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WV PURCHASING
DIVISION



State of West Virginia
CEOI 0211 GSD1900000008
Architectural/Engineering Services -
Central Chiller Plant Ice Farm and Upgrades

May 15, 2019

P19-0363

COVER LETTER

May 13, 2019

Bid Clerk
Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130

Re: State of West Virginia, CEOI 0211 GSD1900000008
A/E Services - Central Chiller Plant Ice Farm and Upgrades
CJL #P19-0363

Bid Clerk,

Thank you for the opportunity to submit our qualifications for this project. CJL Engineering is currently the MEP/FP Design Professional for the New WVU Medicine Children's Hospital. Our office is located at 1097 Chaplin Road, Morgantown, WV, 26501. Jesse Bierer, one of our Mechanical Designers is the Manager of our West Virginia Office. We are excited at the opportunity State of West Virginia on the Central Chiller Plant Ice Farm and Upgrade Project.

For more than 80 years, CJL Engineering has delivered high quality service and expertise in the MEP, fire protection, LEED, energy solutions, lighting design, civil and structural engineering disciplines. CJL's design approach is to deliver professional engineering consultation, understand our clients' needs and anticipate what they may need in the future. Our engineers approach each project with fresh perspective, technical ingenuity, and a wealth of experience. We deliver expertly drafted documentation, and detailed specifications, all cost-effectively customized for a singular design.

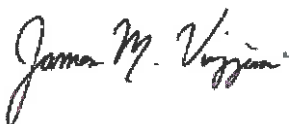
Highly Skilled: With our wide-ranging expertise in MEP, fire protection, LEED/green building, lighting design, energy solutions and commissioning, you can trust CJL to deliver a functional, quality project on time and on budget.

Client Trusted: Our comprehensive approach ensures a successful project while minimizing your risk. We actively listen to you, making sure we clearly understand and prioritize your perspective and goals. We know our job is to ensure our clients' success, and our track record speaks for itself.

Lasting Value: We carefully evaluate and anticipate operational, maintenance, and future requirements of your project, ensuring that the final result is functional, cost-effective and long-lasting. Our unparalleled technical expertise gives you peace of mind that you've made a sound investment for the future of your project.

Thank you again for considering CJL Engineering. Should you have any questions or would like additional information for this project, please do not hesitate to call me directly on my cell phone at 814.322.5457

Regards,



James M. Vizzini, P.E. LEED® AP
Managing Partner, CJL Engineering

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1 FIRM OVERVIEW

Established in 1938, CJL Engineering is a full service, mechanical, electrical, plumbing, fire protection, and civil/structural consulting engineering firm known for mastering the most challenging projects in the region. With offices in western Pennsylvania, eastern Ohio, northern West Virginia and Maryland, our super-regional focus has enabled us to become one of the preeminent MEP firms in the industry, proudly serving a wide range of specializations and clients.



Range of services:

- Analysis and concept
- Construction budgeting
- Building information modeling (BIM)
- Energy modeling
- Detailed construction documents
- Construction phase services
- Building commissioning



More than 155 personnel, including;

- 40 Professional Engineers
- 28 LEED® Accredited Professionals
- A Certified Energy Manager (CEM)
- Commissioning Process Management Professionals (CPMP)
- Building Energy Assessment Professionals (BEAP) and NICET Fire Protection
- Life Safety Systems Certified Engineers



A broad range of clients

- Green Buildings, Science, Laboratory and Research Facilities
- Healthcare - Hospitals, Urgent Care, Medical Centers and Labs
- Education - Colleges, Universities, Trade Schools, K-12
- Corporate, Commercial, Office Buildings
- Industrial - Light and Heavy Manufacturing, Warehousing
- Performing Arts Centers, Museums, Theaters and Libraries
- Government and Secure Facilities
- High Tech Buildings/ Mission Critical Data Centers
- Hotels, Ice Arenas and Sports Facilities
- Apartments, Dormitories and High Rise
- Central Plants, Energy Facilities and Utility Distribution Centers
- Historic and Adaptive Retrofit
- Master Planning and Design



Specialization

- HVAC Systems
- Electrical Systems
- Fire Detection and Protection
- Plumbing Design
- LEED® Green Building Design
- Commissioning
- Energy Modeling Solutions
- Civil / Structural Engineering
- Architectural Lighting and Controls
- Telecommunications
- Life Safety Systems
- Voice/Data/Audiovisual
- Security Systems
- Power System/Quality Evaluations
- Life Cycle Analyses
- Retrofit Evaluations
- REVIT® / BIM



2 PROJECT APPROACH

Goal One: The methods used to evaluate MEP systems vary depending on the project. Some of the methods listed below are utilized on every project, while others are specific to a particular location or the type of application. Depending on age and condition, existing MEP systems in industrial facilities may not be suitable for re-use, in which case extensive surveys of these systems are not required. The following are evaluation methods used by CJL:

- Our first task is to understand the nature of the business, operating and environmental requirements, specialized code requirements, ventilation and exhaust, air balance and pressure requirements, and industrial processes that are served by the MEP systems. We also evaluate the operating hours, ie, 24/7/365 or M-F, etc. and the reliability requirements, ie, Mission Critical, tight tolerance or standard business. This give us the context for how the MEP systems need to operate and be controlled.
- A field survey of the existing systems is the most important tool in analyzing existing systems. Teams of experienced mechanical, electrical and plumbing engineers go to the building site to visually inspect and evaluate the age and operating condition of existing equipment. Google maps are often used to help CJL understand the building(s) in relation to a campus or neighbors.
- Existing drawings and specifications are studied, if available, to give us an overall understanding of the MEP systems. Often, there are a variety of different vintages of drawings, which we use to the extent possible to cross-check against the survey information.
- CJL engineers meet with operations staff to determine how the systems are maintained and controlled, whether there are existing operating issues, and any insights they may have on potential improvements. Operating personnel are typically an invaluable resource on how the facility could best be served by MEP systems.
- CJL conducts a review of utility bills to evaluate energy usage and peak demand characteristics for seasonal variations.
- Often new MEP drawings are developed to record existing conditions. These drawings can be provided in 2D AutoCAD or 3D Revit. If the owner is able to take advantage of a 3D model, there are benefits in particular for complex mechanical plants or ceilings. We have used laser scanning technologies to quickly develop 3D drawings of architectural, structural and MEP systems.
- Other on-site testing can include:
 - Water flow, pressure tests
 - NETA electrical testing
 - Thermal imaging for electrical systems evaluation or thermal losses
 - Air flow and balancing
 - Non-destructive testing (x-ray or ultrasound) or lab samples of piping systems to determine age and condition
 - Ground penetrating radar
 - Cameras run through underground piping and conduit
- An architectural and MEP systems code review and report may be appropriate to confirm upgrade requirements, in particular for life safety, ADA, energy, ventilation or exhaust. If major renovations are envisioned, meetings with local and state code officials are typically warranted and of benefit to anticipate requirements.
- CJL will often develop computer-based energy models to evaluate upgrade cost/benefits for replacement MEP systems, such as Demand Controlled Ventilation, thermal energy recovery, Variable Frequency Drives, chiller or boiler plant options, thermal storage, Combined Heat & Power, lighting retrofits, etc. CJL also applies Computational Fluid Dynamics (CFD) to help understand complex airflow, life safety or thermal performance issues. Life Cycle Analysis is often performed if there are various options recommended for system upgrades, in order to best understand overall cost and performance benefits. LED lighting retrofits, for example, result in both energy efficiency improvements, as well as significantly reduced maintenance costs.

SECTION 2 Project Approach

Goal Two: Communication - One of CJL's fundamental working philosophies is a strong emphasis on interaction with the Owner, Architects, Construction Manager and other professionals on the design team from the onset of the project. This helps to integrate the MEP design into the beginning phases of the project design. CJL's Principals and Senior Staff represent the firm at all meetings, and prepare and review all communications. Responsive and timely communications are standard operating procedure. The same engineers that developed the design will remain involved through the completion of the project, insuring continuity and the benefits of experience in the construction of the project. The Senior Engineers spend time in the field working with the construction team to resolve any issues, thereby creating a better understanding of the design intent and a less adversarial relationship between the engineers and the contractors. This will enable CJL to identify and resolve problems encountered during construction more effectively. Our engineering team members plan, develop, evaluate and analyze throughout each phase of the project, while coordinating with the client, the project team, appropriate agencies, and utilities at each step. The resulting design decisions are documented in the project team minutes of meeting, in CJL reports, and our drawings. Through this process, project changes are minimized, allowing our clients to make informed decisions during each stage of the design process, while the opportunity to influence or modify project direction remains available. The ongoing design coordination done effectively and in collaboration with the construction team results in a much better understanding of the design intent on the part of the construction team. This further reduces misunderstandings and construction problems in the field.

