cohen, AIA, CPA, LEED AP
Cost Estimating Team Leader

Adam R. Krason, AIA, LEED AP, ALEP



Role
Principal

Professional Registrations

Registered Architect (WV, OH, KY, VA, MD, NJ)
LEED Accredited Professional
Accredited Learning Environment Professional
NCARB (55,984)
Construction Specifications Institute (CSI)
Construction Documents Technician (CDT)

Mr. Krason has served in the capacity of Architect and Project Manager for a variety of projects at ZMM. This experience includes Military, Educational (K-12 and Higher Education), Office, Justice (Courthouses, Correctional, Justice Centers), and Multi-Unit Residential projects. Mr. Krason's responsibilities include programming, design, documentation, coordination of the architectural and engineering team, as well as construction administration. Mr. Krason began his career in 1998, working on a variety of educational, commercial office, and correctional projects throughout Ohio, West Virginia, and North Carolina.

Mr. Krason has been an advocate of sustainable design in West Virginia, participating in a variety of sustainable design seminars throughout the State, and serving on the West Virginia School Building Authority Green Schools Sub-Committee. Recently, Mr. Krason helped coordinate the "Making the Business Case for Sustainability" conference at the University of Charleston that included speakers from Armstrong Industries, American Electric Power, CB Richard Ellis, and Interface Raise. Mr. Krason also assisted Habitat for Humanity Kanawha and Putnam County develop a commercial recycling program to fill a void in the sustainable design infrastructure in West Virginia. Mr. Krason has noted that, "I became a LEED Accredited Professional because I believe that good design has value, and the ability to impact our daily lives. Sustainable design showcases the value of design through demonstrated improvements in the performance of the students and employees who occupy our buildings." In addition to his design and project management responsibilities, Mr. Krason serves on the Board of Directors and is responsible for business development at ZMM.

Project Experience

Charleston Civic Center, Charleston, WV

Mr. Krason is serving as principal-in-charge of the expansion and renovation to the Charleston Civic Center. The \$75M, 283,000 SF design-build project is being completed as a

Education

Bachelor of Architecture, The Catholic University of America, 1998

Bachelor of Civil Engineering, The Catholic University of America, 1997

Employment History

2007 - Present, Principal, ZMM
2007 - Present, Board of Directors, ZMM
2003 - Present, Architect, Project Manager, ZMM
1998 - 2003, Architect, Project Manager, Charleston Area Architectural Firm

Civic Affiliations

- WV American Institute of Architects, President
- Habitat for Humanity Kanawha & Putnam County, Board of Directors 2011 - 2014
- WV Qualification Based Selections Council, President, 2012/2013
- Leadership WV 2010 - 2012
- Charleston Rotary
- West Side Main Street, Board of Directors 2008 - 2014
- City of Charleston Land Trust 2008 - 2014

STEPHEN BLAIR, PE, LEED AP

Principal in Charge



As the Director of CannonDesign's Science & Technology Design Practice, Stephen brings more than 29 years of experience planning and designing facility solutions for science and technology focused clients. His broad based experience includes working with clients from multiple markets including the developer, corporate, academic, government and healthcare markets. This broad experience provides a range of experiences to draw upon in development of creative solutions for his clients. As Director of the practice, Stephen will provide leadership to the design team engaging planners, architects, engineers and other industry experts together to deliver client centered design strategies and solutions.

Education

BS: Mechanical Engineering: Drexel University

Registrations

Professional Engineer: PA - [REDACTED]

Professional Affiliations

International Association of Pharmaceutical Engineers

LEED Accredited Professional

Relevant Experience

Confidential Developer, Consolidated Research Laboratory

Rockville, MD

A 65,000 gsf / \$40M research lab fit-out for a confidential government client provided on a build-to-suit long-term lease basis to one of our nation's most important biological research agencies includes laboratories for translational genomics, genomic susceptibility, and genetic epidemiology, along with adjacent office, meeting and amenity spaces for staff. Completion expected 2020.

State of Maryland, New Public Health Laboratory, Baltimore, Maryland*

Principal-in-Charge for a \$116 M, 232,000 sf laboratory building that uses public health as a major catalyst for urban revitalization, bringing jobs to East Baltimore while navigating issues of security, pedestrian access, and public image. The facility will include both open and closed laboratories, a secure holding dock, training facilities, and an All Hazards Receipt Facility.

Johns Hopkins University, Applied Laboratory, Design of Building 201, Laurel, MD

\$121 Million, 263,000 sf interdisciplinary research facility that will provide the Research and Exploratory Development Department with flexible, open laboratories in a highly collaborative, open workplace environment.

District of Columbia Public Health Annex, Washington, DC

Principal-in-Charge providing engineering and lab planning services in support of the District of Columbia (DC), department of Health's (DOH) procurement of a temporary, stand alone, modular, Public Health Laboratory (PHL) facility containing 8,000 gsf of BSL-2 and BSL-3 laboratory and lab support program. The DOH/PHL is a part of the National Laboratory Response Network (LRN), which is a network of laboratories with capability to respond to Bioterrorism (BT) and Chemical (CT) terrorism events.

State of North Carolina, New State Health Sciences Laboratory - Raleigh, North Carolina *

Principal-in-Charge for the new state-of-the-art Public Health Laboratory for the State of North Carolina will co-locate the State Laboratory of Public Health and the Medical Examiners office. The goal is to relocate both branches into a new facility, finding opportunities for shared spaces while maintaining separate identities for each group. This flexible facility will provide a safe work environment by enhancing building security to meet select agent use, and will be designed to promote interaction between the different groups.

*Previous experience

Rodney Pauley, AIA



Role
Project Manager

Professional Registrations
Registered Architect (WV)

Mr. Pauley is responsible for overseeing the daily design and production of the building, working in conjunction with in-house architectural, interiors and engineering staff to ensure the building not only meets the program requirements and budget, but meet the long-term needs of the owner. He also works directly with project principals to manage contracts, staffing and project deliverables. Mr. Pauley has a broad knowledge of building materials and services, building codes, and construction techniques, along with extensive experience in architectural detailing.

Mr. Pauley began his career in 1992 with an architectural firm in Atlanta, Georgia, and for the next 12 years rose to the Associate level by designing and managing a wide variety of project types including educational, retail, historic renovation, medical, and entertainment, specializing in office and speculative office design.

From 2005 through 2010, he worked at a number of Atlanta firms designing and managing office, high-rise condominium, and hotel projects. In 2010, Mr. Pauley moved back to Charleston, WV, to take a project management position with ZMM where he supervises the design and production of military, correctional and higher education projects.

Project Experience

Valley Park Community Center, Hurricane, WV

Mr. Pauley is currently serving as the project manager on the new 31,360 SF community center that will be the centerpiece of a multi-million dollar renovation to existing Valley Park in Hurricane, WV. Site work amenities being provided under a separate contract will include new baseball fields, soccer fields, tennis courts, playground space and additional parking. The project is being constructed for the Putnam County Parks and Recreation Commission with funds supplied by the Putnam County Commission. The Community Center entrance is highlighted by a large, exposed wood truss bearing on tall, battered stone columns. These wood beams are featured at all entrances and carry into the meeting room prefunction to provide a fully-exposed, open wood structure. The majority of the building perimeter is brick veneer with the taller meeting room and entrance separated by cast stone banding.

Education

Bachelor of Architecture, University of Tennessee, 1992

Associate of Science, West Virginia Institute of Technology, 1986

Employment History

2010 - Present, Project Manager, ZMM
2008 - 2010, Project Manager, GA Firm
2006 - 2008, Project Manager, GA Firm
2005 - 2006, Sr. Project Architect, GA Firm
Jan 2005 - Aug 2005, Project Architect, VA Firm

Civic Affiliations

- American Institute of Architects, Member

CURT D. FINFROCK, AIA, LEED AP BD+C

Design Principal



Curt Finfrock is an accomplished client leader and designer specializing in a wide range of programmatically and technically challenging research environments. With over 30 years of experience, Curt has led the programming, planning and design of over 1.2 million square feet of major constructed research facilities at multiple DOE National Laboratories. For the past six years, he has led IDIQ contracts for A/E design services at Oak Ridge National Laboratory.

Education

M.A. Architecture, Miami University, Ohio
Bachelor of Environmental Design, Miami University, Ohio

Accreditations

Registered Architect: Illinois, Ohio,
Tennessee, North Carolina

LEED AP BD+C

Affiliations

American Institute of Architects

Awards

AIA DC Distinguished Building Award,
Howard University, Interdisciplinary Research Building

AIA New Design Honor Award, Howard University, Interdisciplinary Research Building

AIA Chicago Distinguished Building Award,
McCormick Theological Seminary

Indiana/Illinois Masonry Design Award,
McCormick Theological Seminary

AIA Chicago Distinguished Building Award,
Ohio State University

AIA Ohio Honor Award, Third National Bank

Ohio Masonry Council Design Award, Third National Bank

Presentations

Tradeline Conference, "Bio-Nano Research,
Special Facility Solutions"

Tradeline Conference, "Flexibility and Costs
of Nanotechnology Laboratories"

EPA Labs 21 Conference, "Sustainable
Nanotechnology Research Facilities"

Relevant Experience

Oak Ridge National Laboratory IDIQ Contract, Oak Ridge, Tennessee

Building 4500 Master Plan – Strategic master plan for the complete renovation and transformation of a 60-year old historic laboratory complex into a contemporary research workplace including a total of 660,000 GSF, 12,000 NSF of radiological laboratories and 40 separate project implementation phases.

