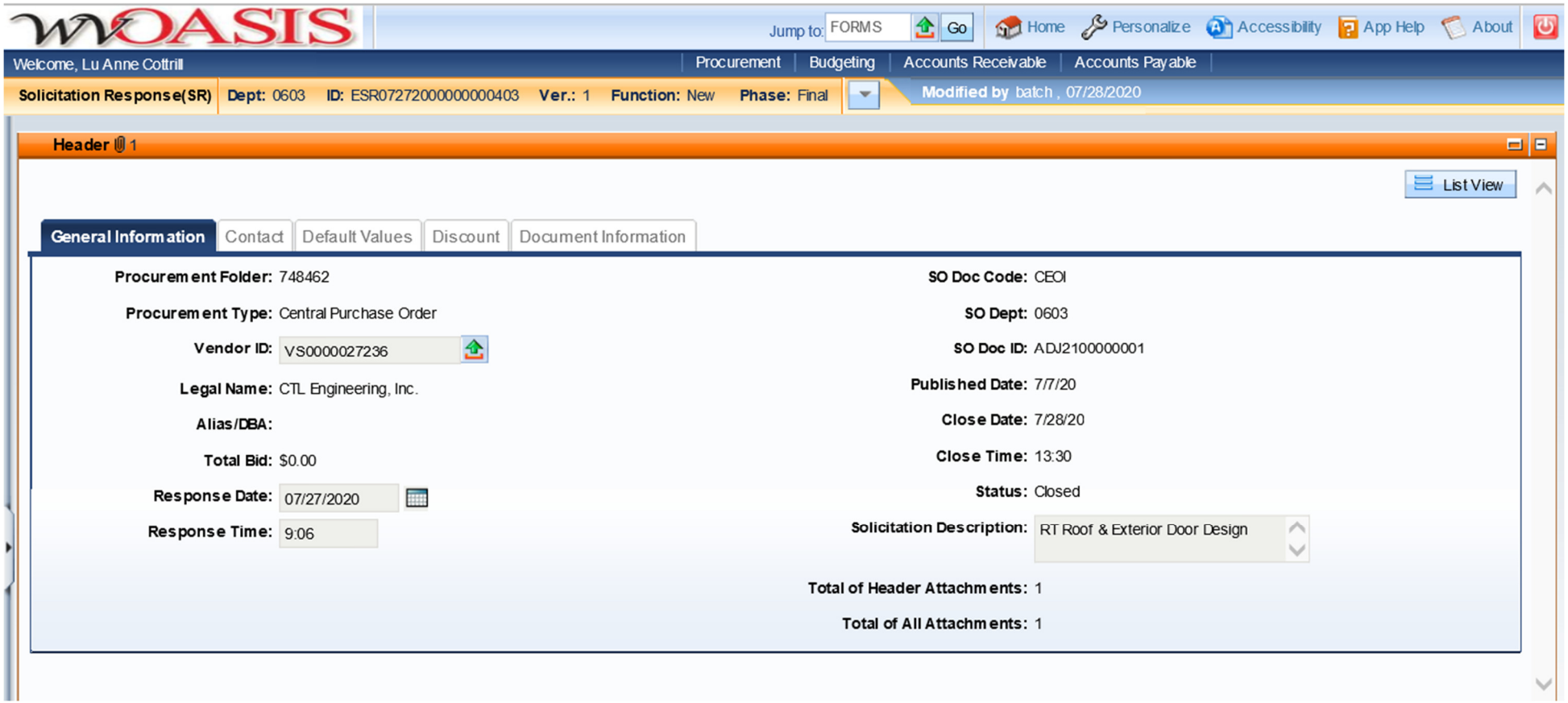
The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at ***wvOASIS.gov***. As part of the State of West Virginia's procurement process, and to maintain the transparency of the bid-opening process, this documentation submitted online is publicly posted by the West Virginia Purchasing Division at ***WVPurchasing.gov*** with any other vendor responses to this solicitation submitted to the Purchasing Division in hard copy format.


wvOASIS
Jump to: FORMS Go
Home
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About
Welcome, Lu Anne Cottrill
Procurement
Budgeting
Accounts Receivable
Accounts Payable
Solicitation Response(SR) Dept: 0603 ID: ESR07272000000000403 Ver.: 1 Function: New Phase: Final
Modified by batch , 07/28/2020
Header 1
List View
General Information
Contact
Default Values
Discount
Document Information
Procurement Folder: 748462
Procurement Type: Central Purchase Order
Vendor ID: VS0000027236
Legal Name: CTL Engineering, Inc.
Alias/DBA:
Total Bid: $0.00
Response Date: 07/27/2020
Response Time: 9:06
SO Doc Code: CEOI
SO Dept: 0603
SO Doc ID: ADJ2100000001
Published Date: 7/7/20
Close Date: 7/28/20
Close Time: 13:30
Status: Closed
Solicitation Description: RT Roof & Exterior Door Design
Total of Header Attachments: 1
Total of All Attachments: 1

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

State of West Virginia
Solicitation Response

Proc Folder : 748462

Solicitation Description : RT Roof & Exterior Door Design

Proc Type : Central Purchase Order

Date issued	Solicitation Closes	Solicitation Response	Version
	2020-07-28 13:30:00	SR 0603 ESR07272000000000403	1

VENDOR

VS0000027236

CTL Engineering, Inc.

Solicitation Number: CEOI 0603 ADJ2100000001

Total Bid : $0.00 **Response Date:** 2020-07-27 **Response Time:** 09:06:04

Comments:

FOR INFORMATION CONTACT THE BUYER

Tara Lyle

(304) 558-2544
tara.l.lyle@wv.gov

Signature on File **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	RTI Roof & Exterior Door Design				

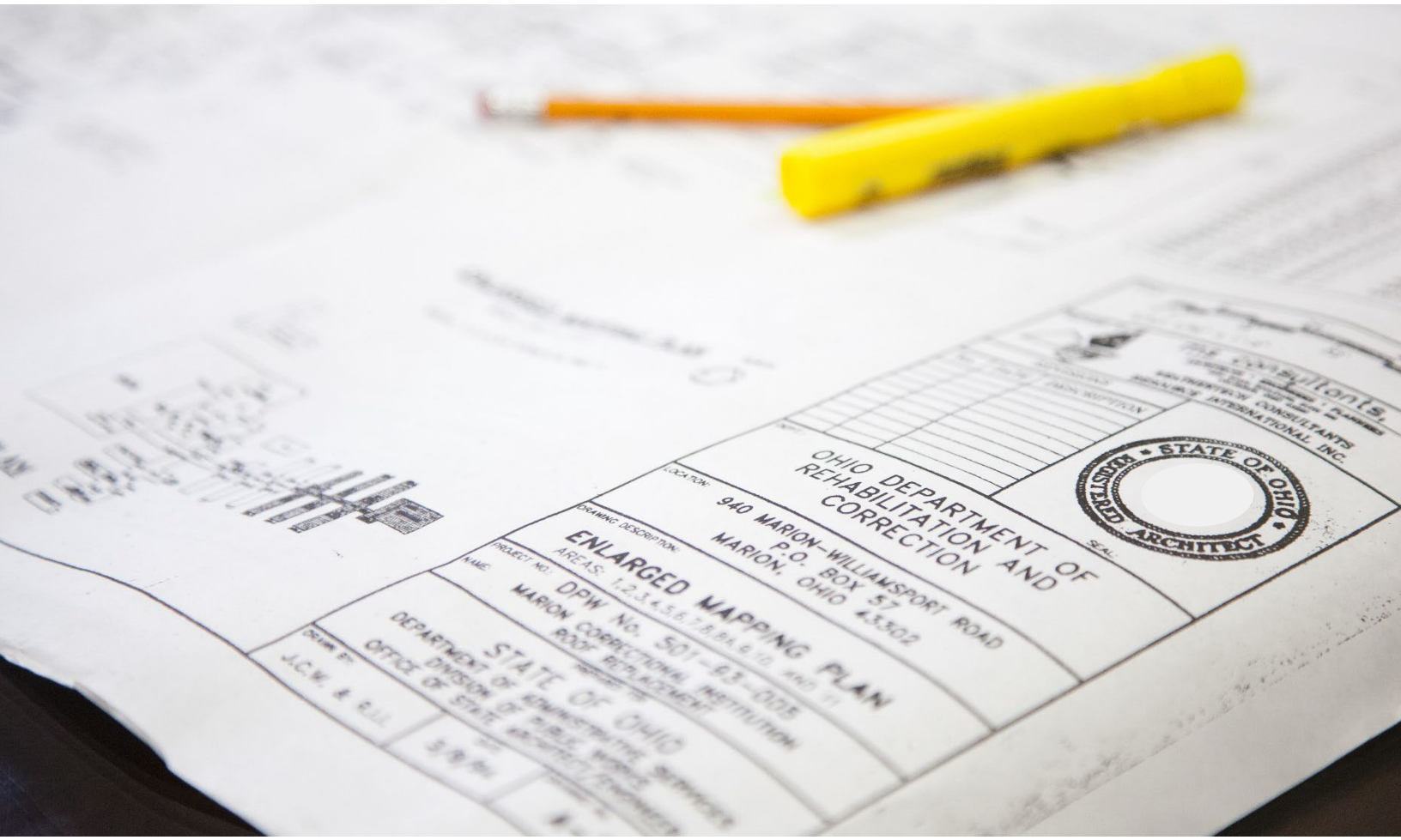
Comm Code	Manufacturer	Specification	Model #
81101508			