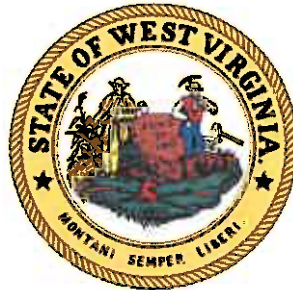
Goal Three: Once the main means of heating and cooling are locked in, we would then focus on the building's MEP infrastructure. The initial focus would be on the arrangement of such systems and how portions of them could remain on line during construction of a phased project while occupants remain in the building. A thorough understanding of the routing of air, water and electrical systems must be established. Whether the systems are set up on a floor-by-floor basis, or vertical shafts or perhaps even a combination will be what set the logistical rules for a successful "renovation while occupied" project. We would also be developing the energy model. This model would be utilized to determine which mechanical systems would best serve the State as well as to assist the Architect in best approaches on window replacement, along with wall and roof insulation upgrade options.

Goal Four: Quality Documents - The high quality and accuracy of our documents result in fewer problems during the construction process, minimal change orders and more effective communication and relationship with contractors. CJL Engineering as our standard operating process, focuses on accurate documentation and written communications throughout the project, including MEP minutes of meetings to supplement those of the Architect. Project documentation is rigorously maintained in a project manual, including reports, calculations, correspondence, punch lists, and utility coordination. This process ensures maximum clarity of engineering concepts and design decisions.

3 QUALIFICATIONS

Our team is full of smart, talented people and strong leadership.


We like to say "our bench is deep." Our more than 155 professionals with diverse backgrounds have a wide range of experience and expertise.




Matt Sotosky, P.E.
Principal In Charge
WV License [REDACTED]
Expires: 12/31/2020



Jim Vizzini, P.E.
Project Manager
WV License [REDACTED]
Expires: 12/31/2020



Rodney Wolfe, P.E.
Electrical
WV License # [REDACTED]
Expires: 12/31/2020



Adam Hale, P.E.
Mechanical
WV License [REDACTED]
Expires: 12/31/2020



Adam McKinley, EIT
Plumbing



Tim Bertolino, P.E.
Electrical



Jesse Bierer
Mechanical



Jackie Krawczyk, EIT
Fire Protection



James M. Vizzini, P.E.
LEED® Accredited Professional
Managing Partner | Mechanical Engineering

Contact Information

☎ 412.262.1220, ext. 112

✉ jvizzini@cjlengineering.com

PROFESSIONAL SUMMARY

James M. Vizzini, P.E. is a Managing Partner of CJL Engineering. He started with the firm in 1992 and has over 27 years' experience. He is responsible for management decisions, overseeing current projects, and maintaining relationships with architect and clients. He has also served as a project engineer on numerous large chiller plant projects.

While at the Partner level, Jim maintains a close connection to all facets of his projects. His responsibilities continue to include on-site surveys; systems comparisons, scope determination, plan and specifications review as well as construction inspection. He also supervises HVAC systems design for various commercial and institutional projects, as well as schools (K-12), universities and health care facilities. These projects have ranged from large equipment replacement such as chillers, cooling towers, boilers and air handling units, entire HVAC systems design to district heating and cooling plants. Some of Mr. Vizzini's more noteworthy central plant and commissioning projects include:

REPRESENTATIVE PROJECTS

Jamestown District Chiller Plant, plant incorporated ice storage to serve arena and city hall, Jamestown, NY (600-Ton)
Carnegie Museum of Natural History, Chilled Water Plant, Pittsburgh, PA (3,500-ton)
Duquesne University, Energy Center Master Plan and new Cooling Tower, Pittsburgh, PA
Three PNC Plaza, LEED® Gold, Central Chilled Water Plant, Commissioning and upgrade, Pittsburgh, PA (1,700-Ton)
Financial Institution Data Center, Central Chilled Water Plant, Pittsburgh, PA (2,100-Ton)
BJC Data Center, Chilled Water Plant, St. Louis, MO (750-Ton)
UPMC Mercy Hospital 6000-Ton Central Plant Design, Pittsburgh, PA
Benedum Center for the Performing Arts, Historic Retrofit Chilled Water Plant design & commissioning, Pittsburgh, PA (550-Ton)
Cambria County War Memorial Arena, District Cooling Plant, Johnstown, PA (600-Ton)

Allegheny County Soldiers and Sailors Memorial Hall (Historic Retrofit), Chilled water plant and steam plant upgrade, all part of a complete HVAC renovation, Pittsburgh, PA (300-Ton)
University of Pittsburgh - Upper Campus Chilled Water Plant and Steam Line Extension, Pittsburgh, PA (5,100-Ton Plant)
Chevron Science Center (Retrofit), chilled water tie-in, 40,000 # / hr. high-pressure steam tie-in, Pittsburgh, PA (2,100-Ton)
Northside Medical Center (Forum Health) Chilled Water Plant, Youngstown, OH (4,000-Ton)
Westinghouse Building, Central Boiler and Chilled Water Plant, includes 550-ton heat recovery chiller, Pittsburgh, PA (2,200-Ton)
Youngstown State University - Chilled Water Plant, energy upgrade to central plant via de-coupling, Youngstown, OH (3,600-Ton)
NRG Uptown District Energy Center, UPMC Mercy, Pittsburgh, PA

EDUCATION

1987 - Bachelor of Science
Mechanical Engineering Technology
University of Pittsburgh at Johnstown

SPECIALIZATIONS

Mechanical Engineering
Master Planning
District Heating and Cooling Plants
On-site Trouble Shooting
Commissioning

REGISTERED PROFESSIONAL ENGINEER

Pennsylvania, District of Columbia
Maryland, New Jersey, Virginia, Nebraska
West Virginia, Alabama, North Carolina
Delaware, Massachusetts

MEMBERSHIPS/ACTIVITIES

American Society of Heating,
Refrigerating and Air Conditioning
Engineers (ASHRAE)
U.S. Green Building Council
Diocese of Altoona-Johnstown, Diocesan
Building Committee
Presenter
St. Francis University, Energy and
Education Conference, 2009, Loretto, PA
eCenter@Lindenpointe, Hermitage, PA
2012 Johnson Controls Leadership
Conference, Potomac, MD
2013 KAPPA Conference, Bedford, PA



Matthew R. Sotosky, P.E.
LEED® Accredited Professional
Managing Partner

Contact Information

☎ 412.262.1220, ext. 102

✉ msotosky@cjlengineering.com

PROFESSIONAL SUMMARY

Matt Sotosky is a Managing Partner of CJL Engineering. He started with the firm in 1990 and his responsibilities include designing and managing mechanical and electrical engineering projects for all types of buildings. Matt has extensive experience in Design and Commissioning of HVAC, Plumbing and Fire Protection for Healthcare, Educational, Industrial and Commercial projects, with over 27 years of experience as a Professional Engineer. He has designed and/or managed over 2.5 billion dollars in construction.

REPRESENTATIVE PROJECTS

West Virginia University, NASA
Independent Verification and Validation
Center, Fairmont, WV
West Virginia University, Oglebay Hall
and Forensic Lab, LEED® Certified,
Morgantown, WV
West Virginia Capitol Complex #3,
Charleston, WV
West Virginia University Medicine,
Children's Hospital, Morgantown, WV
Federated Investors Tower, Pittsburgh, PA
Energy Innovation Center, LEED®
Platinum, Pittsburgh, PA
Autodesk® Bakery Square 2.0, Tenant Fit
out, Pittsburgh, PA
Xitech Corporate Headquarters, Carnegie, PA
AT&T Platinum Building, Pittsburgh, PA
BJC Data Center, LEED® Compliant,
St. Louis, MO
Giant Eagle Corporate Headquarters,
Pittsburgh, PA
AccuWeather World Headquarters,
State College, PA
Green Building Alliance, LEED® CI
Platinum, Pittsburgh, PA
Erie Insurance Headquarters, Erie, PA
Leetsdale Industrial Park, Leetsdale, PA
eCenter @LindenPointe, Hermitage, PA

Cambria County Central Park Complex,
Johnstown, PA, Renovation
UPMC Hamot, Bayview Medical Office
Building, Erie, PA
Akron Children's Hospital, Beeghley
Medical Office Building, Boardman, OH

NOTEWORTHY PROJECTS

UPMC East LEED® Silver, New Medical
Center, Monroeville, PA
UPMC Hamot, Regional Center for Mother
and Baby Health, Erie, PA
UPMC Hamot, New Patient Care Tower,
Erie, PA (In-Design)
UPMC Passavant Pavilion, LEED® Silver,
Expansion Pittsburgh
Saint Vincent, Allegheny Health Network,
Erie PA