Oak Ridge National Laboratory IDIQ Contract, Oak Ridge, Tennessee

Site-Wide Master Plan - Strategic master plan for two million GSF, 4400-acre campus including five-year incremental planning phases addressing decommissioning/demolition, infrastructure improvements and new construction.

Oak Ridge National Laboratory IDIQ Contract, Oak Ridge, Tennessee

Spallation Neutron Source Second Target Station – Conceptual design for 390,000 GSF expansion of existing neutron science facility including proton beam tunnel, high-bay target building and neutron beam tunnels with radiological sensitivities and multiple experiment halls, research laboratory/office building and central utility plant.

Johns Hopkins University Applied Physics Lab Building 4 Renovation, Laurel, Maryland

20,000 GSF new laboratory and interactive workplace facility.*

North Dakota State University, Veterinary Diagnostics Lab

New 27,000 sf Veterinary Diagnostic Laboratory houses a 4,000 gsf, high-bay necropsy suite, testing and diagnostics labs, a BSL-3 laboratory and offices. The facility is also supported with an overhead crane system and a carcass incinerator. In association with Zerr Berg Architects.

Argonne National Laboratory, Argonne, Illinois

Energy Sciences Building - New 150,000 GSF interdisciplinary research laboratory/office facility and master plan for "Energy Quad" complex integrating existing and new laboratory buildings. LEED Gold

Energy Innovation Center - New 40,000 GSF flexible laboratory designed to frame and preserve an existing wetlands area and foster innovative levels of multi-disciplinary collaboration. Center for Nanoscale Materials - 70,000 GSF new clean room, laboratory and office facility.

Advanced Photo Source Laboratory - 190,000 GSF new laboratory, office and conference facility.

Center for Nanoscale Materials - 70,000 sf new clean room, laboratory and office facility.

*Previous experience

JOSEPH POPP, AIA, LEED AP

Laboratory Planner



Education

Bachelor of Architecture, Virginia Polytechnic Institute and State University

Registrations

Registered Architect: Virginia, Georgia

Professional Affiliations

American Institute of Architects

LEED Accredited Professional

As a laboratory design leader, Joe has over 28 years of experience and has planned approximately two million sf of institutional and academic lab facilities over the last two decades. Joe leads teams to understand and prioritize client goals in the design of innovative and collaborative environments that enhance productivity, increase learning and encourage scientific discovery. He brings laboratory expertise to the planning and design of flexible scientific and academic facilities including clinical, biomedical, organic chemistry and synthetic neuroscience, materials sciences, physics and engineering, animal holding facilities for teaching and research, and their associated lab support spaces.

Relevant Experience

Johns Hopkins University, Applied Physics Lab, Building 201, Laurel, MD

\$121M, 263,000 sf interdisciplinary research facility that will provide the Research and Exploratory Development Department with flexible, open laboratories in a highly collaborative, open workplace environment.

Novartis Institutes for Biomedical Research, Cambridge Campus Expansion Project, Boston, Massachusetts

The new mixed use lab/office/retail development of will consist of two new biomedical research structures: Building 608 (~370,000gsf) is an 8-story laboratory tower, and Building 613 (~327,000gsf) is a 7-story laboratory tower with loading dock. The research program includes Open Wet Labs and Lab Support spaces for Chemistry and Biology focused upon the following disease areas: Ophthalmology, Cardiovascular & Metabolic systems, Musculoskeletal, Neuroscience, as well as Developmental and Molecular Pathways. Space below grade is dedicated to an animal research laboratory with full interstitial space.

Confidential Developer, Consolidated Research Lab, Rockville, MD

A 65,000 gsf / \$40M research lab fit-out for a confidential government client provided on a build-to-suit long-term lease basis to a vital national biological research agency includes laboratories for genomics research, along with adjacent staff office, meeting and amenity spaces.

George Mason University, Institute for Advanced Biomedical Research, Fairfax, VA

75,000 sf highly flexible state-of-the-art laboratory facility housing research labs, lab support, offices, conference rooms, and building support. Open common areas encourage informal interaction.

University of Virginia, Health Sciences Center, Laboratory Renovations, Charlottesville, Virginia*

12,000 sf of new laboratory fit-out in existing center for wet labs for Molecular, and Cellular Biology Research. These accommodated instrumentation support labs such as Electron Microscopes, Laser Equipment, and an NMR.

West Virginia University, Agricultural Sciences Building, Evansdale Campus, Morgantown, West Virginia*

\$73 million, 205,000 gsf facility in support of WVU's Master Plan goals to attract high-quality students and research faculty. This new facility is designed to provide flexible teaching and research lab environments that include wet bench and computational spaces; teaching labs and general classrooms; as well as offices and conference space. Animal Sciences research programs include Physiology, Biochemistry, and Food Sciences. Plant Sciences research programs include Horticulture, Crops, Soils, and Entomology.

**Yale University, Sterling
Laboratory Renovation, New
Haven, CT**

\$83M, 157,830 sf renovation of the building's central section for new biology and chemistry teaching labs while preserving ground floor research labs. Structural upgrades, and new mechanical, electrical, and plumbing systems support a new multi-science program within the existing 11'-6" floor to floor height.

**George Washington University,
Virginia Science and Technology
Campus (VSTC) Ashburn, VA**

Fit-out of approximately 12,000 sf of the VSTC CRCC for undergraduate teaching labs and support.

**University of Maryland,
Baltimore Health Sciences
Facility III,
Baltimore, Maryland***

This \$212 million, 417,000 gsf facility will house central core research to be shared by the Schools of Medicine, Dentistry and Pharmacy; located within the heart of the existing three schools. The program includes a high-end imaging facility with 4 modalities, a large animal research facility for 17,000 cages, a Nanomedicine Center, conference and seminar suites, and over 75,000 nsf of flexible Open Wet Labs and Support Labs.

**National Institutes of Health,
Building 10 Revitalization Program
IDIQ, Bethesda, Maryland &
Nationwide***

Ongoing, multi-phased program to renovate the entire Building 10 Clinical Center Complex, as well as parts of Bldgs. 4 and 31A. The scope includes infrastructure upgrade studies, sustainable design standards, and nearly 50,000 SF of renovation projects to provide new state-of-the-art lab facilities.

**Virginia Division of Forensic
Science, Office of the Chief
Medical Examiner, Biotech Two
Laboratory, Richmond, Virginia***

Full services for a 135,000 S.F., \$23 million headquarters facility. The forensic laboratories included Firearms, Latent Prints, Drug Analysis, Photography, Questioned Documents, DNA/Serology, and officer training. The medical examiner spaces included Autopsy, Coolers, and X-Ray Rooms.

**AERAS Global Foundation, TB
Vaccine Phase II Laboratory,
Rockville, Maryland**

Design and production services for the 15,000 sf, \$5 million wet lab, tenant fit-out for the research and vaccine manufacturing division of the non-profit corporation.

*Previous experience

ALISSA MCFARLAND, AIA, LEED AP

Lab Planner/Project Designer



Alissa is dedicated to shaping research environments that engage to promote growth and discovery. Through a diligent data collection process, she serves clients first by being a conscientious listener, then by applying her analytic understanding to arrive at creative solutions to unique programmatic requirements. Her laboratory planning and design experience includes all aspects of the architectural design, detailing and MEP systems coordination required for state-of-the-art multi-disciplinary science centers.

Education

Bachelor of Architecture, Virginia Polytechnic Institute and State University, Blacksburg, VA

Registrations

Registered Architect: DC, 2012

Professional Affiliations

American Institute of Architects

American Association for Laboratory Animal Science

LEED Accredited Professional BD+C, 2004
NCARB, 2012

Relevant Experience

Confidential Developer, Consolidated Research Laboratory

Rockville, MD

A 65,000 gsf / \$40M research lab fit-out for a confidential government client. This research lab provided on a build-to-suit long-term lease basis to one of our nation's most important biological research agencies houses a genomics research laboratory, a lab for Translational Genomics, a lab for genomic susceptibility; and a lab for genetic epidemiology, along with adjacent office, meeting and amenity spaces for staff. Project expected to be completed in 2020.

University of Maryland College Park, Human Performance and Academic Research Facility at Cole Fieldhouse

College Park, MD

\$189M renovation and new addition of an existing 1950's era basketball arena to support UM's mission to integrate athletics, science, academics, and health. The 200,000 gsf addition includes Human Performance, Biomechanics, and Kinesiology and Neuroscience research labs, academic spaces, an entrepreneurial center, and an Orthopedic Medicine clinic open to the public. Designed to LEED Silver. Project expected to be completed in 2020.

George Mason University, Institute for Advanced Biomedical Research, Fairfax, VA

75,000 sf of highly flexible state-of-the-art laboratory facility will house labs, lab support, offices, conference rooms, and building support functions and will include a connecting link to Discovery Hall, an adjacent science building. Open common areas encourage informal interaction among researchers and staff. Project completed in 2014.

Johns Hopkins University Applied Physics Laboratory Building 201, Baltimore, MD

263,000 GSF interdisciplinary research facility that will provide the Research and Exploratory Development Department with flexible, open laboratories in a highly collaborative, open workplace environment.

Nathan Spencer, AIA



Role

Project Architect

Professional Registrations

Registered Architect (WV)

Mr. Spencer is responsible for coordinating the efforts of the design team in preparing thorough and clear design documents. He has experience in all phases of design working on a wide range of building types including; military, educational, office, justice, and residential.

He has worked on several projects that are currently pursuing LEED certification. In addition to production, Mr. Spencer, is also experienced in 3d modeling. He has worked on several preliminary concept study models as well as high quality renderings and 3d models later in the design process. Mr. Spencer is also experienced in high quality physical models.

Mr. Spencer began his career in architecture with ZMM in 2003, working as a summer intern. After graduating in 2003, he began working at ZMM full time.

