WDP
& Associates

West Virginia Department of Administration
Purchasing Division

Expression of Interest
for
West Virginia Lottery Building Envelope Study

CEOI 0705 LOT1800000001
Thursday, May 3, 2018 by 1:30pm

West Virginia Department of Administration
Purchasing Division
Attn: Michelle L. Childers
2019 Washington Street East
Charleston, West Virginia 25305-0130
(304) 558-2063

WDP & Associates Consulting Engineers, Inc.
335 Greenbrier Drive, Suite 205
Charlottesville, Virginia 22901
Tel: 434-245-6117 | www.wdpa.com

ORIGINAL

May 2, 2018

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

WDP & Associates

Attention: Michelle L. Childers
Reference: Expression of Interest, West Virginia Lottery Building Envelope Study
Solicitation #: CEOI 0705 LOT1800000001

Dear Ms. Childers:

Charlottesville, VA

Manassas, VA

Blacksburg, VA

Myrtle Beach, SC

New York, NY

WDP & Associates Consulting Engineers, Inc., (WDP) is pleased to submit our expression of interest to provide building envelope consulting services for the West Virginia Lottery Building.

WDP is an SBA-certified (1KZR5) consulting engineering firm with a proven history of success in building envelope consulting services and a passionate commitment to the state of West Virginia. Our increased presence in West Virginia for clients such as the West Virginia General Services Division, West Virginia University, Snowshoe, and Tyler County Public Schools is quickly necessitating the establishment of a WDP office in West Virginia, anticipated to come to fruition in Summer 2018.

We have extensive experience in the diagnosis of air and water infiltration and in the design of repairs to remedy those problems. Our proposed project team has been carefully selected for their expertise and experience on projects similar to the WV Lottery Building. Additionally, WDP provides building envelope consulting services throughout the country, including investigation, recommendations, design of repairs, and construction administration services, including at the West Virginia Capitol Dome. Our current relationships with many government and municipal entities and longstanding term contracts with numerous public agencies testify to our commitment to providing quality services that consider the project-specific needs of our clients.

Our senior staff are nationally recognized experts that are actively involved on the national level in standard and code development committees, and our involvement includes current Chairs of standard committees that write and develop the standards which are used to design, construct, repair, and test buildings. This engagement brings a level of expertise and insight that will be an invaluable resource for determining the solutions for the problems currently being experienced at the WV Lottery building. We have found our ability to provide scalable or tiered-approach building envelope services to be particularly appreciated by our cost-conscious clients working within tight budget constraints.

The attached expression of interest submission clearly and concisely conveys our experience and abilities for the requested services at the WV Lottery Building.

Thank you for your consideration, and we look forward to hearing from you.

Respectfully submitted,
WDP & Associates Consulting Engineers, Inc.

Rex A. Cyphers, P.E.
Principal

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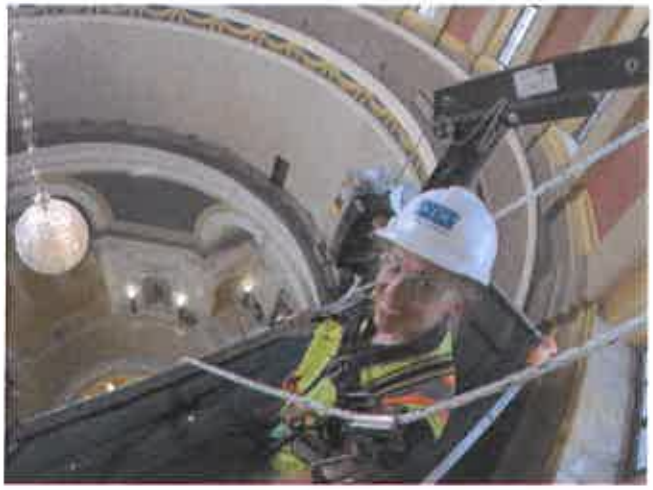
WDP & Associates

1 – FIRM PROFILE

WDP & Associates Consulting Engineers, Inc., is a SBA-certified (1KZR5), consulting engineering firm specializing in building envelope, façade investigations and repair, structural investigations and repair, and building science analysis. Creating lasting solutions that extend the service life of structures is at the heart of our business.

Since the firm's establishment in 1995, WDP's expertise, particularly in regard to building envelope investigations and repair, has garnered recognition on a national level and makes us uniquely qualified to evaluate existing structures. Building envelope investigation and repair design are the hallmark services of our firm, and our tailored professional services can preserve and enhance the value of client facility assets.

WDP is a small business with a national presence and a firm commitment to the state of West Virginia. **Our experience in the state began over 17 years ago with a project at West Virginia University in Morgantown,** and we remain dedicated to serving the needs of our West Virginia clients. In the last five years alone, we have worked on more than twelve projects from Charleston to Morgantown to Snowshoe; our services on those projects have included investigating air and water infiltration issues, evaluating the hygrothermal properties of existing wall assemblies, and providing recommendations and repairs to improve the air and water tightness of structures. Additionally, our staff have been actively engaged in sharing our experience and knowledge with other industry leaders working in the state through the West Virginia Construction and Design Exposition and the West Virginia University chapter of the American Society for Civil Engineers (ASCE). Our ongoing project at the Capitol Complex for the West Virginia General Services Division and our recently completed project at the Public Service Commission Headquarters building have brought us to Charleston on a weekly basis for the past two years, and we are actively pursuing the establishment of a WDP office in West Virginia, anticipated to come to fruition in Summer 2018.



Interior of West Virginia Capitol Building

Companywide, WDP performs around 100 building envelope investigation and repair projects every year. **Building envelope consulting is not just a service that we provide; it is at the core of what we do.** Our investigative strategies and cost-effective design approaches have addressed countless issues, such as air leakage, occupant comfort issues, detailing for critical environment facilities, moisture infiltration, façade instability, biological growth, and aesthetic deficiencies. Our senior staff members are nationally and internationally recognized for their technical expertise, project accomplishments, and involvement in industry organizations and National Design Standards committees.

Our ability to provide a wide range of services in-house minimizes or eliminates the need for numerous subconsultants, translating into cost savings for our clients. Our in-house capabilities include: Air Barrier Association of America (ABAA) Certified Field Auditors; an accredited material testing laboratory at our headquarters location in Manassas, Virginia; SPRAT-certified engineers who can perform rope access on difficult-to-access facades; WUFI trained engineers; and engineers proficient in running diagnostic field testing for air and water infiltration.

Additionally, we take a tiered approach when developing recommendations for repairing the problems in our clients' structures. Rather than simply presenting the most comprehensive (and typically most expensive) repair option, whenever possible, we prefer to develop two or three options which range from addressing the most immediate issues as a minimal repair approach to proactively correcting conditions that can adversely affect the structure's longevity as a comprehensive repair approach. **We have found that our clients appreciate these cost-conscious solutions for budget constraints.**

Building Envelope Consulting Services

As your building envelope consultant, WDP brings a level of proficiency gained through our regular exercise of the methods and practice and an intimate familiarity acquired through writing the standards that maintain these practices. In other words, we don't just execute test standards; we develop them.

Our professional building enclosure consultant services include:

- diagnostic testing and field investigation of reported air and moisture issues in existing buildings;
- façade assessment of existing buildings;
- peer review of architectural design of building enclosures;
- repair and restoration design for building facades;
- mock up and field performance testing utilizing standardized testing methods for air and water;
- enclosure commissioning; and
- warranty inspections.

Our expertise in the diagnosis and correction of exterior envelope systems includes extensive knowledge of brick and natural stone masonry, window/curtain wall systems, roofing, exterior insulation and finish systems (EIFS), stucco, precast concrete wall panels, architectural metal panel systems, concrete, and steel structures. Our flexibility enables us to address a discrete problem or design a comprehensive restoration program for an entire complex. As energy codes evolve and LEED certifications become more commonplace, air barrier systems have become a major item of the building envelope that requires inspection and certification. WDP has Licensed Field Auditors who have been trained and certified under the Air Barrier Association of America's Quality Assurance Program.