Extended Description : Provide professional architectural and engineering design services per the attached documentation.

EXPRESSION OF INTEREST

Camp Dawson RTI Roof & Exterior Door Replacement

CEOI ADJ2100000001



GTL ENGINEERING INC

CTL Engineering, Inc.
1091 Chaplin Road Morgantown, WV 26501
Phone: 304/292-1135 • Fax: 304/296-9302
email: ctl@ctleng.com

July 24, 2020

State of West Virginia
Department of Administration, Purchasing Division
2019 Washington Street E
Charleston, West Virginia 25305

Attention: Ms. Tara Lyle, Buyer

Subject: Response to Expression of Interest
Camp Dawson RTI Roof & Exterior Door Replacement Design
CTL Proposal No.: 20970032COL-QUAL

CTL Engineering, Inc. (CTL) appreciates the opportunity to submit our expression of interest to provide professional engineering services to the State of West Virginia in reference to the Camp Dawson RTI Roof & Exterior Door Replacement Design project. CTL is a multi-discipline engineering firm specializing in many services requested by the State.

There are at least 4 specific and unique qualities that make CTL a prime candidate to service this project:

- **CTL specializes in Building Envelope and Roof Engineering Services.** Approximately 95% of the work we do has to do with assessing building envelopes and roofs. We know the problems that buildings have in regards to exteriors and we have the in-house expertise to do the forensics, if needed. Based on what the assessment tells us, CTL has the experience to do the proper and correct design.
- **CTL self performs all of our own testing and assessments.** CTL can self-perform infrared thermography, nuclear density moisture surveys, Hazardous Containing Material testing, core cuts of the roof composition, etc. If needed, CTL has our own drones and certified pilots to fly them. We used drones on roof areas that are difficult to get to because of slopes, materials or other conditions.
- **CTL has developed our own internal bidding program** that provides digital security for plan distribution, answering of RFI's, bid acceptance and automatic creation of Bid Tabulation forms.
- Because of our recognized experience and expertise, **CTL often acts as consultants to other architectural firms, owner and contractors.** CTL provided 3rd party Construction Quality Assurance for a number of different clients including the City of Columbus, Ohio, Ohio Facilities Construction Commission, contractors, insurance companies and educational institutions such as The Ohio State University.

CTL would very much like for representatives of the project team to visit our office and laboratory facilities at your convenience. CTL is more than willing to meet with members of the project team so that we can further demonstrate the quality of our operations.

Very truly yours,

Mikel Coulter, AIA
Project Manager
mcoulter@ctleng.com
614-595-4358

TABLE OF CONTENTS

Firm's Expertise

FIRM'S EXPERTISE

CTL Engineering, Inc. is a full service consulting engineering, testing, inspection, and analytical services company. CTL maintains a staff of over 300 employees, including registered engineers, architects, chemists, environmental engineers & scientists, geologists, hydrogeologists, non-destructive testing specialists, certified welding inspectors and technicians. CTL has a branch office in Morgantown, WV that was founded in 1983 to provide regional service to West Virginia, Maryland and Pennsylvania.

ROOFING AND BUILDING ENVELOPE EXPERIENCE:

Since the beginning of the Roofing and Building Envelope Department, CTL has been involved with the investigation of existing exterior wall and roof systems including masonry, EIFS, glass curtain walls, punched openings, doors, stone, standing seam metal roofs, single membrane and modified bitumen roof systems and other building products. Every design of new and replacement exterior building products involves utilizing a variety of different materials. CTL has the ability and experience to investigate various exterior building systems to determine what the best and most cost efficient product to use to meet the needs of our clients based on the buildings requirements and or budgets.

As part of our building/site assessments, CTL utilizes our own instruments such as Infrared Thermography cameras, Nuclear Density Moisture gauges, Drones (CTL has 2 FAA certified pilots) and other hand tools required to do roof cores and taking material samples.

Each project we design goes through an evaluation process with the owner where the owner's preference is discussed, a complete review of the choice of materials that are best suited for the need with an understanding of the budget and environmental issues, desired longevity of the overall design and sustainable considerations. With the diversity of in-house capabilities, CTL often performs the Hazardous Containing Material (HCM) field investigation and testing. This information is included within our Project Manual for bidding by the contractors. During construction, CTL can provide 3rd party observation and inspection during the removal of HCM and final close out reports.

Strategic Teaming Partners

The complexity of these projects will require diverse personnel and resources. While CTL can provide most of the anticipated services in-house we have teamed with two highly qualified and experienced firms to augment our capabilities. CTL will lead the Team with Advanced Engineering Consultants (AEC) to provide Mechanical, Electrical, Plumbing/HVAC Engineering and Allegheny Design Services (ADS) to provide Structural Engineering services. CTL has successfully worked with both AEC and ADS in the past and together we will provide the required services as a seamlessly integrated Team.

Advanced Engineering Consultants (AEC) was founded in Columbus, Ohio in 1998 and has since grown into a prominent consulting firm specializing in mechanical, electrical, plumbing, fire protection, and technology engineering design services. AEC currently employs over 65 engineers, designers, and support staff. For nearly 20 years, AEC has been providing engineering services for a wide variety of projects for the Army and Air

National Guard. These projects have included facility assessments, preparation of Design / Build RFPs, renovation of existing facilities, and construction of new buildings. AEC has completed projects in 28 states and has completed projects for numerous Federal military agencies including the U.S. Army Corps of Engineers, U.S. Air Force, and U.S. Navy.

ADJUTANT GENERAL'S DEPARTMENT EXPERIENCE

A partial list of Army National Guard projects that AEC has been involved with over the past several years includes:

- DSCC Armory Window/Door & HVAC Renovation
- Sandusky National Guard Armory Roof and Masonry Repairs
- Lima, Piqua, & Middletown Armories HVAC System Renovations
- Newark National Guard Armory HVAC System Renovation
- Army Aviation Support Facility (AASF) #2 Boiler Replacement & DDC Upgrade
- Beightler Armory HVAC and Electrical Systems Improvements
- Beightler Armory Photovoltaic System
- Walbridge Armory HVAC System Improvements
- Walbridge Armory Plumbing Upgrade & Electrical Renovation
- Brook Park Ohio National Guard Armory Kitchen Improvements
- Dover, Middletown, Norwalk, and Wooster Ohio National Guard Armories Electrical Upgrades
- Alliance, Greenville, and Lorain Ohio National Guard Armories Kitchen and Plumbing Improvements
- DSCC DFAS Building 21 Lighting Replacement
- DSCC DFAS Boiler Replacement
- DSCC Building 23 Secure Room
- DSCC Building 20 HVAC Energy Efficiency Study
- Newark Armory Renovations
- McConnelsville Armory Paving Renovation
- Cleveland Armory Women's Latrine Renovation
- 38th ID Armory Home Station Mission Command Center (HSMCC) Renovation
- Camp Atterbury Building 733 / 734 Renovations
- Camp Atterbury Operational Readiness Training Complex (ORTC)

Allegheny Design Services (ADS) is a consulting engineering firm specializing in structural and MEP building design and building analysis. Dedicated to serving West Virginia and the surrounding region, ADS recognizes the need for reliable and full service engineering support. ADS provides all phases necessary for the successful completion of a building project including schematic design studies, design development, construction documents and specifications, and construction administration.

