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Header 1

List View

General Information | [Contact](#) | [Default Values](#) | [Discount](#) | [Document Information](#) | [Clarification Request](#)

Procurement Folder: 853816

Procurement Type: Central Purchase Order

Vendor ID: 000000197661

Legal Name: THOMPSON & LITTON INC

Alias/DBA:

Total Bid: \$0.01

Response Date: 03/24/2021

Response Time: 11:39

Responded By User ID: megancarner

First Name: Megan

Last Name: Carner

Email: mcarner@t-l.com

Phone: 276-988-7921

SO Doc Code: CEOI

SO Dept: 0603

SO Doc ID: ADJ2100000008

Published Date: 3/8/21

Close Date: 3/24/21

Close Time: 13:30

Status: Closed

Solicitation Description: EOI- Brushfork Armory HVAC Design

Total of Header Attachments: 1

Total of All Attachments: 1



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

**State of West Virginia
 Solicitation Response**

Proc Folder: 853816
Solicitation Description: EOI- Brushfork Armory HVAC Design
Proc Type: Central Purchase Order

Solicitation Closes	Solicitation Response	Version
2021-03-24 13:30	SR 0603 ESR03242100000006553	1

VENDOR
 000000197661
 THOMPSON & LITTON INC

Solicitation Number: CEOI 0603 ADJ2100000008
Total Bid: 0.01000000000000000208166817 **Response Date:** 2021-03-24 **Response Time:** 11:39:28
Comments:

FOR INFORMATION CONTACT THE BUYER
 Tara Lyle
 (304) 558-2544
 tara.l.lyle@wv.gov

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

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

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	EOI- Brushfork Armory HVAC Design				0.01

Comm Code	Manufacturer	Specification	Model #
81101508			

Commodity Line Comments: N/A at this time.

Extended Description:

EOI- Brushfork Armory HVAC Upgrades Design per the attached documentation.



EXPRESSION OF INTEREST

Brushfork Armory HVAC Design

West Virginia Army National Guard

March 24, 2021



THOMPSON
& LITTON EST. 1956



THOMPSON
& LITTON EST.
1956

March 24, 2021

Ms. Tara Lyle
WV Department of Administration
Purchasing Division
2019 Washington St, E
Charleston, WV 25305

RE: Expression of Interest for Brushfork Armory HVAC Design

Dear Ms. Lyle:

Thompson & Litton (T&L) is excited to submit the attached proposal for professional engineering services for the HVAC Design project at the Brushfork Armory. With more than six (6) decades of continuous service, we are proud of our company's legacy of thousands of completed projects involving vital infrastructure such as HVAC.

As you review our proposal we would like to highlight the following advantages we offer.

- **We are a Proven Team.** T&L has completed hundreds of HVAC projects including planning, design and construction phase services.
- **Depth and Diversity Full Service In-House.** T&L is a full service engineering, surveying, architectural and construction company with all major disciplines under one corporate roof. We only subcontract specialties.
- **Proximity of our firm and team members to the project - accessibility and same day responsiveness.** T&L will manage this project out of our Princeton, West Virginia Office.
- **Financial Modeling.** Understanding of the many variables that determine financial viability of infrastructure projects.

At T&L we view our role on our projects as being an extension of the clients we serve. Ultimately, we are not successful if our clients are not successful. Accordingly, we will strive relentlessly to meet or exceed your expectations on every project assigned to us under this contract.

We look forward to an opportunity to meet with you to further expand upon our capabilities and experience.

Sincerely,

Christopher Stanely, PE
Project Manager



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Gregory H. Hurst, PE

PRESIDENT

Greg Hurst, PE, is a 1991 graduate of Virginia Military Institute receiving a Bachelor of Science Degree in Civil Engineering, and a 1994 graduate of Virginia Tech receiving a Master of Science Degree in Environmental Engineering. Greg has amassed 28 years of experience in the design and construction of engineering projects.

Over the years, Greg has significantly contributed to the preliminary, planning, final design, and construction of water, wastewater, site and infrastructure development projects for numerous engineering and architectural projects.

As an extension of his role, and duties as President, Greg contributes his expertise to all engineering projects as Officer-in-Charge, providing oversight and guidance, QA/QC, and ensures that the Project Team has access to the resources necessary to complete the project on time and within budget.