As building envelope consultants, WDP engineers have in-house nondestructive testing capabilities to provide a seamless interface between field evaluations, engineering evaluation, and maintenance/repair design. We have a broad range of construction investigation experience and materials testing capabilities. Using test specifications developed by the American Society for Testing and Materials (ASTM), American Architectural Manufacturers Association (AAMA), American National Standards Institute (ANSI), American Concrete Institute (ACI), and others, our laboratory can offer a wide range of quality control testing for new construction, materials analysis and monitoring, and failure investigations. In addition, we routinely develop strategic equipment combinations to diagnose the issues leading to poor or inefficient building performance. For example, we deploy ambient temperature and humidity data loggers to determine the conditions over the course of time in spaces prone to moisture-related or HVAC control issues including crawl spaces, basements, attics, and plenums. We also have temperature and humidity data logging probes that can be deployed interstitially within building enclosure assemblies to determine the conditions within stud cavities, mass masonry walls, exterior cavities and other locations in an assembly where elevated moisture can lead to long term failures. Other instrumentation can be used to determine the in-situ thermal performance of an existing wall or roof assembly, as well as measure the impacts of solar radiation or wind-driven rain on an assembly.

Building Sciences Services

Assessing moisture related problems does not merely include those related to bulk water. The deleterious effects of water vapor, and the movement of water vapor through convection and diffusion can create long term issues ranging from microbial growth to the deterioration of wall elements and finishes. To understand and evaluate these effects requires a comprehensive knowledge and experience based in building failures, sustainable design practices, and code requirements, building material properties coupled with in depth understanding of the physical sciences including thermodynamics, psychometrics, environmental science, material science, physics, and structural engineering.

One tool of particular note is hygrothermal analysis – the study of the simultaneous heat and moisture transport within wall assemblies. WDP routinely performs both transient and steady state hygrothermal analysis. We use WUFI Pro by Fraunhofer Institute to conduct the transient analysis and either hand calculations, internally developed spreadsheets, or the Heat, Air and Moisture (HAM) toolbox by Quirouette Building Science. Our analysis is generally conducted in accordance with ASRHAE 160 "Criteria for Moisture-Control Design and Analysis in Buildings" and ASRHAE Fundamentals. The utilization of data logging instrumentation allows us to calibrate our models to provide an accurate representation of the existing conditions. This is particularly important when evaluating existing buildings for energy upgrades, which typically includes adding insulation to improve the thermal performance of an existing wall assembly or incorporation of a continuous air barrier, to ensure changes to the thermal or vapor properties of an assembly will not create long-term moisture related issues within an existing assembly

WDP Staff Participation in National Standards Development

WDP's ability to expertly serve the needs of the WV Lottery Building is due, in part, to the extensive engagement on the part of our engineering staff with the industry organizations responsible for developing the professional design standards that are pertinent the

building envelope. The list below represents the specific code committees on which WDP's engineers are either a member or Chairperson.

Air Barrier Association of America

- Research Committee

American Concrete Institute

- Director, ACI National Capital Chapter
- 216 Fire Resistance and Fire Protection of Structures
- 444 Structural Health Monitoring and Instrumentation
- 530 Masonry Standards Joint Committee
- 546 Repair of Concrete

American Society of Civil Engineers

- Structural Engineering Institute
- Architectural Engineering Institute
- Geo-Professional Institute
- Technical Council on Forensic Engineering

International Concrete Repair Institute

- 210 - Evaluation

The Masonry Society

- Secretary, TMS 402/602 Building Code Requirements and Specification for Masonry Structures Committee
  - Seismic & Limit State Design Subcommittee
  - Design Subcommittee
- Past Committee Chair, Existing Masonry Committee
- Existing Masonry Committee
  - Façade Task Group
- Standards Development Committee
- Author, Masonry Designers Guide

American Society for Testing and Materials

- C-09 Concrete and Concrete Aggregates
- C-09.60 Testing Fresh Concrete
- C-09.64 Non-destructive Testing
- C-09.98 Evaluation of Laboratories
- C-11 Gypsum and Related Building Materials and Systems
- C-12 Mortars for Unit Masonry
- C-15 Manufactured Masonry Units
- C-16 Thermal Insulation
- D-08 Roofing and Waterproofing
- D-18 Soil and Rock
- E-06 Performance of Buildings
- E-06.24 Building Preservation and Rehabilitation
- E-06.41 Air Leakage and Ventilation Performance
- E-06.51 Performance of Windows, Doors, Skylights and Curtain Walls
- E-06.55 Performance of Building Enclosures
- E-36 Accreditation & Certification
- E-36.70 Agencies Performing Construction Inspection, Testing, and Special Inspections

2 – PROJECT TEAM

WDP's project team comprises of key individuals whose experience and qualifications encompass all aspects of the project scope.

Rex A. Cyphers, P.E., has been with WDP since 2003 and will serve as **Principal-in-Charge** on this project. His educational background includes a bachelor and master's degree in civil engineering from West Virginia University, along with a graduate certificate in Cultural Resource Management (2003). Rex has extensive experience in the evaluation and repair of existing buildings experiencing air leakage and moisture related issues, particularly the repair of occupied buildings requiring unique air barrier solutions to maintain operations during the execution of repairs. Mr. Cyphers has been a leader in the building science field, serving as a task group chair responsible for the development of ASTM Standard E3069, "Standard Guide for Evaluation and Rehabilitation of Mass Masonry Walls for Changes to Thermal and Moisture Properties of the Walls." Additionally, Mr. Cyphers has written numerous papers, including the publication of "Evaluation of the Thermal Performance of Historic Mass Masonry Walls Utilizing In-Situ Measurements" at the 13th Canadian Masonry Symposium in 2017 and "Evaluation of Strategies to Improve Energy Efficiency in Existing Buildings" for the West Virginia Construction and Design Exposition. He is a registered engineer in the state of West Virginia and has been the driving force in expanding our work there. His recent projects at WVU, the West Virginia Public Service Commission, and the West Virginia State Capitol have led to our pursuit of a new office location in the state.

Andrew W. Wagner, P.E., will be the **Project Manager** and **first point of contact**. Mr. Wagner has been with WDP since 2007 and specializes in the evaluation and repair of building enclosures, including facades and roofing. He has extensive experience managing projects for clients in multiple industries, including projects with air leakage and moisture issues. Mr. Wagner is an active member of ASTM International and a member of the Air Barrier Association of America's (ABAA) Research Committee. As a member of ASTM International, Mr. Wagner serves as the task group chair for the E06.41, "Air Leakage and Ventilation Performance" subcommittee, and is responsible for ASTM Standard E241, "Standard Guide for Limiting Water-Induced Damage to Buildings." He is also actively engaged in the subcommittees responsible for air leakage and water penetration testing of window systems and performance of building enclosures. He has published several papers pertaining to air barriers and water penetration through masonry.

Jodi M. Knorowski, P.E., will serve as the **Building Envelope Engineer** on the West Virginia Lottery Building project. Ms. Knorowski has five years of experience and regularly provides professional design, building condition assessments, and construction administration services for post-occupancy failures of existing buildings as related to the building envelope. She was recently involved with the West Virginia General Services Division as the lead design engineer for the façade replacement and structural improvements to the Public Service Commission headquarters building and is currently the project manager for the investigation, design of repairs, and construction administration of the West Virginia Capitol Dome project. Ms. Knorowski's competence in understanding and evaluating the building envelope has been augmented by her certification with WUFI Pro for hygrothermal modeling of wall assemblies and with the National Fenestration Rating Council (NFRC) for certified simulations. Her experience in deploying instrumentation devices and subsequently analyzing the data acquired to determine how heat, air, and moisture are moving simultaneously through building envelope assemblies, which has been utilized on large projects such as the air and water infiltration issues experienced at the University of Virginia's John Paul Jones Arena and at the ongoing project with the College of William & Mary's historic Wren Building (circa 1600)

Philip J. Lykosh, P.E., joined WDP in spring 2016 as a Senior Engineer, bringing over 20 years of experience in the investigation of building envelope, architectural, and structural components and conditions. He will serve as a **Building Envelope Rope Access Engineer** on the project. Mr. Lykosh is SPRAT-certified in rope access, which gives WDP the ability to perform a hands-on examination of the WV Lottery Building's façade as an alternative to a traditional lift access.