ADS' experience in Design and Project Management includes:

- Commercial Facilities
- Industrial Facilities
- Institutional Facilities
- Educational Facilities

ADS was established by David Simpson, PE, MBA, in 2002 as a result of a need in North Central West Virginia for reliable structural engineering services. In 2009 MEP engineering services were added, led by Mike Chancey, PE. ADS utilizes a combination of office technology and a motivated staff capable of delivering projects of all sizes and complexities. Our clients include architects, contractors, developers, attorneys and insurance companies.

ADS currently utilizes the latest engineering design and BIM software for the development of project work.

Organizational Chart

ORGANIZATIONAL CHART

Mikel Coulter, AIA
Team Leader/
Project Manager
Design, Specifications,
Construction Observation

Roof and Door Design
CTL Engineering, Inc.

Eric Abbington, RRO
Roof Tech/CAD/ Construction Observation

Mark Beasley, RRO
Roof Tech/CAD/ Construction Observation

Elné Barnard
Project Manager, Building Envelope & Roofing

Mechanical/Electrical/Plumbing
Advanced Engineering Consultants

Gavin Lim, P.E.
Senior Electrical Engineer

Jack Lee, P.E.
Senior Mechanical Engineer

Structural Engineering
Allegheny Design Services

Jason Robinson, P.E.
Structural Engineer

Resumes

Mikel Coulter, AIA

Roof & Building Envelope Department Manager

Mr. Mikel Coulter, AIA, is an Ohio registered Architect in the roof engineering and building envelope consulting department at CTL Engineering Inc.'s corporate headquarters in Columbus, Ohio. Responsibilities include marketing, project management, and construction administration.

Other primary responsibilities include: Property Condition Assessments (PCA) including site evaluation and design remediation, building envelope audits, investigations and trouble shooting for roof systems, waterproofing, wall components and windows/doors, water resistive barrier coatings, joints and fire-resistive rated assemblies. He is also involved with construction bid document preparation and commissioning. More specifically, assistance in specification writing, project detailing, construction budgeting, bid procedures, project administration, owners representative, contractor payment authorization and construction inspections.

Since 1982 Mr. Coulter has been involved in conditional Property Condition Assessments as a part of renovation and expansion projects on an as requested basis. Such PCA's have included commercial properties including parking lots and site evaluations, tenant lease space, warehouse facilities, medical office buildings and hospitals. As an architect doing renovation and building expansions he has done these types of assessments before a building has been purchased and for owner occupied buildings to determine the condition of buildings before detailed plans were developed or considered to be developed. As part of this work, preliminary budgets are created both for short term fixes as well as forecasting budgets into the future for Capital Project Budgeting over a period of time.

Mr. Coulter continues his education in the building envelope field by attending symposiums, seminars, and technical classes for roofing and building envelope issues related to cause of failures, current design criteria, wind loading, drainage, etc. Mr. Coulter stays abreast of current code, Factory Mutual, ANSI/SPRI, UL and other associated requirements for proper design. In addition, Mr. Coulter participates in continuing education classes offered by the American Institute of Architects as related to building constructability, LEED, "GREEN" building design and construction material evaluation.

EDUCATION

University of Houston, Bachelor of Architecture, 1981

PROFESSIONAL REGISTRATION / CERTIFICATION

Registered Architect, State of Ohio, 1982
Certified by National Council of Architectural Registration Boards (NCARB), 1988
American Institute of Architecture, (AIA – Local, State and National Chapters)
National Council of Architectural Registration Boards
International Code Council
Member, National Roofing Contractors Association

CTL PROJECT EXPERIENCE

CTL ENGINEERING OF OHIO, INC., COLUMBUS, OHIO (JULY 2008 – CURRENT)

Mr. Coulter is the In-house Architect responsible for evaluating building sites as well as building roofs and exteriors to determine remedial work required to repair water leaks and air infiltration. Projects have also included foundation inspection and waterproofing assessments.
Ohio University, Permanent Boiler Project, Athens, Ohio

ROOF CONDITIONS SURVEYS, AUDITS, DESIGN

Franklin County Courthouse - Fire Sealant Inspection, Columbus, Ohio
Indian Mound Recreation Center - Waterproofing and Fire Sealant Inspection, Columbus, Ohio
Ohio Department of Rehabilitation and Correction, Marion Correctional Institute Roof Renovation Design, Marion, Ohio
The Ohio State University - 10 buildings, Columbus, Ohio
Nationwide Insurance Building, Waterproofing Plaza Deck, Columbus, Ohio
Capital University – Lohman Complex, Columbus, Ohio
Old Worthington Library, Worthington, Ohio
Rickenbacker Air National Guard, Grove City, Ohio
OU/Zane State University - Four Buildings, Zanesville, Ohio
Capital University, Kerns Religious Center Foundation Wall Storm Drainage Design, Columbus
Appalachian Behavioral Healthcare, Athens, Ohio
City of Newark, Service Office Building Roof Renovation Permit
Huntington National Bank, Service Center Lot Evaluation/Design, Columbus, Ohio
Thomas Worthington High School, Worthington, Ohio
Kahle Electric, Inc., Metal Roof Review, Ottawa, Ohio
Hollywood Casino Wall Repair Design, Columbus, Ohio
Worthington Libraries, Northwest Library Roof Repair Design, Worthington, Ohio
Capital University, Kerns Religious Center Roof Replacement/Waterproofing, Columbus, Ohio

PROPERTY CONDITION ASSESSMENT EXPERIENCE

Department of Rehabilitation and Correction
Rickenbacker Air National Guard Facilities
UPS, Satellite Facility Percolation and Foundation

Mikel Coulter, AIA

Roof & Building Envelope Department Manager

CTL PROJECT EXPERIENCE

PROPERTY CONDITION ASSESSMENT EXPERIENCE CONTINUED

Ohio Facilities Construction Commission, Statewide Facilities Assessments
All-State Industries
Ball Metal Food Container Corporation
ETI Corporation Northwest Psychiatric Hospital, State of Ohio, Toledo, Ohio
Nationwide Children's Hospital, Columbus, Ohio
- Central Energy Plant
- Inpatient Units
- Radiology Department
- Senior Administrative Office Suite

NUCLEAR SURVEY AUDITS AND INVESTIGATIONS

Ohio Department of Mental Health, Toledo, Ohio
Hollywood Casino Wall Investigation, Columbus, Ohio
Ohio Department of Mental Health, Athens, Ohio
Piqua City Schools, Wertz Stadium Investigation, Piqua, Ohio

NATIONWIDE CHILDREN'S HOSPITAL, COLUMBUS, OHIO (JULY 2006 – MAY 2008)

Project Executive: Responsible for coordinating outside Architects and Engineers to design a new Replacement Hospital ($585M), new Central Energy Plant and Underground Utility Tunnels ($70.5M), and expansion / remodel of existing Central Loading Dock ($5M), evaluating and working with Consulting Engineers to upgrade existing primary site utilities to support the campus site utility Master Plan

KARLSBERGER ARCHITECTS, COLUMBUS, OHIO (JANUARY 1990 – MARCH 2006)

Vice President, Sr. Project Architect: Responsible for managing team of Architects and Consulting Engineers to plan multiple hospital projects around the country. Projects ranged in size from $250K to $78M. Partial list of projects include:

- Nationwide Children's Hospital, Columbus, Ohio
- Children's National Medical Center, Washington, DC
- St. Louis Children's Hospital, St. Louis, Missouri
- Children's Hospital of Philadelphia, Philadelphia, Pennsylvania
- Pittsburgh Children's Hospital, Pittsburgh, Pennsylvania
- OSF Children's Hospital, Peoria, Illinois
- St. Vincent Charity Hospital, Cleveland, Ohio
- Berger Community Hospital, Circleville, Ohio

Mercer Joint Township Community Hospital, Coldwater, Ohio

Eric Abbington, RRO

Registered Roof Observer / Field Technician

Mr. Eric Abbington is a Registered Roof Observer and Field Technician at CTL Engineering corporate headquarters in Columbus, Ohio. His responsibilities include providing drafting design, non-destructive testing for moisture survey with nuclear gauge (Certified by American Portable Nuclear Gauge Association, APNGA), construction quality assurance and assist in creation of written reports on roof systems, waterproofing and wall systems for the roofing department. He is familiar with various engineering software programs including Auto CAD and Microsoft Office, which provide support for the design and report of projects.