Project Experience

Charleston Civic Center, Charleston, WV

Mr. Spencer is serving as project architect on the expansion and renovation to the Charleston Civic Center. The \$75M, 283,000 SF design-build project is being completed as a collaboration with tvsdesign and BBL Carlton. The design commenced in the spring of 2015, and construction is scheduled for completion in 2018.

Edgewood Elementary School, Charleston, WV

Mr. Spencer participated on the design team that developed the new Kanawha County Elementary School on Charleston's West Side. The school was designed as a 21st Century Learning Environment, with a focus on integrating technology into the delivery of the curriculum. Instructional areas will be located off of an open 'exploratorium' that is being designed to function like a children's museum, providing a variety of learning opportunities, and flexible educational spaces. The school integrates sustainable design principles to serve as a teaching tool for the students. A dental and health clinic is also on site for all enrolled students in the Kanawha County School District.

Logan-Mingo Readiness Center, Holden, WV

Education

Bachelor of Architecture, University of Tennessee, 2007

Employment History

2009 - Present, Architect, ZMM
2007 - 2009, Intern Architect, ZMM
2003 - 2007, Summer Intern, ZMM

Civic Affiliations

- American Institute of Architects, Member

STEPHEN M. STINETTE, AIA
LEED AP BD+C
Project Manager



Mr. Stinnette brings over 25 years experience as a project manager/architect, delivering technically complex projects to completion for science and technology and healthcare clients. His experience includes all phases of project development, from programming, design, and construction services of various project sizes and types in the Washington, DC metropolitan region. His portfolio includes coordinating and managing complex research facility projects for the National Institutes of Health, the US Department of Agriculture, the Food and Drug Administration, NASA, and the Naval Facilities Engineering Command's Testing and Evaluation Facility.

Education

BArch Architecture, Virginia Polytechnic Institute and State University, 1984

Registrations

Registered Architect: MD

Professional Affiliations

American Institute of Architects

National Trust for Historic Preservation

LEED Accredited Professional

Experience

**Lancaster General Health,
Phase 4 Microbiology
Laboratory, Lancaster, PA**

Laboratory Phase IV - Programming, design, and construction administration services for 8,000 sf renovation and expansion, including new clinical microbiology laboratory, renovated morgue and specimen receiving, and new staff support spaces including offices, conference rooms, and break room.

**National Institutes of Health,
Building 29A Renovation,
Bethesda, MD**

Building 29A Renovation - Planning and design services for \$60 million gut renovation of 107,000 gsf Building 29A into quality research space, including vivarium and high containment lab.

**Penn State Hershey Medical
Center, Cellular Molecular
Physiology Lab Renovation,
Hershey, PA**

The 4,100 GSF project involves the renovation of existing research laboratories and related support spaces for the Department of Cellular and Molecular Physiology on the fourth floor of the teaching wing, Basic Sciences Building, at Penn State Hershey College of Medicine. The biomedical research labs will support the research of two to three faculty to be recruited in the Department of Cellular and Molecular Physiology. In addition to wet labs and offices, the project includes tissue culture rooms, equipment rooms, microscope rooms and electrophysiology rooms.

**Yale University, Sterling
Chemistry Lab Renovation, New
Haven, CT**

An \$83 million renovation of Yale University's Sterling Chemistry Lab will gut the 157,832 gsf building's northern central section to create new biology and chemistry teaching labs while preserving existing research labs on the ground floor. In association with HBRA Architects.

**Human Genome Sciences, Inc.,
Laboratory Renovation, Rockville,
MD***

Project Manager - 8,000 SF renovation of existing laboratory space to accommodate clinical production of yeast-based products. The facility provides space for inoculum, fermentation, purification and bulk fill as well as support spaces including equipment wash, staging, gowning and offices. Existing adjacent laboratory operations remained functional during construction.

**George Mason University,
Institute for Advanced**

Biomedical Research, Fairfax, VA
75,000 sf of highly flexible state-of-the-art laboratory facility will house labs, lab support, offices, conference rooms, and building support functions and will include a connecting link to Discovery Hall, an adjacent science building. Open common areas encourage informal interaction among researchers and staff. Project completed in 2014.

JOSEPH COHEN

Cost Estimator



Joseph Cohen is uniquely capable to help clients tackle challenges on multiple levels as a registered architect, certified public accountant and LEED-accredited professional. Throughout his career, Joe has consistently helped clients save money and achieve their goals through cost modeling, estimating, value engineering and construction management efforts. Joe stays ahead of the curve in regards to cost trends, sustainable cost-control software and construction documentation ensuring the clients he partners with obtain a greater degree of success.

Education

Bachelor of Science, Accounting, State University of New York at Buffalo, Buffalo, New York

Bachelor of Science, Architecture, State University of New York at Buffalo, Buffalo, New York

Registrations

Registered Architect: NY
Certified Estimating Professional (AACE)
Certified Public Accountant
LEED Accredited Professional

Experience

Penn State Hershey Medical Center, Cellular Molecular Physiology Lab Renovation, Hershey, PA

The 4,100 GSF project involves the renovation of existing research laboratories and related support spaces for the Department of Cellular and Molecular Physiology on the fourth floor of the teaching wing, Basic Sciences Building, at Penn State Hershey College of Medicine. The biomedical research labs will support the research of two to three faculty to be recruited in the Department of Cellular and Molecular Physiology. In addition to wet labs and offices, the project includes tissue culture rooms, equipment rooms, microscope rooms and electrophysiology rooms.

State of Vermont, Agency Agriculture/Agency Natural Resources Collaborative Lab, Randolph, VT

Agency Agriculture/Agency Natural Resources Collaborative Lab - A new state building for two laboratories in central Vermont (34,000sf, \$15.5M construction), for occupancy in August 2017. The project is a consolidation of two state agencies that conduct research and document health quality standards for the state. A large portion of the project deals with the aggressive energy reduction goals for the project.

Johns Hopkins University Applied Physics Laboratory

Building 201, Baltimore, MD
263,000 GSF interdisciplinary research facility that will provide the Research and Exploratory Development Department with flexible, open laboratories in a highly collaborative, open workplace environment.

Millipore Corporation, Life Science Division Headquarters Danvers, MA

A 45,000 sf corporate research and development facility to include first-class laboratory and office space, conference rooms, a cafeteria, manufacturing, warehouse space, and on-grade parking.

MilliporeSigma, Membrane Modification Lab & Casting Line Plant Replacement Facility Bedford, MA

Feasibility study, programming, cost estimating, architecture, engineering and construction services for a 25,000 sf, \$20 million replacement facility. The current antiquated space/functions are housed in buildings that will be demolished in a new phase of planning for the campus.

Bristol-Myers Squibb, Inc./ Westwood Pharmaceuticals Buffalo, NY

Master plan followed by the design of a new research and development building containing executive offices, R&D library, and laboratories.

STEVE WOHLSCHLEGEL, PE LEED AP BD+C

Electrical Engineer



Steve leads the electrical engineering team in our DC office and has a broad range of project experience in higher education, healthcare, mission critical, hospitality, commercial and industrial markets. His electrical expertise includes all aspects of lighting, power and fire alarm systems, from concept through installation. He has been instrumental in the quality assurance and quality control on several recent projects ensuring successful engineering design integration.

Total Years Experience

28

Education

Bachelor of Science, Electrical Engineering,
University of Idaho

Registrations

Professional Engineer: VA, MD, DC, CA, CT,
CA, TX, CO, GA

NCEES

Professional Affiliations

National Council of Engineering Examiners
National Fire Protection Association
National Society of Professional Engineers

Recent Experience

Johns Hopkins University Applied Physics Laboratory Building 201, Baltimore, MD

263,000 GSF interdisciplinary research facility that will provide the Research and Exploratory Development Department with flexible, open laboratories in a highly collaborative, open workplace environment.

University of Maryland College Park, Human Performance and Academic Research Facility, College Park, MD

A multi-phased project involving programming, planning, and design to convert and expand the existing 1950's era basketball arena into an innovative Human Performance, research, and academic facility.

George Mason University, Institute for Advanced Biological Research, 3rd Floor Renovation, Prince William, VA

A 17,500 gsf renovation of shelled lab and office space providing space for biological and chemistry laboratories. This highly flexible state-of-the-art science facility houses labs, lab support, offices, conference rooms, and building support functions.

Confidential Developer, Consolidated Research Laboratory, Rockville, MD

A 65,000 gsf, \$40M research lab for one of our nation's most important biological research agencies houses a genomics research laboratory, a lab for translational genomics, a lab for genomic susceptibility; and a lab for genetic epidemiology, along with adjacent office, meeting and amenity spaces for staff.

SCOTT PEGLER
Mechanical and Engineer



With 25 years of industry experience, Scott acts as a technical guide and resource to lead design direction and assist engineers and designers in ensuring projects are consistent with design standards, project budgets and client's expectations in terms of: design and construction contract delivery vehicles, sustainability, energy efficiency, constructability, operations and maintenance requirements, and life cycle cost goals.

Education

Bachelor of Science, Mechanical Engineering,
West Virginia Institute of Technology, 1990

Registrations

Professional Engineer: VA, MD, DC

Experience

George Mason University, Institute for Advanced Biological Research, 3rd Floor Renovation, Prince William, VA

Quality Control/Construction Administration - A 17,500 gsf renovation of shelled lab and office space providing space for biological and chemistry laboratories. This highly flexible state-of-the-art science facility houses labs, lab support, offices, conference rooms, and building support functions.