- AC-3 Operating Room Supplemental
Chiller Design
- Air Pressure Relationship Study for
Entire Hospital
- New EP Lab, Chemo Infusion Area
- Orthopedic Surgeons Space
- North Patient Tower, Multiple Floor
Renovations

Allegheny County Soldiers and Sailors
Memorial, Pittsburgh, PA
Pennsylvania State Correctional
Institutions Renovations,
Multiple Locations

EDUCATION

Bachelor of Science
1989 / Mechanical Engineering
University of Pittsburgh

SPECIALIZATIONS

Mechanical Engineering
Energy Audits and Building Study
Master Planning, Feasibility Study
Geothermal Systems, Commissioning
Healthcare and Central Plants

REGISTERED PROFESSIONAL ENGINEER

Pennsylvania, West Virginia, Maryland,
Ohio, Indiana, Michigan, Illinois,
Oklahoma, Texas, Kentucky, Florida,
Georgia, New Mexico, Missouri
Colorado, Tennessee

MEMBERSHIPS/ACTIVITIES

International District Energy Association
(IDEA)
American Society of Mechanical Engineers
(ASME)
American Society of Plumbing Engineers
(ASPE)
ASHRAE
Association for the Society of Hospital
Engineers (ASHE)
International Ground Source Heat Pump
Association (IGSHPA)
Pennsylvania Society of Professional
Engineers (PSPE)
National Society of Professional Engineers
(NSPE)
U.S. Green Building Council (USGBC)



Adam B. Hale, PE
Senior Associate | Mechanical Engineer

Contact Information

☎ 412.262.1220, ext. 139

✉ ahale@cjlengineering.com

PROFESSIONAL SUMMARY

Adam Hale is a Mechanical Engineer at CJL Engineering. He joined the firm in 2008 as an intern and became a full-time employee in 2010.

Adam is responsible for the design and specification of HVAC and other mechanical systems for educational, healthcare, commercial, and corporate clients. He surveys existing facilities and systems to confirm and evaluate their condition. He conducts engineering studies, establishes design criteria, and estimates project costs. He is also responsible for communicating project needs and requirements between owner, architect, engineer and client.

REPRESENTATIVE PROJECTS

West Virginia University Medicine, Children's Hospital, Morgantown WV

West Virginia Capitol Complex, Building 5, 6 and 7 Steam Upgrade, Charleston, WV

UPMC Lemieux Sports Complex, Penguins New Dual Rink Training Facility, Cranberry, PA

Cambria County War Memorial Arena, Ice Rink Floor Replacement / Hockeyville HVAC Coordination, Johnstown, PA

Stoneham Arena, Rink Refrigeration and Floor Renovation, Stoneham, MA

Frederick National Laboratory for Cancer Research, Chiller Plants 2 & 5, Frederick, MD

UPMC, Multiple Locations

UPMC East LEED® Silver, New Medical Center, Monroeville, PA

UPMC Hamot, Regional Center for Mother and Baby Health, Erie, PA

UPMC Hamot, New Patient Care Tower, Erie, PA (In-Design)

UPMC Passavant Pavilion, LEED® Silver, Expansion Pittsburgh

UPMC Presbyterian, Deconstruction & Redesign, Pittsburgh, PA

CamTran Operations Center, Johnstown, PA

Duke LifePoint, Conemaugh Health Systems, Johnstown, PA
East Hills Outpatient Center
Ebensburg Outpatient Center
Conemaugh Memorial, Steam Condensate Study
Conemaugh Memorial, Lab Pressure Project
Conemaugh Memorial, Plastics Department, Tenant Fit-out
Conemaugh Memorial, 'D' Building Infill Tower

The Pennsylvania State University, Behrend Campus, Knowledge Park, Advanced Manufacturing and Innovation Center, Erie, PA

Meadville Medical Center, Vernon Place – Medical Office Building, Meadville, PA

St. Francis University, Loretto, PA
New Science Center and Vivarium
Degol Fieldhouse Renovation
Sullivan Hall Renovation

One PNC Tower - 14th Floor Renovations, Pittsburgh, PA

Autodesk, Inc. Tenant Fit-Out, Bakery Square Business Complex, Pittsburgh, PA

University of Pittsburgh, Salk Hall Renovation, Pittsburgh, PA

Southwestern Veterans Center, Pittsburgh, PA

Carmichaels Junior-Senior High School, Renovations, Carmichaels, PA

EDUCATION

University of Pittsburgh at Johnstown, Johnstown, PA

Bachelor of Science

Mechanical Engineering Technology
2010

SPECIALIZATIONS

Mechanical Engineering

HVAC Design

Facility Analysis

Master Planning

On-site Troubleshooting

REGISTERED PROFESSIONAL ENGINEER

Pennsylvania

West Virginia

MEMBERSHIPS / CERTIFICATES

ASHRAE

ASHRAE HFDP (Healthcare Facility Design Professional)

ASHE



Rodney A. Wolfe, PE
Principal | Electrical Engineer

Contact Information:

☎ 412.262.1220 ext. 115

✉ rwolfe@cjlengineering.com

PROFESSIONAL SUMMARY

Rodney Wolfe is an Electrical Engineer and Principal of CJL Engineering. He started with the firm in 1993 and he is responsible for overseeing the electrical drafting, design and specifications of projects to assure compliance with local, state and federal codes, regulations and standards, establish company electrical design criteria, and schedule electrical department personnel to complete project assignments. Rodney is involved in the design and specification of low and medium voltage distribution systems, lighting systems, emergency power systems, local area networks, sound and communications systems and site utilities. His noteworthy projects, comprising new construction, expansions and adaptive retrofit include:

RELEVANT PROJECTS

Jamestown Dual-Rink Ice Arena and District Cooling System Chilled Water Plant, Jamestown, NY

(DGS 514-28, Phase 1) Warren State Hospital, Renovate Fire Alarm and Fire Suppression Systems, Warren County, PA

(DGS 961-31 Phase 1) Hamburg Readiness Center, Pennsylvania National Guard, 75 kW Generator, Hamburg, PA

(DGS 963-57, Phase 1) Greensburg Readiness Center Rehabilitation, Greensburg, PA,

(DGS A970-221) Southwestern Veterans' Center, Emergency Generator Installation, Pittsburgh, PA

(DGS A964-46) Stryker Brigade Readiness Center, Punxsutawney, PA

Pennsylvania State Correctional Institutions Renovations
SCI Dallas, Dallas, PA

SCI Huntingdon, Huntingdon, PA

SCI Cresson, Cresson, PA

SCI Frackville, Frackville, PA

SCI Greensburg, Greensburg, PA

SCI Cambridge Springs, Cambridge Springs

PA State Regional Correctional Facility
Mercer, Mercer County, PA

CamTran Operations Building LEED®
Certified 750 kW Generator, Johnstown, PA

Lincoln Primary Care Center, 100 kW
Generator, Charleston, WV

Water's Edge – Polar Bear Exhibit LEED®
Compliant, Pittsburgh Zoo and PPG
Aquarium, Pittsburgh, PA

Animal Health Center LEED® Compliant,
Pittsburgh Zoo and PPG Aquarium,
Pittsburgh, PA

University of Pittsburgh at Johnstown,
Owen Library, Johnstown, PA

Garrett County Memorial Hospital,
Oakland, MD

Greater Johnstown Community YMCA,
Johnstown, PA

Westmoreland County Juvenile Detention
Facility, Greensburg, PA

GE Transportation Division, Erie, PA

NOTEWORTHY PROJECTS

Allegheny College, Meadville, PA

Clarion University of Pennsylvania, Clarion, PA

Community College of Allegheny County,
Pittsburgh, PA

Edinboro University of Pennsylvania,
Edinboro, PA

Indiana University of Pennsylvania, Indiana, PA
Mansfield University of Pennsylvania,
Mansfield, PA

Mount Aloysius College, Cresson, PA

Slippery Rock University of Pennsylvania,
Slippery Rock, PA

University of Pittsburgh at Titusville,
Titusville, PA

EDUCATION

B.S. / 1988 / Electrical Engineering
University of Pittsburgh

SPECIALIZATIONS

Electrical Engineering

Primary Power

Industrial Power

Government and Healthcare

Schools K-12

Colleges and Universities

REGISTERED PROFESSIONAL ENGINEER

West Virginia

Pennsylvania

Maryland

Ohio

MEMBERSHIPS/ACTIVITIES

Member of the Building Industry Consulting
Service International (BICSI).