J. Eric Peterson, P.E., is a principal with WDP and has over 25 years of experience in the industry and is a nationally recognized expert in his field. To demonstrate our commitment to maintaining a high standard of our professional services, WDP employs a "Shadow Team" to every project team; this Shadow Team is responsible for ensuring that all tasks in this project undergo WDP's Quality Assurance and Quality Control program. Mr. Peterson will act as **Shadow Team Leader** for the West Virginia Lottery Building project.

A brief resume for each of these personnel has been included below.

Rex A. Cyphers, P.E. | Principal, Building Envelope Consulting

Mr. Cyphers, P.E., is a Principal and Chief Operating Officer with WDP & Associates Consulting Engineers, Inc., working primarily out of the Charlottesville, Virginia, office. He is responsible for overseeing the work of all WDP divisions, WDP's hiring process, staff development, and company operational decisions. Mr. Cyphers joined WDP in 2003 and has 16 years of experience.

Mr. Cyphers specializes in the design and repair of masonry structures, historic preservation, and nondestructive testing. He performs forensic field and laboratory investigations, façade and building envelope investigations, structural inspection/analysis and design, architectural retrofit and repair, roofing and waterproofing investigations, and development of design documents, and repair recommendations.

Mr. Cyphers regularly presents and co-authors for various technical publications.

Education

Master of Science, Civil Engineering, West Virginia University, 2003.

Graduate Certificate, Cultural Resource Management, West Virginia University, 2003.

Bachelor of Science, West Virginia University, Civil Engineering, 2002.

Professional Registration

Professional Engineer – Virginia, West Virginia

Professional Memberships/Committees

ASTM E3069 – 17 Standard Guide for Evaluation and Rehabilitation of Mass Masonry Walls for Changes to Thermal and Moisture Properties of the Wall

ASTM Committee E06.24 Performance of Buildings-Preservation and Rehabilitation Technology

- Task Chair, "New Guide for Evaluation, Rehabilitation and Retrofit of Existing Steep Sloped Roof Assemblies for Changes in the Thermal and Vapor Resistance of the Assemblies"
- Task Chair, "New Guide for Evaluation and Rehabilitation of Mass Masonry Walls for Changes to the Thermal and Moisture Properties of the Wall"

Relevant Experience

West Virginia University, Summit Hall, Façade Investigation, Morgantown, WV. WDP was retained after a competitive bid process to provide a façade evaluation of a 10-story dormitory building. The comprehensive field investigation was performed from swing stages and included diagnostic water testing to identify sources of bulk water infiltration, exploratory openings to identify existing conditions and sources of air leakage between adjacent building components, and visual surveys of deteriorating conditions of the envelope. WDP developed recommendations to address all problems encountered during the investigation and will provide design and construction phase services once funding is available.

West Virginia Capitol Dome Moisture Intrusion, Charleston, WV. Led the investigation and subsequent design of repairs into the chronic water leakage of the 1930s-structure designed by architect Cass Gilbert (designer of the United States Supreme Court Building). WDP performed diagnostic water tests, exploratory openings, installation of sensors and instrumentation, and review of prior design documentation to determine the root cause of interior damage. Among other things, bulk water infiltration at intersections of building elements caused supplementary internal drainage elements to freeze and fail, which led to significant damage of interior finishes. WDP developed repair recommendations, construction documents, and provided bid assistance. Construction is in progress, with WDP providing construction administration services.

West Virginia Public Service Commission Headquarters, Façade Repair & Replacement Design, Charleston, WV. Responsible for building envelope and structural conditions assessment and subsequent façade repair/replacement design services for WDP as joint venture member with a construction firm. The office building is a steel-framed structure with brick exterior that required maintaining building occupancy throughout the entirety of the project. WDP's design improved the thermal performance of the wall assembly and glazing. The design involved complete removal of the building's exterior, providing temporary enclosures to protect interior finishes and building occupants, and replacement with new brick, air barrier and thermal insulation on a phased demolition and construction plan to ensure minimal disruption to the building occupants. During construction, a number of deficient conditions of the existing building were uncovered that brought design challenges to ensure compatibility between the new façade and the structural components of the building.

West Virginia University, Engineering Sciences Building, Morgantown, WV. Led the investigation of the 11-story academic structure, housing classrooms, offices, and research space, that was experiencing façade distress and displacement. WDP performed a survey of the façade at all levels; observed exploratory openings through the steel spandrel beams to evaluate the flashing and the inner clay tile wythe; and conducted a hygrothermal analysis for condensation potential. Developed repair recommendation to address deficiency in precast panels installed as a retrofit and to address the displacement of the original brick along with the excessive air and water leakage.

Andrew W. Wagner, P.E. | Project Manager

Mr. Wagner joined WDP & Associates in 2007. He specializes in the evaluation and repair of building enclosures and facades, where he has over ten years of experience helping clients diagnose, remedy, and prevent problems. He has completed projects in multiple industry sectors including Healthcare, Higher Education, K-12, and historic preservation. He is active in the development of new industry standards through ASTM and is the chair of the task group responsible for ASTM E241, "Standard Guide for Limiting Water-Induced Damage to Buildings." He is also a member of the Air Barrier Association of America (ABAA) Research Committee, a licensed air barrier auditor through ABAA, past Vice President of the Central Virginia Chapter of CSI, has written numerous papers relating to the building envelope, and routinely speaks at industry organizations.

Education

Virginia Polytechnic Institute and State University, Bachelor of Science in Civil Engineering, 2007

Professional Registration

Professional Engineer – Virginia

Professional Registration

Air Barrier Association of America Research Committee
ASTM Committee E06 on Performance of Buildings

- E06.41 – Air Leakage and Ventilation Performance
  - Task group chair for E06.41.04
- E06.51 - Performance of Windows, Doors, Skylights and Curtain Walls
- E06.55 – Performance of Building Enclosures

Relevant Experience

Virginia Institute of Marine Science, Chesapeake Bay Hall, Gloucester, Virginia. WDP performed an evaluation of reported air leakage at a mixed use office and laboratory building on the Chesapeake Bay. Occupants reported cold areas in the winter and high humidity in the summer making work conditions challenging. WDP used data acquisition, industry standard test methods, and infrared thermography to diagnose the causes of air leakage. Additionally, using hygrothermal modeling, calibrated with the data collected in the field, we were able to determine the air leakage was allowing moisture to dissipate from the exterior walls, thus masking issues that would have emerged if the interior air barrier was continuous. Based on these findings we were able to develop comprehensive recommendations to address the occupant comfort issues while mitigating the potential for long term moisture related issues in the exterior walls. Currently managing the development of Repair Documents to address the findings of our investigation.

West Virginia University, South Agricultural Science Building, Morgantown, West Virginia. WDP performed an evaluation of moisture related issues on the existing building. Assisted with the development of the repair design for re-cladding the building. The project documents required the creation of an interior air barrier at all exterior walls to prevent research contamination as the cladding was removed and primary exterior envelope repaired.

Firehouse 19, Henrico County, Virginia. WDP conducted a field evaluation of air leakage once the installation of the primary exterior air and moisture barrier components was complete. The county had identified unique air barrier challenges based on the occupant use of similar firehouse buildings, in which the garage bays remain open most of the day during summer months. Thus, creating an in-service condition where the interior walls between living quarters and the garage bay must act as part of the exterior air barrier. WDP used ASTM E1186 test methods to identify locations of air leakage and provide recommendations to the County. At the conclusion of our investigation, we submitted a report summarizing our findings and recommendations.