The following is a sampling of his project-related experience:

EDUCATION & TRAINING

- Bachelor of Science, Civil Engineering, Virginia Military Institute, 1991
- Master of Science, Environmental Engineering, Virginia Polytechnic Institute & State University, 1994

REGISTRATIONS

- Professional Engineer: VA, 1998
- Professional Engineer: NC, 2001

PROFESSIONAL AFFILIATIONS

- American Water Works Association
- National Society of Professional Engineers
- Virginia Society of Professional Engineers

AWARDS AND PUBLICATIONS

- Hurst, Greg, Master Thesis on "Evaluating Ferrous Iron Chlorite Ion Removal," The Journal of The American Water Works Association, Volume 89, Issue 8, August 1997

CONTACT INFORMATION

Thompson & Litton, Inc.
726 Auburn Avenue
Radford, Virginia 24141
Phone: 540-633-1897
Fax: 540-633-1896
ghurst@T-L.com

Appalachian Correctional Unit #29

Virginia Department of Corrections, Honaker, Virginia. Project Engineer.

Bland Correctional Center Water Treatment Plant Upgrade

Virginia Department of Corrections, Bland County, Virginia. Project Engineer.

Botetourt Correctional Unit # 25

Virginia Department of Corrections, Troutville, Virginia. Project Engineer.

Deerfield Correctional Center Expansion & Sequencing Batch Reactor

Moseley-Balfour, LLC/VDOC, Southampton County, Virginia. Project Engineer.

Green Rock Correctional Center Upgrade to Wastewater Treatment Plant

Moseley-Balfour, LLC/VDOC, Pittsylvania County, Virginia. Project Engineer.

New River Criminal Justice Training Academy - New Facility

New River Criminal Justice Training Academy, Dublin, Virginia. Project Engineer.

Pocahontas State Correctional Center Wastewater Treatment Plant

Moseley-Balfour, LLC/VDOC, Tazewell County, Virginia. Project Engineer.

Montgomery County Courthouse and Parking Structure

Montgomery County Board of Supervisors, Christiansburg, Virginia. Project Engineer.

Russell County Courthouse Renovation & Rehabilitation

Russell County Board of Supervisors, Russell County, Virginia. Project Engineer.



Christopher Stanley, PE

PROJECT MANAGER

Christopher Stanley, PE, is a 1998 graduate of West Virginia University receiving a Bachelor of Science Degree in Civil Engineering. Chris has 22 years of experience in design engineering, construction project management, and facilities management.

Chris began his career with Stafford Consultants, Inc and worked on several transportation and site development projects. From there his career path included design engineer and construction project management for a construction firm followed by several years as the Supervisor of Facilities for a county school system. Chris has a broad range of experience with all phases of design, construction, and maintenance.

The following is a sampling of his project-related experience:

EDUCATION & TRAINING

- Bachelor of Science, Civil Bachelor of Science, Civil Engineering, West Virginia University, 1998

REGISTRATION

- Professional Engineer: WV, 2002

CONTACT INFORMATION

Thompson & Litton
 1105 Mercer Street
 Princeton, West Virginia 24740
 Phone: 304-425-9555
 Fax: 304-425-9557
 cstanley@T-L.com

Mountain Eagle Distributors Building Addition

Beckley, West Virginia. Project Manager.

Mercer County Solid Waste Authority Recycling Building Additions

Mercer County, West Virginia. Project Manager.

Ronceverte Elementary School Gymnasium Addition

Greenbrier County Schools, Greenbrier County, West Virginia. Project Manager.

Oakvale/Spanishburg Schools Wastewater Treatment Plant

Mercer County Board of Education, Mercer County, West Virginia. Project Manager.

Sacred Heart Catholic Church Princeton Narthex Addition

Princeton, West Virginia. Project Manager.

Mountain Valley Elementary School

Mercer County, West Virginia. Design Team Member.

Bluefield Primary School

Mercer County, West Virginia. Design Team Member.

Winona Wastewater Treatment Plant

Town of Winona, West Virginia. Project Manager.

Lashmeet Matoaka School Wastewater Treatment Plant

Mercer County, West Virginia. Design Team Member.

Rupert Water Treatment Plant Backwash Tank Upgrades

Rupert, West Virginia. Project Manager.



Steven R. Farris, PE

DIRECTOR OF BUILDING SERVICES



Steve Farris, PE, is a 1990 graduate of Tennessee Technological University receiving a Bachelor of Science Degree in Mechanical Engineering, with 27 years of experience, and was the lead engineer and President of SEDA, Inc., before merging with T&L. He began his career in the mechanical contracting field gaining hands on insight into all aspects of the design and function of mechanical systems.

Steve has served as design engineer and project manager on a broad range of projects including educational, institutional, commercial and industrial facilities. Steve has performed energy audits for various building types and has earned his Certification as an Energy Manager.