University of Maryland College Park, Human Performance and Academic Research Facility at Cole Fieldhouse

The New Cole Field House is a multi-phased project involving programming, planning, and design to convert and expand the existing 1950's era basketball arena into an innovative Human Performance, research, and academic facility, as well as a first class NCAA Division 1 indoor football training facility to support UM's introductions to the Big 10 Conference. Project includes sports medicine and training facilities, two outdoor football practice fields, academic spaces, a graduate level research facility for brain in jury, and an Orthopedic medicine clinic open to the public, and an innovative entrepreneurial incubatory.

Confidential Developer, Consolidated Research Laboratory, Rockville, MD

A 65,000 gsf, \$40M research lab for one of our nation's most important biological research agencies houses a genomics research laboratory, a lab for translational genomics, a lab for genomic susceptibility; and a lab for genetic epidemiology, along with adjacent office, meeting and amenity spaces for staff.

JOE SCOTT, CPD, FASPE, LEED AP

Plumbing Designer

CannonDesign



Joe Scott is a senior plumbing designer and engineering manager for CannonDesign. Joe works across building typologies and brings vast experience to his projects. Working with clients and contractors is one of Joe's strengths, as well as understanding and helping multiple disciplines work through complex problems and issues. Joe is a regular speaker, author and board member for industry-related organizations, helping those who've dedicated themselves to plumbing design.

Total Years Experience

36

Education

AAS, Applied Science, Lakeland College

Registrations

Registered Professional Engineer: WY, WI, VA, TX, TN, SD, OH, NB, MO, MI, KS, IN, IA, FL, CO, AZ, AR

Registered Structural Engineer: IL, NV, CA

Registered Civil Engineer: CA

LEED® Accredited Professional, Building Design & Construction

Affiliations

American Society of Plumbing Engineers (ASPE) - College of Fellows (FASPE)

American Society of Plumbing Engineers (ASPE) - Society President, 2004-2006

International Plumbing Mechanical Code Council, member 2008

National Fire Protection Association (NFPA)

Publications

American Society of Plumbing Engineers (ASPE) - Authored Green Design for Plumbing Systems Chapter of the Plumbing Engineering Design Handbook, published October 2004

American Society of Plumbing Engineers (ASPE) - Editor Plumbing Systems and Design Magazine, 2002 to 2009

Plumbing Systems and Design Magazine columnist of the bi-monthly Learned Column, 2002 to present

American Society of Plumbing Engineers (ASPE) - Domestic Water Heating Design Manual

Experience

Johns Hopkins University Applied Physics Laboratory Building 201, Baltimore, MD

263,000 GSF interdisciplinary research facility that will provide the Research and Exploratory Development Department with flexible, open laboratories in a highly collaborative, open workplace environment.

Human Performance Wing, Wright Patterson AFB, Major General Harry George Armstrong Complex, Wright Patterson AFB Dayton, OH

\$194 million, 680,000 sf, LEED Silver facility with SCIF space, biomedical research laboratories, human performance testing and training labs, medical facilities, classrooms, auditorium, and administrative offices for the Air Force's School of Medicine; delivered as fast-track design-build procurement in 10 packages. In association with Archer Western Contractors, Butt Construction, Burgess & Niple, and THP Ltd.

Oak Ridge National Laboratory, Maximum Energy Efficiency Research Laboratory, Oak Ridge, TN

17,800 gsf, LEED Gold research facility for controlled study of building envelopes and HVAC systems, and two "flexible research platforms" for testing full-scale building enclosures and systems under natural exposure.

Oak Ridge National Laboratory, Modernization of Laboratory Facilities (Chemical and Materials Sciences Building), Oak Ridge, TN

160,000 gsf, "off campus" multiprogram laboratory facility. Project is registered for LEED Gold certification and features multiple energy-conserving techniques and products developed at Oak Ridge National Laboratory.

Robert Doeffinger, PE



Role

Engineering Principal

Professional Registrations

Professional Engineer (WV, VA, PA, OH, TN, KY, NY, NH, ME, NC, SC, FL, NJ, GA)

As ZMM's Principal Engineer, Mr. Doeffinger is in charge of the engineering disciplines, it is his responsibility to ensure that the mechanical and electrical engineering components of ZMM's design are coordinated and integrated into the final product.

After graduate school in Architectural Engineering, Mr. Doeffinger joined ZMM. He has over 35 years design experience in mechanical and electrical systems for buildings. He has a broad range of engineering experience in education, industrial and manufacturing facilities, large retail, correctional and jails, office buildings, and military facilities.

Mr. Doeffinger is responsible for new design and retrofit of chilled water systems for all building types including large regional shopping malls. He is involved daily with the firm's selection of appropriate systems for all building types and performs life-cycle cost analysis and energy studies.

Mr. Doeffinger is a member of the American Society of Heating, Ventilation and Air-Conditioning Engineers. He is the current national Chairman of the Technical Committee on Heating and Air-Conditioning Load Calculation. He is involved in writing the National Standard on the Method of Calculation, which will shape the nature of the future building energy use for the nation.

Project Experience

Appalachian Regional Hospital, Beckley, WV

Mr. Doeffinger is the Mechanical Engineer currently working with the hospital on multiple renovations. The hospital will receive HVAC upgrades, make-up air and fan coil units, a new endoscopy suite, as well as other renovations to the kitchen area.

State Office Buildings #5, 10th Floor Charleston, WV

Mr. Doeffinger was the Project Engineer for this renovation project. The renovation of the tenth floor of State Office Building #5 on the State of West Virginia Capitol Campus was recently completed for the Office of Technology. The renovation was designed to meet the United States Green Building Council's LEED for Commercial Interiors standard. The renovations also

Education

Master of Science Architectural Engineering, Pennsylvania State University, 1976

Bachelor of Science Mechanical Engineering, West Virginia University, 1973

Employment History

2005 - Present, President, ZMM

1976 - 2005, Vice President and Engineering Principal, ZMM

Civic Affiliations

- ASHRAE – Member of the Technical Committee Load Calculations Data and Procedures for 15 years, serving as chairman. Presently Chairman of the Research Subcommittee
- Advisory Board for the Department of Electrical Engineering Technology, Bridgemont Community and Technical College
- City of Pt. Pleasant, WV – 2nd Ward Councilman for 20 years

Scot Casdorff, PE



Role
Electrical Engineer

Professional Registrations
Professional Engineer (WV)

Mr. Casdorff serves as an Electrical Engineer with ZMM providing electrical design services for a vast number of projects consisting of commercial, educational, correctional, institutional, and military facilities.

Mr. Casdorff is responsible for many facets of the project pertaining to electrical design such as interior and exterior lighting, power distribution, data system design, security, fire alarm, low voltage control systems, equipment specifications and performs electrical assessments during construction prior to the project's substantial completion date. Mr. Casdorff has participated on several LEED registered projects using energy conserving methods and utilizing lighting control systems and other means to meet or exceed ASHRAE 90.1, LEED, and energy code requirements.

Project Experience

Charleston Civic Center, Charleston, WV

Mr. Casdorff is the electrical engineer on the expansion and renovation to the Charleston Civic Center project. The \$75M, 283,000 SF design-build project is being completed as a collaboration with tvsdesign and BBL Carlton. The design commenced in the spring of 2015, and construction is scheduled for completion in 2018.

Southside Elementary and Huntington Middle School,

Huntington, WV Mr. Casdorff was the electrical engineer on this 156,000 SF facility. This project encompasses all phases of construction; demolition, major renovation and new construction. The original historic 26,000 SF three story school building was preserved and the remaining less than adequate facility was strategically removed to accommodate the new addition. The existing facility was completely renovated and brought up to new construction standards to blend with the new addition. The project consisted of two distinct school facilities existing on the same piece of property. The new construction blends seamlessly with the older historic structure.

Gauley River Elementary School, Craigsville, WV

Mr. Casdorff was responsible for the electrical design of the new elementary school. The project is consolidating Beaver

Education

Bachelor of Science, West Virginia
Institute of Technology, 1995

Employment History

2000 - Present, Electrical Engineer, ZMM
1995 - 2000 Electrical Controls Systems
Manager, WV Engineering Firm



Role
Electrical Engineer

Professional Registrations
Professional Engineer (WV)

Mr. Casdorff serves as an Electrical Engineer with ZMM providing electrical design services for a vast number of projects consisting of commercial, educational, correctional, institutional, and military facilities.

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Gauley River Elementary School, Craigsville, WV

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Institute of Technology, 1995

Employment History

2000 - Present, Electrical Engineer, ZMM
1995 - 2000 Electrical Controls Systems
Manager, WV Engineering Firm

Mike Flowers



Role

Plumbing/Mechanical Technician

Mr. Flowers is responsible for the design of Plumbing systems, ensuring that the systems are designed to meet the needs of the owner and utilize the latest plumbing technologies to provide the most energy efficient design possible. Mr. Flowers has participated on several LEED registered projects; one of his key contributions to these projects is selecting plumbing fixtures and accessories in his design that require less utility consumption, so significant utility savings are passed on to the owner and the environment as well.

Mr. Flowers has had extensive experience in the field of construction where he frequently visits ZMM's current projects under construction and thoroughly checks the contractors work to ensure compliance with project specifications and construction documents.

Project Experience

Mr. Flowers has a broad range of experience and knowledge in Plumbing and HVAC systems design. His experience includes K-12 Schools, Higher Education Facilities, Military Facilities, Office Buildings, and Juvenile and Adult Correctional Facilities.

- Morgantown Readiness Center
- Logan-Mingo Readiness Center
- Huntington East Middle School
- Southern WV Community & Technical College
- Lincoln County High School

Jackson County Armed Forces Center (WVARNG): Mr. Flowers was responsible for the plumbing design on this project that utilized plumbing fixtures that reduced the total annual water usage by 30% as compared to using standard plumbing fixtures.