Library of Virginia and State Archives, Richmond Virginia. The Library of Virginia and State Archives is a six-story building, with an exterior façade comprised primarily of granite and limestone panels, window walls, and metal panels. WDP performed a field evaluation of the exterior façade and evaluated conditions resulting in air and water leakage. Based on the investigation and testing, WDP provided repair recommendations to resolve the building leakage which included Specific repairs to the fenestration, masonry curtain wall and metal roofing/panel systems as well as the implementation of a regular sealant maintenance and replacement plan to minimize the effect of the sealant reliant design on the building.

Grayson National Bank, Independence, Virginia. WDP performed a field evaluation of air leakage to determine the cause of ice lensing on the interior frames of newly installed window units and issues at the data center housed in the bank building. Diagnostic test methods were used in accordance with ASTM E1186 and E783 to help determine the cause of air leakage. At the conclusion of our investigation we developed a report summarizing our findings and recommendations.

Jodi M. Knorowski, P.E. | Building Envelope Engineer

Jodi joined WDP in 2013 and has 5 years of experience providing professional design, building condition assessments, and construction administration services for post-occupancy failures of existing buildings related to the building envelope. She has performed diagnostic field investigations to determine the root cause of these failures in order to develop repair recommendations. In this process, she has utilized Hygrothermal modeling techniques to analyze the long-term effects of heat and moisture movement through a wall or roof assembly. Jodi has also worked as a building envelope consultant on design teams and provided construction monitoring services for new construction projects, to include quality assurance testing and observations of the structural, material, and architectural elements of the building envelope.

Education

Master of Science, Civil Engineering, Old Dominion University, 2012

Bachelor of Science, Civil & Environmental Engineering, Old Dominion University, 2010

Professional Registration

Professional Engineer – VA

Certifications

WUFI-ORNL 5.3/WUFI-Pro 5.3 and Weather Analyzer 1.0

NFRC Certified Simulator

Professional Memberships/Committees

A.I.A. Women in Design, Charlottesville Chapter

ASTM, C16 Committee, Voting Member

ASTM, E06 Committee, Active Participant

Relevant Experience

West Virginia University, Art Museum Condensation Analysis, Morgantown, WV. Oversaw the evaluation of existing roof assembly to determine the source of systemic condensation within a climate-controlled museum space. Deployed data logging instrumentation to determine air and vapor movement in and around the roof assembly and adjacent soffit spaces; performed hygrothermal analysis incorporating collected data to calibrate models to actual conditions; provided recommendations for remedial repairs to be executed while the building is occupied.

Termination Modernization Project, Southeastern United States. Responsible for overseeing comprehensive building envelope conditions assessment for a large airport terminal building. Performed and oversaw air infiltration and water leakage testing of curtain wall and metal panel assemblies utilizing standardized test methods, as well as water infiltration testing of stone masonry assemblies. Observed exploratory openings to verify existing conditions and integrations of building envelope components; performed hygrothermal analysis of various building wall assemblies, to include proposed alterations to improve thermal performance; analyzed components of the existing structure; developed repair recommendations and phasing approach to execute the work.

University of Virginia, Medical Center Air Infiltration investigation, Charlottesville, VA. Executed the field investigation to determine the cause of frost formation on the interior of the building in critical care spaces adjacent to window assemblies. Developed a site-specific safety plan that incorporated temporary enclosures to prevent dust migration when interior exploratory openings were made to observe existing conditions and measure temperature and moisture variations through the wall assembly. Deployed instrumentation throughout spaces to measure air and moisture movement through the space and the impact on surface temperatures of window frames. Developed several repair recommendation options for the Owner to evaluate.

University of Virginia, John Paul Jones Arena Building Envelope Investigation and Repairs, Charlottesville, VA. Responsible for assisting with comprehensive evaluation and investigation of building envelope components to determine sources of air leakage and water infiltration of 360,000 square foot multipurpose arena. Participated in Value Management Process and cost estimate review to prioritize repairs and develop the final scope of work for this phase of the project. Developed Contract Documents for exterior facade repairs to address bulk air leakage and water infiltration, which generally included removing and salvaging existing cladding elements, installation of a continuous air and water barrier properly integrated with existing fenestration and roof assemblies, and reinstallation of cladding. Provided construction administration services during the execution of the work to include but not limited to submittal reviews, RFI responses, and observations of construction progress.

Philip J. Lykosh, P.E. | Building Envelope Rope Access Engineer

Mr. Lykosh joined WDP in spring 2016, bringing over 20 years of experience in the investigation of structural, architectural, building envelope, and materials problems in a variety of building types. His experience encompasses every type of façade, and his responsibilities have included structural load testing, water infiltration testing of roofing and building envelope components, designing of repairs and developing of contract documents, and providing construction monitoring services.

Mr. Lykosh is also very experienced in Industrial Rope Access techniques on otherwise difficult to access building facades and unique structures.

Education

MS, Civil Engineering, University of Colorado at Boulder, 2004
BS, Civil Engineering, University of Southern California, 1995

Professional Registration

Professional Engineer – Colorado

Certifications

SPRAT-certified rope access, Level II

Relevant Experience

The Pierre Hotel – Building Envelope Investigation, Inspection & Repair, New York, NY. WDP performed building envelope inspections and condition assessments by rope access on a 45-story historic hotel overlooking Central Park in New York City. The building was completed in 1930 and features ornamental terracotta, limestone, brick, copper cladding, and ornamental detailing, with a prominent copper mansard roof and several setback terraces. WDP's professional team of envelope specialists include SPRAT-certified engineers and Qualified Exterior Wall Inspectors (QWEI), experienced in performing hands-on inspections of the building envelope. WDP will be providing façade condition surveys, repair documents, and construction administration services to assist the owner in developing and executing a plan to repair and maintain the building's facades and to prevent potentially hazardous conditions.

Augusta Health – Building Envelope Inspection and Investigation, Fishersville, VA. WDP & Associates was engaged to investigate the source of water infiltration that was occurring in a number of locations throughout the 33,000-square foot Augusta Health building in Fishersville, Virginia. The medical facility is a four-level, steel-framed structure featuring brick veneer and curtain wall systems, including sloped curtain walls and sloped fiberglass skylights. WDP conducted an initial site visit to Augusta Health to review the conditions throughout the center, appraise access provisions, and discuss project history with building management and facilities staff in order to obtain a complete understanding of the issues being experienced.

Merck Stonewall Plant, Building Envelope Investigation, Elkton, VA. WDP provided building envelope consulting services and diagnostic water testing for the Merck Stonewall Plant, Building 5H, which was experiencing water infiltration issues. The water testing included AAMA 501.2 and ASTM E1105 procedures on the windows, and WDP provided a report outlining findings and recommendations based on the observations made during the investigation.

The Terraces at Manchester – Building Envelope Investigation, Richmond, VA. WDP investigated the cause of water infiltration and air leakage at the Terraces at Manchester, an eight-level apartment building consisting of storefront type, punched window wall assemblies with thin-brick, plastered exterior insulation finish systems (EIFS). The investigation consisted of visual surveys, ASTM E1105 water testing, and other modified testing methods to determine the route of water infiltration. WDP prepared a findings and recommendations report, outlining the discoveries.