The following is a sampling of his project-related experience:

EDUCATION & TRAINING

- Bachelor of Science, Mechanical Engineering, Tennessee Technology University, 1990

REGISTRATIONS

- Professional Engineer: TN, 1997
- Professional Engineer: NC, 1997
- Professional Engineer: GA, 2000
- Professional Engineer: KY, 2000
- Professional Engineer: SC, 2001
- Professional Engineer: WV, 2001
- Professional Engineer: VA, 2001
- Professional Engineer: OH, 2012

CERTIFICATIONS

- Certified Energy Manager, Association of Energy Engineers (9037)
- TN Erosion Prevention & Sediment Control Program (123027-TN12); NCEES (19327)

PROFESSIONAL AFFILIATIONS

- American Society of Heating Refrigerating and Air-Conditioning Engineers
- American Society of Plumbing Engineers
- National Fire Protection Association
- American Society of Healthcare Engineering

CONTACT INFORMATION

Thompson & Litton, Inc.
9816 West Andrew Johnson Highway
Mosheim, Tennessee 37818
Phone: 423-422-2110
Fax: 423-422-2111
sfarris@T-L.com

303 Letcher Avenue Renovations – MEP

Virginia Military Institute, Lexington, Virginia.

UVA's College at Wise - Chick-Fil-A - MEP Design Services

University of Virginia College at Wise, Wise, Virginia. Mechanical Engineer.

City of Petersburg - New City Hall PPEA (MEP and Structural Engineering)

Enteros Design, PC, Petersburg, Virginia.

Southside Virginia Community College - Student Service and Learning Resources Center (Christanna Campus)

Virginia Community College System, Alberta, Virginia.

Graham Middle School HVAC Renovation/Upgrade

Bluefield, Virginia. Mechanical Engineer.

Holston View Elementary HVAC Replacement

Bristol, Tennessee, Mechanical Engineer.

HVAC Replacement and Upgrades at Floyd Elementary School and Indian Valley Elementary School

Floyd County Board of Supervisors, Floyd County, Virginia. Design Supervisor.

Wilson Middle School HVAC System Renovation

Charlotte, North Carolina, Mechanical Engineer.

Traffic Operations Center - HVAC Replacement

Virginia Department of Transportation, Salem, Virginia.

Scott County School System HVAC Upgrade

Scott County, Virginia. Mechanical Engineer.

Oak Ridge National Laboratory Upgrade of HVAC Systems in Multiple Buildings (X-10 Campus) including Chilled Water Plant

Oak Ridge, Tennessee. Mechanical Engineer.

New HVAC Systems for Multiple Homes

Crossville Housing Authority, Crossville, Tennessee. Mechanical Engineer.

Sullivan County Jail HVAC Upgrades

Trane Commercial Systems, Blountville, Tennessee. Mechanical Engineer.

Mountain Empire Community College - Replace Phillips-Taylor Hall Cooling Tower

Virginia Community College System, Wise County, Virginia.



Russell M. Anderson, PE, LEED AP

LEAD ELECTRICAL ENGINEER

Russell Anderson, PE, LEED AP, is a 2002 graduate of Virginia Tech, receiving a Bachelor of Science Degree in Electrical Engineering with a minor in Mathematics. Rusty has 18 years of experience, and works in T&L's Chilhowie office. He has significant experience with the design of electrical and control systems associated with water and wastewater infrastructure. He has worked on many pumping and treatment projects throughout Virginia.

His primary responsibilities include design, layout and specifications preparation for the following: interior and exterior building lighting, facility power delivery and distribution, motor control design, lightning protection systems, grounding systems, fire alarm system layouts, security systems, controls/instrumentation, SCADA systems, and telecommunications layout.

Rusty also has experience in cost estimating, load calculations, voltage drop calculations, short current calculations, lighting modeling and calculations, lightning risk calculations, arc fault calculations, breaker coordination, plan and construction review for code compliance and has experience with LEED design on various projects.

The following is a sampling of his project-related experience:

New River North Correctional Facility - Dog Kennel MEP Design

Virginia Department of Corrections, Independence, Virginia.

Southside Virginia Community College - Student Service and Learning Resources Center (Christanna Campus)

Virginia Community College System, Alberta, Virginia. Electrical Engineer.

Southside Virginia Community College - Student and Learning Resource Center Building (John H. Daniel Campus)

Virginia Community College System, Keysville, Virginia. Electrical Engineer.

MEP Services for Freedom Lane

Community Design Studio, LLC, Wytheville, Virginia. Electrical Engineer.

George Wythe Hotel MEP Services

William Huber Architect, Wythe County, Virginia. Electrical Engineer.