Pennsylvania Society of Professional
Engineers (PSPE)

National Society of Professional Engineers
(NSPE)



Timothy C. Bertolino
PE | Partner

Contact Information

☎ 412.262.1220 ext. 114

✉ tbertolino@cjlengineering.com

PROFESSIONAL SUMMARY

Tim Bertolino is a Principal of CJL Engineering with over 20 years of electrical design experience. He joined CJL Engineering in 2006 and manages the Electrical Department. Tim has been involved in the electrical system design and commissioning of projects for schools K-12, health care, industrial, college/university, corporate, and government projects. Tim specializes in the design and specification of low and medium voltage distribution systems, lighting systems, emergency power systems, local area networks, sound and communications systems and site utilities.

RELEVANT PROJECTS

ICE RINKS / SPORTS FACILITIES

UPMC Lemieux Sports Complex, Penguins
Dual-Rink Training Facility, Cranberry, PA
Callahan Ice Rink, Bradford, PA
Endicott College Ice Rink, Beverly, MA
Clearfield YMCA, Clearfield, PA
Johnstown Community YMCA, Johnstown, PA
Clarion County YMCA, Clarion, PA
St. Francis University, DeGol Fieldhouse
and DiSepio Institute for Rural Health and
Wellness, Loretto, PA
UPMC Sports Performance Center,
Pittsburgh, PA
Slippery Rock University Training Room,
Slippery Rock, PA

HEALTHCARE

Milford Health and Wellness Center, Milford, PA
UPMC East LEED® Silver, Monroeville, PA
UPMC Southside, Pittsburgh, PA
VA Hospital, Calcutta, OH
VA Pittsburgh Highland Drive, Pittsburgh, PA
Fulton County Medical Center,
McConnellsburg, PA
Bradford Regional Medical Center, Bradford, PA
Clearfield Hospital, Clearfield, PA
East Liverpool Hospital, East Liverpool, OH
Wooster Community Hospital, Wooster, OH
Arbutus Park Manor, Johnstown, PA
Garden State Urology Center, Whippany, NJ
Urology Specialists of West Florida,
Clearwater, FL

Lakewood Ranch Radiation Urology
Oncology Center, Sarasota, FL
Dialysis Clinic Inc., Philadelphia, PA
Commonwealth Newburyport Cancer
Center, Newburyport, MA

COLLEGE / UNIVERSITY

The Pennsylvania State University, Various
Projects, University Park, PA
Nebraska Wesleyan University, Science
Building, Lincoln, NE
Mount Union College, Alliance, OH
University of Akron, Akron, OH
Community College of Allegheny County,
South Campus, West Mifflin, PA

NOTEWORTHY

Historic West Virginia Capitol Complex,
Building #3, LEED® Silver, Charleston, WV
CJL Engineering Office Building LEED®
Silver, Johnstown, PA
Pittsburgh Zoo and PPG Aquarium,
Elephant House, Pittsburgh, PA
Stryker Brigade Readiness Centers,
Pennsylvania Army National Guard (SPiRiT
Gold Rating), Punxsutawney, PA
Youngstown Air Reserve Station, Joint
Services Lodging Facility LEED® Silver,
Youngstown, OH
Portage County Prosecutor's Building,
Ravenna, OH
ATA Building, Punxsutawney, PA
SWAN BioMass Conversion Center, Clearfield, PA

EDUCATION

B.A.E. / 1997

The Pennsylvania State University
Bachelor of Architectural Engineering

SPECIALIZATIONS

Electrical Engineering
Master Plan & Feasibility Study
Energy Audits
Emergency Power Generation
High, Medium & Low Voltage

REGISTERED PROFESSIONAL ENGINEER

Pennsylvania, Colorado, Virginia,
New York, Arizona, New Mexico
Connecticut, Oklahoma, Florida,
Nebraska, Montana, Texas, Arkansas

MEMBERSHIPS/ACTIVITIES

Illuminating Engineering Society of
North America (IESNA)



Adam R. McKinley, E.I.T., CPD
Senior Associate

Contact Information

☎ 412.262.1220 ext. 113

✉ amckinley@cjlengineering.com

PROFESSIONAL SUMMARY

Adam McKinley is the Plumbing Department Supervisor of CJL Engineering. He started at the firm in 2003 and serves as Project Manager for numerous projects, and is a Certified Plumbing Designer. Adam's experience includes numerous utility extensions and/or relocations for universities, schools, office buildings, hospitals, restaurants, high-rise condominiums and personal care home projects. He provides construction observation services, which requires him to visit the site to solve any field problems and to provide punch lists for completion of the project.

REPRESENTATIVE PROJECTS

West Virginia University Medicine
Children's Hospital, Morgantown, WV
West Virginia Capitol Complex, State
Office Building #3, Charleston, WV
Department of General Services,
Additions/Renovations to Troop "D", PA
State Police, Butler, PA
Union Trust Building, Historic
Renovation/Retrofit, Pittsburgh, PA
Bucknell University, Carnegie Building,
Lewisburg, PA
Shadyside Presbyterian Church, Pittsburgh, PA
Department of General Services,
Rehabilitate Greensburg Readiness
Center, Greensburg, PA
Punxsutawney Area Transit Authority,
Punxsutawney, PA
St. Marys Transit Center, St. Marys, PA
CamTran ATA Operations Center,
Johnstown, PA
Water's Edge, LEED® Compliant
Pittsburgh Zoo and PPG Aquarium,
Pittsburgh, PA
University of Pittsburgh, Cathedral of
Learning, Pittsburgh, PA
UPMC-East, LEED® Silver Hospital,
Monroeville, PA
Erie Public Safety Building, 911 Center, Erie, PA

PA Army National Guard - Stryker Brigade,
Punxsutawney, PA

Greater Johnstown Community YMCA,
Johnstown, PA

Paris Healthcare Linen Services Processing
Plant, DuBois, PA

Swann Biomass Ethanol Plant, Clearfield, PA
ATA Building, LEED® Silver, St. Marys, PA

Presque Isle Downs, Erie, PA
Complex includes a non-smoking casino,
restaurants, stables, barns, administration
buildings and racetrack support facilities.

NOTEWORTHY PROJECTS

University of Pittsburgh at Johnstown, New
Wellness Center, Johnstown, PA

St. Francis University, New Science Center,
Sullivan Hall Renovation, and DeGol Field
House Expansion, Loretto, PA

West Chester University, E.O. Bull Center,
West Chester, PA

UPMC Hamot, Bayview Medical Office
Building, Erie, PA

Vincentian Collaborative System, Pittsburgh, PA

WRC Senior Services, Clarion, PA

Fulton County Medical Center, McConnellsburg, PA

BJC, Missouri Baptist Hospital Sullivan,
Sullivan, MO

EDUCATION

B. S. / 2001 /

Mechanical Engineering Technology
University of Pittsburgh

SPECIALIZATIONS

HVAC and Plumbing Design
Project Management

MEMBERSHIPS/ACTIVITIES

American Society for Plumbing
Engineering Member



Jacklyn A. Krawczyk, EIT
LEED® Accredited Professional
Associate | Fire Protection

Contact Information

☎ 412.262.1220 ext. 183

✉ jkrawczyk@cjlengineering.com

PROFESSIONAL SUMMARY

Jackie Krawczyk is an Associate and Fire Protection Designer with CJL Engineering and has over 14 years of experience in the industry. She is responsible for surveying and evaluating the condition of existing facilities, designing new fire protection and fire alarm systems, International Building Code and NFPA code consultations, evaluating shop drawing submissions, and performing life safety analysis on new and existing building projects. Jackie also provides construction observation services, which requires her to visit the construction site to solve field problems and to provide punch lists for completion of the project.