Other Experience Prior to WDP:

AT&T and USG Buildings, Chicago, IL: Stone curtain wall evaluation
Denver Place Plaza Building, Denver, CO: Investigation and evaluation of glass curtain wall
Thunder Mountain Lodge, Breckenridge, CO: Condensation evaluation of metal panel curtain wall
Columbia University, New York, NY: Façade evaluation of 60 buildings
Chicago Tribune Building, Chicago, IL: Limestone and brick evaluation

J. Eric Peterson, P.E. | Principal, Shadow Team Leader

Mr. Peterson has 25 years of experience, 22 of which have been with WDP. His experience consists of a wide variety of structural, material, and architectural engineering activities, specializing in facades, building enclosure and roofing systems, non-destructive testing, design and repair of concrete and masonry structures and building enclosure commissioning. Mr. Peterson performs forensic field and laboratory investigations; façade and building envelope investigations; roofing and waterproofing investigations; architectural retrofit and repair; corrosion investigations; structural inspection, analysis and design, and development of construction documents. He also performs peer reviews of building enclosure systems related to waterproofing and roofing designs for Facility Owners/Managers, Architects and Construction Managers/Contractors. His experience includes a significant number of commercial, industrial, healthcare and higher education projects for clients throughout the United States.

Education

Master of Science, Civil Engineering, Virginia Tech, Blacksburg, VA, 1993.
Bachelor of Science, Civil Engineering, Virginia Tech, Blacksburg, VA, 1991.

Professional Registration

Professional Engineer - Virginia, New York, New Jersey, Delaware, Maryland, North Carolina, South Carolina, Kentucky, Oregon, and Texas

Professional Memberships

- American Society for Nondestructive Testing (ASNT)
- American Society for Testing and Materials (ASTM)
- The Masonry Society (TMS)
- National Roofing Contractors Association (NRCA)
- Chief Executive Network (CEN)

Relevant Experience

George Washington University, City Hall Residential Building Exterior Façade Investigation, Washington, DC. WDP performed an exterior façade survey and parking garage investigation for this 10-story residential structure leased to George Washington University as a dormitory residence facility. Evaluated the brick veneer, doors, windows, balconies, roof, foundation walls, and parking garage. Provided recommendations for repairs and/or replacements, along with associated estimate of construction costs. The building remained occupied during the entire project.

Social Security Administration Building Envelope Condition Assessment, Water Infiltration Investigation and exterior Façade and Roofing Repairs - Martinsville, VA. WDP performed a building envelope condition assessment and water infiltration investigation for an independent real estate property Owner on a building leased to the federal government for the Social Security Service. Scope of work included: condition assessments, visual survey; diagnostic water testing; exploratory openings and test cuts; hydrothermal analysis to determine moisture and air flows for energy efficiency. Also, provided construction contract and documents for exterior masonry re-cladding, window partial roof replacement, mold remediation and interior finish restoration; and const. admin. services. Project included an aggressive schedule for construction during the unfavorable winter months, due to the nature of the critical operations of the facility. Project was completed with an on-time delivery.

Roanoke Higher Education Center, Building Envelope Investigation & Repairs, Roanoke, VA. Performed structural and building envelope investigation on an 8-story, 1930s era masonry structure. Designed repairs to the building masonry façade, windows, lintels, parapets and EPDM roofing system to mitigate building leakage. Also performed submittal review, and construction observation services of the building repairs. The building remained occupied.

Virginia Department of General Services, Tyler Building, Renovation and Parking Structure, Richmond, VA. Shortly after the construction of this 11 story office structure and adjoining parking garage, severe and widespread ponding of water and cracking of the parking slab was identified on all elevated levels of the structure. Additionally, the office building was experiencing water penetration through the building façade. WDP was engaged on the Owner's behalf as expert witness for litigation purposes. WDP conducted a thorough review of design documents and as-built drawings and conducted systematic standard and proprietary testing. WDP determined that the water penetration was attributed to defects in the roof system, window systems, stone cladding, and building expansion joints. WDP also conducted a condition assessment of the parking structure and identified several as-built conditions that were contributing to structural deficiencies in the parking garage. WDP provided litigation support and produced repair documents to extend the expected service life of the structure. WDP provided full-time construction management and quality control monitoring throughout the project.

3 – RELEVANT EXPERIENCE

WDP & Associates

WDP's ability to serve the West Virginia Lottery Commission is due to our extensive experience on projects of similar size and scope, along with our ongoing experience on projects within the state itself. The following examples highlight our experience in evaluating the condition of the building envelope, particularly in regard to potential air infiltration, providing recommendations to improve the energy efficiency of the building envelope, and designing a repair program which adequately addresses the deficiency in the building envelope system while balancing the constraints of a cost-conscious budget.

College of William & Mary, Virginia Institute of Marine Science, Chesapeake Bay Hall

Gloucester, VA

WDP was engaged for our building envelope expertise to address reported air leakage issues. The building is comprised of two separate lab wings connected by a three story, curtain wall atrium. Offices line all three stories of the northwest elevation of the building. At the onset of the project, WDP was tasked with evaluation of systemic air leakage reports. Building occupants indicated that during the winter, cold spots were impacting occupant comfort and productivity, and during the summer, occupants experienced high levels of interior humidity. Additionally, there were past reports indicating many visual concerns with the moisture management system of the exterior masonry veneer walls; however, there were limited reports of water penetration corresponding to the exterior conditions.

We performed a field investigation to evaluate the reported air leakage and the suspect moisture management systems. WDP installed data loggers to record temperature and relative humidity at regular intervals through each day of our investigation. Using this data, coupled with pressure sensors used to gain insight into the building pressurization, we were able to determine the primary sources of air leakage through the exterior envelope. We also performed localized water testing to evaluate the performance of the exterior envelope and better understand the migration of moisture laden air across the exterior envelope following a rain event.

At the conclusion of our field investigation, we developed hygrothermal models, which were calibrated based on the temperature and relative humidity data collected in the field. The goal was to assess various repair options, either implemented from the interior or exterior, to address the primary concerns related to the interior environment complaints. However, through this analysis, we were able to determine that the air infiltration driving the interior environment complaints was helping to dissipate moisture that would have been trapped in the wall assembly, thus masking moisture related issues that would emerge if an interior repair was implemented that focused solely on the reduction of air leakage.

The project is currently in the design stage, and we have prepared schematic repair documents for the recladding of the building to address the air, moisture, and thermal barriers of the exterior wall system while maintaining occupancy.

The Pierre Hotel, Building Envelope Investigation & Repair

*New York, **NY***

WDP is currently engaged to perform rope access inspections at the historic facades of The Pierre Hotel, overlooking Central Park in New York City. The 45-story building was completed circa in 1930 and features ornamental terracotta, limestone, brick, copper cladding and ornamental detailing, with a prominent copper mansard roof and several setback terraces with balusters. The building is a NYC Landmark and is subject to the requirements of NYC LL11/98, "Façade Inspection and Safety Program" (FISP). FISP requires that every five years every building above six-stories in height must undergo hands-on façade inspections and filing of an acceptable inspection report classifying the façade conditions, with the NYC Department of Buildings. WDP's professional team of envelope specialists include SPRAT certified engineers and Qualified Exterior Wall Inspectors (QWEI), experienced in performing hands-on inspections with care given to glazed terracotta elements, which are most susceptible to deterioration resulting from weathering and freeze-thaw cycling. WDP provided the façade condition surveys to the client and has

developed repair documents, which are currently undergoing quality assurance and quality control reviews prior to bidding. WDP will be providing construction administration services during the repair.

University of Virginia, John Paul Jones Arena Comprehensive Investigation and Repair

Charlottesville, VA

John Paul Jones Arena is the major basketball and event center serving both the University of Virginia and Central Virginia. Originally completed in 2006, the 360,000 SF facility houses a main arena with seating for over 15,000 attendees, Men's and Women's Basketball practice and training facilities, coach's and assistant offices, dining facilities, media broadcast and editing rooms, and support space.

Shortly after construction was completed, building envelope problems became apparent, including water penetration at various locations throughout the arena, excessively high energy bills, and difficulties maintaining comfortable temperatures and operating humidity throughout the arena. As a part of the overall repair, WDP developed a prioritized repair approach to include cost estimates for short-term and long-term repair options.