City of Petersburg - New City Hall PPEA (MEP and Structural Engineering)

Enteros Design, PC, Petersburg, Virginia. Electrical Engineer.

The Pinnacle - MEP for Tower and Crescent Shops

Williams Blackstock, Architects, Bristol, Tennessee. Electrical Engineer.

Mountain Empire Community College Replace Phillips-Taylor Hall Cooling Tower

Virginia Community College System, Wise County, Virginia. Electrical Engineer.

Phillips-Taylor Hall HVAC Upgrades

Virginia Community College System, MECC, Big Stone Gap, Virginia. Electrical Engineer.

EDUCATION & TRAINING

- Bachelor of Science, Electrical Engineering, Virginia Polytechnic Institute and State University, 2002

REGISTRATIONS

- LEED AP, 2006
- Professional Engineer: VA, 2007
- Professional Engineer: TN, 2015
- Professional Engineer: WV, 2015
- Professional Engineer: KY, 2015

PROFESSIONAL AFFILIATIONS

- Illuminating Engineering Society of North America

CONTACT INFORMATION

Thompson & Litton, Inc.
P.O. Box 1369
121 East Main Street
Chilhowie, Virginia 24319
Phone: 276-646-5050
Fax: 276-646-5040
randerson@T-L.com



Steven Thomas, PE

MECHANICAL ENGINEER

Steven Thomas, PE, is a 1996 & 2000 graduate of the University of Tennessee where he received BS and MS degrees in Mechanical and Metallurgical Engineering, respectively. With a combined 17 years of experience in the design of similar engineering projects, his experience has focused on mechanical, electrical, and plumbing design for institutes of higher learning, primary and secondary education facilities, high rise structures, and private businesses.

His capabilities include a proficient knowledge of drafting in AutoCad systems, design of heating, ventilation and air conditioning systems, and cost estimation. As a member of the T&L team, Steven will provide design support services for all mechanical, electrical and plumbing projects.

The following is a sampling of his project-related experience:

EDUCATION & TRAINING

- Bachelor of Science, Mechanical Engineering, University of Tennessee, 1996
- Master of Science, Metallurgical Engineering, University of Tennessee, 2000

REGISTRATIONS

- Professional Engineer: VA, 2012
- Professional Engineer: TN, 2011

CONTACT INFORMATION

Thompson & Litton, Inc.
9816 West Andrew Johnson Highway
Mosheim, Tennessee 37818
Phone: 423-422-2110
Fax: 423-422-2111
sthomas@T-L.com

George Wythe Hotel MEP Services

William Huber Architect, Wythe County, Virginia. Design Engineer.

Wise Inn Renovations

Wise County Industrial Development Authority, Wise, Virginia.

Mechanical Engineer. Old ANR Headquarters Remodeling for County Offices

Washington County Board of Supervisors, Washington County, Virginia. Design Engineer.

Washington County Public Safety Building Roof Replacement/HVAC Replacement

Washington County Board of Supervisors, Washington County, Virginia. Design Engineer.

Alpha Natural Resources New Headquarters

BurWil Construction Company, Inc./Alpha Natural Resources, Bristol, Virginia. Design Engineer.

Maxxim New Rebuild Shop

Maxxim Shared Services, LLC, Norton, Virginia. Design Engineer.

Bluefield State College Energy Conservation Program & HVAC Replacement

Bluefield State College, Bluefield, West Virginia. Design Engineer.

The Village at Oakview

Bristol Redevelopment & Housing Authority, Bristol, Virginia. Mechanical Engineer.

City Hall RTU's Replacement and HVAC Controls

City of Bristol, Tennessee. Mechanical Engineer.

Daniel Boone Interpretive Center

Scott County Economic Development Authority, Scott County, Virginia. Mechanical Engineer.

Elizabethton High School Band Room Addition

Carter County Schools, Carter County, Tennessee. Mechanical Engineer.

New Library

University of Virginia's College at Wise, Wise, Virginia. Mechanical Engineer.