His design also incorporated 98% efficient water heating technology that dramatically reduced the total utility consumption for water heating.

Education

Associate in Mechanical Drafting and Design, 1990, Ben Franklin Career and Technical Center

Associate in Electronics Technology, 1987, Putnam Career and Technical Center

Associate of Science, 1988, West Virginia State University

Completed Dale Carnegie course in Effective Communications and Human Relations and Skills for Success

Employment History

2001 - Present, Mechanical and Electrical Technician, ZMM

1998 - 2001, Mechanical and Electrical Designer/Manager of CAD Services, ZDS, Inc.

1991 - 1998, Mechanical and Electrical Technician, ZMM

Civic Affiliations

- American Society of Plumbing Engineers (ASPE), Member Since 2009

Prototype “Laboratory of the Future”

Novartis, New Innovative Laboratory at 200 Technology Square

The new Innovative Laboratory at 200 Technology Square is a renovation and expansion project that became an experiment in itself. When the Novartis Institutes for Biomedical Research commissioned CannonDesign to provide architectural, engineering, interior design, and lab planning services for a laboratory that was more efficient, flexible, and collaborative yet compatible with researchers’ existing workflow, it challenged the design team to create a new organizational and physical paradigm for the research environment. In developing initial concepts, the design team went beyond merely defining the physical requirements of a modern research space to investigate precisely how Novartis researchers worked and interacted in the laboratory and how they interacted socially outside of the lab. CannonDesign invited the laboratory’s head researcher to join in the design effort, which yielded a wealth of important feedback and ensured consensus from the researchers who would inhabit the space.

The Innovative Laboratory incorporates videoconferencing technology throughout laboratory and lounge areas and includes a variety of private and non-private meeting areas that accommodate multiple uses. Although this design blurs the boundaries between research areas and office functions, it maintains a clear division for safety while significantly enhancing the laboratory experience for Novartis researchers.

DATA

- Cambridge, Massachusetts
- 17,000 sf
- Completion 2013
- Architect of Record, Design Engineer, Interior Design, Lab Planning, Microbiology Labs



RELEVANT EXPERIENCE

Revolutionizing a University's Historic Lab Renovation Process

Yale University

Sterling Chemistry Laboratory

An \$83 million renovation of Yale University's Sterling Chemistry Lab led by CannonDesign, in association with HBRA Architects, will gut the 157,832 gsf building's northern central section to create new biology and chemistry teaching labs while preserving existing research labs on the ground floor. The renovation includes a new roof structure, structural and seismic upgrades, and all-new mechanical, electrical, and plumbing systems to support a new multi-science program. In addition to leading the renovation effort, CannonDesign is providing laboratory programming, planning, and design services for the project from design development through construction.

Outcomes:

- Project completed one month early and within budget.
- Provided approximately 2,000 sf additional programming space without increasing building height or footprint.
- A recirculated water system saves millions of gallons of potable water annually.

DATA

- New Haven, Connecticut
- 101,280 sf
- Completion 2016
- Architecture, Interior Architecture, Laboratory Planning, Commissioning, Sustainability Services
- Organic, Physical and General Chemistry - Microbiology and General Biology
- 18,000 nsf of Open Teaching Labs for Chemistry and Biology
- Multiple Class Sizes - 24 to 60 students each



RELEVANT EXPERIENCE

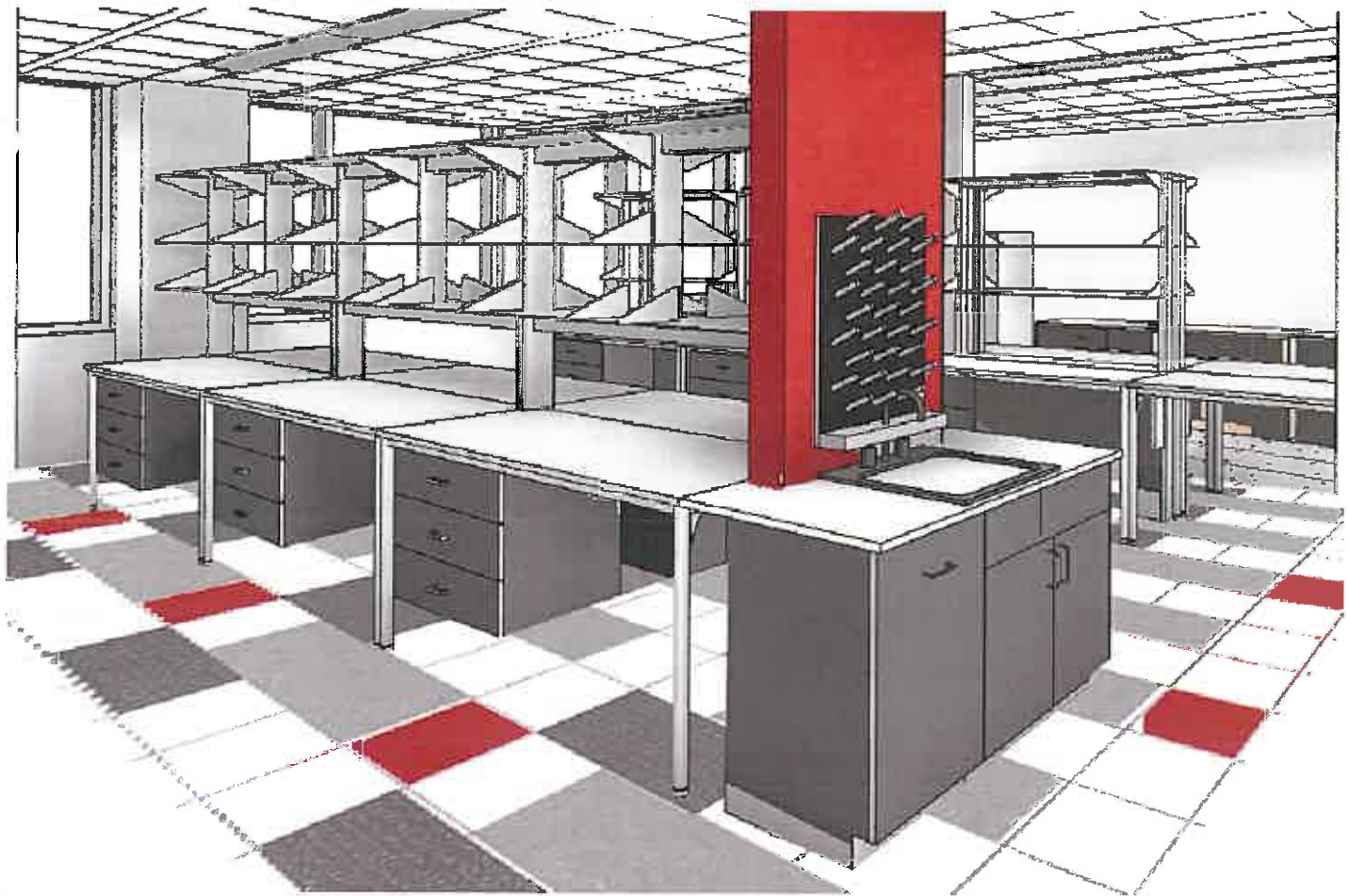
Interior Fitout for Nation's Most Important Biological Research Agency

Confidential Developer, Consolidated Research Laboratory

A 65,000 gsf, \$40M research lab for a confidential government client. This research lab provided on a build-to-suit long-term lease basis to one of our nation's most important biological research agencies houses a genomics research laboratory, a lab for translational genomics, a lab for genomic susceptibility; and a lab for genetic epidemiology, along with adjacent office, meeting and amenity spaces for staff.

DATA

- Rockville, Maryland
- 65,000 sf
- 2019
- Interior Architecture, MEP/FP Engineering, Workplace Strategy, Lab Planning, Microbiology Lab





Innovative MAXLAB Tests Building Systems

Vermont Department of Agriculture Laboratory

CannonDesign is working with the State of Vermont to develop a 35,000 gsf facility to house the State's Agricultural testing labs that were destroyed in hurricane Irene. The program includes laboratories for Plant Industry, BSL-3 Animal Pathology, Watershed Management, Core Chemistry, Core Biology, Air Quality, Forest Biology, Fish and Wildlife, and Weights and Measures. The project is to be located on the campus of Vermont Technical College which will generate synergies for teaching and training as well as space sharing.

DATA

- Randolph Center, Vermont
- 35,000 gsf
- 2016
- Programming, Architecture, Lab Planning, Agriculture Testing Labs

Penn State Hershey Medical Center, Cellular and Molecular Physiology Lab Renovation

Penn State Hershey Medical Center, Cellular Molecular Physiology Lab Renovation

CannonDesign and Barton Healthcare provided architectural, engineering, and laboratory planning services for renovation of existing research laboratories and related support spaces for the Department of Cellular and Molecular Physiology on the fourth floor of the teaching wing, Basic Sciences Building, at Penn State Hershey College of Medicine. The biomedical research labs will support the research of three faculty to be recruited in the Department of Cellular and Molecular Physiology. In addition to wet labs and offices, the project includes tissue culture rooms, equipment rooms, microscope rooms and electrophysiology rooms.

DATA

- Hershey, PA
- 5,000 sf
- 1.5M construction cost
- completed 2016
- Architecture
Laboratory Planning
Interior Design

PROJECT RELEVANCY

- Interior Renovation



RELEVANT EXPERIENCE

Optimizing a Vibrant New Scientific Workplace Experience

MilliporeSigma

MilliporeSigma is the Life Science division of Merck KGaA, Darmstadt, Germany. MilliporeSigma's research is focused on providing a broad range of innovative, performance products and business services that accelerate and enhance their customers' success in research, development and production of biotech and pharmaceutical drug therapies. Through dedicated collaboration and a goal of providing research, process and applied solutions for new scientific and engineering Life Science Tools, MilliporeSigma serves as a strategic partner to help advance the life science industry.