WDP conducted a comprehensive envelope assessment, including an infrared survey and standardized and non-standardized diagnostic testing. At the clerestory, WDP also conducted smoke pencil testing to qualitatively identify the locations and extents of air exfiltration. Several destructive test cuts were made revealing numerous defects and voids in the gypsum and the building paper behind the metal panels of the clerestory. WDP issued a comprehensive investigation report, which outlined recommended repairs, specifying which ones were required to address water penetration and which would only address air leakage. In addition, WDP provided cost analysis for the University comparing the cost of repairs addressing the air leakage against the estimated energy cost savings. WDP prepared full Construction Documents for repairs to the clerestory and lower façade and provided construction administration services.

West Virginia General Services Division, West Virginia Capitol Dome Moisture Intrusion

Charleston, WV

Originally constructed in 1932 to replace the prior building which burned in 1921, the West Virginia State Capitol Building is a steel framed structure with brick masonry infill and limestone cladding capped with a 292-foot tall dome gilded with gold leafing. Since the time of its completion, the Dome has been plagued with numerous water infiltration issues, which have resulted in significant damage to interior finishes that are difficult to access. In 2015, the State of West Virginia General Services Division issued an RFP seeking professional services to identify and investigate the source of moisture intrusion leading to damage within the upper rotunda of the Dome and to recommend repairs, and WDP was selected after competitive interviews.

WDP conducted a systematic three-week long investigation of the Dome and Capitol building, utilizing visual observations, exploratory openings, and diagnostic water testing to ascertain the construction of the building envelope and to identify the path of infiltrating water. Due to the location of the damaged interior finishes requiring investigation, unique access was required for the investigation. A swing stage system was installed through the interior of the building and used to make observations to damaged interior finishes near the top of the Dome.

The main source of the water infiltration was found to be a result of improper flashing installation and deteriorated limestone mortar joints, along with failures in the internal water management systems (the gutters and drains), that allowed bulk water to penetrate through a mass masonry assembly to the interior. WDP developed a comprehensive report summarizing the findings and recommended a tiered approach to address the issues that were found. This allowed the General Services Division to evaluate

increasingly more comprehensive repairs and their associated costs to determine the scope of work that would provide the most value to the project. Generally, the repairs will include removal of limestone cladding elements to install through wall flashing and waterproofing systems, replacement of internal plumbing and drainage elements, and repairs to damaged interior finishes.

WDP will continue to work closely with the General Services Division through an iterative process to develop the scope of work for the project, develop Construction Documents, to include drawings and specifications, and provide Construction Administrative services during the execution of the repairs. Repairs will commence in Spring 2018, and the building will remain fully occupied during the execution of the work.

Virginia Department of General Services, John Tyler Building, Building Envelope Investigation & Structural Analysis

Richmond, VA

The 11-story John Tyler Building, which houses office facilities for Commonwealth of Virginia employees, experienced water penetration through the building façade since completion of construction. Water penetration was attributed to defects in the roof system, window systems, stone cladding and building expansion joints. Through systematic standard testing and proprietary testing, we determined the dominant paths of water penetration through the façade and perimeter components.

Design documents were produced for execution of repairs to the façade, window systems and building expansion joints. WDP is also serving as an expert on the Owner's behalf for litigation. WDP also provided consulting services to assess construction and design defects related to the parking structure, excessive cracking and water ponding resulted from improper design of the structural slab system. Beam deflections resulted in significant water ponding on decks which presented a durability problem and safety hazard.

Shortly after the construction of the Tyler Building and adjoining parking structure, severe and widespread ponding of water and cracking of the parking slab was identified on all elevated levels of the structure. WDP performed a condition assessment of the structure to identify the causes and extent of the damage. During the course of the investigation, several problematic as-built conditions were identified leading to a structural evaluation of the parking garage design and construction. Based on the condition assessment and the structural evaluation, WDP provided litigation support for a settlement agreement to be developed and produced repair documents to extend the expected service life of the structure.

Repairs included a combination of membrane and sealer application, redesign and repair of the building expansion joints, installation of new slab drains, routing and sealing of random cracks, and other miscellaneous repairs. The construction was performed over six months while maintaining 90% of the typical daily traffic in the garage. WDP provided full time construction management and quality control monitoring throughout the project. Project construction was valued at approximately $550,000.00

4 – PROJECT APPROACH & METHODOLOGY

Project Approach

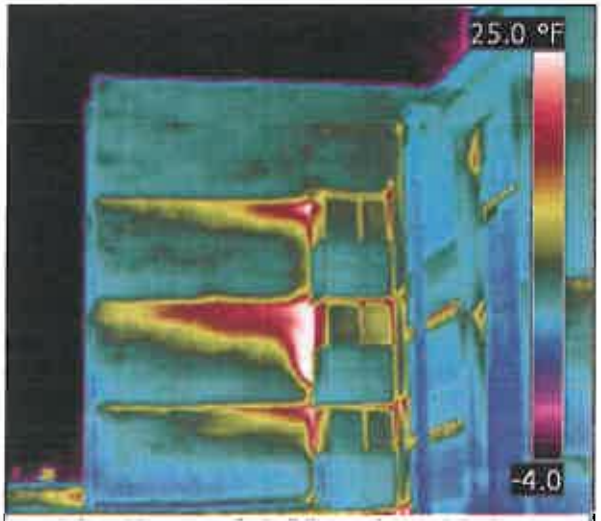
The heart of our firm lies in the diagnosis of building problems and developing unique repair solutions sympathetic to our client's needs and budgetary limitations: this is what we do. WDP was founded on the award-winning expertise of the firm's Principals and Associates in the field of forensic engineering. Building upon advanced engineering degrees and years of experience, WDP's staff continues to conduct research and analysis in the field of building science and the performance of building envelopes. This knowledge is enhanced through our involvement in national committees for the development of building codes, industry standard test methods, and guidelines that will be utilized for the successful evaluation of the West Virginia Lottery Building.

Based on our understanding of the current scope of work, we anticipate the work will be done in-house. WDP's organized project approach to fulfilling the needs of West Virginia Lottery Commission is outlined in the following steps:

Project Identification – Our project approach begins with an understanding of the project specific needs. We understand that the West Virginia Lottery Commission has identified an initial scope of the evaluation, to be focused on the excessive air leakage, cold areas, frozen pipes and water leaks. However, to ensure successful project completion, we must consider additional concerns such as continued occupancy, work hour restrictions, and access. WDP will have an initial meeting on site with the West Virginia Lottery Commission, where WDP will listen to the project-specific goals, needs, concerns, and any special considerations for the project. Based on this information and the requirements outlined in the RFP, we will finalize a project-specific scope of work and schedule for the investigation.

Document Review – Our investigations are generally conducted in accordance with ASTM E2128, "Standard Guide for Evaluating Water Leakage of Building Walls." As such, our evaluation of the West Virginia Lottery Building starts with a review of all drawings and documents related to the construction and maintenance history of the building so that we can understand the components and systems of the exterior envelope. This information will be used to help inform the location and duration of each test performed in our evaluation. Additionally, the document review is a necessary step to understand the air barrier systems of the building from a holistic perspective so that the investigation will account for and evaluate all conditions potentially contributing to the reported moisture issues. Lastly, it has been our experience that an effective field evaluation requires proper expertise to quickly digest information gleaned as the investigation progresses and adjust the scope of the evaluation accordingly, which is only possible if you understand how the building was detailed.

Site Investigation – Concurrently or shortly after the document review, WDP's staff will perform a field investigation to evaluate the reported air and water leakage at the West Virginia Lottery Building. The investigation scope listed in this section is based on the information provided to date and our understanding of the building and may change based on information gathered from the initial meeting with the Commission. At the onset of our investigation, a member of our team will be devoted to interviewing building staff to gain a better understanding of air infiltration history, moisture related issues, and cold spots. The goal of these conversations is to verify whether additional conditions should be evaluated based on the observations of building occupants and help gain a better understanding of reported air leakage.