Richard W. Houchins, AIA, CCCA, NCARB

PROJECT ARCHITECT/ASSOCIATE



EDUCATION & TRAINING

- Bachelor of Architecture, University of Tennessee, 1979
- Bachelor of Science, Business Technology, West Virginia Institute of Technology, 1976
- Drafting and Design - Engineering Technology, West Virginia Institute of Technology, 1974

REGISTRATIONS

- Registered Architect: WV, 1984
- Registered Architect: VA, 1989
- Registered Architect: TN, 1995
- NCARB, 1985
- Certified Construction Contract Administrator, CSI
- Certified Construction Document Technologist, CSI: VA, 2005
- EPA Certified Asbestos Inspector: VA, 1990, WV, 2006
- EPA Certified Asbestos Project Designer: VA, 2006, WV, 2006

PROFESSIONAL AFFILIATIONS

- American Institute of Architects
- Construction Specification Institute
- National Historic Preservation Trust
- National Council of Architectural Registration Boards

CONTACT INFORMATION

Thompson & Litton, Inc.
P.O. Box 1307
103 East Main Street
Wise, Virginia 24293
Phone: 276-328-2161
Fax: 276-328-1738
dhouchins@T-L.com

Richard W. Houchins, AIA, CCCA, NCARB, is a 1979 graduate of the University of Tennessee, receiving a Bachelor of Architecture Degree, as well as a 1974 and 1976 graduate from West Virginia Tech with degrees in Engineering Technology and Business. Having amassed 40 years of experience in the design and construction of a wide variety of architectural and engineering projects, Dick is responsible for overall project coordination and will be the main point of contact between you and the Project Team. He will see that the necessary services are provided and that the project is completed on time and within the established budget.

An Associate of the Firm, Dick is a licensed architect in Virginia, Tennessee, and West Virginia, and a Certified Construction Contract Administrator (CCCA) by the Construction Specification Institute (CSI). He is also licensed to perform asbestos inspections, and asbestos abatement designs in Virginia and West Virginia.

The following is a sampling of his project-related experience:

Mineral Gap Data Center

DPR Construction, Wise, Virginia. Project Manager.

UVA Wise Library

Wise, Virginia. Project Manager and Construction Contract Administrator.

Bluefield College Wellness Center

Bluefield, Virginia. Project Manager.

America Energy Research Center

Wise County IDA, Wise, Virginia. Project Manager.

Wise Inn Renovations

Wise County IDA, Wise, Virginia. Project Manager.

Eastside High School Renovations - PM

Wise County School Board, Wise County, Virginia. Project Manager.

Bluefield Shell Building

Cumberland Plateau Planning District Commission, Bluefield, Virginia. Construction Contract Administrator.

Cumberland Industrial Park Shell Building

Cumberland Plateau Planning District Commission, Bluefield, Virginia. Construction Contract Administrator.

Esserville Industrial Park Pre-Engineered Industrial Shell Building # 1

Wise County Industrial Development Authority, Wise County, Virginia. Construction Contract Administrator.

Jonesville Family Health Center

Stone Mountain Health Services, Jonesville, Virginia. Project Manager.



References

Bluefield State College

219 Rock Street
Bluefield, West Virginia 24701
Ms. Shelia Johnson
304-327-4040

Floyd County Schools

P.O. Box 218
Floyd, Virginia 24091
Dr. John Wheeler, EdD
540-745-9400

Wise County Public Service Authority

P.O. Box 388
Wise, VA 243293
Mr. Wayne Watts
276-328-6187




THOMPSON
& LITTON EST. 1926

Copies of staff certifications.

03

**West Virginia State Board of Registration
for Professional Engineers**




GREGORY H. HURST
WV [REDACTED]

This is to certify that the above named PROFESSIONAL ENGINEER has met the requirements of the law, is duly registered and is entitled to practice engineering in the State of West Virginia.

EXPIRES December 31, 2022

**West Virginia State Board of Registration
for Professional Engineers**




STEVEN R. FARRIS
WV [REDACTED]

This is to certify that the above named PROFESSIONAL ENGINEER has met the requirements of the law, is duly registered and is entitled to practice engineering in the State of West Virginia.

EXPIRES December 31, 2020

**West Virginia State Board of Registration
for Professional Engineers**




RUSSELL M. ANDERSON
WV [REDACTED]

This is to certify that the above named PROFESSIONAL ENGINEER has met the requirements of the law, is duly registered and is entitled to practice engineering in the State of West Virginia.

EXPIRES December 31, 2020

**West Virginia State Board of Registration
for Professional Engineers**



CHRISTOPHER O. STANLEY
WV [REDACTED]