EDUCATION

The Pennsylvania State University,
University Park, PA

Bachelor of Science

Mechanical Engineering, 2004

SPECIALIZATIONS

Sprinkler System Design

Fire Alarm System Design

Code Consultation

Life Safety Analysis

MEMBERSHIPS/ACTIVITIES:

Society of Fire Protection Engineers
Member

National Fire Protection Association
Member

AutoCAD

REVIT BIM

HASS Hydraulic Analysis

REPRESENTATIVE PROJECTS

West Virginia Capitol Complex, Building #3, Tie into the Central Heating Plant, Charleston, WV

West Virginia University, Oglebay Hall, Forensic Science Lab, Historic Building Renovation, LEED® Certified, Morgantown, WV

Bluefield Regional Medical Center, MOB, Bluefield, WV

Valley Hospice Personal Care Home, Wheeling, WV

Union Trust Building, Historic Landmark Renovation and Retrofit, Pittsburgh, PA

Bucknell University, Carnegie Building Historic Reconstruction and Renovation, Lewisburg, PA

University of Pittsburgh, Pittsburgh, PA

- Cathedral of Learning, Multiple Floor Renovations
- Posvar Hall Renovations
- Victoria Hall Sprinkler System Upgrade

Wooster Community Hospital, Outpatient Cancer Center, Wooster, OH

UPMC East, New Medical Center, LEED® Silver, Monroeville, PA

NOTEWORTHY PROJECTS

UPMC Lemieux Sports Complex – New Medical Offices, Dual Ice Rink and Training Facility, Cranberry, PA

UPMC Hamot, Regional Center for Mother and Baby Health, Erie, PA

Duke LifePoint East Hills Outpatient Center, Conemaugh Health System, Johnstown PA

Akron Children’s Hospital, Beeghly Campus, Boardman, OH

Missouri Baptist Hospital, St. Louis, MO

Radiation Oncology Center at Lakewood Ranch Professional Center, Sarasota, FL

Carmichaels Junior-Senior High School – Renovations, Carmichaels, PA

St. Francis University, Loretto, PA

- New Science Center and Vivarium
- DiSepio Institute for Rural Health and Wellness LEED® Compliant

Seneca Nation of Indians New Sports Complexes, Cattaraugus and Alleghany Territories, NY

Elliott Group, Research and Development Testing Facility, Jeanette, PA

The Pennsylvania State University, The Behrend Campus, Knowledge Park, Erie, PA



Jesse Bierer
Mechanical Designer

Contact Information

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jbierer@cjlengineering.com

PROFESSIONAL SUMMARY

Jesse Bierer is the Morgantown Office Manager and Mechanical Designer at CJL Engineering joining the firm in 2017. He has been involved in the mechanical system design and commissioning of projects for health care, schools K-12, industrial, college/ university, and corporate projects. Jesse specializes in the design and specification of hot and chilled water systems, heating and cooling air systems.

RELEVANT PROJECTS

West Virginia University Medicine, Children's Hospital, Morgantown, WV

West Virginia University Medicine, Central Sterile Renovation, Morgantown, WV

Stoneham Rink Renovation, Stoneham, Massachusetts

High Rise Tenant Fit Out - East Beaver Avenue, State College, PA

AHN St. Vincent Hospital Hardner Building, Erie, PA

AHN St. Vincent Hospital Nuclear Imaging Renovations, Erie, PA

AHN St. Vincent Hospital - 5th Floor, Erie, PA

AHN St. Vincent Infill building, Erie, PA

Bentley Building - CHS Alera, Pittsburgh, PA

Conemaugh Medical Oncology Addition East Hills, Johnstown, PA

Conemaugh Good Sam Radiology Oncology Renovation, Johnstown, PA

Fox Chapel Area School District, New Kerr Elementary, Pittsburgh, PA

Meritus - Robinwood Suite 200 Residency, Hagerstown, MD

Magee Women's Hospital - Green Zone Fire Protection, Pittsburgh, PA

NRG Uptown District Energy Center, Pittsburgh, PA

PA Cyber Wexford, Wexford, PA

St. Edmunds Academy, Pittsburgh, PA

Davita Tenant Fit Out, Loch Raven, MD

Union Trust Building - 2nd Floor, Pittsburgh, PA

University of Pittsburgh Community Engagement Center, Pittsburgh, PA

UPMC Hamot Lung Center, Erie, PA

UPMC Magee-Womens Hospital, Pittsburgh, PA

EDUCATION

West Virginia University
Bachelor of Science
Mechanical Engineering
Aerospace Engineering
2016

SPECIALIZATIONS

Mechanical Engineering
Project Management
HVAC Systems
AutoCAD
Revit

MEMBERSHIPS/ACTIVITIES

ASHRAE

4 EXPERIENCE

West Virginia Projects

West Virginia Capitol Complex, Charleston, WV

- State Office Buildings #1 LEED® Certified
- State Office Buildings #3 LEED® Certified, 900-ton Chilled Water Plant Tie-In

West Virginia University Medicine, New Children's Hospital, Ruby Hospital, Morgantown, WV

West Virginia University, Morgantown, WV

- NASA Independent Verification and Validation Center, 450-ton Chilled Water Plant, Fairmont, WV
- Studio Theater Renovation, Morgantown, WV
- Oglebay Hall, Forensic Science Lab, LEED® Certified, Morgantown, WV
- Brooks Science Hall, Morgantown, WV
- Campus Master Plan, Morgantown, WV
- Milan Puskar Football Training Table Renovation, Morgantown, WV

Fairmont State College, Fairmont, WV

- Hunt Haught Hall, Fairmont, WV
- Pritchard Hall, Fairmont WV

Beckley Neville Street Renovation Project, Beckley, WV

Chestnut Manor, Renovation Project, Weirton, WV

Community Bank of Parkersburg, Parkersburg, WV

West Liberty State College, Fire Alarm System, West Liberty, WV

Weirton Medical Center, Weirton, WV, Various Projects

- Administration Suite, CT Scanner, Emergency Power
- Medical Records, MRI, Pharmacy, Sleep Lab
- Women's Center, Endoscopy, Fire Pump
- Medical Office Building, Business Office
- New OR Suite, Physician Lounge and Library

Bluefield Regional Center, Bluefield, WV

Valley Hospice Personal Care Home, Wheeling WV

SECTION 4 Experience

Chilled Water Plant Projects

- AT&T 'Platinum' Building, 1,500-ton Chilled Water Plant, Pittsburgh, PA
- BJC 'Green' Data Center, 750-ton Chilled Water Plant, St. Louis, MO
- Bayer Corporation, 350-ton Chilled Water Plant, Pittsburgh, PA
- Benedum Center for the Performing Arts, 550-ton Chilled Water Plant, Pittsburgh, PA
- Boyce Middle School, Upper St. Clair School District, 360-ton Chilled Water Plant, Pittsburgh, PA
- Butler Museum Chiller Plant Upgrades, 120-ton Air Cooled Plant, Youngstown, OH
- Cambria County Central Park Complex, 220-ton Chilled Water Plant, Johnstown, PA
- Cambria County War Memorial Arena, 600-ton District Cooling Plant, Johnstown, PA
- Carnegie Mellon Plant Evaluation and Chiller Upgrade Project, Pittsburgh, PA
- Carnegie Museum of Natural History, Master Plan and subsequent 3,500-ton Chilled Water Plant, Pittsburgh, PA
- Community College of Allegheny County (CCAC) Boyce Campus, Monroeville, PA
- Delahunty Middle School, 180-ton Chilled Water Plant, Hermitage, PA
- Duquesne University, Energy Center Master Plan, 7,000-ton Chilled Water Plant, Pittsburgh, PA
- Duquesne University, Energy Center Master Plan, Phase I, 10,000-ton Custom Cooling Tower Array, Pittsburgh, PA
- Energy Center Pittsburgh – Uptown, Chilled Water, Steam and Emergency Power, Pittsburgh, PA
- Financial Institution Data Center, 2,100-ton Chilled Water Plant, Pittsburgh, PA
- Financial Institution Data Center, 2,280-ton Chilled Water Plant, Cleveland, OH
- Fort Couch Middle School, Upper St. Clair School District, 340-ton Chilled Water Plant, Pittsburgh, PA
- Fox Chapel High School, 400-ton Chilled Water Plant, Pittsburgh, PA
- Gateway Junior / Senior High School, 800-ton Chilled Water Plant, Monroeville, PA
- Garrett County Memorial Hospital, 1,000-ton Chilled Water Plant, Oakland, MD
- Hickory High School, 600-ton Chilled Water Plant, Hermitage, PA
- Homer Center High School, 300-ton Chilled Water Plant, Homer City, PA
- Jamestown Dual-Rink Ice Arena, 600-ton District Chilled Water Plant, Jamestown, NY
- Jo-Anne Fabrics, 180-ton Chilled Water Plant, Hudson, OH
- Mahoning County Justice Center, 640-ton Air-Cooled Plant, Youngstown, OH

SECTION 4 Experience

Chilled Water Plant Projects

Mercer County Career Center School, 140-ton Chilled Water Plant, Mercer, PA

NGA Arnold Data Center (National Geospatial - Intelligence Agency), 1,200-ton Chilled Water Plant, Arnold, MO

Northside Medical Center (Forum Health), 4,000-ton Chilled Water Plant, Youngstown, OH

Norwin High School, 1,000-ton Chilled Water Plant, North Huntingdon, PA

Oakmont Country Club, 110-ton Chiller (uses on-site natural gas well), Pittsburgh, PA

One PNC Plaza, Central Plant Controls Replacement and Commissioning, Pittsburgh, PA