Infrared imaging of a building to detect air leakage

The evaluation of air leakage requires a unique skill set and experience. Air leakage paths are not inherently visible like that of bulk water leakage and can be masked by the operation of HVAC systems. In order to track air and

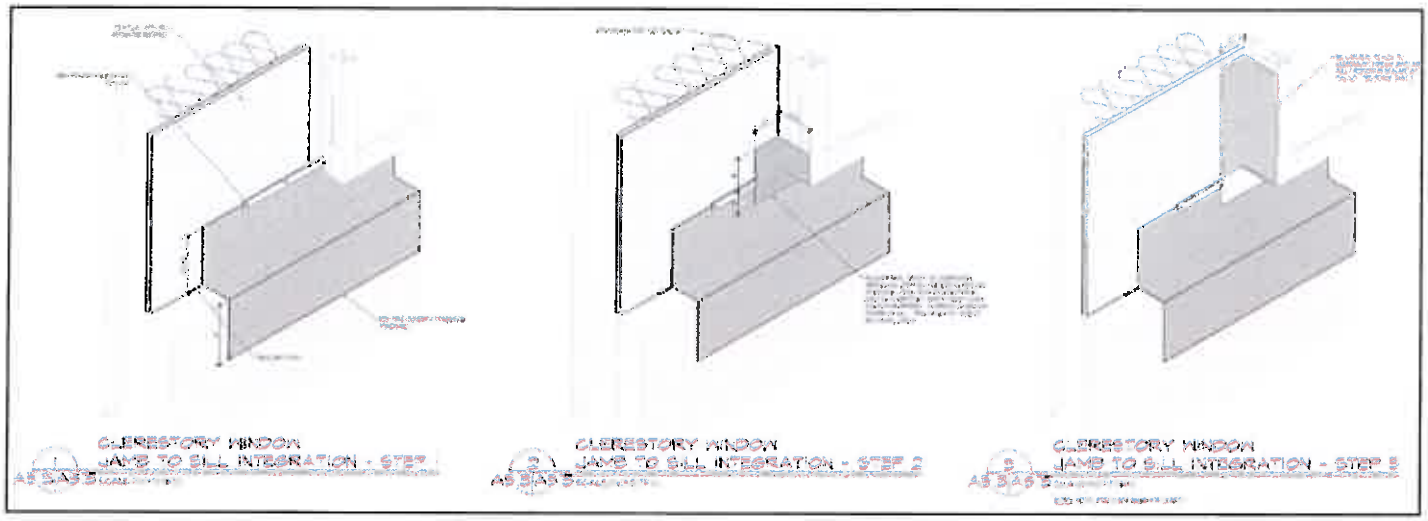
moisture movements, we regularly deploy data acquisition devices to record, at regular intervals, the ambient interior and exterior conditions as well as conditions within the wall assembly so that we can develop a profile for air and moisture movement. Our team of engineers are industry leaders in the field of building science, experienced in developing and deploying a comprehensive, project specific, plan for data acquisition devices to gain a holistic understanding of the how the building is functioning. This information is used to inform the evaluation of testing results and to calibrate models developed during the evaluation. In conjunction with data acquisition, we anticipate we will conduct air leakage testing in accordance with ASTM E1186, "Standard Practices for Air Leakage Site Detection in Building Envelopes and Air Barrier Systems." At locations where air leakage is identified we will document the existing interior and exterior conditions. At this time, we are planning to use our rope access team to help document exterior conditions. This resource allows us to quickly review exterior conditions, in a cost-effective manner. We will also use infrared thermography to document the thermal signatures of the interior and exterior of the building prior to testing to establish baseline images. The goal of our evaluation is to gain a comprehensive understanding of each issue, so that tiered repair options can be provided.

Left: Reported Ice Lensing on Interior Side of Window Frames
Right: Smoke Pencil Testing for Air Leakage at Windows

The team we are proposing for this project has completed numerous successful evaluations related to air leakage. These projects range from systemic air leakage through the envelope resulting in wide spread occupant comfort issues, to discrete evaluations of ice forming on the interior of window systems. One of the hallmarks of our firm is the use of licensed engineers in field evaluations, and as detailed in our employee resumes, our team is actively engaged in research and standard development for air barriers, fenestration systems, and building envelopes through ASTM International and the Air Barrier Association of America (ABAA). We have found that this level of involvement results in a greater understanding of industry standards and new industry developments which will be brought to this project.

Analysis and Report - At the conclusion of our investigation, WDP will thoroughly analyze the findings from our document review and field investigation and will prepare a detailed written report documenting our observations and recommendations. The report will include a technical discussion about our findings and present recommendations for repairs. Where possible, we will present scaled repair options so that the West Virginia Lottery Commission can make an informed decision about the appropriate scope of repairs for the project. After completing the report, we will discuss our findings and recommendations during a meeting with the relevant stakeholders.

Development of Repair Documents – We routinely transition from the evaluation of problems into the production of repair and restoration design documents, and we are experienced in the development of design documents that phase or sequence the work to accommodate existing conditions or occupancy requirements to the greatest degree possible.



Example of Sequenced Repair Details Developed to Convey Critical Repair Sequence for Flashing and Window integration Details

Our final Contract Documents, which will include construction drawings and specifications, will be sealed by an Engineer licensed in the State of West Virginia. We strive to develop construction documents focused on attention to detail and practical constructability. Construction documents are often presented in isometric form or in sequential construction to assist contractors with proper sequencing. WDP also places special emphasis on providing clear delineation of work items within the bid document to minimize miscommunication during the bid process.

Construction Administration Services – WDP will provide the range of construction administration services needed for successful implementation of the repairs. These services will include pre-bid meetings, pre-bid question clarifications, bid review, record drawing production, pre-construction meetings, submittal and shop drawing reviews, on-site progress meetings and site visits, addressing RFIs, punch list generation, reviewing change orders and pay applications, and the development of field reports and job bulletins as needed to address unforeseen conditions. We recognize that our involvement during the implementation of the design is as critical as the design documents themselves, particularly for existing buildings that can encounter unforeseen conditions. Consequently, we strive to provide an engaged and collaborative presence during the construction phase to help resolve questions in a timely and cost effective manner.

Quality Assurance - Delivering quality work is a hallmark of our firm and one of our core values. A shadow team comprised of engineers with an appropriate level of expertise and familiarity with the project, led by Eric Peterson, one of our Principals, will routinely review project deliverables to verify technical content. This team is comprised of staff with relevant technical experience, separate from our Project Team, intended to provide a fresh set of eyes to evaluate recommendations, details, and direction at critical points in project. The shadow team does not duplicate efforts, but is intended to provide a group of technical experts that are assigned to the project to provide consistency to our quality assurance process. We find that this is a cost-effective method of improving technical accuracy while incorporating the institutional knowledge of our firm.

5 – REFERENCES

WDP & Associates

West Virginia Department of Administration, General Services Division
Charleston, West Virginia

Projects:
Building 13 Parking Garage, Consulting Services
West Virginia Capitol Dome, Moisture Intrusion Investigation & Repair

Contacts:
Greg Melton, Director, WV General Services Division – 304.558.1808, Gregory.L.Melton@wv.gov
Kari J. Dean, Construction Project Manager, WV General Services Division – 304.957.7133, Kari.J.Dean@wv.gov

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West Virginia University
Morgantown, West Virginia

Projects:
College of Physical Activity and Sport Sciences Building, Water Infiltration Investigation
Summit Hall, Building Envelope Investigation & Repair Recommendations
Engineering Science Building, Building Envelope Investigation & Repair Recommendations
Art Museum, Building Envelope Investigation
South Agricultural Sciences Building, Façade Repair
...and many more.

Contact:
John C. Thompson, P.E., Associate Director, Design and Construction – 304.293.3625, John.Thompson@mail.wvu.edu

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University of Virginia
Charlottesville, Virginia

Projects:
John Paul Jones Arena, Comprehensive Investigation and Repair
Gilmer / Chemistry Building, Investigation and Repair
Judge Advocate General, Façade Investigation and Replacement
Campbell Hal, Partial Façade Replacement
Scott Stadium, Joint Replacement
UVA Chapel, Bell Tower Restoration
...and many more.