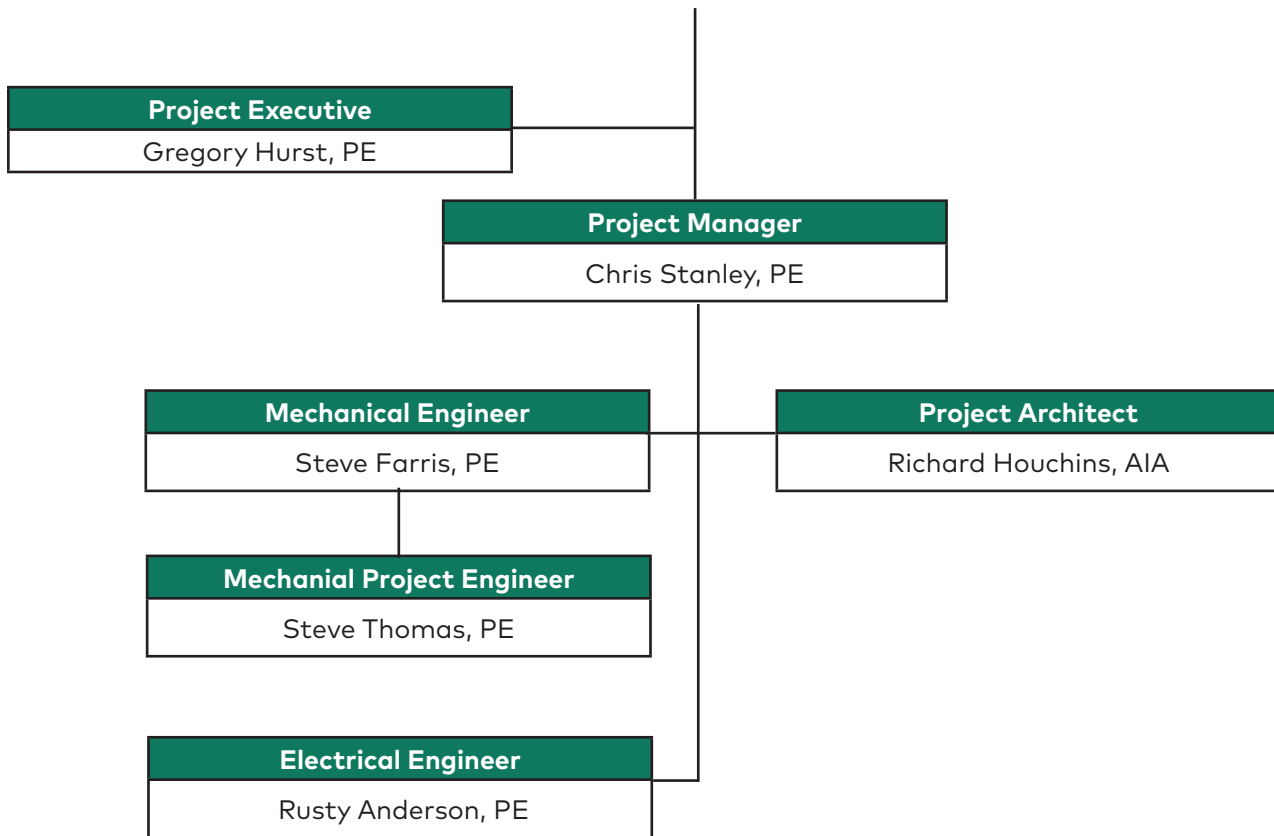
This is to certify that the above named PROFESSIONAL ENGINEER has met the requirements of the law, is duly registered and is entitled to practice engineering in the State of West Virginia.

EXPIRES December 31, 2022

Registrant: RICHARD HOUCHINS, License: [REDACTED]	
Address [REDACTED] [REDACTED]	RICHARD W HOUCHINS [REDACTED] [REDACTED]
Email: dhouchins@t-l.com	Your license Expires: 2020-21



WV Army National Guard





T&L's MEP Engineering services include all phases of planning, engineering, design, bid assistance and construction inspection. A sampling of MEP services T&L provides, includes the following:

- Industrial Process Cooling Water Systems
- Condition Assessment of Buildings
- Heating, Ventilation, and Air Conditioning Systems
- Solar Energy Systems (Thermal and PV)
- Building Analysis
- System and Energy Study Analysis
- Code Compliance and Inspections
- Fluid Flow Piping Systems for Processes
- Sprinkler System Design
- Electrical Studies
- Indoor/Outdoor Lighting Design
- Planning/Design of Electrical Systems
- Planning/Design of Plumbing Systems
- Environmental Systems
- Fluid and Steam Pipe Design
- Fire Protection



Descriptions of past projects. (Continued)



Bluefield State College - Generator

Listed below is a small sampling of T&L's clients for new and/or upgraded HVAC systems:

- Comfort Systems USA
- Eastman Chemical Company
- Wellmont Health Systems
- Bristol Redevelopment and Housing Authority
- Bristol Virginia Public Schools
- Bristol Tennessee City Schools
- City of Kingsport
- Bluefield College
- Bluefield State College
- Radford University
- Roanoke County
- Roanoke Regional Airport Commission
- Virginia Military Institute
- Virginia Tech
- Virginia Community College System
- Washington County Board of Supervisors
- Town of Wise
- Smyth County Board of Supervisors
- Virginia Department of Corrections
- Virginia Department of Conservation and Recreation
- Wise County Public Schools
- Alpha Natural Resources
- University of Virginia's College at Wise



**Alpha Natural Resources - New
Headquarters Generators and
Mechanical Units**

Please find a few highlighted similar projects on the following pages.