Point Park University, Lawrence Hall Central Plant, Pittsburgh, PA

Punxsutawney Hospital, 600-ton Chilled Water Plant, Punxsutawney, PA

Shippensburg University, Dauphin and Shippen Halls, 450-ton Chilled Water Plant, Shippensburg, PA

Soldiers and Sailors Memorial Hall and Museum, 300-ton Chilled Water Plant, Pittsburgh, PA

Still Hall - Clarion University of Pennsylvania, 200-ton Steam Absorption Chiller, Clarion, PA

Three PNC Plaza, 1,600-ton Central Plant Redesign and LEED® Commissioning, Pittsburgh, PA

Trumbull Memorial Hospital, 1,800-ton Chilled Water Plant (Forum Health), Warren, OH

University of Pittsburgh, 5,100-ton Upper Campus Chilled Water Plant, Pittsburgh, PA

UPMC East Hospital, LEED® Silver, 2,250-ton Chilled Water Plant, Pittsburgh, PA

UPMC Greenville Hospital, 2,250-ton Chilled Water Plant, Greenville, PA

UPMC Horizon – Shenango Valley, 250-ton Chilled Water Plant, Farrell, PA

UPMC Mercy Hospital, 6,500-ton Chilled Water Plant, Pittsburgh, PA

Valley Mall, 2,000-ton Chilled Water Plant, Hagerstown, MD

Westinghouse Building, Central Boiler and 2,200-ton Chilled Water Plant, Pittsburgh, PA

Youngstown State University, 3,600-ton Chilled Water Plant, Youngstown, OH

Youngstown State University, Williamson College of Business, LEED® Gold, tie-in to new 3,600-ton Chilled Water Plant, Youngstown, OH

5 PAST PERFORMANCE

References

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Jamestown Savings Bank Arena

Dual Rink Ice and District Cooling Chilled Water Plant, Jamestown, NY



CJL modernized the HVAC, ice and electrical systems to provide the Arena with cost-effective and energy efficient equipment.

THE PROJECT

CJL was contracted to provide mechanical and electrical engineering services for The Jamestown Savings Bank Arena, now known as the Northwest Arena. The complex features two regulation NHL-size 85' x 200' rinks covering more than 112,000 sf of floor space. In addition to its ice sheets, the three-floor arena also features other amenities, including an overlooking restaurant, a snack shop, a pro shop, public skating area, locker rooms, offices of the Jamestown Skating Academy, a training room, an exercise room, a library/study room, a walking tracking, and an outdoor stone patio. In addition, a new 600-ton central chilled water plant was built on the lower level of the arena, serving the facility, plus buildings within a four-block radius. A bank of six (6) brazed plate heat exchangers was used to tie-in to the local utility's (280°F) district high-pressure, and hot water distribution system.

CJL DESIGN SOLUTIONS

- The Arena's former sound distribution system was removed and replaced. The new equipment included all central sound equipment, amplifiers, speakers, conduit, outlet boxes and conductors.
- Included in the renovation were a security camera system and a card access system.
- Specified and designed electrical upgrades for power to the new seating areas and spotlights. New arena spotlights were also included.
- One – 300-ton low temperature chiller for off peak operation
- One – 300-ton conventional temperature chiller for daytime chilled water
- Two – 1200-ton ice storage tanks
- Two – cooling towers with energy-saving variable speed drives
- Primary and secondary (loop) chilled water pump controls with variable speed drives
- Ethylene-Glycol for rink piping and the sub-floor heating system prevents permafrost under the rink slab
- 480-volt electric service

PROJECT REFERENCE

Donald L. Bloomquist, Sr., Retired
 Jamestown Savings Bank (Dual-Rink) Arena
 P.O. Box 3311, Jamestown, NY 14702
 716.499-9426
 dlbloomquist@gmail.com

Duquesne University Energy Center Chilled Water and Cooling Tower, Pittsburgh, PA



CJL phased this project to allow the building to stay operational, requiring no downtime and designed the expansion to nearly triple the capacity of the energy center's boilers while cutting its natural gas consumption.

THE PROJECT

CJL Engineering was hired by Duquesne University as the Professional to provide a Master Plan to evaluate its existing Energy Center. The project consisted of a review of the existing Energy Center to house the new condenser water equipment and electrical panels. The project was phased to allow the existing cooling towers to remain operational while the new condenser water system was installed. The chillers are being individually phased over to the new condenser water system. The field fabricated cooling towers were designed to provide the University the flexibility to expand in the future when the cooling load increases. The \$11.5 million expansion nearly tripled the capacity of the energy center's boilers while cutting its natural gas consumption.

CJL DESIGN SOLUTIONS

Cooling Towers

- 9,000-Ton capacity with the ability to expand to 12,500-Tons
- Lower sound for acoustically sensitive applications
- Optimized condenser water controls
- Lower connected Hp versus a standard factory assembled tower
- Field fabricated towers are customizable for appearance
- New condenser water pumps with variable frequency drives
- Design allowed for a smaller foot print
- Design included a Non-Corrosive Construction with a 40-year life expectancy

Chiller No. 6

- 1,840 – Ton Electric Centrifugal Chiller
- New 3,660 GPM Primary Chilled Water Pump
- New DDC Electric Chiller Controls automated to optimize the new chiller performance
- Commissioning of the new Chiller
- Electric power for the new Chiller, Primary Pump and Controls
- Integrated new piping with existing system
- Design project completed on time and on budget

Chiller Nos. 1, 2 & 4

- Solicited equipment bids for replacement of three steam absorption chillers
- Developed efficiency comparison model including large scale plans, and first, life cycle and utility cost considerations
- Evaluated steam quality, plant communications, condenser water flows and controls requirements
- Site visits to further evaluate existing unit operations.
- Confer with plant operators to solicit unbiased opinions for multiple manufacturers

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Energy Center Pittsburgh - Uptown

Steam, Chilled Water, Emergency Power, Pittsburgh, PA



CJL prepared feasibility analysis and preliminary design, and then detailed design for a highly complex 25,000 SF plant.

- 6000 tons of cooling
- 100,000 PPH of steam
- 7.5MW of emergency generators

THE PROJECT

The new gas-powered plant energy center will deliver steam, chilled water and backup power to UPMC Mercy and additional future customers with higher efficiency, lower carbon emissions, and lower capital and operating costs compared to multiple, stand-alone systems. The plant was situated in the Uptown District because of the proximity to UPMC Mercy, Chatham Center, Consol Energy Center & future tenants.

CJL DESIGN SOLUTIONS

The plant is presently designed to serve the chilled water, steam and emergency power requirements of UPMC Mercy Hospital and will produce:

- Chilled Water - 5500 tons operating capacity with another 2750 tons of stand-by capacity.

- Steam - 100,000 LBS / HR operating capacity with another 50,000LBS / HR of stand-by capacity. Steam pressure is at 150 PSIG
- Emergency Generators - 5 MW operating capacity with another 2.5 MW of stand-by capacity.
- Design of the chilled water lines sizes for 30-inch HDPE (high density polyethylene) to exiting plant and 24-inch HDPE after the split.
- Experience with the NRG project includes underground vaults associated with the steam installation as well. Vaults included both precast and poured in place installations.
- The Energy Center Pittsburgh - Uptown project was a design-build effort with collaboration coordination

and review with all stakeholders. Piping and conduit placement review and coordination continued throughout construction to assure that design objectives were met while avoiding underground obstacles, including those which had not been detected by earlier discovery methods. This effort served the project very well, particularly at the massively congested crossings of Forbes and Fifth Avenues.