MilliporeSigma is leveraging its longstanding presence in Massachusetts, as a springboard to develop its own collaboration hub. The new 280,000 square foot facility will create a "major hub" for its North American Life Science business and will include 40,000 square feet of specialty laboratory and technical operations for Lab Americas, Provantage and the M Lab Collaboration Center. The M lab provides customers a shared, exploratory environment where scientists and engineers can work together to solve biomanufacturing challenges and help accelerate the development of new therapies. The new center will facilitate collaboration between scientists and engineers, while also providing a non-GMP environment for hands-on training, customer experiments and troubleshooting to take place.

DATA

- Boston, Massachusetts
- 280,000 sf
- 2017
- Interior Architecture, Engineering, Lighting

PROJECT RELEVANCY

- Interior Tenant Fit-Out



RELEVANT EXPERIENCE

Flexible and Collaborative Interdisciplinary Research Facility

Johns Hopkins University Applied Physics Laboratory, Design of Building 201

The Johns Hopkins University Applied Physics Laboratory Building 201 is a 263,000 gsf interdisciplinary research facility that will provide the Research and Exploratory Development Department with flexible, open laboratories in a highly collaborative, open workplace environment. Laboratories supporting electrical engineering, mechanical engineering, biological sciences/engineering, microelectronics/microsystems and multifunctional materials and nanostructures are organized in a non-departmental, shared facility plan around a four story day lighted atrium that serves to socially integrate the entire research center in conjunction with generous unassigned collaborative spaces offering researchers many options for focused, informal and group work activities. CannonDesign is currently providing complete A/E design services for the project which is scheduled to be occupied in early 2020.

DATA

- Laurel, Maryland
- 263,000 sf
- 2020
- Architecture, Interior Architecture, Laboratory Planning, Engineering, Change Management, Workplace Strategy

PROJECT RELEVANCY

- New Construction, Chemistry Labs, Microbiology Labs





RELEVANT EXPERIENCE

Interdisciplinary collaborative academic programs and laboratory spaces

George Mason University Institute for Advanced Biomedical Research, 3rd Floor Fit-Out

George Mason University's Life Sciences Lab Building, 3rd Floor Fit-Out is an 18,000 gsf flexible wet lab and office space for Biology and Biochemistry Research within the 75,000 gsf lab facility that was completed by CannonDesign in 2014. Located in GMU'S Prince William Campus in Manassas, Virginia, it will advance the university's research program as well as the initiatives of the companies that regularly partner with GMU's research teams. This highly flexible state-of-the-art laboratory facility will house open wet labs, lab support, offices, and conference rooms, as well as open common areas to encourage informal interaction among the researchers and staff. The facility serves GMU's biochemistry, CAPMM, and CLIA groups. Labs and offices enjoy an abundance of natural light. Achieved LEED certification.

DATA

- Fairfax, VA
- 18,000 sf
- 2018

PROJECT RELEVANCY

- Interior Tenant Fit-Out, Lab Planning, Microbiology Labs



RELEVANT EXPERIENCE

A New Clinical Laboratory Renovation for Lancaster General Health

Lancaster General Health Clinical Laboratory Renovation

Lancaster General Health has partnered with Cannon Design to program, plan, design, and facilitate construction of the renovation and expansion of three phases of a renovation program for the clinical laboratory at Lancaster General Health (LGH). As part of Cannon Design's efforts; demolition and construction activities were carefully synchronized to maintain ongoing lab and clinical operations, including ongoing occupancy of sensitive cardiology outpatient facilities on the floor directly below the renovations. The renovations span four buildings within the existing facility and required careful development of BIM base drawings and thorough surveying of existing conditions, structure and building systems.

The Phase 3 Lab houses a new, automated clinical core lab that serves LGH's in-house and regional Clinical Testing needs. Capable of quickly processing and storing more than 3,000 samples per day, complex highly automated equipment from Beckman and Sysmex greatly increased throughput for LGH's testing staff and improved Quality Control and accuracy of sample tracking, speed of sample recovery, and ease of access to test results.

Phase 4 of the project provides new state-of-the-art microbiology facilities for the LGH clinical labs. The project involves approximately 8,000 sf of renovated space accommodating testing, study, and research facilities for the microbiology functions in open, flexible laboratories and support spaces. Adjacent to the microbiology laboratory spaces, additional work includes the renovation of the morgue, specimen receiving, and development of staff support spaces including offices, conference rooms and employee break space.

Phase 5 renovations have provided administrative, staff and support spaces for the Clinical Labs, this phase of the work completes the renewal of the Clinical Testing Lab including Department Director's offices, toilet rooms, and utilities replacement.

DATA

- Lancaster, PA
- 24,887 sf
- 2013
- Programming, Architecture, Interiors, Construction Administration, Lab Planning

PROJECT RELEVANCY

- Interior Renovation, Automated Labs



RELEVANT EXPERIENCE

New Center Encourages Cross Departmental Collaboration

Coppin State University Science and Technology Center

Housing the department of math and computer science and the department of natural sciences, Coppin State University's new Science and Technology Center encourages faculty and students from different science departments to collaborate on projects that cross traditional departmental boundaries. All labs and classrooms are designed for collaborative project teams of two to eight people to work together as part of the daily learning experience. The building also houses a small animal vivarium, advanced undergraduate research space, and the information technology department, which supports the entire campus and the primary data center. General classrooms and computer labs for campus wide use are included on the lower level. The entry level is active and vibrant, with exhibit space and a 100-seat lecture hall.

The four-story, 152,000 sf building is sited and massed to create a dramatic presence on North Avenue, with a dramatic stair tower to the north and a glass building element floating over the main building entrance that glows at night and reveals activity in science professors' offices. Lab and support "bars" are gently bent and manipulated to define interior collaboration zones and increase the building's dynamic presence. A series of smaller two-story spaces give presence to the inner collaboration spaces, draw in daylight, and take advantage of dramatic views. The university is pursuing LEED Gold certification for the facility.

DATA

- Baltimore, Maryland
- 152,000 sf
- 2015
- Master Planning, Architecture, Laboratory Planning, Construction Administration



RELEVANT EXPERIENCE

Partnership for the Future of Personalized Medicine

University of Pennsylvania Health System, Center for Advanced Cellular Therapies (CACT)

The Center for Advanced Cellular Therapies (CACT) brings together UPHS's intellectual resources combined with a pharmaceutical industry leader in Novartis with the mutual goal to find more effective treatments for cancer. The CACT facility will increase UPHS's capacity for clinical trials of the T-Cell modification of chimeric antigen receptor (CAR) technology for patients with chronic lymphocytic leukemia (CLL). The spaces required to create the CACT include FDA Certified, Type C, current Good Manufacturing Practice (cGMP CFR 21) clean rooms for manufacturing cell therapies for early phase (Phases I and II) clinical trials. The Cell Processing rooms are certified to ISO Class 10000 with the supporting spaces at ISO Class 100000. The flow of specimens, staff and supplies were carefully thought out to ensure the highest standard of cleanliness throughout.

The clean rooms are a custom fabricated panel system that integrates with the surrounding rooms through a series of pass-thrus and unidirectional air flow. Due to the nature of the work and the specimens it was critical that the entire cGMP be on emergency generator backup and UPS. This ensures that during the T-Cell modification process all specimens are protected.

DATA

- Philadelphia, Pennsylvania
- 30,000 sf
- 2015
- Lab Planning, Architecture, Interior Design
- **ISPE, Facility of the Year Award, 2016**

PROJECT RELEVANCY

- Interior Tenant Fit-Out



RELEVANT EXPERIENCE

Model for Sustainable Design and Responsive Research

Lawrence Berkeley National Laboratory Building No. 33

Building 33 houses the General Purpose Laboratory for advanced imaging (TEM, SEM, AXIS), Physical Biosciences Division, Mass Spectrometry core, and fermentation equipment including laboratories and offices for approximately 120 researchers. Scientists will be collocated from the Life Sciences, Physical Biosciences, Chemical Sciences and Materials Sciences Divisions. Research areas will include cancer and the impact of radiation on cells, fundamental biology, neuroscience, and environmental cleanup. This work is supported by wet lab research space, tissue culture, microscopy and lab support rooms.