EDUCATION

Associates Degree, Architectural CAD Drafting Technology Education College, Columbus, Ohio
Hasmat NCO, United States Marine Corp., Honorable Discharge

PROFESSIONAL REGISTRATION / CERTIFICATION

RCI Registered Roof Observer, 2018

CTL PROJECT EXPERIENCE

EVALUATIONS

Columbus Collegiate Academy Roof Replacement, Columbus, Ohio
St. Charles Borromeo Sanctuary Roof Design, Youngstown, Ohio
Columbus School for Girls, Leak Assessment, Columbus, Ohio
Grove City High School, Nuclear Moisture Roof Survey, Grove City, Ohio
Kent State University Lake and Olsen Halls Roofs, Kent, Ohio
Denison University Performing Arts Center Building Envelope Design Reviews and Observation, Granville, Ohio
Lakeview Local Schools, Cortland, Ohio
Libertytown Residential Building H Leak Assessment, Liberty Township, Ohio
Easton Point Building 1 Envelope Inspection, Columbus, Ohio
Madison Correctional Institution, London, Ohio
Elford Development, Edgehill Apartments, Roof Moisture Scan, Columbus, Ohio
Elford Construction, The Quinn Apartments, Columbus, Ohio
OSU 12 Buildings, North Campus Residence Halls, Thermographic Services, Columbus, Ohio
Celmark Development, View on Fifth, Roof Nuclear Scan, Columbus, Ohio

EVALUATIONS (CONTINUED)

Celmark Development, View on Fifth, Roof Nuclear Scan, Orient, Ohio
Ohio Equities, Waterford Tower, Masonry Assessment, Columbus, Ohio
Ohio State University, Jameson Crane Sports Medicine Institute, Roof Nuclear Scan, Columbus, Ohio
Worthington City Schools, Worthington Kilbourne High School, Roof Nuclear Scan and Masonry Assessment, Worthington, Ohio

DRAFTING

US Steel, Great Lakes Works Roof Evaluation, Ecorse, Michigan
Ohio State University, Phase 2 Roof Replacement, Columbus, Ohio
DS Architects, Kent State University, Lake & Olsen Roof Evaluation & Replacement, Kent, Ohio
Abbott Nutrition, Casa Grande Roof Replacement, Casa Grande, Arizona
Strollo Architects, St. Charles Borromeo Catholic Church Roof Replacement, Boardman, Ohio

PLAN REVIEW

Treplus Communities, DD Phase Plan Review, Dublin, Ohio
Elford Development, Broadview Apartments, DD Phase Plan Review, Columbus, Ohio
Hammond Construction, Champion Local Schools, DD Phase Plan review, Warren, Ohio
Hammond Construction, Lakeview Local Schools, DD Phase Plan Review, Cortland, Ohio

FIRESTOP/SEALANT INSPECTION

Mount Carmel Hospital West Renovation, Columbus, Ohio
City of Columbus Fire Station #2, Columbus, Ohio

3RD PARTY SPECIAL INSPECTION

UDF, Columbus, Ohio
The Quinn Apartments, Columbus, Ohio
View on Pavey Square, Columbus, Ohio
Franklin County Jail, Columbus, Ohio
UPS, Columbus, Ohio
SMOC, Columbus, Ohio
Eddie Bauer, Columbus, Ohio

Mark Beasley, RRO

Registered Roof Observer / Construction Administration

Mr. Mark Beasley is a well-qualified Registered Roof Observer with more than 18 years of practical experience. This experience includes various aspects of construction administration such as constructability review of plans and specifications, project administration, tracking of construction budgets, contractor payment authorization, construction inspection, materials testing and serving as a liaison between the owner, designer, contractor and other stakeholders in the project. Additionally he has monitored safety and performed other quality control functions.

The majority of Mr. Beasley's experience has been with site development, building structure and building envelope construction. Many of these projects, both public and private, have been large-fast track projects located in Ohio, Indiana, Kentucky, West Virginia, Pennsylvania and Michigan. In addition Mr. Beasley has managed teams of inspectors and engineering technicians providing similar services.

EDUCATION

Wright State University BA, Geography, Urban Planning, Cartography and Remote Sensing, 1984
Sinclair Community College AA, General Studies

PROFESSIONAL REGISTRATION / CERTIFICATION

Registered Roof Observer, RCI
OSHA 10-Hour Construction
NICET Level 1, Soils
NICET Level 2, Concrete Testing
NICET Level 1, Asphalt
NICET Level 1, Soils Testing Lab
NICET Level 1, Geotechnical Engineering Exploration
NICET Level 1, Geotechnical Engineering Generalist
NICET Level 1, Land Management & Water Control Erosion and Sediment
State of Michigan Department of Natural Resources & Environmental, Storm Water Management-Construction Sites
CETCO Certified Waterproofing Inspector

CTL PROJECT EXPERIENCE

EVALUATIONS

View on Pavey Square Air Barrier Inspections, Columbus, Ohio
Southwest Ohio Regional Transit Authority Facilities Inspections, Cincinnati, Ohio
City of Columbus Facility Condition Assessments, Columbus, Ohio
199 S. 5th Street Condos Facility Condition Assessments, Columbus, Ohio

OTHER CONSTRUCTION ADMIN EXPERIENCE

Retail Stores, Wal-Mart / Sam's Clubs – Over Fifty Stores

- Ohio, West Virginia, Kentucky and Michigan

Schools PK-12

- City of Huber Heights Schools, 4 new buildings

University and College Projects

- Earlham College Science Building
- Earlham College Visual and Performing Arts Building
- Wittenberg College Building Renovations
- Antioch College Building Renovations
- Butler Tech SWOCA Building
- University of Cincinnati Teachers College Renovation

Government Projects

- Springfield Air National Guard Operations Building
- Springfield Air National Guard Training Building
- City of Dayton Road Improvement Projects
- City of Kettering Road Improvement Projects
- City of Centerville Road Improvement Projects
- Fernald Preserve - Site Improvement Projects
- Mound Laboratory Site Improvements
- Dayton Metro Libraries – (10) New Libraries
- City of Miamisburg – East side pump station
- City of Miamisburg – Benner Road pump station
- City of Dayton – Lime Reclamation Facility Improvements

Airport Projects

- Dayton International Airport Parking Garage
- Columbus International Airport Terminal Improvements
- Urbana Airport Runway Improvements
- Fort Wayne Airport Improvements

Manufacturing Projects

- Sugar Creek Manufacturing Expansion

Elné Barnard

Project Manager, Building Envelope & Roof

Ms. Elné Barnard recently joined CTL Engineering with 5 years of experience in structural design projects. These projects included the structural design and condition assessment of infrastructure and facilities. Her work also involved producing cost estimates, project specifications, and the review of submittals during construction.

She is responsible for various aspects of design and construction administration such as project administration, tracking budgets, construction inspection, constructability review of plans and specifications, and serving as a liaison between the client, contractor and all stakeholders involved. In addition to utilizing prior experience she is responsible for design, preparation and review of construction documents, non-destructive testing, construction quality assurance and preparing written reports on roof systems, waterproofing, wall systems and other structures.

Ms. Barnard has experience in a variety of software programs that provide support during all phases of a project. These include but are not limited to; STAAD, Mathcad, Microsoft Office, AutoCAD and MicroStation.