**Radford University - Allen Building
Electrical Generator**



**THOMPSON
& LITTON** EST. 1956

Bluefield State College Energy Conservation Program

Thompson & Litton was selected by Bluefield State College in Bluefield, West Virginia to review existing facilities and provide an energy conservation program for the institution. The focus of the project was to reduce the cost of operating facilities while improving the quality of the learning environment. An audit of the existing facilities was performed and included: prioritizing projects with potential for assistance in design/engineering, project management, training and technical support, and obtaining financing of an integrated program.

Services consisted of an initial review of all available documents of each building along with interviews with building occupants to determine problems that may not be obvious upon walk-thru inspection. T&L conducted a detailed inspection of each building to evaluate specific systems including mechanical, plumbing, electrical, lighting, exterior envelope, windows, doors, caulking, weather stripping, and roofing systems as well as site lighting throughout the campus including control systems.

T&L developed a selection of potential candidate systems for upgrading, with associated costs of upgrades and related energy savings with estimates of payback based on current and future energy/consumption level costs. Construction documents previously prepared by T&L related to renovations at Mahood Hall were re-evaluated with recommendations for potential upgrades and/or changes for maximum energy conservation. Wind and solar powered systems and their application at various locations across campus were also evaluated as were the current indoor swimming pool equipment, pumps, and filters for potential upgrades. Finally, a detailed study of the campus water lines and HVAC systems was evaluated to determine the feasibility of accommodations of whole building central air conditioning systems and repairs to potentially leaking lines.

Requested engineering study services for the Bluefield State College Energy Conservation Program were completed in September 2011.



Floyd County Schools HVAC Upgrades

The Floyd County, Virginia Schools system consists of Floyd County High School and four (4) elementary schools – Check, Floyd, Indian Valley and Willis. Each of the schools are presently heated with coal-fired boilers that are all past their useful lives. Also, significant portions of each school are without air conditioning. In the early and late portions of the school year school must sometimes be canceled due to high outdoor temperatures. Replacement parts for the coal-fired boilers are difficult to find and the discharges from the boilers are an environmental issue. The controls systems at each school are also aged and spare parts must be obtained from out-of-state resources. In the fall of 2017 Floyd County commissioned T&L to conduct a study at each school to determine options for replacement of the coal-fired boilers, and to provide all portions of each school with conditioned air using centralized systems in lieu of the multiplicity of smaller split systems. T&L conducted an existing equipment and systems assessment at each school, along with an assessment of available space outside of each school building for new HVAC equipment. Between four (4) and five (5) options at each school were evaluated, as follows:

- Replace boilers with liquid propane-fired boilers
- Replace boilers with liquid propane-fired boilers and add direct expansion (DX) cooling
- Replace boilers with liquid propane-fired boilers and add a chilled water plant
- Replace boilers with water-source heat pumps with geothermal well fields
- Replace boilers with water-source heat pumps with cooling towers and new boiler plants

Solar panels' installations at each school were also evaluated for water heating and electrical energy generation. A detailed cost estimate for each option was developed, along with recommendations for replacement of the existing HVAC controls system with web-based systems with graphical interfaces. Based upon the results of the study, the County chose the option to replace boilers with liquid propane-fired boilers and add direct expansion (Dx) cooling at all the schools. Thompson & Litton services were retained to design the improvements. The project was split into two packages based upon the urgency of replacement of failing and failed coal fired boilers. The boiler replacements package was bid and awarded in **late Spring of 2019**. The air-conditioning and controls package was recently bid and is under consideration of award by the Board of Supervisors.



City of Kingsport and Wise Co Schools HVAC Upgrades

Two (2) recent examples of T&L's mechanical engineering design capabilities with K-12 applications include:

1. A new chiller tower for George Washington Elementary School (HVAC) in Kingsport, Tennessee; and
2. The replacement of an existing boiler at Powell Valley Middle School in Big Stone Gap, Virginia with two (2) new, smaller electrical boilers.



Wise County PSA Bull Run to Banner Emergency Generators

T&L was retained by the Wise County Public Service Authority (WCPSA) to provide design, permitting, bidding, construction contract administration, and resident project representation services associated with two (2) projects:

- Bull Run to Banner Telemetry/Emergency Generator Project (Contracts I and II)
- Water Tank Improvements.