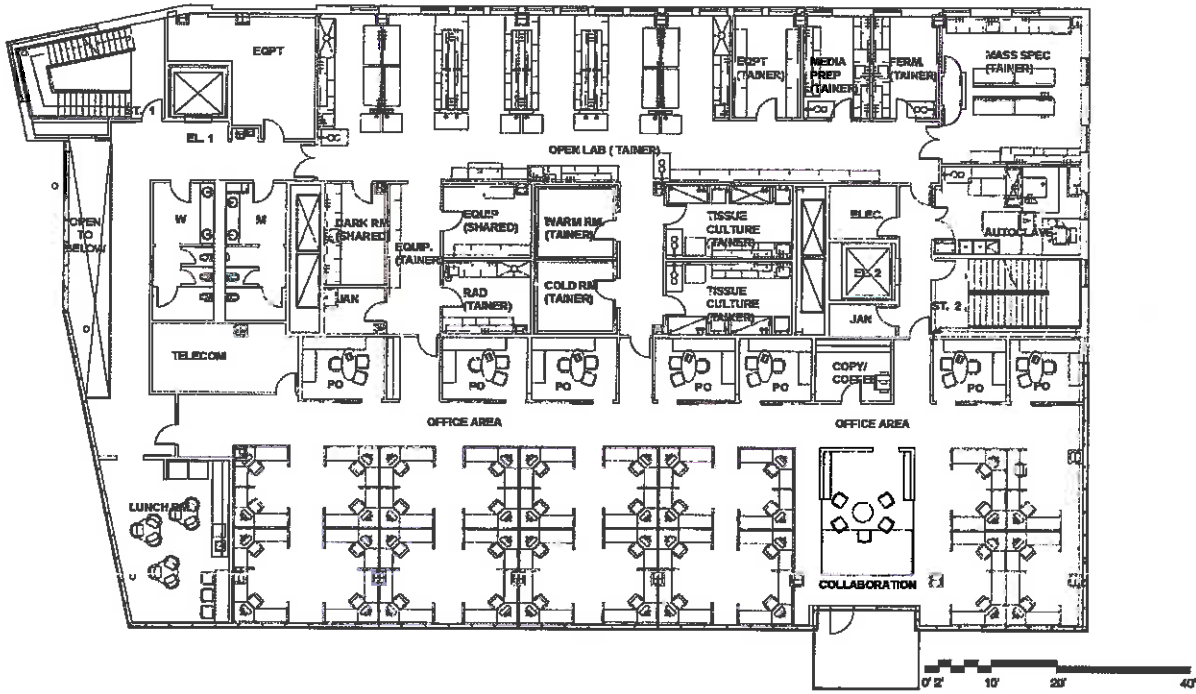
Laboratory areas are composed of efficient lab modules, based on the building's 21-foot structural grid, that accommodate deeper lab benches and aisle widths to facilitate intra-bench collaboration among scientists. Labs and office areas are closely connected by three shorter, lateral passages through the lab support area, or "spine." Office areas are open-plan and naturally lit by perimeter windows and by interior light shelves. Private offices, arranged along the core wall, receive daylight through glass sidelights. Conference rooms are in the northwest corner to maximize proximity to SERC and to foster creation of a small campus.

DATA

- Berkeley, CA
- 45,000 sf
- 2014
- Laboratory Planning
- LEED Platinum

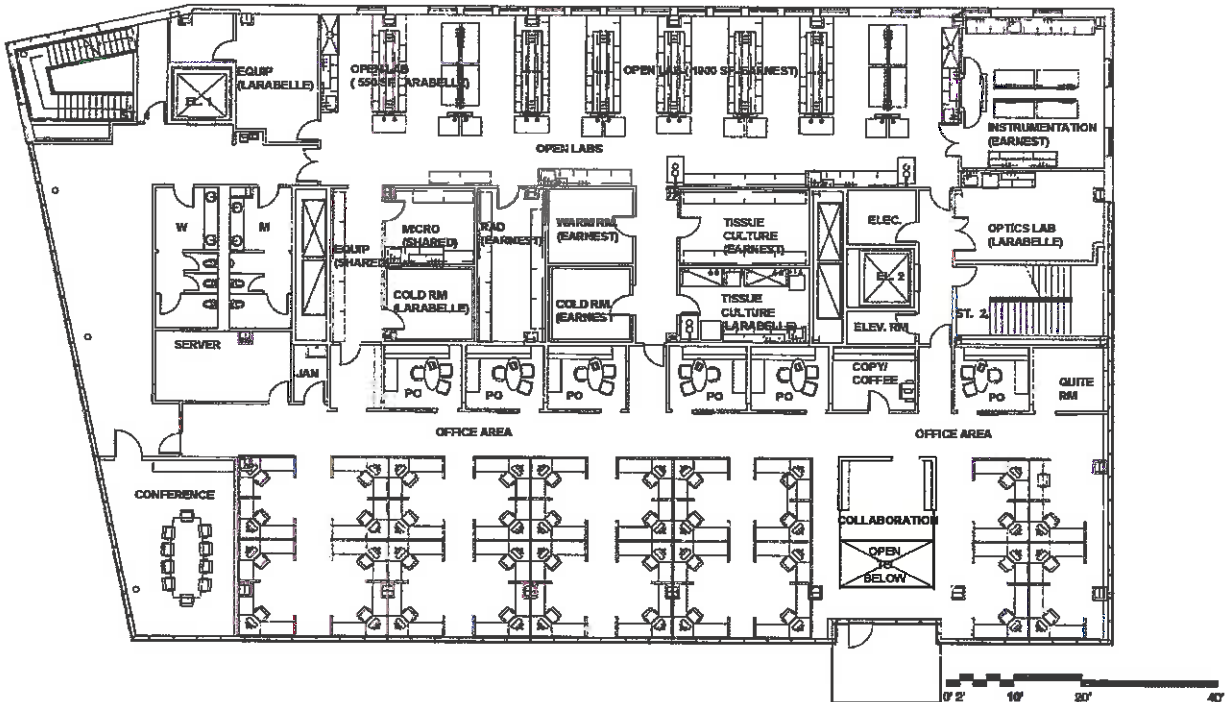
"H" PROGRAM OPTION SUMMARY

PROGRAM AT OCCUPANCY (FLOOR OCCUPIED BY TAINER AND LARABELLE GROUP)	PROVIDED PROGRAM
OPEN LAB BENCH STATIONS: TAINER GROUP	22
OFFICES (PRIVATE AND OPEN): TAINER GROUP LARABELLE GROUP UNASSIGNED	34 2 10
TOTAL:	46



"H" PROGRAM OPTION SUMMARY

PROGRAM AT OCCUPANCY (FLOOR OCCUPIED BY LARABELLE GROUP AND EARNEST/ HOLBROOK/ WOOD/ CORN/ ADAMS GROUP)	PROVIDED PROGRAM
OPEN LAB BENCH STATIONS: LARABELLE GROUP EARNEST/ ADAMS GROUP	7 27
OFFICES (PRIVATE AND OPEN): LARABELLE GROUP EARNEST/ ADAMS GROUP	12 34
TOTAL OFFICES:	46



RELEVANT EXPERIENCE

Planning and Renovations Create a LEED Platinum Home for Scientists

Lawrence Berkeley National Laboratory Building No. 74

Working as the key science and technology architect, CannonDesign provided essential laboratory planning expertise to the design team during the feasibility study and advanced conceptual design phases for the modernization of Building 74, a LEED Platinum, 43,000 gsf, general-purpose laboratory building containing biology labs and a unique medical imaging and instrumentation department. Drawing upon an understanding of the complexity of patient research laboratories as well as hospital environments, CannonDesign guided the teams through the layout and integration of these complex, specialized spaces. As a result, opposing program requirements have been integrated into a seamlessly unified floor plan.

More than 430,000 pounds, or 215 tons, of construction-generated waste material was diverted from landfills and recycled over the course of the project.

DATA

- Berkeley, CA
- 43,000 sf
- 2013
- Laboratory Planning
- LEED Platinum
- In association with RMW Architecture & Interiors



RELEVANT EXPERIENCE

Located at the Heart of the Washington University School of Medicine Campus

BJC Institute of Health at Washington University School of Medicine

A 10-year research initiative aimed at converting knowledge of the human genome into individualized medical treatments was the driving force behind creation of the BJC Institute of Health at Washington University School of Medicine. Located at the heart of the Washington University School of Medicine campus, the 659,000 sf research tower combines both research and hospital functions to accelerate the pace of discoveries and cures in the field of translational medicine. Shared spaces are strategically located throughout to catalyze collaboration among the six multidisciplinary research centers housed in the building, which include Washington University's Center for Cancer Genomics. Significant space is devoted to pathology research, including tissue processing and tumor analysis; gene sequencing, mapping, and hybridization; and BSL-3 pathogen research. To facilitate future reconfiguration, laboratory casework and equipment are designed for maximum flexibility. A substantial vivarium, a seven-bay underground truck dock, and a generous shipping and receiving area provide essential support to daily operations.

The project faced a number of design and construction challenges, including structural accommodations for a light-rail line running beneath the building. The project scope also encompassed development of an outdoor plaza, the campus's largest, designed by Maya Lin, designer of the Vietnam Veterans Memorial in Washington DC

DATA

- St. Louis, MO
- Completion 2010
- 659,000 sf
- Architecture, Engineering
- LEED Gold



Charleston Civic Center Expansion and Renovation



LOCATION:
Charleston, WV

SIZE:
283,000 SF

COMPLETION:
Est. 2018

COST:
\$75M

CONTACT:
Mr. David Molgaard
City Manager
City of Charleston
501 Virginia Street, E.
Room 101
Charleston, WV 25301
304.348.8014



The Charleston Civic Center Expansion and Renovation is a transformational project for both the city of Charleston and West Virginia. Our team is building on the strong authentic character of Charleston to remake the Charleston Civic Center into a more efficient, more sustainable, more dynamic and a more iconic best-in-class destination.

The design of the expansion and renovation of the Charleston Civic Center is inspired by the story of West Virginia. Defined by a rugged landscape, the early history of the state was dominated by extractive industries –salt, coal, timber, trapping. This set the local character. With a foundation rich in resources, manufacturing added value to the raw materials with crafts like glass making and industries like chemicals and energy. This attracted a rich diversity of immigrants and a culture of craftsmanship that set the urban character. The economy is shifting from industry and service to information and technology. Again, the landscape and industry that shaped the region gives Charleston real advantages to exploit. The Creative Class, critical for the information and technology age, can live and work anywhere - what they want is access to the outdoors; real places with real character; and continuous education and entertainment.

Our design starts with an organizational concept inspired by this history. The Kanawha River is the social organizing link throughout the region, with settlement zones developing on whatever flatland the river provided --creating nodes of activities among the hills and valleys.