EDUCATION

MS Civil Engineering (Structural Emphasis)
Ohio University, Athens, OH
Expected graduation: December 2020

BS Civil Engineering
Louisiana Tech University, Ruston, LA, 2013

PROFESSIONAL REGISTRATION / CERTIFICATION

Permit Required Confined Space Entry Training, SAFEX, Westerville, OH, 2015, 2018 and 2019
Bridge Inspection Level I Basic, ODOT Office of Structural Engineering & Ohio LTAP Center, Columbus, OH, 2013
Bridge Inspection Level II Advanced, ODOT Office of Structural Engineering & Ohio LTAP Center, Columbus, OH, 2013

CTL PROJECT EXPERIENCE

STRUCTURAL CONDITION ASSESSMENTS

Wright Patterson Structural Investigation, Greene County, Ohio
Cleveland Zoo, Wade Memorial Deck, Cleveland, Ohio
City of Columbus, Facility Condition Assessments, Columbus, Ohio
Dublin City Schools Partial Roof and Skylight Replacement, Dublin, Ohio
DRC-19L116 Southern Ohio Correctional Facility, Partial Roof Replacement, Lucasville, Ohio

STRUCTURAL CONDITION ASSESSMENTS *

City of Columbus, Hoover Dam and Griggs Dam Structural Assessment, Columbus, Ohio
Paper Mill Facility – Building Assessment, Indianapolis, IN
Village of Greenfield Railroad Bridges Structural Condition Assessment, Village of Greenfield, Ohio
Evaluation of 8 Dams for Ohio Department of Natural Resources, Dam Assessments, Ohio (Hargus Lake, Cutler Lake in Blue Rock State Park, Veto Lake, Forked Run Lake, Guilford Lake, Knox Lake, Lake Logan and Lake Hope)
Land Stewardship Plan – City of Columbus Hoover Dam Plan, Columbus, Ohio
Piqua Dam Assessment, Piqua, Ohio

STRUCTURAL DESIGN – RETAINING WALLS *

Scioto Greenways Project, Columbus, Ohio ($35 million dollar project value)
Belmont County Landslide Remediation, Washington Township, Ohio
Belmont County Landslide Remediation, Smith Township, Ohio
West Main St. Landslide Remediation, Village of Glouster, Ohio
Woodlane Drive Large Slip Project, Nelsonville, Ohio
Riverside Drive Large Slip Project, Nelsonville, Ohio

WATER/WASTEWATER TREATMENT PLANTS, AND OTHER STRUCTURES *

Control Building at Summit County Pump Station No. 36, Hudson, Ohio
Ohio Department of Natural Resources, Indian Lake – Dam and Spillway Improvements, Russels Point, Ohio
Toledo Waterways Initiative Phase II 04-A & 0-4B Ottawa River Storage Facility, Toledo, Ohio
TWI Phase 2 Implementation – Downtown Storage Basin, Toledo, Ohio
TWI Phase 2 Implementation, E-2 Dearborn CSO, Toledo, Ohio
Gilmore Road Pump Station and Force Main, Hamilton, Ohio
Wastewater Treatment Plant Phase 3 Renovations, Marietta, Ohio
Process Water Basin at Shawnee Fossil Plant, Paducah, Kentucky
LRAA (Louisville Airport Facilities), Louisville, Kentucky
Hyatts Rd Sanitary Sewer Pump Station, Toledo, Ohio
Tuckasegee Hydroplant, Raleigh, North Carolina
Collins Park Filtration Plant Disinfection Facilities, Toledo, Ohio

Van Hyning Pump Station Replacement, City of Napolean, Ohio

TRANSPORTATION – BRIDGES *

Bridging Kentucky Program, Kentucky ($700 million – Rehabilitating, repairing, and replacing more than 1,000 bridges by 2024)
LAW-7 Ohio Department of Transportation, Lawrence County, Ohio
SH288 Toll Lanes Project, Houston Texas ($850 million construction cost)
MTA Long Island Railroad (LIRR), Third Track Expansion, New York, New York (Design-build $1.9 billion)
Fairmont & Mack Road Bridge Replacement, Licking County, Ohio

**** Denotes projects performed under previous employment***

AEC TEAM STAFF

GAVIN LIM, PE, LEED®AP BD+C, LC

ELECTRICAL ENGINEER

ADVANCED ENGINEERING CONSULTANTS

Education
B.S., Electrical Engineering, The Ohio State University, 2006

Professional Registration/ Special Certifications
Professional Engineer – OH, [redacted]

LEED Accredited Professional BD+C

Certified Lighting Designer (NCQLP)

Years of Experience
With AEC: 11
Total: 14

QUALIFICATIONS SUMMARY: Mr. Lim has accumulated more than 14 years of experience in electrical, lighting, and telecommunication systems engineering design and construction. He is experienced in power, lighting, systems design, lighting calculations and analysis, design of primary and emergency power distribution systems, preparing construction documents and construction administration. He has been involved with numerous projects for both new construction and the renovation of existing facilities. He earned a B.S. degree in Electrical Engineering from The Ohio State University. In addition, he is a LEED Accredited Professional and is certified as a Lighting Designer by the National Council on Qualifications for the Lighting Professions (NCQLP).

RELEVANT PROJECT EXPERIENCE:

Houck House Roof Replacement
The Ohio State University – Columbus, OH
Electrical Engineer: AEC provided engineering services for the replacement of Houck House roof system. Due to the installation of the new thicker roof surface and insulation, all MEP equipment and vents were raised. AEC assisted with work related to the MEP system including extending the existing exhaust fan to the new raised curb, removal of existing sheet metal vent, installation of new steel supports and vibration isolators under condensing units, installation of new refrigerant piping supports and insulation, and refurbishment and extension of all electrical outlets and conduits.

North Market Roof Replacement
City of Columbus - Columbus, OH
Electrical Engineer: Complete roof replacement of the entire roof area totaling 24,000 sq. ft. for the historic indoor public market. A majority of the roof mounted HVAC equipment was protected and left in place, while some of the equipment was replaced due to the age and operability, including a 10-ton packaged roof top unit. Non-functioning service receptacles and service lights were replaced, approximately eight in total. Architectural LED decorative lighting was added to the entire perimeter of the roof. Two new roof hydrants were added with piping to the hydrants routed tight to roof below the structure.

Roof Replacement for Six (6) Buildings
The Ohio State University - Columbus, OH
Electrical Engineer: Work involved providing electrical engineering services for determining connection requirements for the electrical system to the already designed lightning protection systems at six buildings on OSU's main campus. The buildings included Caldwell Laboratory, Dreese Laboratory, Drinko Hall, Graves Hall, Agricultural Engineering, and a maintenance building. AEC prepared electrical drawings showing existing one-line diagrams, grounding information, and addition of surge protection devices (SPD) as necessary for compliance with UL Master Label requirements for the building lightning protection system.

DSCC Armory Window/Door & HVAC Renovation
Ohio National Guard - Columbus, OH
Electrical Engineer: AEC was contracted to prepare construction documents and provide construction administration services for the replacement of windows, doors, and the HVAC system in this 47-year old National Guard facility. The two-story, building serves as offices, conference, training, and storage spaces. The doors, windows, and HVAC system had exceeded their life expectancy, were not energy efficient and were constantly under repair. The project included the replacement of the exterior doors and windows to improve the building envelope performance, energy efficiency and interior working environment.

AEC TEAM STAFF

JACK LEE, PE, FPE, LEED®AP

SENIOR MECHANICAL / PLUMBING ENGINEER

ADVANCED ENGINEERING CONSULTANTS

Education
M.S., Mechanical Engineering, University of Akron, 1994

B.S., Mechanical Engineering, Chongqing Institute (China), 1982

Professional Registration/ Special Certifications
Professional Engineer – OH, [redacted]

Fire Protection Engineer

LEED Accredited Professional

Years of Experience
With AEC: 18
Total: 30

QUALIFICATIONS SUMMARY: Mr. Lee is one of AEC's Principals and serves as a Senior Mechanical / Plumbing Engineer. He has over 30 years of experience with the design of a wide variety of mechanical, plumbing, and fire protection systems. His experience includes the management, design and construction of heating, ventilation, air conditioning, plumbing and fire protection systems for various projects including health care, commercial, educational, institutional, and industrial facilities. Jack earned B.S. and M.S degrees in Mechanical Engineering.

RELEVANT PROJECT EXPERIENCE:

Roof & Cell Window Replacement
Ohio Dept. of Rehabilitation and Corrections – Lebanon Correctional Institution, Lebanon, OH
Mechanical / Plumbing Engineer: AEC prepared construction documents and provide construction administration services for this roof and cell window replacement project. The project included replacing low-slope roofing and replacement of approximately 694 detention windows. Reroofing work included complete removal of existing roofing to roof deck and the removal of abandoned mechanical equipment at the abandoned original food service facilities. AEC was responsible for scope items related to mechanical, electrical, and plumbing needs during the roof replacement project. The scope of work includes the removal and reinstallation of current rooftop equipment and permanent removal of several abandoned mechanical units and associated services.