The projects consisted of the installation of the following electrical & instrumentation infrastructure:

- 13 permanent generators and one (1) portable generator connection at existing facilities within the Wise County water system
- One (1) permanent generator furnished to the WCPSA for installation under separate contract
- Radio telemetry at eight (8) existing sites to replace existing dial-up telemetry
- New radio telemetry and modifications to existing radio telemetry at five (5) existing sites

Also, the project included the installation of a new 400,000 gallon water storage tank (Bond Gap Tank); and the rehabilitation of two (2) existing water storage tanks (400,000 and 300,000 gallons).





Longwood University – Dorrill Dining Hall - New Heat Pump System

Dorrill Dining Hall serves as the primary dining facility for LU. Key facility highlights include:

- Built in the late 1990s,
- Approximately 60,000 SF, two-story building; and
- Situated in the heart of campus, directly adjacent to the Brook Commons area.

In 2014, Dunlap and Partners Engineer (DPE) produced a Preliminary Engineering Report in which recommended replacement of the existing water source heat pumps (a total of 40 units), all of which had to be replaced over the winter break. In order to address the major challenges brought on by this very compressed schedule, the T&L team facilitated and coordinated the effort by:

- Meeting with BCOM to review the project prior to submitting construction documents for review and permitting, which expedited the review and approval process.
- Playing an active role during construction by providing additional site visits, quick responses to RFI's and submittals, and close schedule monitoring, all of which ensured a high-quality installation in unprecedented timeliness.

Overall, the project was completed in a total of 30 days at a construction cost of \$400,142.

SWVCC- Boiler Replacement in Buchanan Hall & Boiler and Chiller Replacement at King Community Center

T&L performed professional services for the replacement of two 100-ton air cooled chiller for the King Center located on the Southwest Virginia Community College campus in Richlands, Virginia. Replacement was needed due to age and increased maintenance cost to keep the existing chillers on-line. The facility was evaluated to determine the existing chiller capacity was adequate and replacement was performed to match the current chiller output.

In addition, T&L provided services for replacement of existing oil-fired boiler at the King Center Facility as well as the Buchanan Hall facility located on the same campus. The existing oil-fired boilers were replaced due to age and state of condition. The school system desired to discontinue use of the oil fuel system and chose to replace with electrical boilers. New electrical service was provided to feed the new boilers.



Approach and methodology for meeting goals and objectives.

06

The most important part of delivering a successful project to replace and upgrade the HVAC systems at the Brushfork Armory will be the initial planning, which begins at the time a contract for A/E Services is negotiated. A process for implementing the project will be clearly defined, including establishing the project scope and expected outcomes, the budget, and the schedule for programming, design, bidding, and construction of the HVAC replacement. The plan will include the following general components.

Discovery Phase

T&L will conduct a fact-finding effort to understand the existing conditions of the HVAC and associated electrical systems, including review and verification of any existing plans and/or reports that exist, and our own field investigations. Simultaneous to this effort, we will meet with the facility staff to gather information on needs as well as any known issues with the existing systems. This important information will define the goals and objectives upon which the design of the project will be based.

Schematic Design

This is where the conceptual design of the project takes place. We will propose an HVAC system replacement to provide the desired performance keeping in mind the need for energy efficient operation as well as ease of maintenance. A rough order of magnitude cost estimate will be provided with our recommended improvements. Once you are satisfied with the design within these parameters, the design may proceed with further development.

Design Development

During the Design Development phase, the HVAC building systems (including associated electrical and architectural elements) are selected and laid out to a preliminary level. Equipment and material selections are made. At the conclusion of the Design Development Phase, most of the defining features of the planned replacements are established. The project budget and schedule are updated before proceeding into the final phase of design.

Construction Documents

Detailed drawings, equipment schedules, all materials, project specifications, and bidding documents are developed to finalize the Construction Documents. A review of the final documents with the authority having jurisdiction will be conducted. Upon your approval, advertisement and invitation to bid may proceed.

Bid Phase

Assuming traditional design-bid-build methodology is employed for this project, an advertisement for public bids will be appropriately placed. T&L will respond to questions from Bidders during the bid phase, issuing addenda if needed for clarification, assist with opening and reviewing bids, negotiating an award price if necessary, and preparing Contracts for Construction.

Construction Phase

T&L will administer the contract for construction on behalf of the Brushfork Armory. Services include site visits, reviewing shop drawings, evaluating requests for information, issuing supplemental instructions and change orders if necessary, attending progress meetings, and providing substantial completion and final inspections.