Southern WV Community & Technical College

Applied Technology Building and Campus Planning



LOCATION:
Williamson, WV

SIZE:
22,000 SF

COMPLETION:
2013

COST:
\$5M

CONTACT:
Rita Roberson, Director of
Campus Operations
1601 Armory Drive
Williamson, WV 25661
304.236.7648
ritar@southern.wvnet.edu

AWARDS:
2014 AIA Merit Award
West Virginia Chapter
Achievement in Architecture

American School &
University: *Outstanding
Building Design*



The new Applied Technology Center is located on Southern WV CTC's Williamson Campus. The 22,000 SF college houses a virtual welding shop, machine shop, mechatronics shop, a mining support program, administrative space and student support spaces, as well as several allied health programs. The space is designed to maximize both flexibility and adaptability, and will reflect a modern, "high-tech" aesthetic while also blending into the overall campus.

The large area for lab spaces is enhanced by black brick and surrounded by classrooms and support spaces highlighted by a curved glass wall with metal panel accents. The entrance is crafted with smooth metal panels and adjacent to textured patterned black brick construction to resemble coal.

A wood trellis area sits on round concrete columns shading the glass walls of the Administration and acts as an area for student gatherings. The strong contrast between the metal/glass and the wood trellis works to strengthen the outside space.

The facility is the first step in the progression of a planned campus expansion that will ultimately include expanding the campus into the adjacent property. The school is currently working on a new campus master plan, with a focus on creating green space and improving pedestrian and vehicular circulation.



West Virginia State University

Research Building



LOCATION:
Institute, WV

COST:
\$20M

CONTACT:
Melvin Jones, MBA, CPA,
VP for Business & Finance
West Virginia State University
5000 Fairlawn Avenue
Institute, WV 25112
304.766.3362 office
304.610.1358 cell
Mjones55@wvstateu.edu



The newly proposed Research Building located on the West Virginia State University's Institute's campus. The 46,000 SF College houses an auditorium, three multi-functional classrooms, an event gathering space, twelve research labs, and twenty four support space for staff and personnel. Since this is a multi-story building there will conference spaces on each floor and open student learning environments on each floor.



The new facility is designed to have the public spaces to be multi-functional and the labs to be separate and dedicated to the staff and students. The exterior reflects a modern design while the materials help it to blend with the overall campus architecture.



Bridgemont Community & Technical College

Davis Hall Renovation



LOCATION:
Montgomery, WV

SIZE:
77,215 SF

COMPLETION:
Summer 2012

COST:
\$4M

CONTACT:
Dr. Jo Harris, President
(Retired)
619 2nd Avenue
Montgomery, WV 25136
304.741.4116 (cell)



ZMM was selected by Bridgemont Community and Technical College and the West Virginia Community and Technical College System to provide professional architectural and engineering design services for the Renovation of Davis Hall in Montgomery. Davis Hall is a 77,215 SF classroom and laboratory facility that was constructed in 1970 for WVU-Tech. The exterior of the facility consists of architectural pre-cast concrete panels and a curtain wall system. The interior includes an open two story atrium, a large auditorium, and five levels of office and classroom space that is constructed of demountable partitions.

Prior to commencing the design effort, ZMM completed a thorough assessment of the facility. The assessment revealed significant life safety concerns that had not been previously identified, including the use of non-plenum rated plastic insulated wiring throughout the return air plenums, mechanical units located above ceilings in exit stairs, and a lack of adequate fresh air for building occupants. As part of this initial assessment, ZMM assisted in developing a scope of work for the current project, as well as a long range plan for future improvements to Davis Hall.

The scope of the current project includes life safety upgrades (replace non-plenum rated wiring, new fire alarm system), improvements to the building envelope (curtain wall replacement and re-roofing), hazardous material abatement, mechanical improvements (boiler and chiller replacement, outdoor air ventilation system replacement), and interior improvements (replace ceilings and lighting, upgrade furnishings).

State Office Buildings 5,6, & 7



LOCATION:
Charleston, WV

COMPLETION:
On-Going

CONTACT:
Greg Melton
Director of General
Services
Capitol Complex Building
Building 1, Room MB-60
1900 Kanawha Blvd., E.
Charleston, WV 25305
304.558.2317



More than forty (40) years ago, ZMM (as Zando, Martin, and Milstead) designed the original State Office Buildings 5, 6, & 7. Over the last several years, ZMM has been assisting the State of West Virginia General Services with various improvements to the buildings. These improvements have ranged from substantial renovations to maintenance and repair type projects, and include:

Roof Replacement

ZMM assisted the General Services Division with a roof replacement for all three buildings. The roof replacement utilized a white EPDM roofing material, with consideration being given to sustainability. The existing ballast, roof membrane, and rigid insulation were also salvaged as part of the roof replacement project. Several unused mechanical penthouses, antennas, and other abandoned equipment was also removed.

Electrical Courtyard Improvements

ZMM assisted the General Services Division with a project to expand the electrical courtyard adjacent to Building 7, and simultaneously improve the electrical service entry to buildings 5, 6, & 7. This project required both historical (matching the existing granite panels), as well as very technical electrical engineering design considerations.

Door and Window Replacement

ZMM has assisted with two separate projects, one to replace the windows in Buildings 5 & 6, and the second the replace the doors at the entries to Buildings 5, 6, & 7. These projects included building envelope and security considerations. The projects were designed and staged to minimize disturbance to the buildings occupants.



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

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

Proc Folder: 461054

Doc Description: WVDA Lab Engineering/Evaluation Assessment Project

Proc Type: Central Contract - Fixed Amt

Date Issued	Solicitation Closes	Solicitation No	Version
2018-06-12	2018-07-12 13:30:00	CEOI 1400 AGR1800000004	1

BID RECEIVING LOCATION

BID CLERK
 DEPARTMENT OF ADMINISTRATION
 PURCHASING DIVISION
 2019 WASHINGTON ST E
 CHARLESTON WV 25305
 US

VENDOR

Vendor Name, Address and Telephone Number:

ZMM, Inc.
 222 Lee Street, West
 Charleston, WV 25302
 (304) 342-0159

FOR INFORMATION CONTACT THE BUYER

Guy Nisbet
 (304) 558-2596
 guy.l.nisbet@wv.gov

nature X

FEIN # 55-0676608

DATE 7/2/2018

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

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

ARK, PRINCIPAL
 (Name, Title)
 Adam R. Krason, AIA, LEED AP, Principal
 (Printed Name and Title)
 222 Lee Street, West, Charleston, WV 25302
 (Address)
 304-342-0159 304-345-8144
 (Phone Number) / (Fax Number)
 ark@zmm.com
 (email address)

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

ZMM, Inc.
 (Company)

ARK, PRINCIPAL
 (Authorized Signature) (Representative Name, Title)
 Adam R. Krason, AIA, LEED AP, Principal

(Printed Name and Title of Authorized Representative)
 7/2/2018

(Date)
 304-342-0159 304-345-8144
 (Phone Number) (Fax Number)

West Virginia Ethics Commission Disclosure of Interested Parties to Contracts

(Required by W. Va. Code § 6D-1-2)

Name of Contracting Business Entity: ZMM, Inc. Address: 222 Lee Street, West
Charleston, WV 25302

Name of Authorized Agent: Adam R. Krason Address: Same as Above

Contract Number: CE01 1400 AGR2800000004 Contract Description: WVDA Lab Engineering/
Evaluation Assessment
Project

Governmental agency awarding contract: WV Department of Agriculture

Check here if this is a Supplemental Disclosure

List the Names of Interested Parties to the contract which are known or reasonably anticipated by the contracting business entity for each category below (attach additional pages if necessary):

1. Subcontractors or other entities performing work or service under the Contract

Check here if none, otherwise list entity/individual names below.

2. Any person or entity who owns 25% or more of contracting entity (not applicable to publicly traded entities)

Check here if none, otherwise list entity/individual names below.

ZMM, Inc. Robert Doeffinger

ZMM, Inc. David E. Ferguson

ZMM, Inc. Adam R. Krason

3. Any person or entity that facilitated, or negotiated the terms of, the applicable contract (excluding legal services related to the negotiation or drafting of the applicable contract)

Check here if none, otherwise list entity/individual names below.

Signature: ADRK

Date Signed: 7/2/2018

Notary Verification

State of West Virginia, County of Kanawha

I, Adam R. Krason ADRK, the authorized agent of the contracting business entity listed above, being duly sworn, acknowledge that the Disclosure herein is being made under oath and under the penalty of perjury.

Taken, sworn to and subscribed before me this 2nd day of July, 2018

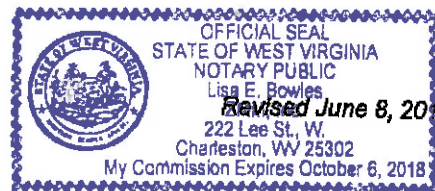
Lisa E. Bowles
Notary Public's Signature

To be completed by State Agency:

Date Received by State Agency: _____

Date submitted to Ethics Commission: _____

Governmental agency submitting Disclosure: _____



STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

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

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

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

DEFINITIONS:

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

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

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

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: ZMM, Inc.

Authorized Signature: [Signature] Date: 7/2/2018

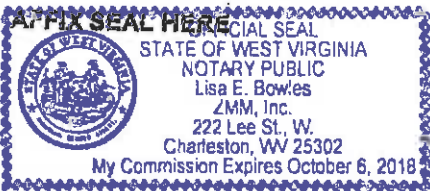
State of West Virginia

County of Kanawha, to-wit:

2nd

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

My Commission expires 10/6, 2018.



NOTARY PUBLIC [Signature]