North Market Roof Replacement
City of Columbus - Columbus, OH
Mechanical / Plumbing Engineer: Complete roof replacement of the entire roof area totaling 24,000 sq. ft. for the historic indoor public market. A majority of the roof mounted HVAC equipment was protected and left in place, while some of the equipment was replaced due to the age and operability, including a 10-ton packaged roof top unit. Non-functioning service receptacles and service lights were replaced, approximately eight in total. Architectural LED decorative lighting was added to the entire perimeter of the roof. Two new roof hydrants were added with piping to the hydrants routed tight to roof below the structure.

Armory Roof Replacement & Masonry Repairs
Ohio National Guard - Sandusky, OH
Mechanical / Plumbing Engineer: AEC was retained to provide architectural and engineering services for various renovations to this Ohio National Guard Armory. The repairs planned for the existing structure included roof upgrades and exterior masonry repairs. Architectural/Engineering services for inspections, analysis, reports, surveying and recommendations for, working drawings, specifications, cost estimates, project meetings, and construction inspections.

DSCC Armory Window/Door & HVAC Renovation
Ohio National Guard - Columbus, OH
Mechanical / Plumbing Engineer: AEC was contracted to prepare construction documents and provide construction administration services for the replacement of windows, doors, and the HVAC system in this 47-year old National Guard facility. The two-story, building serves as offices, conference, training, and storage spaces. The doors, windows, and HVAC system had exceeded their life expectancy, were not energy efficient and were constantly under repair. The project included the replacement of the exterior doors and windows to improve the building envelope performance, energy efficiency and interior working environment.

Allegheny Design Services
Consulting Engineers

JASON D. ROBINSON, PE
PRINCIPAL/ STRUCTURAL PROJECT MANAGER

Education:
West Virginia University - B.S. Civil Engineering

Professional Registrations:
Professional Engineer – West Virginia, Pennsylvania, Maryland, Kentucky, Nebraska, Mississippi and Alabama

Professional Memberships:
Member of AISC
Associate Member of ASCE

Continuing Education:
WVU Steel Design—Fall 2007
AISC - Façade Attachments to Steel Frames - September 20, 2007
ASCE - Reinforced Masonry: Design and Construction - November 8, 2007
TSN - Cold-Formed Steel Seminar – Load Bearing and Curtain Wall Systems - December 4, 2008
Lincoln Electric Co. - Blodgett's Welding Design Seminar - October 13-16, 2009
Steel Camp – November 4-5, 2010
The New 14th Edition Steel Manual – October 25, 2011
ASCE-Design and Renovation of Wood Structures - October 2012
SE University multiple structural technical training webinars.
The MGI Management Institute—Successful Marketing of Engineering Services 2015
Steel Camp—March 25-28 , 2015

Professional Experience:
Responsibilities include structural engineering design, construction documents, quality control and field engineering.

Experience Record:
Allegheny Design Services, LLC, Senior Structural Engineer June 2007 to Present

Project Experience Includes:

University Place Parking Garage, Morgantown, WV
University Park Mixed Use Building, Morgantown, WV
Mylan Parking Garage Concrete Repairs, Morgantown, WV
White Oaks Hawthorn Suites, Bridgeport, WV
BFS Suncrest, Morgantown, WV
Pikewood Creative Addition and Renovation, Morgantown, WV
GSD Fairmont, Fairmont, WV
Bridgeport Public Safety Substation, Bridgeport, WV
Canaan Valley Institute, Davis, WV
Charles Pointe BFS, Bridgeport, WV
Fairmont AFRC, Fairmont, WV
Gabriel Brothers Renovation, Clarksburg, WV
Genesis Youth Crisis Center, Clarksburg, WV
Goshen Baptist Church, Morgantown, WV
GSA DOE, Morgantown, WV
ICC Parish Center, Clarksburg, WV
Mason Dixon, Bridgeport, WV
GSA , Charleston, WV
Progress Centre 2, Bridgeport, WV
WVU Child Development, Morgantown, WV
White Oaks Progress Center, Bridgeport, WV
Thrasher Office Building, Bridgeport, WV
WVU Greenhouse Building, Morgantown,, WV
Courtyard Marriott– University Towne Center, Morgantown, WV

Project Approach

PROJECT UNDERSTANDING & APPROACH

Phase I – Pre-Design/ Schematic Design Phase (35% Stage)

CTL will first meet with the West Virginia Army National Guard (WVANG), Construction and Facilities Management Office staff to review the Scope of Work required for this project. Once that is understood, CTL will perform an assessment of the roof and exterior doors to determine the overall condition, what the existing cross section of the roof is and materials used, do a visual examination of the underside of the roof deck and assess the exterior door ways to better understand the Scope of Work required. CTL will prepare a written report of our findings and recommendations. Since there will be (2) separate Bid Packages, CTL will present the reports separately.

With that information in hand, and after a Scope Review with the Project Team, CTL will begin Schematic Design services for each bid package. The first item to discuss is what type of new roof membrane would be the best solution for this building. Once that has been determined SD roof plans, preliminary details and an SD budget can be developed. CTL will perform a similar analysis of the exterior door ways. All the information collected will then be reviewed with the WVANG Team to get concurrence on the direction of design and confirmation of the budgets. As needed, adjustments can be made to the design to keep both projects within the budgets that may have been proposed.

Phase II – Design Development / Construction Document Phase (95% State)

For a project of this size, CTL typically will do a combined DD/CD set of documents and do an Owner/AE team review when the construction documents are about 75% complete. A second estimate will be provided at this stage to confirm the budget status. After this review is completed, CTL will finish the CD's and prepare them for bidding.

Phase III – Final Construction Document Phase (100% Stage)

Once the CD's are 100% complete, CTL will do a "page turn" of the construction documents and a review of the Project Manual with the WVANG Team to confirm that the project documents are ready to put out for bidding.

Phase IV – Bid Assist

With the approval of the WVANG Team, CTL will provide Bid Assist.

- CTL will issue the construction documents and project manual for bidding
- CTL will conduct a Pre-Bid meeting for contractors
- CTL will collect the bids at a public bid opening and record all submitted bids
- CTL will review the bids submitted and make recommendations to the WVANG Team on whom to issue a contract to

Phase V – Construction Observation

As a part of Construction Observation, CTL will perform the following tasks:

- CTL will provide construction observation services
- CTL will conduct weekly construction meetings and will issue meeting minutes
- CTL will review and make recommendation for payment of contractor pay applications
- CTL will perform (2) punch list inspections
- CTL will review the contractor submitted Project Closeout Documents

PROPOSED SCHEDULE:

Task	Estimated Time
Program Review – Field Assessment	2 weeks
Phase 1 – Schematic Design (35% Stage)	3 weeks
Owner Review	1 week
Phase 2 – DD/CD Documents (95% Stage)	4 weeks
Owner Review	1 week
Phase 3 – Final CD Documents (100% Stage)	1 week
Phase 4 – Bid Assist	4 weeks
Phase V – Construction Observation	12 weeks
Total Estimated Project Time	**28 weeks (7 months)**

Project Experience

Project: Facility Assessments
Owner: City of Columbus
Location: Columbus, Ohio

Project Features

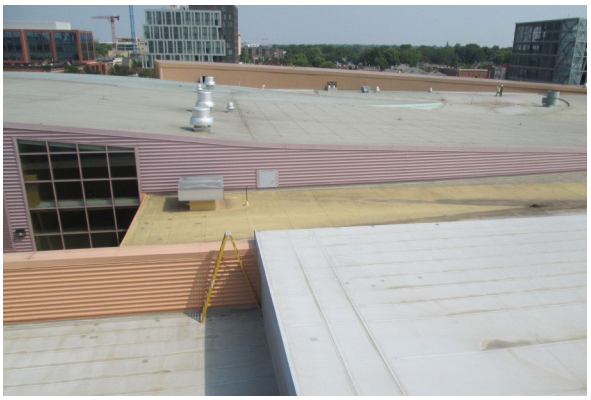
The City of Columbus, Department of Finance and Management retained CTL Engineering in 2019 to **perform Facility Assessments and Asset Financial Planning at 21 different locations**.