Contact:
Donald Sundgren, Associate Vice President & Chief Facilities Officer – 434.982.5834, DES5J@virginia.edu

ADDITIONAL TERMS AND CONDITIONS
(Architectural and Engineering Contracts Only)

1. PLAN AND DRAWING DISTRIBUTION: All plans and drawings must be completed and available for distribution at least five business days prior to a scheduled pre-bid meeting for the construction or other work related to the plans and drawings.

2. PROJECT ADDENDA REQUIREMENTS: The Architect/Engineer and/or Agency shall be required to abide by the following schedule in issuing construction project addenda. The Architect/Engineer shall prepare any addendum materials for which it is responsible, and a list of all vendors that have obtained drawings and specifications for the project. The Architect/Engineer shall then send a copy of the addendum materials and the list of vendors to the State Agency for which the contract is issued to allow the Agency to make any necessary modifications. The addendum and list shall then be forwarded to the Purchasing Division buyer by the Agency. The Purchasing Division buyer shall send the addendum to all interested vendors and, if necessary, extend the bid opening date. Any addendum should be received by the Purchasing Division at least fourteen (14) days prior to the bid opening date.

3. PRE-BID MEETING RESPONSIBILITIES: The Architect/Engineer shall be available to attend any pre-bid meeting for the construction or other work resulting from the plans, drawings, or specifications prepared by the Architect/Engineer.

4. AIA DOCUMENTS: All construction contracts that will be completed in conjunction with architectural services procured under Chapter 5G of the West Virginia Code will be governed by the AIA A101-2007 and A201-2007 or the A107-2007 documents, as amended by the Supplementary Conditions for the State of West Virginia, in addition to the terms and conditions contained herein. The terms and conditions of this document shall prevail over anything contained in the AIA Documents or the Supplementary Conditions.

4A. PROHIBITION AGAINST GENERAL CONDITIONS: Notwithstanding anything contained in the AIA Documents or the Supplementary Conditions, the State of West Virginia will not pay for general conditions, or winter conditions, or any other condition representing a delay in the contract. The Vendor is expected to mitigate delay costs to the greatest extent possible and any costs associated with Delays must be specifically and concretely identified. The state will not consider an average daily rate multiplied by the number of days extended to be an acceptable charge.

5. GREEN BUILDINGS MINIMUM ENERGY STANDARDS: In accordance with West Virginia Code § 22-29-4, all new building construction projects of public agencies that have not entered the schematic design phase prior to July 1, 2012, or any building construction project receiving state grant funds and appropriations, including public schools, that have not entered the schematic design phase prior to July1, 2012, shall be designed and constructed complying with the ICC International Energy Conservation Code, adopted by the State Fire Commission, and the ANSI/ASHRAE/IESNA Standard 90.1-2007: Provided, That if any construction project has a commitment of federal funds to pay for a portion of such project, this provision shall only apply to the extent such standards are consistent with the federal standards.

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.

Rex A. Cyphers, P.E., Principal
(Name, Title)
Rex A. Cyphers, P.E., Principal
(Printed Name and Title)
335 Greenbrier Drive, Suite 205, Charlottesville, VA 22901
(Address)
434.245.6117
(Phone Number) / (Fax Number)
RCyphers@wdpa.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.

WDP & Associates Consulting Engineers, Inc.
(Company)

(Authorized Signature) (Representative Name, Title)

Rex A. Cyphers, P.E., Principal
(Printed Name and Title of Authorized Representative)

May 2, 2018
(Date)

434.245.6117
(Phone Number) (Fax Number)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.:

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

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

Addendum Numbers Received:
(Check the box next to each addendum received)

☐ Addendum No. 1	☐ Addendum No. 6
☐ Addendum No. 2	☐ Addendum No. 7
☐ Addendum No. 3	☐ Addendum No. 8
☐ Addendum No. 4	☐ Addendum No. 9
☐ Addendum No. 5	☐ Addendum No. 10

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

WDP & Associates Consulting Engineers, Inc.
Company

Authorized Signature

May 2, 2018
Date

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

West Virginia Ethics Commission

Disclosure of Interested Parties to Contracts

Pursuant to *W. Va. Code* § 6D-1-2, a state agency may not enter into a contract, or a series of related contracts, that has/have an actual or estimated value of $100,000 or more until the business entity submits to the contracting state agency a Disclosure of Interested Parties to the applicable contract. In addition, the business entity awarded a contract is obligated to submit a supplemental Disclosure of Interested Parties reflecting any new or differing interested parties to the contract within 30 days following the completion or termination of the applicable contract.

For purposes of complying with these requirements, the following definitions apply:

"Business entity" means any entity recognized by law through which business is conducted, including a sole proprietorship, partnership or corporation.

"Interested party" or *"Interested parties"* means:

(1) A business entity performing work or service pursuant to, or in furtherance of, the applicable contract, including specifically sub-contractors;
(2) the person(s) who have an ownership interest equal to or greater than 25% in the business entity performing work or service pursuant to, or in furtherance of, the applicable contract. (This subdivision does not apply to a publicly traded company); and
(3) the person or business entity, if any, that served as a compensated broker or intermediary to actively facilitate the applicable contract or negotiated the terms of the applicable contract with the state agency. (This subdivision does not apply to persons or business entities performing legal services related to the negotiation or drafting of the applicable contract.)

"State agency" means a board, commission, office, department or other agency in the executive, judicial or legislative branch of state government, including publicly funded institutions of higher education: Provided, that for purposes of W. Va. Code § 6D-1-2, the West Virginia Investment Management Board shall not be deemed a state agency nor subject to the requirements of that provision.

The contracting business entity must complete this form and submit it to the contracting state agency prior to contract award and to complete another form within 30 days of contract completion or termination.

This form was created by the State of West Virginia Ethics Commission, 210 Brooks Street, Suite 300, Charleston, WV 25301-1804. Telephone: (304)558-0664; fax: (304)558-2169; e-mail: ethics@wv.gov; website: www.ethics.wv.gov.

Revised October 7, 2017

West Virginia Ethics Commission

Disclosure of Interested Parties to Contracts

(Required by *W. Va. Code* § 6D-1-2)

Contracting Business Entity: WDP & Associates Consulting Engineers, Inc. (WDP) **Address:** 335 Greenbrier Drive, Suite 205 Charlottesville, VA 22901

Authorized Agent: Rex A. Cyphers, P.E. **Address:** Same as above

Contract Number: CEOI 0705 1800000001 **Contract Description:** A/E Services for Building Envelope Study of WV Lottery Building

Governmental agency awarding contract: West Virginia Purchasing Division for the West Virginia Lottery Commission

☒ **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.
   38.72% - Employee Stock Ownership Plan (ESOP)
   26.86% - Gerald A. Dalrymple, P.E., Principal
   26.86% - A. Rhett Whitlock, Ph.D., P.E., Principal

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: _____ Date Signed: 05/02/2018

Notary Verification

State of Virginia, County of Albemarle:

I, Rex A. Cyphers, 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 May, 2018.

Katrina Elisabet Dalton
Notary Public's Signature

To be completed by State Agency:
Date Received by State Agency: _____
Date submitted to Ethics Commission: _____
Governmental agency submitting Disclosure: _____

KATRINA ELISABET DALTON
NOTARY PUBLIC
REGISTRATION # 7633735
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES
AUGUST 31, 2019

Revised October 7, 2017

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 exceed 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: WDP & Associates Consulting Engineers, Inc.

Authorized Signature: _____ Date: 05/02/2018

State of Virginia

County of Albemarle, to-wit:

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

My Commission expires August 31, 2019.

AFFIX SEAL HERE

KATRINA ELISABET DALTON
NOTARY PUBLIC
REGISTRATION # 7633735
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES
AUGUST 31, 2019

NOTARY PUBLIC Katrina Elisabet Dalton