PROJECT REFERENCE:

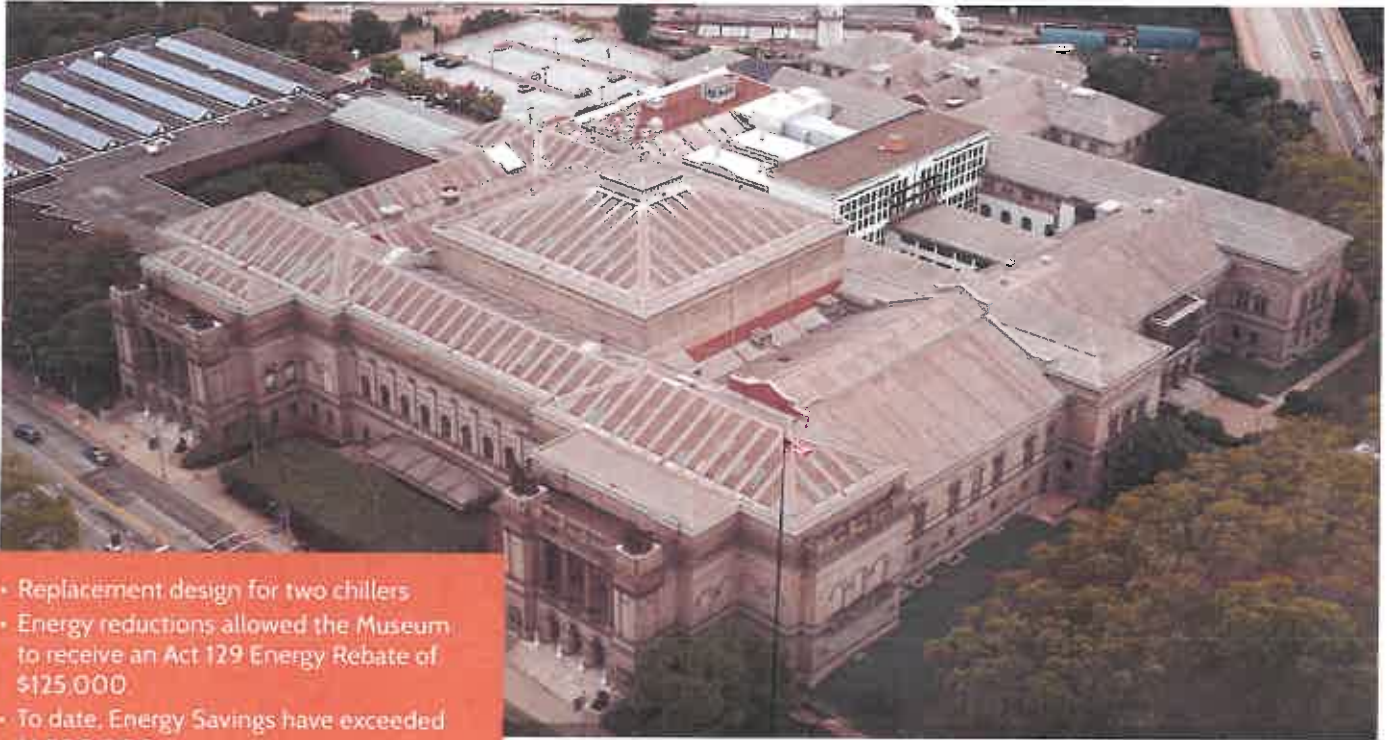
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Carnegie Museum of Natural History

Plant Energy Upgrade, Pittsburgh, PA



- Replacement design for two chillers
- Energy reductions allowed the Museum to receive an Act 129 Energy Rebate of \$125,000
- To date, Energy Savings have exceeded \$1,500,000

THE PROJECT

The 120-year-old Carnegie Museum of Natural History is a National Historic Landmark Building in the heart of the Oakland section of Pittsburgh, located between the University of Pittsburgh and Carnegie Mellon University. CJL Engineering was hired by the Museum to conduct a Heating/Cooling Plant Master Plan to develop an approach for the upgrade of the Chilled Water System.

CJL DESIGN SOLUTIONS

- The Museum's existing inefficient system was comprised of two 39-year-old chillers and a third 13-year-old chiller. The system had the potential to fail at any time. The upgrade also provided needed back-up cooling capacity during hot summer weather
- Engineer a replacement design for the two 39-year-old chillers (which were well past their expected life cycle) using new energy efficient equipment
- Additionally, the Museum obtains its high-pressure (175#) steam from the Bellefield Plant, which serves the greater Oakland area (Pitt/CMU/UPMC). Cross checking the annual steam-use bills, along with historical metering data and general engineering estimates on the facility on this type and size suggest that the Museum could achieve added energy savings with a steam plant of its own, with a projected estimated cost of \$5M dollars
- Energy reductions to the plant were modeled and approved by a third party, allowing for the Museum to receive an Act 129 Energy Rebate from Duquesne Light in the amount of \$125,000. Energy Savings have exceeded \$1,500,000.

CJL Engineering

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Carnegie Museum of Natural History Plant Energy Upgrade, Pittsburgh, PA



CJL ENGINEERING DESIGN SOLUTIONS INCLUDED THE FOLLOWING ENERGY SAVINGS ENHANCEMENTS:

- Removal of counter-productive chilled water return by-pass line
- Reduction in peak load requirement from 2,000 Tons to 1,550 Tons
- Consolidation of Primary / Secondary / Tertiary Chilled Water Pumps (450 HP total) to a Variable Primary Pumping Arrangement (250 HP maximum)
- 850-Ton Chiller with Variable Speed Drive
- 1,250-Ton Constant Speed Chiller
- Variable Speed Condenser Water Pumps
- Variable Speed Cooling Tower Fans
- Winter “Free-Cooling” Heat Exchanger
- Low condenser water temperature sequences to allow for significant reduction in consumed chiller energy whenever outside wet bulb temperatures allow
- Commissioning performed by CJL Engineering
- Original Plant Efficiency: 1.5 KW / Ton
- New Total Plant Efficiency at peak loading confirmed at 0.83 KW / Ton, includes; Chillers, Pumps, Cooling Towers

PROJECT REFERENCE

Contact:
Mr. Frank Cardiello
CFO, VP of Finance, Treasurer
Carnegie Museum of Natural History,
4400 Forbes Avenue
Pittsburgh, PA 15213
412.818.2718
cardiellof@carnegiemuseum.org

UPMC Lemieux Sports Complex

Dual Ice Rink and Training Facility, Cranberry, PA



CJL Engineering designed the mechanical and electrical systems for the mixed-use sports complex that is the official practice space of the Pittsburgh Penguins®

THE PROJECT

The new UPMC Lemieux Sports Complex is the official practice space of the Pittsburgh Penguins®, the local NHL franchise. This new 185,000 sq. ft., \$70 million facility is comprised of 54,000 sq. ft of clinical space, a Sports Medicine Clinic with 24 private patient rooms, a physical therapy gym overlooking the Penguins practice rink, Aquatic Therapy, on-site MRI and X-Ray imaging, two NHL-size (85 ft. x 200 ft.) hockey rinks with approximately 1,500 seats, 14 locker rooms, a hockey skills training area with a RapidShot system, and a dedicated sports performance space, including a sprinting track and batting cages. The facility also features a Café and retail space. The complex opened in August 2015.

CJL DESIGN SOLUTIONS

- Electrical System to power the Ice Equipment Plant: One 20 ton ammonia flooded evaporator and water cooled condenser; four 70 ton reciprocating compressors; two 210 ton evaporative condensers, Primary and secondary (loop) chilled water pump controls with variable speed drives
- Electrical Systems for the Ice Rink Sheets: 40 percent Ethylene-Glycol for rink piping and the sub-floor heating system prevents permafrost under the rink slab
- Rink HVAC Systems: Two dehumidification units serving two rinks and one Energy Recovery Unit serving the locker rooms; three packaged rooftop units for retail, food service, event areas and sports performance; Three 3,000 MBH High Efficiency Boilers and associated hot water pumps

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UPMC Lemieux Sports Complex

Dual Ice Rink and Training Facility, Cranberry, PA



CJL DESIGN SOLUTIONS

- Medical Office Building HVAC Systems: Two Packaged Rooftop units and one Energy Recovery Unit with DX cooling and hot water heating coils; three 2,700 MBH High Efficiency Boilers and associated hot water pumps
- Electrical Service: 480-Volt, 3 phase, 4 wire with 1200 Amps for the Medical Office Building and 2500 amps for the rinks portion; 250 KW emergency generator Electrical Service: 480-Volt, 3 phase, 4 wire with 200 Amps for the Medical Office Building and 400 Amps for the rinks portion; 250 KW emergency generator to serve both portions of the facility
- A full service restaurant with seating for 50; includes a wood burning pizza oven with integral exhaust; flat grille, gas fired burners, ovens with associated hood and make up air unit
- LED Lighting throughout the facility, including both rinks. One of the first NHL facilities in the country to have LED rink lighting

PROJECT REFERENCE:

Joseph T. Badalich, Project Director
UPMC Corporate Construction

UPMC Lemieux Dual-Rink Sports Complex
800 Cranberry Springs Drive
Cranberry Township, PA 16066

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CJL Engineering

Pittsburgh | Johnstown | Youngstown | Frederick | Erie | Morgantown

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Akron, Downtown District Chiller

Akron Thermal LP, Akron, OH



CJL designed a new 1,000-ton chiller which effectively doubled the city's capacity in the downtown center-city area.

THE PROJECT

CJL Engineering provided Mechanical and Electrical Engineering services to Akron Thermal, the district energy provider for the City of Akron, Ohio. Located in center-city Akron, a new 1,000-ton steam absorption chiller, and a 1,000-ton cooling tower were designed to accommodate district needs. Akron Thermal Cooling, LLC provides chilled water cooling to a section of Downtown Akron that includes a 2 million sq. ft. office building, a light industrial park, the Akron Aeros Baseball Stadium, and the Akron Civic Theatre. The plant is operated under an agreement with Akron Thermal, LP.