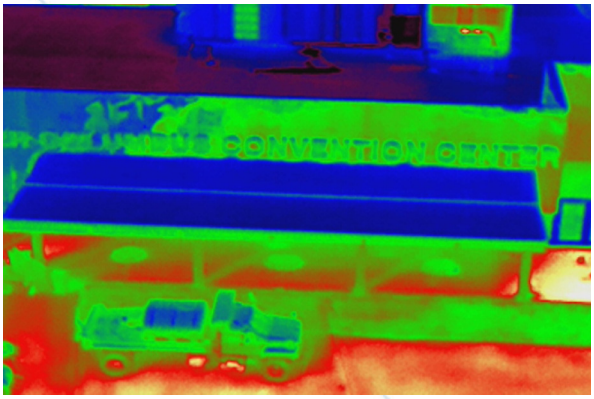
Each facility included building exterior and interior conditions, roof assessment, mechanical/electrical/plumbing/Life Safety conditions and site evaluations. Building assessments were to document existing conditions and make recommendations for future maintenance, repair and possible replacement.

Additionally, CTL was tasked with providing financial information as to the existing condition of each site for both short and long term planning relative to maintenance, repairs and possible building replacement. Each site was reviewed using a complex matrix of standardized building components and were ranked on a basis of condition so that a Facility Condition Index (FCI) could be established for each location. This information will then be used to help establish both funded and unfunded liability for the City of Columbus. Annotated photographs were also included in each facility report.

Client Reference

Mike Jones - (614) 724-1891
City of Columbus





Project: Roof Evaluation
Owner: Franklin County Convention Center Authority
Location: Columbus, Ohio

Project Features

The FCCCA engaged CTL Engineering to perform a roof survey / analysis of approximately 1.8 million square feet of PVC membrane and Built-Up roof areas. The 4 story office building with built-up roof areas was constructed in 2000 with the single ply PVC roof membranes buildings being constructed in 1993, 2001 and 2010. For the PVC roof areas, CTL used a Drone with an Infrared Thermal Imaging camera to do a moisture survey of all roof areas. For the ballasted roof areas, CTL did a Nuclear Moisture Roof Survey. CTL also walked all 1.8 million square feet to perform a visual survey looking for holes in the membrane, failed seams, cuts, etc. Based on this information CTL worked with HJ Becker to perform the necessary repairs.

In addition, CTL prepared a comprehensive plan including budgets to perform roof replacements over a number of phases and years that coincided with a life cycle analysis. The FCCCA is using this information for Capital Budgeting over the next 5-10 years.

As a result of the investigation and follow up repairs, CTL believes it has extended the life of the oldest PVC roof by at least 5 years.

Client Reference

Scott Reed - (614) 827-2804
Franklin County Convention Facilities Authority

PROJECT EXPERIENCE PROFILE

Roof Area Before


Garden Roof Area After

Project: Howlett Hall Roof Replacement Design
Owner: The Ohio State University
Location: Columbus, Ohio

Project Features

CTL Engineering, Inc. was retained to provide bid documents for the replacement of roofs and exterior doors at the Howlett Hall facility. Product selections for the roofing materials were based on a comparison study by CTL of available roof product types. The roof design incorporated PVC roofing systems as the base bid. The low roof area was designed to accept a garden overburden with the required protective layers and the designs incorporated intensive and extensive garden plans with walkways and guard rail systems. The high roof area was designed with a PVC roof membrane.

Elevation changes in the garden roof areas required raising the height of the through-wall masonry flashings at roof to wall conditions in the designs. Design alterations were also made in regards to doorway improvements for accessing the garden area including redesigning an existing conference room and providing ADA accessibility to the Green Garden Roof. Our designs of the garden area were coordinated with the arboretum personnel and landscape architect. The lower roof area containing the arboretum and garden is complete as is the upper roof areas.

Client Reference

Glenn Gerhart - (614) 688-5606
The Ohio State University

Project: Kent State University Lake and Olsen Hall Roofs
Owner: DS Architecture
Location: Kent, Ohio

Project Features

CTL Engineering has developed full drawing plans and specifications for complete new roof systems meeting minimum ¼ inch roof slope with R-Values meeting R-25. The new systems will be finished with two ply modified bitumen roof systems complete with metal edging and additional metal lashing conditions. The system is designed to meet requirements for a full system 20 year warranty.

CTL determined that existing roofing materials would be removed to the existing concrete roof decks and new polyisocyanurate insulation boards would be used for the installation combining two 2 inch layers set in foam adhesive also adding tapered insulation adhered with adhesive for improvements to slope and saddles for roof drainage. A Soprema roof system will require a Sopra Board adhered over the polyisocyanurate and a modified bitumen base ply torch and granular fire rated cap ply torch applied. The perimeters would require additional 2x 8 inch nailers. The main roof nailers would require four 2 x 8 in height plus plywood thickness based on added insulation thickness. Additional requirements were recommended for the smaller roof areas, elevator penthouse roof areas, new overflow scuppers, as well as recommedations for the overall desired appearance.

Client Reference

Jeffrey Meyers (330) 678-6144
DS Architecture

Project Completion

Current

Project: Facility Assessments
Owner: Ohio Department of Transportation
Location: ODOT Districts 6 & 7, Ohio

Project Features

The State Architect's Office retained CTL Engineering in 2012 to **perform Facility Assessments at 18 different locations** for the Department of Transportation, Districts 6 & 7. Each facility included both building and site evaluations.

Building Assessments were to document existing conditions and make recommendations for future maintenance, repair and possible replacement. CTL was also asked to evaluate each site for Building Code Compliance specific to Health/Life and Safety and ADA concerns at building entrances and restroom/locker spaces.

Each item reviewed was to be ranked priority 1-5, 1 being Critical, 2 being potentially critical – year one, 3 being necessary in 2-5 years, 4 being recommended in 6-10 years and 5 being Life Cycle Replacement. Budgets for maintenance were also prepared by CTL. Annotated photographs were also included in each facility report.

Client Reference

John McCready (no longer with OFCC)
Ohio Facilities Construction Commission

Project: Facility Assessments
Owner: Ohio Department of Rehabilitation and Correction
Location: Various, Ohio

Project Features

In 2014 CTL Engineering performed Building Envelope, Site and Roof Assessments on the Franklin County Correctional Institute, and the Orient Correctional Institute, two correctional facilities owned by the Ohio Department of Rehabilitation and Correction.

The building envelope, site and two roof areas were investigated and included approximately 1,045,802 sf. Each assessment was undertaken in accordance with a provided program rating system with set parameters and established budget criteria. Following the visual inspection, a report detailing CTL's findings was submitted including life span of building, estimated budgets for repairs to be completed over 5 years and site conditions needing improvement. Site conditions included drainage, sidewalks and parking lots.

Client Reference

John McCready (no longer with OFCC)
Ohio Facilities Construction Commission

Project: OSU Agricultural Engineering Roof Repair and Replacement
Owner: The Ohio State University
Location: Columbus, Ohio

Project Features

The Agricultural Engineering was a total roof replacement of approximately 86,700 square feet. The existing roof system, a ballasted EPDM with rigid insulation over a metal deck, was removed along with all metal flashings and an existing lightning protection system. The new roof replacement consisted of an adhered 60 mil PVC roof membrane on ½" coverboard, (2) layers of rigid insulation, a vapor barrier and a bottom layer of coverboard mechanically attached to the existing metal deck. This building was fully occupied during the project with students and staff alike as well as teaching equipment laboratories for maintaining farm equipment. As part of the project, new Surge Protection Devices were added to the main electrical switch gear to increase protection from fire should a lightning strike occur. Once the new roof membrane system was installed, the lightning protection system was reinstalled with new aerials added to the roof deck and mechanical equipment to provide for a higher degree of lightning protection. New guardrails and a visual warning strip was added to the roof 10' in from the edge of the roof for safety purposes reminding maintenance people that they are not allowed any closer to the roof edge without being tied off to fall protection safety equipment.

Client Reference
Tom Ekegren
Facilities Operations and Development

Project Completion
2015

Project: OSU Graves Hall
Owner: The Ohio State University
Location: Columbus, Ohio

Project Features

The Graves Hall is a partial roof replacement of approximately 14,778 sq ft. The existing roof system was a modified bitumen roof system over rigid insulation on a concrete roof deck. The existing roof system was removed down to the existing concrete roof deck. As a part of the project, (4) skylights were also removed and the openings were infilled with new metal decking at these locations. The project required installation of a new a vapor barrier, (2) layers of rigid insulation for an R-25 R Value, ½" coverboard and 2 ply modified bitumen roof membrane system. A new guardrail system was installed everywhere that there was mechanical equipment within 10' of the roof edge. A 10' wide visual warning system from the roof edge was also installed so anyone working on equipment within the safety zone would know to take extra precautions to be safe. All abandoned mechanical equipment, roof rails and roof curbs were removed as well. The buildings lightning protection system was removed and replaced during construction. New Surge Protection Devices were installed on the main switch gear were also installed so the building would have a Master Label Lightning Protection rating at the project completion.

As a follow up to the partial roof replacement of the modified bitumen roof, CTL did an additional water intrusion investigation and found the existing through wall flashing and exterior doors to be the primary cause of water getting into the building. CTL developed a design to removed (3) courses of brick masonry, remove the existing through wall flashing and install new flashing and exterior doors. At the same time, CTL had the contractor remove all existing sealant around the through wall louvers and replace with new. There were additional places where the brick masonry faces had begun to spall resulting in those units being replaced as well.

Client Reference
Tom Ekegren
Facilities Operations and Development

Project Completion
2018

Project: OSU Maintenance Building Roof Repair and Replacement
Owner: The Ohio State University
Location: Columbus, Ohio

Project Features

The Maintenance Building was a total roof replacement of approximately 21,045 square feet. The existing roof was a modified bitumen roof system which was removed down to the existing concrete roof deck. The new roof system started with a vapor barrier installed on the concrete deck covered by (2) layers of rigid insulation which was then covered with a new 2-ply cold applied modified bitumen roof system. The existing lightning protection system was also removed during construction and replaced once the new roof system was installed. New Surge Protection Devices were also installed along with new lightning protection cables down the outside of the building. The lightning protection system was designed so that the building would have a Master Label Lightning Protection System to protect the building's main electrical switch gear in the event of a fire from a lightning strike.

New stainless steel gutters were also added at the 2 canopy roofs on the east and west sides to better get water away from the building. The canopy roofs were re-sloped away from the building requiring the need for the new gutters. New guardrails and a roof hatch ladder were also added to the project as well as a visual warning strip added to the roof membrane 10' in from the building's edge to let maintenance workers know, that for safety reasons, they are not allowed to get any closer to the roof's edge without being properly harnessed and secured.

Client Reference

Tom Ekegren
Facilities Operations and Development

Project Completion

2017

Project: Rickenbacker Air National Guard Facility Assessments
Owner: Adjutant General's Office
Location: Columbus, Ohio

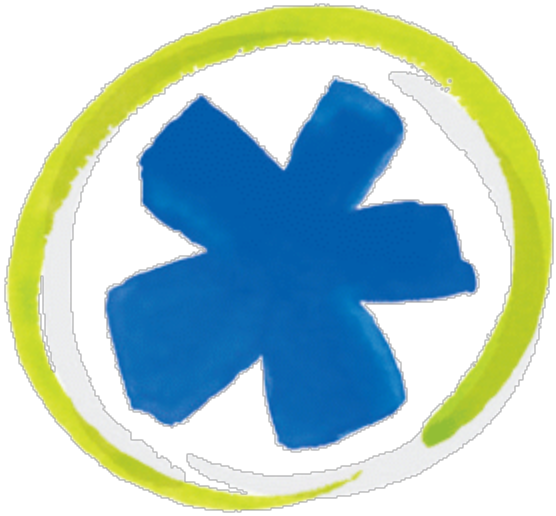
Project Features

The State Architect's Office / Adjutant General's Office, retained CTL Engineering in 2012 to **evaluate 13 sites and facilities** located at the Rickenbacker Air National Guard base in Columbus, Ohio. Included as part of the project was a review of the site around each building to document condition of concrete sidewalks and asphalt parking lots.

As part of the evaluations, CTL was to rate each facility for 10 categories and prepare estimated repair costs for each category as well as an overall estimated project cost for each of the 13 facilities. Each category had to be further evaluated on a Priority Basis as to projects that could be completed in 6 years or more, projects completed in 3-5 years and projects that needed to be completed in 0-2 for components that were near or past their expected useful life. The data gathered into a project specific spreadsheet provided by Mr. James Penn, Ohio Air National Guard. Annotated photographs were also to be included in each facility report.

Client Reference

John McCready (no longer with OFCC)
Ohio Facilities Construction Commission



Project: Facility Assessments
Owner: Southwest Ohio Regional Transit Authority (SORTA)
Location: Cincinnati, Ohio

Project Features

CTL Engineering was retained by to do a complete facility assessment for 8 locations in the Cincinnati/Montgomery County Region. The facilities included bus repair/storage facilities, the new Streetcar facility, training facility for disabled rider access to buses and 2 rider pick up stations.

The assessments included complete site condition, exterior building elevations, roof assessment, and interior spaces including finishes and ADA access, and all electrical/mechanical/ plumbing/fire protection/safety and security systems. The smallest site was 0.2 acres and the largest was 6.5 acres. The smallest structure evaluated was 500 sq. ft. and the largest being 285,000 sq. ft. for a total of 752,500 sq. ft. The information gathered was rated on a 5 point scale as determined by the FTA's Transit Economic Requirements Model (Term) scale in accordance with the TAM Facility Performance Measure Reporting Guidebook. CTL and AEC followed ASTM's guidelines for visual only inspection requirements.

The primary purpose was to provide a comprehensive evaluation of all the SORTA facilities. This had never been done before. SORTA will use this information to help with short and long term repair and maintenance budgeting. SORTA will also take the information gathered to apply for Federal Grants.

Client Reference

Mike Nagy - (513) 632-7577
Southwest Ohio Regional Transit Authority

Project: St. Charles Borromeo Sanctuary Roof Design
Owner: St. Chales Borromeo Parish
Location: Youngstown, Ohio

Project Features

This project is 22.000 square feet, 80 foot rafter runs, four window replacements for four dormers, with a Construction Budget of $900,000.00x

CTL Engineering provided a Pros and Cons report to identify possible design parameters for a new shingle roof assembly utilizing a vented nail base assembly versus a warm non-vented assembly. The Church committee decided to have CTL design the cool-vented nail base assembly roof system to add years for the life of the roof shingles.

CTL is finalizing the design drawings and specifications for a new roof shingle roof system that will be installed over the existing 5” x 8” tongue and groove roof deck. Over the roof deck the system will consist of a vapor barrier, 2 inches of polyisocyanurate insulation board and then a mechanically attached vented nail base consisting of 2 inches of polyisocyanurate insulation 2 inch air space and 2 inch blocking with 5/8 inch OSB sheathing. Ice and Water shield membrane and underlayments will be installed over the OSB prior to the installation of the shingles. Eave venting, ridge venting and highside venting will be provided by Metal Era for a complete cool-vented nail base assembly to provide venting as required per codes and industry standards. The new assembly will meet R values of 29 and will provide for a 30 system warranty.

Client Reference

Nancy Mikos (330) 758-2325
St. Charles Borromeo Parish

Project Completion

Current

PROJECT EXPERIENCE PROFILE

Project: Worthington City Schools, Various Projects
Owner: Worthington Schools
Location: Worthington, Ohio

Project Features

CTL Engineering, Inc. has been providing Building Envelope and Roof Engineering Services for the Worthington City School District for 15 plus years. Working with the School System has developed a long commitment for quality providing for the betterment of facilities, including Evaluations and Site Assessments for Master Planning to ensure the best use of public funds. Roof Replacements, Roof Repairs, roof deck repairs/replacements, water proofing, masonry remediation, skylight replacements, and window/storefront/door corrective remediation, are all a part of the remediation designs that CTL has provided for. Construction Administration with on-site observation has contributed to projects completed to high quality standards that bring much long term benefit to the School District.

CTL has been involved with a minimum of 20 facility assessments including budget forecasts, R-value upgrades, long term performance, drainage improvements, aesthetic improvements, with minimal maintenance requirements going forward. With projects moving forward into construction on occupied buildings safety is of utmost attention and all projects have an excellent safety record.

Client Reference

Timothy Gehring (614) 883-3171
Director of Facility Management

Project Completion

Various