CJL DESIGN SOLUTIONS

- The new 1,000-ton chiller designed to be piped in parallel to the existing plant's 1,000-ton chiller.
- Increased electrical capacity was designed to support the new chiller pumps and cooling tower fan motors.
- Structural Engineering included the design of new concrete floor and building shell expansion to support the new chiller, associated pumps and controls.
- Construction Phase Services and Observation were provided to the client for this project.

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Southwestern Veterans' Center

DGS A970-221, Pittsburgh, PA



Due to numerous power outages caused by insufficient equipment, CJL designed the electrical systems to be energy efficient and help better improve the environment of the facility.

THE PROJECT

CJL was contracted by the Pennsylvania Department of Military and Veterans Affairs to provide electrical design services as the Prime Professionals. The Southwestern Veterans' Center has been in operation for more than 16-years and cares for more than 220 veterans' and their spouses.

The scope of work included the replacement of the existing emergency generator with two (2) 725 Kw natural gas generators to serve the facility. This included paralleling switchgear and service entrance rated transfer switches.

CJL DESIGN SOLUTIONS

- Designed the emergency generator upgrade for the facility to be in compliance with all local codes
- Coordinated the existing electrical service relocation with the utility company.
- Attended design meetings, as required.
- Coordinated and submitted all required documentation to Building/Fire Departments and other public agencies.
- Attended pre-construction conference with contractors and evaluated bids received and made recommendations for award of contracts.
- Reviewed shop drawings, RFI's and assisted in the review and evaluation of Change Orders.
- Attended construction meetings during active construction on a bi-weekly basis.

PROJECT REFERENCE

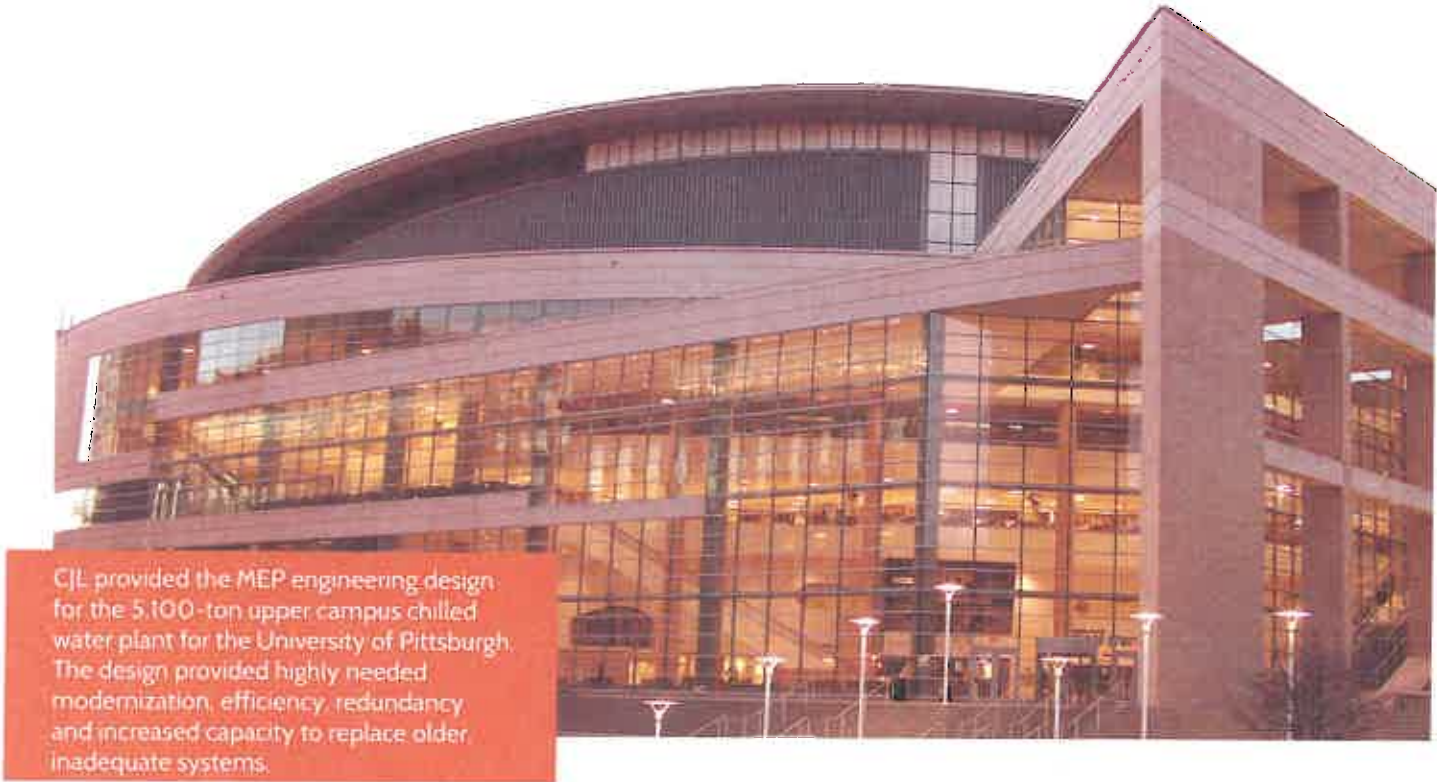
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Upper Campus Chilled Water Plant

University of Pittsburgh, Pittsburgh, PA



CJL provided the MEP engineering design for the 5,100-ton upper campus chilled water plant for the University of Pittsburgh. The design provided highly needed modernization, efficiency, redundancy and increased capacity to replace older, inadequate systems.

THE PROJECT

CJL Engineering provided the mechanical and electrical engineering design for the 5,100-ton upper campus chilled water plant for the University of Pittsburgh. Serving six university buildings and built concurrently within the 450,000 sq. ft. Petersen Event Center, the 7,000 square foot, 30 feet high, plant has three 900-ton and two 1200-ton chillers. Five 1100-ton cooling towers are mounted on the roof. The system has a primary, secondary pumping, using one primary chilled water pump for each chiller and three secondary pumps with variable speed drives. Total capacity of the chilled water pumping system is 8,160 gpm designed for a 15-degree F. delta T.

CJL DESIGN SOLUTIONS

- New 5,100-ton chilled water central plant serves 6 major campus buildings.
- Underground 20" chilled water lines, along with a 12" high-pressure steam 6" pump discharge, and 2" high-pressure return, were installed in a common 10' side trench.
- The steam system has over 1,000 ft. of high-pressure piping and six steam vaults (manholes).
- Excavation was extensive, requiring dealing with existing utility lines. Existing utilities along the excavation path were located, horizontally and vertically, limiting change orders and keeping bid prices lower by having accurate information.
- The electrical load for the Petersen Event Center and upper campus chilled water plant is 11,000 kW and is served from two (2) University substations at 4160-volts.
- The 5kV metal-clad vacuum switchgear has a main-tie-main, five circuits for chillers, two circuits each for the plant, and for secondary unit substations. Chillers have primary reactor reduced voltage starters, and secondary chilled water pumps and cooling tower have Variable Frequency Drives (VFDs).

PROJECT REFERENCE
 Dan Fisher, Senior Administrator
 Facilities Management AVC
 412.383.9955
 dan.fisher@pitt.edu

6 ADDITIONAL INFORMATION

CJL Engineering Contact Information

CEOI 0211 GSD1900000008

**Architectural/Engineering Services -
Central Chiller Plant Ice Farm and Upgrades**

Marketing and Business Development

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**(814) 536-1651 Ext. 102
(814) 619-1040 cell**

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Project Manager

**James M. Vizzini, P.E., LEED® AP
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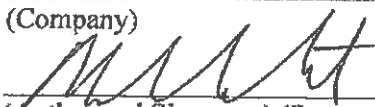
**(814) 536-1651 Ext. 112
(814) 322-5457 cell**

ivizzini@cjlengineering.com

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

Mark Sotosky, Director of Marketing and Business Development
(Name, Title)
Mark Sotosky, Director of Marketing and Business Development
(Printed Name and Title)
232 Horner Street, Johnstown, PA 15902
(Address)
814-536-1651 / 814-536-5732
(Phone Number) / (Fax Number)
marksotosky@cjlengineering.com
(email address)

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

CJL Engineering
(Company)
 Managing Partner
(Authorized Signature) (Representative Name, Title)

Matthew R. Sotosky, PE, LEED AP, / Managing Partner
(Printed Name and Title of Authorized Representative)

May 13, 2019
(Date)
814-536-1651 / 814-536-5732
(Phone Number) (Fax Number)